

HIV/AIDS prevention through peer education and support in secondary schools in South Africa



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ABSTRACT

The implementation and evaluation of a peer education and support programme in secondary schools to prevent and reduce high-risk sexual behaviour amongst adolescents is discussed. The aims of the programme were to provide accurate information about HIV/AIDS, discuss and reconsider peer group norms, and establish support for learners. In the programme that was implemented in 13 secondary schools in Tshwane, South Africa, peer educators were identified, trained and supported to implement the programme in their schools with the assistance of a teacher and postgraduate students as facilitators. Peer educators organised HIV awareness activities, facilitated class discussions on risk behaviour and gender relationships, and supported learners in solving personal problems. Process evaluation included weekly reports and focus group discussions with peer educators and teachers. A quasi-experimental design involving an experimental and control group, as well as pre- and post-assessments, was used to evaluate the impact of the programme on psychological well-being, personal control, school climate and reported high-risk behaviour of learners aged between 13 and 20 years. The results showed that the percentage of learners in the experimental group who were sexually experienced remained unchanged over the time period of 18 months. In contrast, a significantly increased percentage of learners in the control group were sexually experienced after the same time period. The control group also perceived more of their friends to be sexually experienced. No differences were reported in condom use in either of the groups. The findings of this study suggest that peer education can contribute to a delayed onset of sexual activity, and can therefore contribute to the prevention of HIV/AIDS amongst adolescents.

Keywords: Peer education and support, HIV prevention, school-based HIV education, high-risk behaviour, adolescents.

RÉSUMÉ

Cette communication expose une mise en application et une évaluation de l'éducation par les pairs et le programme de soutien dans des lycées afin d'éviter et de réduire le comportement sexuel à risque élevé parmi des adolescents. Les objectifs de ce programme étaient les suivants : la mise à disposition de l'information précise portant sur le VIH/SIDA, débattre et revoir les normes de groupes de pairs, et établir un service de soutien pour des apprenants. Pendant l'exécution du programme dans 13 lycées à Tshwane, Afrique du Sud, les pairs éducateurs ont été identifiés, formés et soutenus afin d'exécuter ce programme dans leurs lycées avec l'aide d'un enseignant et des étudiants postuniversitaires comme animateurs. Les pairs éducateurs ont organisé des activités de prise de conscience du VIH. Ils ont animé des discussions, en classe, sur le comportement à risque et les relations entre garçons et filles, et ils ont enfin soutenu et aidé des apprenants à résoudre leurs problèmes personnels. L'évaluation de ce processus a aussi inclus des rapports hebdomadaires et des discussions de groupes de foyer avec les pairs éducateurs et les enseignants. Un plan quasi expérimental, incluant deux groupes : un groupe expérimental et un groupe de contrôle et l'évaluation antérieure et postérieure, a été utilisé afin d'évaluer l'impact du programme sur le bien-être psychologique, le contrôle de soi-même, l'atmosphère au lycée et le comportement à risque élevé des apprenants âgés de 13 à 20 ans. Les résultats ont montré que, d'une part, le pourcentage des apprenants sexuellement expérimentés du groupe expérimental est resté pareil durant la période de 18 mois. D'autre part, le pourcentage des apprenants sexuellement expérimentés du groupe de contrôle était plus élevé. Le groupe de contrôle estime que bien plus de leurs amis ont déjà eu des rapports sexuels. Aucune différence n'a été constatée concernant l'utilisation des préservatifs dans les deux groupes. Les résultats de cette étude suggèrent que l'éducation par les pairs peut contribuer à tarder le tout premier rapport sexuel et peut aussi contribuer à la prévention du VIH/SIDA parmi les adolescents.

Mots clés: Education par les pairs et le soutien, prévention du VIH, éducation sur le VIH à l'école, comportement à risque élevé, adolescents.

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Background

Young people are at the centre of the global HIV/AIDS epidemic, both regarding new infections and opportunities for halting the transmission of HIV (Monasch & Mahy, 2006). Using a large representative sample of 11 904 young people (Ndaki, 2004), one in ten young South Africans between the ages of 15 and 24 was found to be HIV infected. HIV prevalence among young women was 17%, compared to 4,4% among young men (Shisana & Simbayi, 2002). Currently the highest rates of new infections occur in this age group (Dorrington, Johnson, Bradshaw & Daniel, 2006). Research results also indicate that many young people are still at risk because of high-risk sexual behaviour, despite sound knowledge about sexual health risks. The level of perceived vulnerability in this group was found to be low, and unprotected sex was common (Campbell & Mac Phail, 2002; Eaton, Flisher & Aaro, 2003; Kushlick & Rapholo, 1998). However, there is growing evidence from several countries that where HIV prevalence is decreasing, it is young people who are reversing the trends (Manosch & Mahy, 2006), since they are the ones who are more likely to adopt new behaviours. It therefore remains important to focus preventive interventions on young people.

Many HIV preventive interventions that use diverse approaches have been implemented in South African schools over the past decade – with differing results. School-based programmes are often short-term and focus on raising awareness and providing information about the risk of HIV (Logan, Cole & Leukefeld, 2002; Mukoma, 2001). In some interventions educational drama is used (Dalrymple & Du Toit, 1993; Harvey, Stuart & Swan, 2000; Reekie, 1997), and participative school-based programmes (Kuhn, Steinberg & Mathews, 1994) or HIV education accompanied by life skills training is presented by teachers or non-governmental organisations (Macintyre, Alons, Brown, Magnani & Kaufman, 2000; Reddy, James & McCauley, 2003; Visser, Schoeman & Perold, 2004). Research aimed at investigating the effectiveness of these programmes in changing high-risk behaviour is scarce (Harrison, Smit & Myer, 2000; Kirby, Obasi & Laris, 2006).

In available evaluations performed in developing countries it was found that education and behaviour change programmes contributed to awareness and

knowledge of HIV but had weak to moderate effects on sexual risk behaviour of adolescent populations (Aaro, Flisher, Kaaya, Onya, Fuglesang, Klepp & Schaalma, 2006; Gallant & Maticka-Tyndale, 2004; Harrison *et al.*, 2000; Harvey *et al.*, 2000; Kirby *et al.*, 2006; Kuhn, Steinberg & Mathews, 1994; Logan *et al.*, 2002; Mukoma, 2001; Oakley, Fullerton & Holland, 1995; Speizer, Magnani & Colvin, 2003). From a meta-analysis of 22 school-based sex and HIV education interventions in developing countries, Kirby *et al.* (2006) concluded that the majority of the programmes had some effect on reported risky sexual behaviour. They also identified characteristics of effective preventive interventions, such as participation of all stakeholders, focus on specific behaviour, creation of a safe environment, and fitting into community values and resources. Programmes should be specifically developed to match the culture, age and sexual experience of participants and should address the underlying reasons for high-risk behaviour (Auerbach, Hayes & Kandathil, 2006; Kirby *et al.*, 2006; Logan *et al.*, 2002). Research results indicate that programmes that take into account the social and contextual factors related to HIV risk behaviour of the target population are more successful than programmes that do not (Campbell & Foulis, 2002; Logan *et al.*, 2002; MacPhail & Campbell, 1999). Few interventions have, however, addressed these issues.

HIV risk behaviour among South African school-going young people is often influenced by interpersonal processes such as peer group norms, perceived gender roles resulting in coercive male-dominated sexual relationships, lack of communication skills to negotiate condom use, their understanding of love, sex and relationships and a lack of positive adult role models. On a broader level, a lack of recreational facilities and social norms such as intergenerational silence about sexual behaviour, the status of women and socio-economic environment also play a role (Campbell & MacPhail, 2002; Eaton *et al.*, 2003; Harrison *et al.*, 2000; Monasch & Mahy, 2006; Visser *et al.*, 2004; Wood, Maforah & Jewkes, 1998). Adolescents communicated their needs as wanting more information, including help with decision-making and coping skills, and the opportunity for individual counselling with someone they trust (Balie & Steinberg, 1995). A clear understanding of the situation of young people, their needs and the issues influencing and maintaining high-risk behaviour is required to

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design and successfully implement interventions aimed at stemming the tide of infections among young people. Following a review of existing programmes, Mukoma (2001) concluded that there is a need for innovative programmes in South African schools to promote and maintain safer sexual behaviour, as well as care and support for those living with HIV/AIDS.

Peer education has been widely advocated as alternative or complementary to interventions presented by adults (UNAIDS, 1999) and is becoming an increasingly popular method for promoting behavioural change in HIV prevention programmes (Campbell & Foulis, 2002; Finger, Lapetina & Pribila, 2002; Harrison *et al.*, 2000; Horizons, 1999; Mantell, Harrison, Hoffman, Smit, Stein & Exner, 2006; Sikkema, Kelly, Winett, Solomon, Cargill & Roffman, 2000). In accordance with the Declaration of Commitment (UNAIDS, 2001) to ensure that at least 95% of young men and women aged 15 to 24 years have access to the information, education (including peer education and youth-specific HIV education) and services necessary to develop the life skills required to reduce their vulnerability to HIV infection by 2010, peer education and support programmes have been implemented in South African schools over the past number of years. Although much effort is put into the implementation of these programmes (Department of Health, 2002), the impact of peer education and support has not been evaluated in South African schools to date. This paper reports on the implementation and evaluation of a peer education and support programme as HIV preventive strategy in selected secondary schools in Tshwane.

