



## Evaluation of an HIV/AIDS peer education programme in a South African workplace

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**Objectives.** To evaluate a South African workplace HIV/AIDS peer-education programme running since 1997.

**Methods.** In 2001 a cross-sectional study was done of 900 retail-section employees in three geographical areas. The study measured HIV/AIDS knowledge, attitudes towards people living with HIV/AIDS, belief about self-risk of infection, and condom use as a practice indicator. The impact of an HIV/AIDS peer-education programme on these outcomes was examined.

**Results.** Training by peer educators had no significant impact on any outcome. Fifty-nine per cent of subjects had a good knowledge score, 62% had a positive attitude towards people with HIV/AIDS, 34% used condoms frequently, and the

majority of participants (73%) believed they were at low risk of infection. Logistical regression showed that a very small proportion of the variance in the four outcomes was explained by potential determinants of interest (8% for knowledge, 6% for attitude, 7% for risk and 17% for condom use).

**Conclusions.** The HIV peer-education programme was found to be ineffective and may have involved an opportunity cost. The programme contrasts with more costly comprehensive care that includes antiretrovirals. The private sector appears to have been as tardy as the public sector in addressing the epidemic effectively.

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In 1997 a South African national retail group operating two companies and employing some 18 761 people initiated an HIV/AIDS peer-education programme for its employees aimed at addressing the growing epidemic. Three years later the programme had still not been evaluated. This study arose out of an invitation to conduct an evaluation in 2000.

A number of similar programmes in large South African firms (e.g. Eskom, BP, Engen, Pick 'n Pay, Transnet) had been running for some years without published evaluations.

In 1990 the national prevalence of HIV infection was estimated at 0.8% from the annual national survey of antenatal clinic attendees. By the end of 2000 this had increased rapidly to 24.9%.<sup>1</sup> In 2000/2001, the HIV prevalence rate among male South African workers in a variety of workplaces was found to be 14.5%.<sup>2</sup> In 2000 AIDS was estimated to be responsible for 40% of deaths (the greatest single cause) among South Africans aged 15 - 49 years, and it was projected that AIDS would cause a threefold increase in deaths among children by 2010.<sup>3</sup>

The HIV/AIDS peer-education programme began in 1997 and was modelled on a similar workplace-based programme run by the Zimbabwe AIDS Prevention Project (ZAPP) in Harare.<sup>4</sup>

The broad aim of the programme was to reduce the HIV infection rate among staff by providing educational material

on safer sexual practices, discussing various issues connected to HIV such as sexuality, sexually transmitted diseases (STDs) and modes of transmission, and providing free condoms to staff.

The programme was designed to ensure that all employees were aware of company HIV/AIDS policy, had a basic knowledge of HIV/AIDS, and had access to a support network if required.

The focus of the programme was on keeping people HIV-negative and educating HIV-positive individuals on how to stay healthy without using antiretroviral therapy (ART). The company did not provide treatment for HIV-positive staff at the time of this study - the emphasis was entirely on prevention.

There was a minimum of one peer educator per store, with 120 stores in total. Peer educators were selected by fellow employees and store management on the basis of criteria set down by central programme management at the head office health services section. Company occupational health practitioners (OHPs) managed the programme at regional level.

The training of peer educators involved an initial 3-day course followed by quarterly updates lasting for 1 day where peer educators were debriefed and provided with updated information and new modules on different subjects.

The initial training session focused largely on life skills, including self-awareness and listening skills, and was provided by the Lifeline organisation. Half a day of training was devoted to HIV/AIDS. The latter part of training was facilitated by the regional OHPs. Peer educators returned to

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their stores and were expected to conduct regular training sessions with their colleagues which were then evaluated by the OHP for style and content.

Topics covered included HIV/AIDS, STDs, HIV testing and the correct use of condoms. Training materials included posters, leaflets, information packs, slides, a condom demonstration kit, photographs and slides of STDs and community events. Free condoms were distributed to all staff.

By 2000/2001 very little had been published on evaluation of peer-education programmes for HIV/AIDS in the workplace, or for that matter more generally. Reported findings are not consistent and are mainly descriptive, with vague assertions of positive impact with little or no evidence. The literature on evaluation of peer-education programmes is not consistent. Mbizvo *et al.*<sup>5,6</sup> described a peer-education programme in Zimbabwe in 1997 without any evaluation. The Zimbabwe Aids Prevention Project was evaluated as a success by Bassett<sup>4</sup> in 1998, but this was reported as a news item with no counterpart in the scientific literature. Quach *et al.*<sup>7</sup> evaluated an educational intervention in 2 Vietnamese workplaces in 1990, involving 200 subjects some 2 years after implementation and found a 51% increase in knowledge and a 37 - 46% increase in condom use, although attitudes were unchanged. Workplace intervention programmes were described in the Philippines by Gantalao<sup>8</sup> and in Guatemala by Hirschmann de Salazar *et al.*<sup>9,10</sup> without any formal evaluation.

