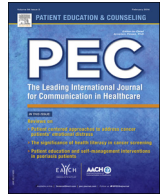




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A critical review of the effectiveness of educational interventions applied in HIV/AIDS prevention

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ABSTRACT

Objective: A critical review of issues around the effectiveness of educational approaches applied in the field of HIV/AIDS prevention.

Methods: Published papers, systematic reviews and technical reports were reviewed.

Results: The review has identified the large gap between the current state of the art and the ultimate goal of the education-based approaches contributing to the reduction of HIV incidence rates. Significant positive impact has been reported mainly on mediating factors to behavioural change (knowledge, attitude, and intentions). The reported impact on actual behaviour change has been weak and short-lived. Biological markers are not used in many studies as outcome measures and follow-up period is too short to facilitate the measurement of impact on behaviour change or biological markers. Several methodological flaws and cultural issues militate against effective programming. A guideline for standardising practice and research in school-based programme is available for use.

Conclusion: There is only very modest evidence of the effectiveness of educational interventions as a result of several gaps in project design, implementation and follow-up. There is urgent need to raise practice and research standards.

Practice implications: Educational interventions should utilise scientifically valid data gathering methods. Follow-up period should be long enough to allow for impact measurement.

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1. Introduction

Recent systematic reviews of the effectiveness of educational-based HIV/AIDS prevention interventions have indicated that they have succeeded in improving the knowledge of and attitude of youth about the infection, but this has largely failed to translate to actual risk-reduction behavioural change [1–7]. The very few studies that included biological markers as outcome indicators have shown either no impact [8–10] or only borderline impact [11] of the interventions on HIV rates. Several recommendations have been made on how the effectiveness of the educational-based approaches could be improved to ensure that they contribute substantially, alongside other strategies, toward facilitating a global reduction of HIV/AIDS rates [1–7,12]. This paper aims to contribute to the growing discourse by examining some critical issues around the effectiveness of the educational approaches employed in HIV/AIDS prevention. Specifically, the paper will focus on: (i) Why HIV/AIDS prevention?; (ii) The role of education in HIV/AIDS prevention; (iii) Research methods employed in determining

the effectiveness of the interventions; (iv) A discussion on some critical issues around the effectiveness of school-based HIV/AIDS prevention programming.

2. Methods

1. Published papers and technical reports on the subject matter were reviewed
2. The findings presented in 7 systematic review papers [1–7] that examined critical issues around the effectiveness of education-based HIV/AIDS prevention interventions are synthesized and presented in Section 4.1.

3. Results

3.1. Why HIV/AIDS prevention?

Human immunodeficiency virus (HIV), the virus that causes acquired immune deficiency syndrome (AIDS) has become one of the world's most serious health and development challenges. The first cases were reported in 1981 and today, more than 30 years

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later, there are approximately 35 million people currently living with HIV and nearly 39 million people have died of AIDS-related causes since the beginning of the epidemic [13]. Worldwide, in 2013 about 2.1 million and 1.5 million people became newly infected with HIV and died from AIDS-related causes respectively [13]. While cases have been reported in all regions of the world, almost all those living with HIV (93%) reside in low- and middle-income countries, particularly in sub-Saharan Africa. Most people living with HIV or at risk for HIV do not have access to prevention, care, and treatment, and there is still no cure. HIV primarily affects those in their most productive years; about half of new infections are among those under age 25.5 years. HIV not only affects the health of individuals, it impacts on households, communities, and the development and economic growth of nations [13].

3.1. The role of education in HIV/AIDS prevention

In view of the lack of definitive cure for the infection, several prevention strategies are being implemented globally aimed at the reduction of HIV rates. These include, among others, social marketing of condoms, peer-based programmes, mass media concerning social and cultural customs that expose participants to heightened risk, voluntary counselling and testing, sexually transmitted infection treatment, antiretroviral treatment/therapy, mother-to-child HIV transmission interventions, educational interventions, harm reduction and structural interventions [11]. Of these strategies, prevention through education remains the cornerstone of intervention policies at global and national levels. At the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS held in June 2001, one of the main targets agreed to by the international community was: “ensuring that by 2005 at least 90%, and by 2010 at least 95% of young men and women aged 15–24 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” [14].