Peer education and support

Peer education and support involves the training and use of individuals from the target group to educate and support their peers. Peer-led interventions are based on the assumption that behaviour is socially influenced and that behavioural norms are developed through interaction (Campbell & MacPhail, 2002; Sikkema *et al.*, 2000). They are also derived from the extensive literature on the value of social support and non-professional help in promoting mental health (Dalton, Elias & Wandersman, 2001; Hobfall & Vaux, 1993; Humphreys, Finney & Moos, 1994; Rhodes, Ebert & Fischer, 1992; Shumaker & Brownell, 1984). By using peers as resources, information, skills and caring can be extended in an exponential way and the social climate can be enhanced.

Peer education and support can be especially effective among adolescents because friends are their main sources of information about sexual practices, and peer influence often motivates their behaviour (Dube & Wilson, 1999; Kaya & Mabetoa, 1997; Mukoma, 2001). The advantages of peer education and support can be summarised as follows:

- Adolescents are more likely to discuss openly sexual practices with their peers than with adults whom they regard as authority figures (Kinsman, Nakiyingi, Kamali, Carpenter, Quigley, Pool & Whitworth, 2001; Visser *et al.*, 2004).
- Knowledge and experiences can be shared in a language understandable and accessible to young people.
- Adolescents identify with and can be positive role models for one another. They are also more likely to change their behaviour if they observe liked and trusted peers changing their behaviour.
- Group discussions and debate can contribute to the development of new collective norms of behaviour and relationships (Campbell & Mac Phail, 2002).
- Young people are recognised as partners in solving problems. Increased youth participation in decision making contributes to their taking ownership of their own health and taking the initiative to address some of the problems they experience. This contributes to higher levels of empowerment (Aggleton & Campbell, 2000; Finger *et al.*, 2002; Riessman, 1990).
- Peer education and support can improve relationships and the climate in a school (Campbell & Mac Phail, 2002; Dube & Wilson, 1999; Finger *et al.*, 2002; Horizons, 1999; Latham, 1997; Kaya & Mabetoa, 1997; Mahat, Scoloveno, Ruales & Scoloveno, 2006; Speizer, Heller & Brieger, 2000; Tanaka & Reid, 1997).

HIV/AIDS-related peer education in school contexts often aims at postponing sexual involvement and promoting condom use. This is done through sharing information about HIV, providing role models that promote healthy behaviour, demonstrating negotiation skills and providing individual support (Campbell & Foulis, 2002; Howard & McCabe, 1990; Williams, MacPhail, Campbell, Taljaard, Gouws, Moema, Mzaidume & Rasego, 2000). The effectiveness of peer education and support in an HIV context was illustrated in a variety of studies and proved to contribute to higher levels of knowledge, changed

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attitudes and self-efficacy (Borgia, Marinacci, Schifano & Perucci, 2005; Cartagena, Veugelers, Kipp, Khishgee & Laing, 2006; UNICEF Ghana, 2002), as well as changed sexual behaviour patterns (Agha & Van Rossem, 2004; Cartagena *et al.*, 2006; Kempe, 2003). The latter included behaviour patterns regarding condom use (Caron, Godin, Otis & Lambert, 2004; Smith, Dane, Archer, Devereaux & Kirby, 2000), delay of sexual activity based on changed sexual norms (Mellanby, Reese & Tripp, 2000), and young people influencing their friends to avoid unprotected sex (Smith *et al.*, 2000).

Despite the advantages of peer education, Borgia *et al.* (2005) found no significant differences in the impact of teacher-led and peer-led AIDS prevention programmes. In comparing the two approaches, they emphasised that adolescents as peer educators required considerable training because they have less knowledge and skills pertaining to these topics. Adolescents also need much supervision to cope with the emotional demands of the interaction with their peers (Latham, 1997; UNICEF Ghana, 2002). The high turnover of adolescents furthermore requires ongoing recruitment, training and supervision (Borgia *et al.*, 2005; Kirby *et al.*, 2006). All of these aspects raise doubts about the sustainability and cost effectiveness of using peer educators in HIV prevention. Both the advantages and possible pitfalls of peer education would have to be considered when implementing a school-based peer education and support programme. In this paper the implementation and evaluation of a peer education and support programme as an HIV prevention strategy in secondary schools in an urban community in Tshwane, is described.

Methodology

The aim of the programme was to empower a group of adolescents to provide health-related information, demonstrate communication skills and facilitate discussions on high-risk sexual behaviour among their peers with the aim of influencing peer group norms. The programme aimed at delaying the onset of sexual activity and promoting condom use among sexually active learners in these schools. Although the peer education programme was not curriculum-based, it included many of the characteristics of successful HIV prevention programmes identified by Kirby *et al.* (2006). Care was taken to address the needs and

underlying reasons for high-risk behaviour identified among this group of learners (Visser *et al.*, 2004) so as to promote specific behaviour and acknowledge community values. The intention was to promote participation by all stakeholders and to create a programme embedded in the school structure.

Implementation

The programme was implemented as a collaborative effort between the Department of Psychology at the University of Pretoria and the Gauteng Department of Education. This was done through a process of action research (Mc Niff, 1988; Walker, 1997) that allows for the programme's continuous evaluation and adjustments in its implementation. The systems theory (Capra, 1997; Hanson, 1995) was used as theoretical framework in the planning of the intervention and interpretation of the feedback obtained through the evaluation processes. A brief discussion of various processes in the implementation of the programme follows below.

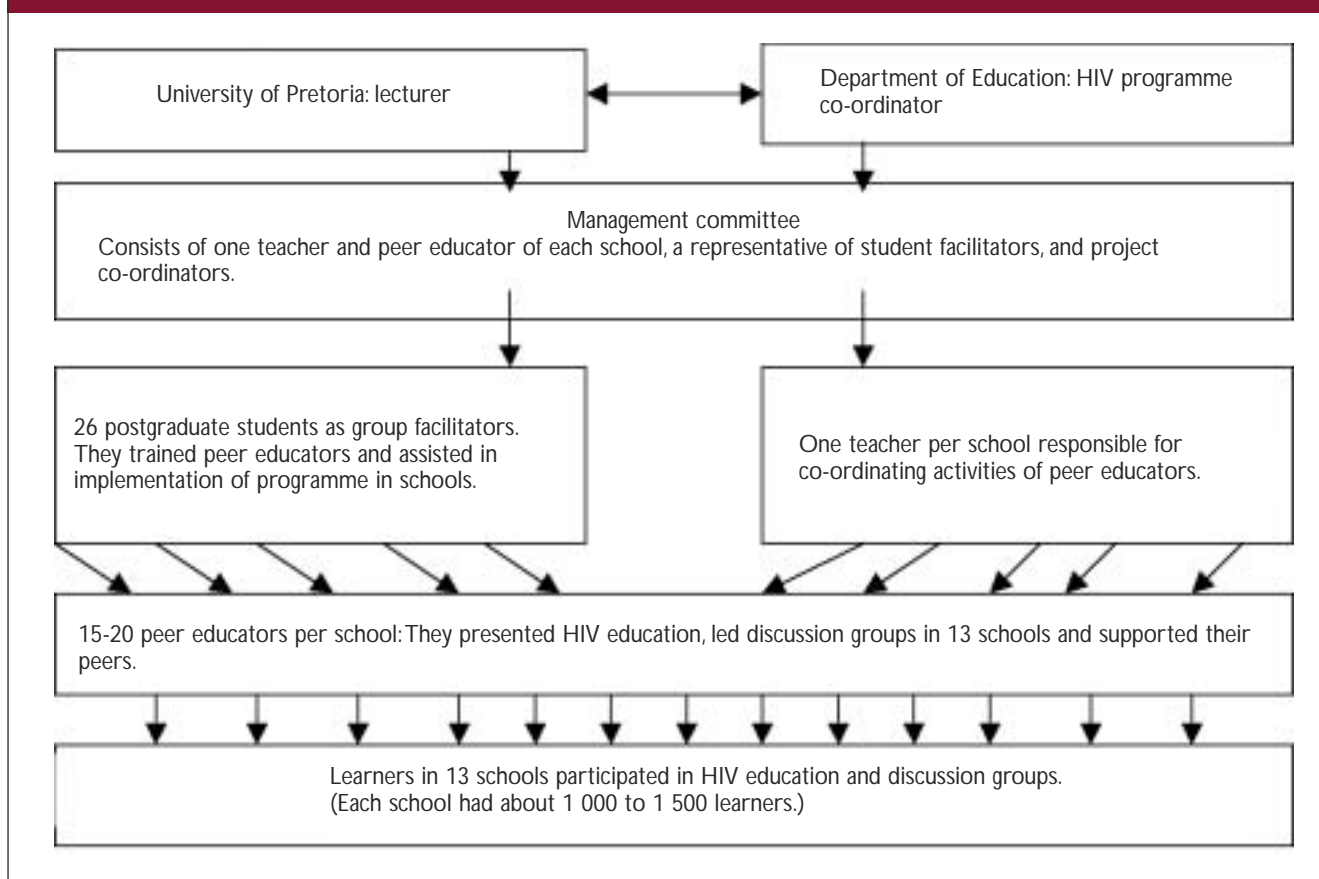
Collaboration

A discussion of the obstacles to HIV prevention in schools led to the idea to involve learners in HIV education. Teachers responsible for HIV education in schools were consulted and were eager to participate. The implementation of the intervention was planned as a collaborative effort between various role players in the Department of Education, the University and the respective school communities (Figure 1). Participation of the school community was important to make sure that activities were directed at the needs of the learners and to give them a significant sense of ownership of the intervention. The intervention was discussed at a meeting of school principals of whom thirteen were willing to participate in the project and volunteered participation of their schools. One school was from a previously white residential area, two from a traditionally coloured area, two from a predominantly Indian area and eight schools from a mainly black residential area.