The objectives of this study were to measure the level of HIV/AIDS knowledge, attitudes towards people living with HIV/AIDS, self-perceived risk of acquiring HIV infection, practices measured as condom use, and their determinants among employees, and to evaluate the impact of the peer-education programme on these measures.

## Methods

A cross-sectional knowledge, attitudes, beliefs and practices (KABP) study was conducted in 2001 to evaluate peer education intervention. This was predicated on the health belief model<sup>11,12</sup> of health behaviour and health promotion where preventive health behaviour is viewed as a function of information and advice on recommended behaviours relating to the disease, perceived severity of the threat to health, perceived self-susceptibility and perceived benefits of preventive behaviour in relation to costs. Cluster sampling based on stores and stratified by region yielded some 900 of 18 761 employees (5%) countrywide. Of the 900, 778 had access to the peer-education programme at company A (total number of employees 13 583) and 122 controls did not have access at company B (total number of employees 5 178).

Anonymous questionnaires were backtranslated and administered in English, Zulu, Xhosa, Afrikaans, SiSwati, Southern Sotho and Northern Sotho during in-store training

sessions. Measured variables included demographics and known predictors for outcomes (e.g. age and marital status). Outcomes included knowledge of HIV/AIDS, attitudes towards people living with HIV/AIDS, beliefs (self-perceived risk) of acquiring HIV, practice (level of condom use) and attendance at/opinion on HIV/AIDS peer-education training in the workplace.

Responses to questionnaire items for outcomes were converted from continuous, scaled or ordinal variables to dichotomous variables. The cutpoint for knowledge was 14 of a maximum score of 17, for attitude 8 of a maximum of 8, and for risk belief 5 of a maximum of 10. Practice in the form of condom use was dichotomised to frequent and infrequent.

The study was approved by the Research Ethics Committee of the Health Sciences Faculty of the University of Cape Town. Informed consent was signed by all participants. Questionnaires were anonymous and strict rules of confidentiality protected workers from potential discrimination. While the study was funded by the company, independence of the researchers in planning and conducting the research, and in analysing, interpreting and publishing the results was ensured in a research contract.

Logistical regression modelling using STATA 7<sup>13</sup> was performed to determine the relationship between dichotomous outcomes and attendance at peer-education training sessions, adjusting for potential confounders and effect-modifying variables. These included geographical area, level of education, company, employee status (manager or worker), peer educator or not, age, sex, relationship status and permanent or casual status.

## Results

Table I shows descriptive statistics for the study group.

The principal finding was that in-store training sessions given by peer educators to their colleagues had no significant impact on any of the four main study outcomes. Furthermore, multivariate logistical regression showed that very little of the variance in any of the four main outcomes was explained by determinants of interest.

### Knowledge

Fifty-nine per cent of subjects had a good knowledge score, i.e. scored a minimum of 14 out of 17 (mean = 13.6).

Only 8% of variance in HIV knowledge was explained by a full model including geographical area, level of education, whether or not participants were managers, and if they were peer educators.

Significant predictors of the level of HIV/AIDS knowledge are shown in Table II.



Table I. Descriptive statistics

	Subjects N = 900
Continuous variables (mean (range))	
Age (years)	34.5 (16 - 65)
Length of service (years)	8 years (1 month - 34 years)
Categorical variables (%)	
Female	69
Completed school standard 10	73
Region	
Northern Province	53
Western Cape	30
KwaZulu-Natal/Eastern Cape	17
Attended at least one peer-education training session	48
Sexually active	86
Employee status	
Staff	72
Management	28
Relationship	
Stable	55
Unstable	33
None	12

### Attitudes

Sixty-two per cent of participants had a positive attitude towards people with HIV/AIDS. Only 6% of variance in attitude towards people with HIV/AIDS was explained by a full model including company, geographical area, level of education, whether or not participants were managers and if they were peer educators. Table II shows significant predictors of attitudes towards people living with HIV/AIDS.

### Beliefs

The majority of participants (73%) thought they were at low risk (score < 5) of acquiring HIV (mean = 2.5, maximum = 10). Only 7% of variance in risk was explained by a full model including age, sex, company, geographical area and relationship status.

Table II shows the significant predictors of belief of perceived risk of acquiring HIV/AIDS.

### Practices (condom use)

Thirty-four per cent of participants used condoms frequently. Only 17% of variance in condom use was explained by a full model including age, sex, company, geographical area, relationship/marital status and whether or not participants were permanent or casual employees. Table II shows the significant predictors of condom use.