Educational programmes are widely implemented for in-school and out-of-school youths globally. School-based programmes are the most popular although similar interventions are available for out-of-school youth in clinic, youth centres and community settings. School-based programmes remain pivotal because of the practicality of the school setting in executing interventions to reach the youth. Schools also provide an opportunity for interventions to achieve high coverage of young people before or around the time they become sexually active [15]. Further, a key advantage of the school system is the availability of pre-existing body of educators, that is, teachers, who are in regular contact with the youths [15]. In addition, schools are linked to communities through families, and other community organizations, extending their reach and enhancing local ownership of interventions [16].

Some school-based programmes are curriculum based [17–24] while others are non-curriculum based [25]. Teachers are strategically positioned to deliver the school-based interventions once they are adequately trained [15,26–28]. However, particularly in developing countries, the role of teachers may be constrained by availability of teachers, curriculum materials and teacher training; access to other financial, material and technical resources; the culture and norms of both the local communities and the schools themselves [29]. Some studies have reported teachers' reluctance or outright refusal to participate in HIV/AIDS programmes, which they considered contentious, sensitive or embarrassing [26–28,30,31]. In some studies, health workers [23,32], peer groups [33–35], and non-governmental organizations [36] have either implemented the school-based programmes solely or alongside school teachers.

The outcome variables in educational-based HIV/AIDS programming could vary widely. Most target only improvement in knowledge; (e.g. about AIDS, HIV transmission), attitudes, norms and intentions; some include skills and abilities; behaviours (e.g. condom use, abstinence, number of sexual partners in specified time period, sexual debut) [1–6,37] while only a few have included biological outcomes [7–10].

Different methods of varying form and complexity are used to deliver the educational interventions. While some interventions employ didactic lectures, the large majority have utilised interactive methods including the use of board game [38], role-playing, group exercises, audio–visual materials, essay writing, debates, and development of artistic activities such as poems, songs, plays, games, and posters in diverse courses and co- or extra-curricular activities [27,28] and drama [24]. The interactive activities are utilised to inculcate life skills-based education aimed at providing the youth with problem-solving skills, decision-making skills, communication, refusal and negotiating skills [8,39].

3.2. Research designs employed in the effectiveness studies

Most effectiveness studies have utilized either the experimental randomised control trial (RCT) design or the quasi-experimental (Q-E) design.

RCT has long been the gold standard for clinical research, representing the best way to determine efficacy and effectiveness for many intervention and prevention programmes. A RCT design has the highest internal validity because it requires the fewest assumptions to attain unbiased estimates of intervention effects [40]. However, HIV/AIDS prevention researchers have noted that RCT may not take adequate account of complex social and cultural factors that characterise sexual behaviour and practice [41,42]. Secondly, in the face of the need to act urgently to stem the tide of HIV epidemic in the whole community, RCTs could prove to be inappropriate and expensive. Thirdly, there is the ethical issue of selecting controls when it is desirable for everyone in the community to be exposed to the intervention. Fourthly, the findings of RCTs conducted on a small sample of the population may not be strictly generalizable to the whole community or some other communities with different socio-cultural characteristics. Despite these limitations, several effectiveness studies across the globe have successfully employed the RCT design [8,9,21,23,24,43–47].

The Q-E designs have been employed to address some of the highlighted limitations of RCT. Q-Es get their name because they are not true experimental designs, where subjects are randomly assigned to intervention and control groups [48]. In these designs, outcomes may only be measured at the end of the study (rather than at the beginning and end), there may not be a control group, or patients may be assigned to the control and intervention groups by methods other than randomization [48]. Assignment to a given intervention may be influenced by factors such as cost, feasibility, political concerns or convenience. As such, Q-Es are subject to concerns regarding internal validity because the treatment and control groups may not be comparable at baseline. Further, with Q-E studies, it may not be possible to convincingly demonstrate a causal link between the intervention and observed outcomes. Q-E research designs are easily more frequently implemented than RCTs.

Of the many types of available Q-E research designs (e.g. Non-Equivalent Groups Design, the Regression-Discontinuity Design, the Proxy Pretest Design, Double Pretest Design, the Interrupted Time Series Design), the most commonly used in education-based HIV/AIDS prevention interventions is the Non-Equivalent Groups Design (NEGD) [40]. In NEGD, presumably “similar” intact groups are used as intervention and control groups (e.g. comparable

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