Two teachers in each of the 13 schools were then invited to a workshop where the goals of the project, as well as the roles of the peer educators and the teachers, were developed. All the teachers in these schools were informed about the project and their input was solicited in the development of the

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FIGURE 1. ROLES OF THE PARTICIPANTS



intervention. Postgraduate Psychology students at the University of Pretoria were trained and supervised to facilitate training of the peer educators and to assist in the running of the programme in schools. A management committee consisting of one peer supporter and teacher from each school was formed to meet with the co-ordinators from the Department of Education and the University once a month. Their task was to discuss progress with the implementation of the programme in their schools.

Role of the peer educator

In negotiations with role players it was decided that peer educators should facilitate healthy behaviour among their peers in the following ways:

- Raising awareness and knowledge of HIV by presenting participative activities in schools
- Mobilising learners' involvement and participation in the promotion of healthy behaviour
- Facilitating change in peer group norms by creating a context to discuss sexual relationships, gender issues and values

- Being available to peers for informal conversation, support and guidance
- Being role models of healthy behaviour

The underlying messages built into the activities were to postpone sexual involvement, to use condoms if sexually active, and to promote respectful relationships and communication about sex and HIV. Another message was that sex was not the only way to show love and caring. Peer educators intended to make healthier behaviour choices more acceptable and fashionable.

Selection of peer educators

In each participating school 15 to 20 peer educators were selected to represent learners in each grade group. Additional peer educators would be selected each consecutive year of the project. Learners were asked to nominate members in their grade group whom they thought would be good peer educators, in other words learners with good interpersonal skills who could have a positive influence on their peers. Teachers interviewed the nominated students and

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selected three to four per grade group using the following criteria:

- Good interpersonal skills
- Confidence to work with peers
- High level of responsibility
- Willing and motivated to participate
- Able to deal effectively with own problems

Training of peer educators

Peer educators were trained during a holiday workshop that involved 24 hours of training facilitated by the postgraduate students. The peer educators of each school were trained together in a small group. During the training, efforts were made to enhance group cohesion and personal growth. The training concentrated on the following:

- Goals of the project and role of peer educators
- HIV/AIDS knowledge and attitudes, especially HIV transmission, risk behaviour, testing and preventive behaviour
- Understanding the peer context and experiences
- Gender relationships, negotiation skills, and sexual rights of young people
- Basic counselling and facilitation skills
- How to enhance healthy behaviour
- Organisational skills to organise group activities aimed at promoting healthy lifestyles

After the holiday workshop the training continued in the form of ten one-hour weekly sessions at the schools, facilitated by the students. In these sessions peer educators were able to voice their opinion and discuss the challenges they faced in running the programme. The aim of the sessions was to develop communication skills, provide resources and motivation, and to encourage the peer educators to overcome the obstacles they encountered.

Implementation of peer education and support in schools

Peer educators in each school could give their own meaning to their roles and decide how they would like to implement the programme to encourage their ownership of the programme. The responsible teacher in each school assisted the peer educators in planning activities and helped them to communicate their initiatives to the school management. Some financial support was provided by the Department of Education to run the programme in these schools. The peer educators initiated the following activities:

- In all of the schools peer educators organised HIV awareness activities. In six schools they performed plays with health messages; in nine schools they invited guest speakers; in four schools they organised HIV and drug awareness days including drama, song, dance and food; in one school they painted a graffiti wall; and in two schools they made posters and distributed HIV facts through newsletters.
- In seven of the schools they visited classes to facilitate peer discussions about high-risk behaviour, interaction between genders, the meaning of relationships, sex and values, and the dangers of substance use.
- In six schools a peer education office was established where learners could reach them for individual discussion. The peer educators supported learners who experienced problems and, where possible, referred them to appropriate helping facilities.

Evaluation of the programme

Programme evaluation involves the systematic collection of information about the activities, characteristics and outcome of programmes to assess their effectiveness and inform discussions about future programming (Patton, 1997). While outcome evaluation focuses on the impact of an intervention, process evaluation focuses on the “internal dynamics and actual operations of a program in an attempt to understand its strengths and weaknesses” (Patton, 1997, p.206). Both a process and an outcome evaluation were done to determine the impact of the programme on various levels of the school community.

Process evaluation

The process evaluation focused on how the programme was implemented in and integrated into the complex school system, as well as the challenges involved in such implementation. Monitoring occurred in different ways:

- The postgraduate students provided weekly reports of the activities of peer educators and the problems they encountered.
- Focus group discussions were held after three months of implementation and again after a year. On these occasions the peer educators of all the schools (n=170) discussed the activities implemented in their schools, their experiences and achievements, the challenges they encountered, and possible ways of improving the peer support system.
- Focus group discussions were held with the

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responsible teachers (n=13) about the activities of the peer educators and challenges in running the programme.

Outcome evaluation

A quasi-experimental design was used to evaluate the impact of the peer education programme. Learners from the 13 participating schools were used as the experimental group and learners from four similar schools from the same area that did not participate in the project constituted a control group. A pre-test was done when the project started and a post-test 18 months later.

Participants

Within each school a stratified sample of one class from each grade group, chosen at random, was approached to complete the assessment. Because of an agreement with the school principals not to disrupt the normal school day too much, a randomly selected class of learners was used instead of randomly selected individual learners. The sample was therefore not completely representative, which limits the generalisability of the findings. In the post-test 18 months later, the same method of selection of learners was used, though the same learners were not in the same classes any more. Learners in the pre- and post-test could therefore not be matched. The experimental group consisted of 1 386 learners in the pre-test and 1 572 in the post-test, while the control group consisted of 532 learners in the pre-test and 596 in the post-test. The two samples therefore constituted two cross-sectional studies of the specific school communities over time. The assumption was that the large group of students involved in the assessment would give an indication of behavioural trends in these schools over time.

Assessment instrument

Peer education and support focusing on healthy behaviour and positive relationships were expected to have a beneficial effect on learners' psychological well-being, feelings of personal control, school climate and high-risk sexual behaviour. The following instruments were used in the assessment.

Psychological well-being: Psychological well-being was assessed by means of 22 selected items of the Bar-On Emotional Quotient Inventory (EQ-I) (Bar-On, 2000). The EQ-I is based on research done by Bar-On (1988), in which factors related to psychological well-

being were identified to formulate an operational definition of psychological well-being. Using the data of 2 000 subjects from seven countries, Bar-On (2000) reported a Cronbach alpha internal consistency coefficient of 0.76 for the scale as a whole. High correlations were obtained with various measures of personality and estimates of effective coping with the pressures and demands of daily life (Bar-On, 2000).

In this research, 22 items from the self-regard, interpersonal relationships and happiness sub-scales of the EQ-I were selected as a brief indicator of feelings of psychological well-being. These items were chosen to reflect aspects of intrapersonal, interpersonal and general mood components of psychological well-being (Bar-On, 2000). Responses were coded on a 3-point Likert-type scale, namely "agree", "in between" and "disagree". In a factor analysis using the data of 1 918 respondents in the pre-test of this study (both experimental and control groups), one general factor was extracted. Factor loadings varied between 0,27 and 0,59. A Cronbach alpha of 0,794 was obtained as index of reliability of the scale, which implied an acceptable internal consistency among the items on the scale for this sample (Kerlinger & Lee, 2000). The scale was calculated such that a high score indicated a high level of psychological well-being.

Personal control/Peer influence: Personal control was assessed by means of 5 items focusing on whether the learner could make his/her own decisions or was influenced by peers regarding risk behaviour such as substance use and sexual behaviour (e.g. "I decide for myself what is right and wrong even if my friends do not agree with me"). The questions were answered on a 3-point scale (agree, in between, disagree). A low score on the scale suggests strong personal control while a high score means that the learner is easily influenced by others.