### Discussion

This study is the first to formally evaluate a workplace-based peer-education programme to prevent HIV/AIDS in South Africa. The HIV peer-education programme was found to be ineffective and to contribute little to improved KABP, and may have involved opportunity costs given the scarcity of resources potentially available for HIV/AIDS in occupational health services. The value of this inexpensive programme is largely symbolic in that it only gestures at action. It contrasts with more costly, comprehensive and potentially effective AIDS care programmes that include ARVs. In 2001 the group medical aid included only 50% of the higher-paid employees.

Table II. Significant predictors of HIV/AIDS knowledge, attitudes, beliefs and practice

Variable	Baseline	Adjusted odds ratio	95% confidence interval	p-value
Knowledge				
Area 3: Gauteng	Western Cape	0.60	0.37 - 0.99	0.05
Managers	Staff	1.97	1.15 - 3.37	0.01
High education	Low	1.84	1.07 - 3.16	0.03
Attitude				
Company	B	2.25	1.03 - 4.95	0.04
Managers	Staff	1.98	1.15 - 3.41	0.01
High education	Low	1.70	1.0 - 2.9	0.05
Beliefs				
Female	Male	1.61	0.38 - 1.0	0.05
Area 3: Gauteng	Western Cape	2.81	1.67 - 4.73	< 0.001
Practices				
Male	Female	1.65	1.0 - 2.70	0.05
Area 3: Gauteng	Western Cape	3.13	1.80 - 5.43	< 0.001
Unstable relationship	Stable	2.79	1.69 - 4.6	< 0.001
Not in a relationship	Stable	6.34	3.02 - 13.3	< 0.001



With regard to the latter, the private sector appears to have been as tardy as the public sector in addressing the epidemic effectively.

Limitations of this study include its design. A randomised controlled trial intervention would possibly have provided the strongest evidence for the effectiveness of the intervention, but was not feasible. The cross-sectional design placed some constraints on interpreting directionality of relationships between exposures and outcomes, and did not allow individuals to be assessed for the various outcomes measured over time. Outcome misclassification may have led to effect dilution. A decision was taken at the start of the study to focus on full-time staff because they were the only staff group obliged to attend training sessions. Selection bias may have been introduced, as casual staff members were underrepresented in the study resulting in an overestimate of effectiveness. Exposure misclassification may have arisen as attending a training session, while constituting the most important and intensive component of the peer-education programme, was not the only educational component of the programme. Peer educators were encouraged to discuss HIV/AIDS-related issues in informal situations, e.g. during tea and lunch breaks. The informal component of the programme was not quantified in the survey and therefore may be a source of contamination, i.e. people who had not attended a formal training session may have had access to informal education within the store. This would have diluted the effect measured by formal training alone. However, from subjective perceptions of employees, not shown in this quantitative aspect of the study, it is doubtful that this would have been an important source of HIV/AIDS information.

It seems that the majority of local programmes have still not been evaluated. This is indicated by recently published articles<sup>14,15</sup> strongly emphasising the need for such evaluations to be conducted. Rigorous evaluations are difficult to find. A recent Botswana study by Hope<sup>16</sup> claims positive impacts of post-exposure prophylaxis (PEP) on KAP, but this study is seriously flawed. Hope also reviewed other studies that claimed to show positive impacts, but these turned out to be mere conference abstracts published some years ago (mainly in 1999) which did not lead to further issue in the scientific literature. There may be in-house evaluations for company programmes but these have not reached the public domain. It is worth noting that there is very little published work on peer-education programmes more generally in the scientific literature. A recent book documenting a large-scale peer-education intervention in a mining community reports essentially no effect.<sup>17</sup>

Findings from this study resulted in the continuation of the peer-education programme with significant adaptation to obtain more substantial buy-in from senior management. From October 2003 ART was made available via the company

medical aid, which still covers only half the workforce. The company has very recently taken a decision in its bargaining forum to roll out ART provision to the other half of the permanent workforce. The situation of casual workers is still unclear. An interesting observation related to perception of risk and also to opportunity cost, is that this decision was narrowly taken in favour of the provision of ART (as opposed to provision of staff transport), and did not arise from any cost-benefit analysis related to employee performance but rather from staff preferences!

In this regard, work is now beginning to appear on the costs of HIV/AIDS to business.<sup>14</sup> The very substantial costs to the state/public sector and to employees and their families have yet to be determined. Such data are crucial for the development of meaningful public-private initiatives around the prevention and management of HIV/AIDS. For these to be effective, evaluation of programme components at different levels of prevention is required for the prioritisation of those interventions likely to be most effective in a context where primary prevention in the form of peer-education programmes does not seem to be very effective.

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