School climate: School environment plays an enormous role in promoting or inhibiting behaviour (Campbell & Foulis, 2002; Logan *et al.*, 2002). When learners feel that people in the school care about them, they would be more likely to accept messages received at school. School climate was assessed using 22 selected items from Trickett and Moos' (1973) school climate scale, the validity of which was confirmed in various studies (Moos & Trickett, 1987; Ozer, Weinstein, Maslach & Siegel, 1997). Trickett (1978) found reliability coefficients between 0,67 and 0,86 for the

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various sub-scales. In this research, items focusing on the experience of the learning atmosphere (12 items), teacher support (5 items) and learner support (5 items) were used. The questions were answered on a 5-point scale ranging from “strongly agree” (1) to “strongly disagree” (5). Questions were scored in such a way that a low score indicated a positive school climate; while a high score suggested a more negative experience of the school climate. Using the pre-test data of 1 863 learners (excluding the 55 questionnaires with some missing values), a Cronbach reliability coefficient of 0,84 was obtained for the school climate scale as a whole.

Reported high-risk sexual behaviour: High-risk sexual behaviour was assessed by asking learners to report on the following high-risk indicators:

- Whether they were sexually experienced.
- Whether they had had sexual intercourse during the past three months. (This would indicate if the intervention had an impact on the behaviour of learners who were already sexually experienced.)
- Whether they had had multiple sexual partners during the past three months.
- Whether they used condoms every time that they had sex during the past three months.
- Whether they had sex without their consent. (According to Wood *et al.* (1998) sexual coercion seems to be a serious problem for adolescent girls.)
- Whether they perceived most of their peers to be sexually experienced. (This is an indication of the perceived peer group norm.)
- Whether they perceived their peers to be using condoms. (This is an indication of the perceived group norm regarding condom use.)

Questions were answered using either “Yes”, “No” or “Don’t know”.

Reported substance use behaviour: Because of the relationship found between substance use and HIV-risk behaviour (Kalichman, Simbayi, Kagee *et al.*, 2006; Morojele, Brook & Kachienga, 2006; Zablotska, Gray, Serwadda *et al.*, 2006), substance abuse patterns were assessed using self-reported behaviour. The following indicators, based on the guidelines put forward by the Center for Substance Abuse and Mental Health Services (Kumpfer, Shur, Ross, Bunnell, Librett & Millward, 1993) were used:

- Whether they drank alcohol in the past 30 days - more than just a sip? (Current alcohol use)

- Whether they drank five or more drinks with alcohol on one day during the past 30 days (Excessive alcohol use or binge drinking).
- Whether they used drugs such as dagga (zol), cocaine, crack, mandrax (white pipe), LSD during the past 30 days (Illicit drugs use).
- Whether they perceived most of their peers to drink alcohol (perceived peer group norm).

Questions were answered as either “Yes”, “Sometimes” or “No” and provide data on the nominal level of analysis.

In the interpretation of the data it should be kept in mind that many different factors could influence the accuracy of self-reported intimate behaviour (Catania, Gibson, Chitwood & Coats, 1990; Miller, Turner & Moses, 1991). In spite of various techniques to minimise circumstances that might impair the reliability of the responses, such as promises of anonymity and confidentiality, there is always a possibility of over- or under-reporting (Tarter, 2002). Even so, findings indicate that in general the reliability of these self-reports is high, with only a small tendency toward over- and under-reporting. Self-report questionnaires are particularly useful in enhancing honest reporting of risk behaviours without revealing confidential information to a teacher or research assistant in an interview situation (Turner, Lessler & Gfoerer, 1992).

Awareness of peer support system and use thereof: Learners had to indicate whether they were aware of the peer education and support programme in their school and whether they participated in discussions with a peer educator.

Opinion of peer education programme: An open question was used to understand the learners’ opinion of the functioning of the peer education and support programme in their school.

Data collection procedure

Permission to conduct the evaluation study was obtained from the Education Department and the principals and guidance teachers of the respective schools. Since almost all the participants were 18 years and younger, their parents were informed about the research at a parents’ meeting. They were given the option to withdraw their children from the study.

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Arrangements were made with the various principals to collect data at the respective schools during a specific week. The guidance teachers randomly selected one class from each grade group and arranged for those learners to complete the questionnaire during their guidance period. In the guidance class a research assistant briefly explained the purpose of the research and asked the learners whether they would be willing to participate on a voluntary basis. If they were not willing, they were given the option to leave the room or not to complete the questionnaire. There were very few uncompleted questionnaires. The questionnaire was given in English since the majority of the participants were fluent in English. A research assistant was present to deal with questions and to translate words the participants did not understand. Questionnaires were completed anonymously and any information that could link the adolescents to their responses was kept confidential. Completed questionnaires were placed in a sealed box to be opened at another venue by the researchers.

Data analysis

The qualitative data on the implementation of the programme, which was obtained from the various sources, was analysed to identify recurring themes that would indicate the strengths and challenges of the programme (Miles & Huberman, 1994). Scale scores were calculated for the psychological well-being, personal control and school climate scales. Pre- and post-test scores were compared between the experimental and control groups using a Kruskal-Wallis one-way analysis of variance test. This type of analysis was used because scores on the scales did not reflect a normal distribution. The data related to high-risk sexual and substance use behaviour was compared using chi-squared calculations (Neuman, 1997). Because of the large sample size, normal statistics may show significant differences while the effect of the difference in the mean scores is in fact very small. By calculating the effect size in the form of the contingency value, this can be corrected (Cohen, 1988). A contingency value of smaller than 0.1 indicates a small effect, between 0.1 and 0.3 a medium effect, and more than 0.5 a large effect size. The partial eta squared is used as indication of effect size of the ANOVA. Effect size indexes are the following: Less than 0.01 indicates a small size effect, a value of 0.1 indicates a medium size effect, and a value of 0.25 or more indicates a large size effect (Cohen, 1988).

Results of the process evaluation

The themes identified from the facilitators' reports and from focus group discussions with peer educators and teachers focused mainly on the strengths and challenges of forming relationships on different levels of the school community. In discussing the challenges regarding implementation, it must be kept in mind that the programme is in its second year and that many issues are still being addressed.

Strengths of the programme

The enthusiasm and energy of the peer educators and the good informal relationships they had with their peers were the most important strengths. The activities they organised as part of awareness campaigns and class discussions facilitated acceptance and involvement of learners in discussions about health issues. Peer educators reported a growing involvement in class discussions especially among girls. Another important strength of the programme was the personal growth of the peer educators. They indicated that they developed a greater understanding of themselves and others, that they built new relationships, and felt empowered to make a difference in the lives of other people.

Challenges

Various challenges faced the peer educators' attempts to build relationships in the schools and implement the programme:

- They had to form a committed working group and negotiate roles for and solve conflicts among themselves.
- At first they were shy to discuss intimate sexual behaviour with their peers.
- Their fellow learners initially made fun of their efforts to build peer relationships. Once the novelty of the programme was over, learners showed greater acceptance and started to participate in activities.
- Sexual matters were not talked about openly in schools and learners were shy to share their opinions. At times the peer educators had to separate the boys and girls to facilitate discussion. When the programme had run for a year, peer educators experienced greater openness in discussions in senior classes.
- Although peer educators could share HIV information with peers, they needed more training and guidelines to deal with the interpersonal relationship problems of their peers. They had to deal with problems such as rape and trauma. They did not

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consider themselves competent to deal with these issues, and needed more support and training as well as a reliable referral system.

- Lack of teacher involvement limited the effectiveness of the programme. In three schools peer educators complained of a lack of teacher support and had to battle to get permission to implement activities. In schools where there was teacher support, they managed to implement their ideas and enjoyed the backing of the school management.

Results of the outcome evaluation

Demographic characteristics of the sample of learners

The sample of 4 086 learners who completed the questionnaire in the pre- and post-assessments displayed the following features:

- Forty-six per cent (46%) were male and 54% female.
- Ages varied between 13 and 20 years with the largest group between 14 and 18 years.
- Grade groups 8 to 11 were well represented, with small numbers of Grade 12s involved.
- The sample of learners was fairly representative of the language groups in the area: 8% spoke English,

8% Afrikaans, 36% Sepedi, 15% Zulu, 13% Setswana, 12% Tsonga and 8% spoke other African languages.

In Table 1 demographic characteristics of the experimental and control groups in the pre- and post-tests are compared. The groups were fairly similar in gender and age, but differed with regard to home language. The control group included no Afrikaans learners, and a notably larger proportion of Sepedi-speaking learners.

High-risk sexual behaviour patterns

In the pre-test, 41% of the learners in the sample as a whole reported that they were sexually experienced and 28% indicated having sex in the past three months. It was found that sexual experience increased with age ($p < 0.001$). In the age category 12 to 15 years, 23% of learners admitted to sexual activity, compared to 54% of learners 16 years and older. There was a significant association between having had a sexual relationship and gender ($p < 0.001$). Of the males participating in the study, 51% had had a sexual relationship comparing to 33% of the females. Of the sexually experienced

TABLE 1. COMPARISON OF DEMOGRAPHIC CHARACTERISTICS BETWEEN GROUPS

		Experimental pre-test (n=1386)	Experimental post-test (n=1572)	Control pre-test (n=532)	Control post-test (n=596)
Gender	Male	45%	48%	44%	47%
	Female	55%	52%	56%	53%
Age	12-13	7%	7%	7%	5%
	14	16%	15%	15%	14%
	15	17%	17%	19%	19%
	16	23%	21%	19%	23%
	17	18%	19%	15%	19%
	18	11%	12%	15%	14%
	19+	8%	9%	10%	6%
Grade	8	21%	23%	33%	20%
	9	24%	26%	21%	30%
	10	27%	23%	18%	31%
	11	26%	25%	28%	19%
	12	2%	3%	0%	0%
Language	English	9%	9%	3%	4%
	Afrikaans	10%	8%	0%	0%
	Sepedi	31%	35%	49%	50%
	Zulu	18%	16%	16%	15%
	Setswana	17%	15%	12%	11%
	Tsonga	10%	12%	15%	16%
	Other African languages	5%	5%	5%	4%

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learners, 12% had multiple sexual partners and more than half (52%) reported that they had used condoms every time they had sex over the last three months. About 20% of learners perceived most of their peers to be sexually experienced and 50% indicated that they believed their peers were practising safe sex. An alarming finding was that 17% of the learners indicated that they had had sex against their will.

Substance use patterns

Twenty six percent of the respondents reported current alcohol use and 14% reported excessive or binge drinking (more than five alcoholic drinks per occasion) during the past 30 day period, while 7.5% reported the use of illicit drugs such as cannabis (dagga), cocaine, crack, mandrax or LSD. The perceived group norm for 24% of learners was that most of their friends drank alcohol. In this sample of learners there was a significant relationship between alcohol use in the past 30 days and sexual activity in the past three months ($\chi^2 = 45.37, p < 0.001; n = 1185$): 42% of learners who were current users of alcohol were also sexually active in the past three months, compared to 28% in the sample as a whole. The same relationship was found between excessive drinking and sexual activity in the past 30 days ($\chi^2 = 36.17, p < 0.001, n = 1192$). Both these relationships were of a medium effect size.

Differences between pre- and post-assessment

The analysis of the results of the pre- and post-assessments of the experimental and control groups revealed the following differences in the scale scores, for which a Kruskal-Wallis one-way analysis of variance was used (Table 2).

Since differences were found between the pre-test scores of the experimental and control groups, the groups could not be considered equivalent. Changes in the post-test scores could consequently not be considered as due to the intervention. A comparison had to be drawn between the difference scores of the pre- and post-assessments of both groups. No differences were found in respect of psychological well-being and personal control between the pre- and post-test scores of learners in both groups. In the control group the assessment of the school climate declined over time ($p < 0.001$) – though the difference had a small effect on the group ($0.01 < c < 0.1$). In the experimental group, however, the assessment of the

school climate remained on the same level as in the pre-test. The reported high-risk sexual behaviour of learners in the experimental and control groups was compared over time using Chi-squared tables (Table 3). Because there were differences in the pre-test between the experimental and control groups, the analysis focused on differences within the groups over time.

Significant differences emerged in the patterns of reported high-risk sexual behaviour between the two groups. In the experimental group the percentage of learners who were sexually experienced remained stable over the time period, while their counterparts in the control group increased significantly over time ($p < 0.05$), but with a small effect size. The same pattern was found with regard to learners' sexual activity over the previous three months. An increasing number of learners in the control group had sex during the past three months ($p < 0.001; 0.1 < c < 0.3$ – a medium effect size), while the level of sexual activity remained virtually stable in the experimental group.

The number of learners who had multiple sexual partners increased in both groups from the pre-test to the post-test, though in the experimental group this increase was statistically significant ($p < 0.01$) with a small size effect ($c < 0.1$). Although condom use increased in both groups, this increase was not statistically significant. In the experimental group, learners in the age group 13 to 15 years reported more condom use in the post-test than before ($p < 0.01$), though the same was not found in the control group. An alarming finding that emerged from the post-test was that sex without consent had actually increased in the experimental group ($p < 0.05; c < 0.1$).

The learners' perception of their friends' sexual activities gives an indication of the perceived group norm. While the latter remained unchanged in the experimental group, more learners in the control group perceived most of their friends to be sexually experienced in the post-test than in the pre-test ($p < 0.01; 0.1 < c < 0.3$ medium size effect). There was no difference in the perceived level of safe sex practised by friends in both groups over time. Reported current alcohol use, as well as excessive alcohol use, increased significantly with a small effect size in both groups ($p < 0.05$ and $p < 0.01$ respectively). In the control group

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TABLE 2. DIFFERENCES IN SCALE SCORES BETWEEN GROUPS

Scale	Experimental pre-test		Experimental		Control pre-test		Control post-test		F-value P-value	Effect size	Differences
	X	SD	X	SD	X	SD	X	SD			
Psychological well-being	51,95 (7,1)		52,44 (6,8)		51,71 (6,4)		51,51 (6,8)		3,37 p<0,01	0,002	E & C post-test
Personal control	7,48 (2,0)		7,48 (2,1)		8,30 (2,1)		8,10 (2,1)		33,3 p<0,001	0,02	Pre-test E&C & post-test E & C
School climate	56,61 (11,7)		57,49 (11,4)		53,93* (11,0)		58,31* (11,7)		44,56 p<0,001	0,012 Small effect	Pre-test E& C, C pre- and post

* Significant difference on 5% level

drug abuse increased ($p<0.01$), as did the perception that most of their friends used alcohol ($p<0.01$), while there was no change in the experimental group's responses.

Because the same intervention strategies were not implemented in all of the schools in the experimental group, an analysis was done to compare outcomes per school. There was no definite pattern to show that some schools benefited on all variables while others did not. In four of the experimental schools the number of learners who reported to have had sex over the previous three months decreased significantly ($p<0,05$), while in the other experimental schools there were no changes. In the post-test two schools from the control group had significantly more learners ($p<0,05$) who admitted to sexual activity over the past three months. In two schools in the experimental group learners perceived fewer of their friends as sexually active and in one school more condom use was reported (52% in pre-test vs 65,8% in post-test, $p<0,05$). There were two schools where change was observed in sexual behaviour as well as alcohol use. Fewer learners reported current sexual activity in the post-test (36,8% vs 21,8%, $p<0,05$ and 58,8% vs 39,0%, $p<0,01$) as well as current alcohol use (34,7% vs 15,4%, $p<0,01$ and 23,9% vs 12,3%, $p<0,01$), while the overall tendency was increased alcohol use. In these two schools peer educators were active in presenting HIV and substance abuse awareness class discussions.

Learners' opinion of the peer education system

In the current sample 67% of learners reported that they knew about the peer educators in their school. This percentage varied between 24% and 79%, depending on the visibility of the peer educators and

climate in each school. On average 24% of learners reported that they had conversations with peer educators. This varied from 12% in schools with Indian learners (where it was a norm not to talk about intimate matters) to 27% in schools where communication was more open. Learners' opinions about the peer support system were analysed in terms of positive and negative responses:

- 78% were positive – the peer support programme gave good support, was helpful and well-organised in their school.
- 22% were negative – nothing in their school had changed; the programme was not promoted well, or the teachers did not support it effectively.

Discussion

The aim of the programme was to implement peer education and support in secondary schools so as to prevent and reduce high-risk sexual behaviour and change peer group sexual norms. The ultimate aim was to prevent HIV infection among adolescents. The programme was run in 13 schools and attempted to involve all stakeholders, address underlying social and contextual issues, and change specific high-risk behaviour. Because it was important to enhance ownership of the programme (Campbell & Foulis, 2002), a curriculum was not prescribed, but clear guidelines were given to teachers and peer educators about what messages were important and how to convey these messages to their peers. From the process evaluation it can be concluded that the peer educators succeeded in involving their peers in health-related activities, despite various obstacles in implementing the programme. For example, 67% of the learners indicated that they were aware of the peer education programme in their schools and 24% indicated that they had

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TABLE 3. DIFFERENCES IN REPORTED HIGH-RISK SEXUAL BEHAVIOUR PATTERNS

Variable		Experimental pre-test (n=1386) %	Experimental post-test (n=1572) %	Chi square	P-value Effect size	Control pre-test (n=532) %	Control post-test (n=532) %	Chi square	P-value Effect size
Sexual behaviour									
Sexually experienced	Yes	41,6	41,6	1,7		38,5	46,2	7,0*#	p<0,05 c=0,08
	No	58,4	58,4						
Had sex during the past three months	Yes	31,9	36,9	5,4		20,4	30,8	17,6*##	p<0,001 c=0,14
	No	68,1	63,1						
Multiple partners during past three months	Yes	10,4	15,6	9,2*#	p<0,01 c=0,07	14,6	17,3	1,5	
	No	89,6	84,4						
Used condom every time when having sex during past three months	Yes	53,5	59,3	4,9		48,5	54,7	4,1	
	No	46,5	40,7						
Sex without consent	Yes	15,0	19,7	7,1*#	p<0,05 c=0,07	17,0	20,8	3,7	
	No	85,0	80,3						
Most friends are having sex (group norm)	Yes	21,3	20,7	0,14		17,9	25,4	12,9*##	p<0,001 c=0,11
	No	78,7	79,3						
Friends practise safe sex	Yes	49,2	51,0	1,14		50,8	54,2	1,61	
	No	50,8	49,0						
Substance abuse									
Current alcohol use	Yes	18,4	21,9	7,7*#	p<0,05 c=0,05	18,4	22,7	5,5*#	p<0,05 c=0,07
	No	81,6	78,1						
Excessive alcohol use	Yes	10,7	13,1	9,8*#	p<0,01 c=0,06	10,8	18,0	11,7*#	p<0,01 c=0,10
	No	89,3	86,9						
Illicit drug use	Yes	6,3	6,5	0,71		5,4	7,2	10,8*#	p<0,01 c=0,01
	No	93,7	93,5						
Most friends drink alcohol (group norm)	Yes	24,7	25,0	0,73		22,7	27,2	9,3*#	p<0,01 c=0,09
	No	75,3	75,0						

* Significant difference at 5%

Small effect size

Medium effect size

conversations with a peer educator. In one school only 24% learners knew about the programme. In three schools, peer educators reported lack of support and difficulty to implement the programme. This implies that the programme was neither implemented optimally nor in exactly the same way in all schools.

In the pre-assessment, the level of high-risk behaviour among adolescents was determined. Forty one percent of a group of 1 918 adolescents were found to be

sexually experienced. Of this group, 12% reported multiple sexual partners and more than half of the learners reported regular condom use. Coercive sex was reported by 17% of the learners. These statistics reflect a high level of risk of HIV infection and correlate with results of previous research in other parts of South Africa (Eaton *et al.*, 2003). The relationship found between alcohol use and sexual activity (Kalichman *et al.*, 2006; Morojele *et al.*, 2006) was confirmed. High levels of alcohol use (26%) thus

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contribute to adolescent's vulnerability to contracting HIV.

The outcome evaluation suggests that peer education may have a preventive impact on high-risk sexual behaviour among adolescents. Whereas the reported level of sexual experience and sexual activity during the past three months remained similar in the experimental group over time, this figure increased for learners from the control group. The perception of peer group norms has an important impact on the behaviour of young people through a process of social comparison (Levine, 1998; Sheeran, Abraham & Orbell, 1999). More learners in the control group perceived most of their friends to be sexually active and using alcohol in the post-test than in the pre-test. This suggests that high risk behaviour such as being sexually active could have been more acceptable as part of the perceived group norms of the control group in the post-test. There was not significant change in the experimental group with regard to perceived group norms. Unexpected changes found in the experimental group during the post-test were higher levels of multiple sexual partners and increased reporting of sex without consent, both having a medium effect in this sample. These results could possibly be related to greater awareness of risk behaviour. In the pre-test both of these behaviours were reported lower than in the control group.

Sheeran *et al.* (1999) found in a meta-analysis that believing that friends used condoms had a strong correlation with actual condom use. During the test period of the current study there was no statistically significant difference in the reported condom use of learners, and also no difference in the perceived safe sex behaviour of their peers. This confirms the finding of Sheeran *et al.* (1999) since no changes occurred in condom use in the group as a whole. The only slight changes were observed in the condom use of younger learners (13 to 15-year-olds) in the experimental group. Alcohol use and excessive alcohol use were increasingly reported in both groups of learners, though more learners in the control group reported illicit drug use in the post-test compared to the pre-test.

There were no changes in the psychological well-being and personal control of learners in both groups during the programme. The evaluation of the school climate

made by learners in the control group deteriorated, while that of learners in the experimental schools remained on the same level during the entire programme. Thus the changes that occurred were not in personal variables, but on a social level.

In comparing change across schools there was not an overall pattern of change taking place in some school regarding all variables and not in others. In two schools where the peer education programme was implemented actively, there were changes with regard to sexual behaviour as well as alcohol use, but it cannot be assumed that there was a causal relationship between these variables. However, it is possible to conclude that some positive change took place in selected schools in the experimental group, while such change was not observed in the control group schools.

These results suggest that the peer education and support programme may not have changed behaviour patterns, but possibly contributed to a delayed onset of sexual activity. Learners who were sexually active may not have changed their behaviour, but learners may have been influenced not to become sexually active as seen in the consistent number of sexually active learners, while more learners were sexually active in the control group. The changes observed in this study could have been the result of the particular sample of learners used. The study design had two serious limitations. The first is that learners in the pre- and post-tests could not be matched. One class per grade group was selected to participate and learners were not in the same classes in consecutive years. The implication was that behaviour change over time could not be investigated. The study therefore used two cross-sectional samples of learners at different times to explore behaviour tendencies. The assumption was made that group averages of such a large group of learners would reflect behaviour tendencies in these schools over time. The second and related limitation is that the experimental and control groups were not similar when the research started. In the pre-test, differences were found regarding language grouping (Table 1) as well as sexual behaviour patterns (Tables 2 and 3). The two groups could therefore not be compared statistically. Differences in the pre-test could also not be ruled out statistically through covariance analysis, because the pre- and post-tests of learners could not be matched. Difference scores over time were subsequently used to compare changes between

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the groups. These threats to the internal validity of the study seriously limit the conclusions about the impact of the intervention on learners' behaviour. The study can only indicate behaviour tendencies that are possibly related to the implementation of peer education.

Another limitation that should be taken into account when interpreting the data is that the peer education programme was not implemented optimally in all of the schools after the initial 18 months. The peer educators experienced many challenges and any conclusions reached are therefore based on the implementation as it materialised in these schools. Research results were based on self-reported data relating to high-risk intimate behaviour, which may not be an accurate reflection of behaviour. Some over- and underreporting may have influenced the results (Miller *et al.*, 1991). Yet, the fact that learners completed an anonymous questionnaire may have provided more accurate information than a personal interview, where other social processes could well have influenced reported behaviour.

From the qualitative data obtained from the postgraduate students, peer educators and teachers, it was found that the enthusiasm and commitment of peer educators and the informal relationships with their peers constituted the strength of the programme. The peer educators could educate their schoolmates and stimulate discussions about intimate behaviour because they shared contexts, culture, age and experiences with peers that resulted in learners sharing personal experiences. The activities they organised as part of awareness campaigns facilitated communication and involvement, and empowered learners with regard to community issues that impacted on their lives (Aggleton & Campbell, 2000). Peer educators also indicated that they benefited from participating because they developed skills and an understanding of themselves and others, and felt more empowered to make a difference (Finger *et al.*, 2002; Riessman, 1990).

The qualitative data highlighted some obstacles on various levels in the implementation of peer education programmes. Obstacles were on a personal level for the peer supporter and on an interpersonal level in interaction with their peers. They also experienced obstacles on the school level because teachers and the

school management did not always support the running of the programme. Peer educators furthermore needed a network of community agencies to which they could refer learners with serious emotional and behavioural problems. Based on these findings, the following recommendations were made:

- Peer educators should work under close supervision of a supportive adult, as they need continuous training and support to deal with difficult personal and interpersonal situations.
- A curriculum with games and exercises should be provided to peer educators as a resource to engage their peers in health-related topics. This can help them to plan interaction between peers and address specific behaviours. Although these youngsters are good at sharing information, they need more resources to facilitate effective interpersonal relationships.
- Teachers should be more involved in the programme, not in taking the lead, but in supporting learners to implement their ideas. Where teachers were involved, peer supporters could run the programme effectively, compared to schools where the teachers were not supporting the programme. Johnson, Vergnani and Chopra (2002) pointed out the importance of support and participation by school principals and teachers and the existence of a sound school-based policy that supports HIV interventions. This could create a supportive environment in which the peer educators would function far more effectively (Campbell & Foulis, 2002).
- Community resources should be made available to peer educators for the referral of learners with serious problems. Without a back-up referral system the peer educators can become overburdened and cannot provide efficient assistance to their peers.
- Peer education is not conducted in a social vacuum but need a healthy school and community environment that is conducive to the healthy behaviour patterns that peer educators try to promote (Campbell & Foulis, 2002). Adults should therefore set an example of healthy behaviour patterns for adolescents to follow. Peer education efforts would also be greatly enhanced if conducted in a context that empowers young people to participate in decisions and policy development regarding the enhancement of their health.

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Although the peer education programme is an intervention between learners in a school (on a micro-level), it needs support and resources from all levels of the community to be effective and have a positive impact on learners' behaviour.

Conclusion

The results of this research suggest that peer education can contribute to the delay in onset of sexually activity in secondary school learners. Peer education and support can be regarded as an appropriate strategy to deal with HIV prevention, especially for young people, since they discuss personal issues, have informal relationships and speak a common language. Peer education can contribute towards changing peer group norms using age and culturally accepted ways. In this way a process of change in peer group norms can start from *within* the peer group (Capra, 1997). Peer education and support should not be regarded as a magic potion or cure-all. However, it can function effectively amidst other interventions and needs resources from various levels of the community to function optimally.

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References

- Aaro, L.E., Flisher, A.J., Kaaya, S., Onya, H., Fuglesang, M., Klepp, K. & Schaalma, H. (2006). Promoting sexual and reproductive health in early adolescence in South Africa and Tanzania: Development of a theory- and evidence-based intervention programme. *Scandinavian Journal of Public Health*, 34, 150-158.
- Aggleton, P. & Campbell, C. (2000). Working with young people – towards an agenda for sexual health. *Sexual and Relationships Therapy*, 15(3), 283-296.
- Agha, S. & Van Rossem, R. (2004). Impact of a school-based peer sexual health intervention on normative beliefs, risk perceptions and sexual behaviour of Zambian adolescents. *Journal of Adolescent Health*, 34, 441-452.
- Auerbach, J.D., Hayes, R.J. & Kandathil, S.M. (2006). Overview of effective and promising interventions to prevent HIV infection. In: D.A. Ross, B. Dick & J. Ferguson (Eds). *Preventing HIV/AIDS in young people, a systematic review of the evidence from developing countries*. (pp. 43-78). UNAIDS Inter-agency task team on young people. Geneva: World Health Organisation.
- Balie, B. & Steinberg, M. (1995). The focus group method in a formative evaluation of a South African high school sexuality education programme. *British Journal of Family Planning*, 21(2), 71-75.
- Bar-On, R. (1988). *The development of an operational concept of psychological well-being*. Rhodes University, South Africa: Unpublished doctoral dissertation.

- Bar-On, R. (2000). Emotional and social intelligence: insights from the Emotion Quotient Inventory. In: R. Bar-On & J. Parker (Eds), *The handbook of emotional intelligence*. San Francisco: Jossey-Bass.
- Borgia, P., Marinacci, C., Schifano, P. & Perucci, C.A. (2005). Is peer education the best approach for HIV prevention in schools? Findings from a randomized controlled trial. *Journal of Adolescent Health*, 36, 508-516.
- Campbell, C. & Foulis, C.A. (2002). Creating contexts that support youth-led HIV prevention in schools. *Society in Transition*, 33(3), 339-356.
- Campbell, C. & MacPhail, C. (2002). Peer education, gender and the development of critical consciousness: participatory HIV prevention by South African youth. *Social Science and Medicine*, 55(2), 331-345.
- Caron, F., Godin, G., Otis, J. & Lambert, L.D. (2004). Evaluation of a theoretically based HIV/STD peer education program on postponing sexual intercourse and on condom use among adolescents attending high school. *Health Education Research*, 19, 185-197.
- Capra, F. (1997). *The web of life, a new synthesis of mind and matter*. London: Flamingo.
- Cartagena, R.G., Veuglers, P.J., Kipp, W., Khishgee, M. & Laing, L.M. (2006). Effectiveness of an HIV prevention program for secondary school students in Mongolia. *Journal of Adolescent Health*, 39(6), 925.e9-e16.
- Catania, J.A., Gibson, D.R., Chitwood, D.D. & Coats, T.J. (1990). Methodological problems in AIDS behavioural research: influences on measurement error and participation bias in studies of sexual behavior. *Psychological Bulletin*, 108(3), 339-362.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed). Hillsdale: Lawrence Erlbaum.
- Dalrymple, L. & Du Toit, M.K. (1993). The evaluation of a drama approach to AIDS education. *Educational Psychology*, 13(2), 147-154.
- Dalton, J.H., Elias, M.J. & Wandersman, A. (2001). *Community psychology, linking individuals and communities*. Belmont (CA): Wadsworth.
- Department of Health (2002). *Rutanang, learning from one another: Towards standards of practice for peer educators in South Africa*. Pretoria: Department of Health.
- Dorrington, R.E., Johnson, J.F., Bradshaw, D. & Daniel, T. (2006). *The demographic impact of HIV/AIDS in South Africa. National and provincial indicators for 2006*. Cape Town: Centre for Actuarial Research, South African Medical Research Council and Actuarial Society of South Africa.
- Dube, N. & Wilson, D. (1995). Peer education programmes among HIV-vulnerable communities in Southern Africa. In: B. Williams & C. Campbell (Eds), *HIV/AIDS management in South Africa: priorities for the mining industry* (pp.30-41). Johannesburg: Epidemiology Research Unit.
- Eaton, L., Flisher, A.J. & Aaro, L.E. (2003). Unsafe sexual behaviour in South African youth. *Social Sciences and Medicine*, 56 (1), 149-165.
- Finger, B., Lapetina, M. & Pribila, M. (Eds) (2002). *Intervention strategies that work for youth: Summary of the FOCUS on young adults program report*. Arlington (VA): Family Health International, YouthNet Program.
- Gallant, M. & Maticka-Tyndale, E. (2004). School-based HIV prevention programmes for African youth. *Social Science and Medicine*, 58, 1337-1351.
- Hanson, B.G. (1995). *General systems theory beginning with wholes*. Toronto: Taylor & Francis.
- Harrison, A., Smit, J.A. & Myer, L. (2000). Prevention of HIV/AIDS in South Africa: A review of behaviour change interventions, evidence and options for the future. *South African Journal of Science*, 96(6), 285-291.
- Harvey, B., Stuart, J. & Swan, T. (2000). Evaluation of a drama-in-education programme to increase AIDS awareness in South African high schools: A randomised community intervention trial. *International Journal of STD and AIDS*, 11, 105-111.
- Hobfoll, S. & Vaux, A. (1993). Social support: Social resources and social context. In: L. Goldberger & S. Breznitz (Eds), *Handbook of stress: Theoretical and clinical aspects* (2nd edition, pp. 685-705). New York: Free Press.
- Horizons (1999). *Peer education and HIV/AIDS: past experience, future directions*. Kingston: Discussion document developed by Horizons, Population Council, the Jamaican Ministry of Health, PATH, AIDSmark/PSI, IMPACT/FHI and UNAIDS.
- Howard, M. & McCabe, J. (1990). Helping teenagers postpone sexual involvement. *Family Planning Perspectives*, 22, 21-26.
- Humphreys, K., Finney, J.W. & Moos, R.H. (1994). Applying a stress and coping framework to research on mutual help organizations. *Journal of Community Psychology*, 22, 312-327.
- Johnson, B., Vergnani, T. & Chopra, M. (2002). *The challenges of introducing HIV/AIDS education into primary schools in South Africa*. XIV International AIDS Conference 2002, Barcelona. ThPeF7940.
- Kalichman, S.C., Simbayi, L.C., Kagee, A., Toefy, Y., Jooste, S., Cain, D. & Cherry, C. (2006). Associations of poverty, substance use, and HIV transmission risk behaviors in three South African communities. *Social Science and Medicine*, 62, 1641-1649.
- Kaya, H.O. & Mabetoa, P. (1997). Knowledge and attitudes towards sexuality among black youth in South Africa. *Education and Society*, 15(1), 81-87.
- Kempe, R.H. (2003). Promoting behavior change in Botswana: An assessment of the peer education HIV/AIDS prevention program at the workplace. *Journal of Health Communication*, 8(3), 267-282.
- Kerlinger, F.N. & Lee, H.B. (2000). *Foundations of behavioral research (fourth edition)*. Fort Worth: Harcourt College Publishers.
- Kinsman, J., Nakiyingi, J., Kamali, A., Carpenter, L., Quigley, M., Pool, R. & Whitworth, J. (2001). Evaluation of a comprehensive school-based AIDS education programme in rural Masaka, Uganda. *Health Education Research*, 16, 85-100.

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- Kirby, D., Obasi, A. & Laris, B.A. (2006). The effectiveness of sex education and HIV education interventions in schools in developing countries. In: D.A. Ross, B. Dick & J. Ferguson (Eds). *Preventing HIV/AIDS in young people, a systematic review of the evidence from developing countries*. (pp. 103- 150). UNAIDS Inter-agency task team on young people. Geneva: World Health Organisation.
- Kuhn, L., Steinberg, M. & Mathews, C. (1994). Participation of the school community in AIDS education: an evaluation of a high school programme in South Africa. *AIDS Care*, 6(2), 161-171.
- Kumpfer, K.L., Shur, G.H., Ross, J.G., Bunnell, K.K., Librett, J.J. & Millward, A.R. (1993). *Measurements in prevention, a manual on selecting and using instruments to evaluate prevention programs*. Center for Substance Abuse and Mental Health Services Administration Technical Report 8. Rockville: US Department of Health and Human Services.
- Kushlick, A. & Rapholo, G. (1998). *Baseline survey into HIV/AIDS knowledge, attitudes and related life skills*. Researched for the National Life Skills Task Team. Braamfontein: Community Agency for Social Enquiry.
- Latham, A.S. (1997). Peer counseling: proceed with caution. *Educational Leadership*, October, 77-78.
- Logan, T.K., Cole, J. & Leukefeld, C. (2002). Women, sex and HIV: Social and contextual factors, meta-analysis of published interventions and implications for practice and research. *Psychological Bulletin*, 128(6), 851-885.
- Levine, M. (1998). Prevention and community. *American Journal of Community Psychology*, 26 (2), 189-206.
- Macintyre, K., Alons, C., Brown, L., Magnani, R. & Kaufman, C. (2000). *Assessment of life skills programmes: a study of secondary schools in Durban Metro and Mtunzini magisterial districts*. Tulane University, Population Council, University of Natal.
- MacPhail, C. & Campbell, C. (1999). Evaluating HIV/STD interventions in developing countries: Do current indicators do justice to advances in intervention approaches? *South African Journal of Psychology*, 29 (4), 149-165.
- Mahat, G., Scoloveno, M.A., Ruales, N. & Scoloveno, R. (2006). Preparing peer educators for teen HIV/AIDS prevention. *Journal of Pediatric Nursing*, 21(5), 378-384.
- Mantell, J.E., Harrison, A., Hoffman, S., Smit, J.A., Stein, Z.A. & Exner, T.M. (2006). The *Mpondombili* project: Preventing HIV/AIDS and unintended pregnancy among rural South African school-going adolescents. *Reproductive Health Matters*, 14(28), 113-122.
- McNiff, J. (1988). *Action research: Principles and practice*. Hong Kong: MacMillan Education.
- Mellanby, A.R., Reese, J.B. & Tripp, J.H. (2000). Peer-led and adult-led school health education: A critical review of available comparative research. *Health Education Research*, 15, 533-545.
- Miles, M.B. & Huberman, A.M. (1994). *Qualitative data analysis, an expanded sourcebook (second edition)*. Thousand Oaks: Sage.
- Miller, H.G., Turner, C.F. & Moses, L.E. (1991). Methodological issues in AIDS surveys. In: S.L. Coyle, R.F. Boruch & C.F. Turner (Eds), *Evaluating AIDS prevention programs, expanded edition*. Panel on the Evaluation of AIDS interventions of the National Research Council (pp. 207-315). Washington DC: National Academy Press.
- Monasch, R. & Mahy, M. (2006). Young people: the center of the HIV epidemic. In: D.A. Ross, B. Dick & J. Ferguson (Eds). *Preventing HIV/AIDS in young people, a systematic review of the evidence from developing countries*. (pp. 15-42). UNAIDS Inter-agency task team on young people. Geneva: World Health Organisation.
- Moos, R.H. & Trickett, E.J. (1987). *Classroom environment scale manual*. Palo Alto (CA): Consulting Psychologists Press.
- Morojele, N.K., Brook, J.S. & Kachienga, M.A. (2006). Perceptions of sexual risk behaviours and substance abuse among adolescents in South Africa: A qualitative investigation. *AIDS Care*, 18(3), 215-219.
- Mukoma, W. (2001). Rethinking school-based HIV/AIDS interventions in South Africa. *Southern African Journal of Child and Adolescent Mental Health*, 13(1), 55-66.
- Neuman, W.L. (1997). *Social research methods: quantitative and qualitative approaches*. London: Allyn and Bacon.
- Ndaki, K. (2004). *South African youth and HIV/AIDS*. Report of the research done by Wits University's Reproductive Health Research Unit and Medical Research Council. Internet address: <http://www.health-e.org.za/news/article.php?uid=20030975>.
- Oakley, A., Fullerton, D. & Holland, J. (1995). Behavioural interventions for HIV/AIDS prevention. *AIDS*, 9(5), 479-486.
- Ozer, E.J., Weinstein, R.S., Maslach, C. & Siegel, D. (1997). Adolescent AIDS prevention in context: The impact of peer educator qualities and classroom environments on intervention efficacy. *American Journal of Community Psychology*, 25(3), 289-323.
- Patton, M.Q. (1997). *Utilization-focused evaluation, the new century text (third edition)*. Thousand Oaks: Sage.
- Reddy, P., James, S. & McCauley, A.P. (2003). Programming for HIV prevention in South African schools: Horizons research summary. Washington DC, Population Council.
- Reekie, J. (1997). *An evaluation of the efficacy of an AIDS prevention play for high-school students*. Unpublished Master's Dissertation. Johannesburg: University of the Witwatersrand.
- Rhodes, J.E., Ebert, L. & Fischer, K. (1992). Natural mentors: An overlooked resource in the social networks of young African American mothers. *American Journal of Community Psychology*, 20, 445-462.
- Riessman, F. (1990). Restructuring help: A human services paradigm for the 1990s. *American Journal of Community Psychology*, 18(2), 221-230.
- Sheeran, P., Abraham, C. & Orbell, S. (1999). Psychological correlates of heterosexual condom use: A meta-analysis. *Psychological Bulletin*, 125, 90-132.
- Shisana, O. & Simbayi, L. (2002). *Nelson Mandela/HSRC study of HIV/AIDS, South African National HIV prevalence, behavioural risks and mass media household survey*. Pretoria: Human Sciences Research Council.
- Shumaker, S.A. & Brownell, A. (1984). Towards a theory of social support: Closing conceptual gaps. *Journal of Social Issues*, 40, 11-36.
- Sikkema, K., Kelly, J., Winett, R., Solomon, L., Cargill, V. & Roffman, R. (2000). Outcomes of a randomized community-level HIV prevention intervention for women living in 18 low-income housing developments. *American Journal of Public Health*, 90, 57-63.
- Smith, M.U., Dane, F.C., Archer, M.E., Devereaux, R.S. & Kirby, D. (2000). Students together against negative decisions (STAND): Evaluation of a school-based sexual risk reduction intervention in the rural south. *AIDS Education and Prevention*, 12, 49-70.
- Speizer, I., Heller, G. & Brieger, W. (2000). *Survey findings from the West African Youth Initiative Project: Final evaluation of peer educator intervention*. New York (NJ): Rockefeller Foundation.
- Speizer, I.S., Magnani, R.J. & Colvin, C.E. (2003). The effectiveness of adolescent reproductive health interventions in developing countries: A review of the evidence. *Journal of Adolescent Health*, 33, 324-348.
- Tanaka, G. & Reid, K. (1997). Peer helpers: encourage kids to confide. *Educational leadership*, October: 29-31.
- Tarter, R.E. (2002). Etiology of adolescent substance use: a developmental perspective. *The American Journal on Addictions*, 11, 171-191.
- Trickett, E.J. (1978). Toward a social-ecological conception of adolescent socialization: Normative data on contrasting types of public school classrooms. *Child Development*, 49, 408-414.
- Trickett, E.J. & Moos, R.H. (1973). Social environment of junior high and high school classrooms. *Journal of Educational Psychology*, 65(1), 93-102.
- Turner, C.F., Lessler, J.T. & Gfoerer, J.C. (1992). *Survey measurement of drug use: methodological studies*. National Institute on Drug Abuse, DHHS Publication No. (ADM) 92-1929.
- UNAIDS (1999). *Peer education and HIV/AIDS: concepts, uses and challenges*. Geneva: UNAIDS.
- UNAIDS (2001). *Declaration of commitment on HIV/AIDS*. Geneva: United Nations. (Available at <http://www.un.org/ga/aids/coverage/FinalDeclarationHIVAIDS.html>)
- UNICEF Ghana (2002). Evaluation of HIV/AIDS prevention through peer education, counseling, health care, training and urban refugees in Ghana. *Evaluation and Programme Planning*, 25(4), 409-420.
- Visser, M.J., Schoeman, J.B. & Perold, J.J. (2004). Evaluation of HIV/AIDS prevention in South African schools. *Journal of Health Psychology*, 9(2), 263-280.
- Walker, M. (1997). Transgressing boundaries: Everyday/Academic discourses. In: S. Hollingsworth (Ed.), *International Action Research: A casebook for educational reform* (pp. 136-146). London: The Falmer Press.
- Williams, B.G., MacPhail, C., Campbell, C., Taljaard, D., Gouws, E., Moema, S., Mzaidume, Z. & Rasego, B. (2000). The Carletonville-Mothusimpilo project: limiting transmission of HIV through community-based interventions. *South African Journal of Science*, 96(6), 351-360.
- Wood, K., Maforah, F. & Jewkes, R. (1998). "He forced me to love him": putting violence on adolescent sexual health agendas. *Social Science and Medicine*, 47, 233-242.
- Zablotska, I.B., Gray, R.H., Serwadda, D., Nalugoda, F., Kigozi, G., Sewankambo, N., Lutalo, T., Wabwire Mangen, F. & Wawer, M. (2006). *AIDS*, 20(8), 1191-1196.