

EFFECTS AND EFFECTIVENESS OF LIFE SKILLS EDUCATION FOR HIV PREVENTION IN YOUNG PEOPLE

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For 20 years, “life skills” education has been advocated as a key component of HIV and AIDS education for young people. But what do terms such as life skills imply, and what evidence is there that a life skills-based approach really works? This article reviews the literature on the effects and effectiveness of life skills-based education for HIV prevention. Evaluated interventions were identified by using three search strategies. The review identified a surprising number of rigorously designed and evaluated interventions from Africa, Latin America, Asia, and the Pacific. Most interventions used life skills training as a component of the overall education strategy. Programs worked best to positively influence knowledge, attitudes, intentions, skills, and abilities. Programs rarely produced consistent effects on sexual behavior. Also, life skills training had little effect on biological outcomes. The narrow focus on achieving behavioral outcomes may be at the loss of documenting other positive impacts.

BACKGROUND

For nearly 20 years, “life skills” education has been advocated as a key component of HIV and AIDS education for children and young people. In 2001 member states represented in the United Nations General Assembly Special Session on HIV and AIDS committed themselves to ensuring that:

. . . at least 90 per cent, and by 2010 at least 95 per cent of young men and women aged 15 to 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. (United Nation, 2001; our emphasis)

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More recently, the Political Declaration on AIDS issued following the year 2006 UN High Level Meeting on HIV and AIDS committed member states to

addressing the rising rates of HIV infection among young people to ensure an HIV-free future generation through the implementation of comprehensive, evidence-based prevention strategies, responsible sexual behavior, including the use of condoms, evidence- and skills-based, youth-specific HIV education, mass media interventions and the provision of youth-friendly health services. (United Nations, 2006, para 26; emphasis added)

But what do terms such as *life skills* and *skills based* mean, and what evidence is there that a life skills-based approach to HIV prevention with young people really works? In a recent article, Boler and Aggleton (2005) analyze the background to current advocacy for life skills work. They point to the speed with which a set of ideas which have their origins in the treatment of mental health problems (Sprafkin, Gershaw, & Goldstein 1993; Trower, Bryant, Argyle, Marzillier, 1978) and in management training (Rehfeld, 1994) have been taken up and transferred to the fields of HIV and AIDS, and sexual health. They also highlight the manner in which many skills-based approaches construct young people as “deficit systems” lacking in competence while adults are normally assumed to live risk-free lives and know all the answers.

In some of the literature, life skills are presented as a panacea for many of life's ills (see, e.g., UNICEF, 2007b). They are said to enable economic and political participation (see, e.g., UNICEF/ROSA, 2005), ameliorate gender inequalities (see, e.g., UNICEF, 2007a), enhance the quality of parenting (Olen, 1994), and reduce anti-social behavior and crime (Botvin, Griffin, & Nichols, 2006; Deffenbacher, Lynch, Oetting, & Kemper, 1995). In countries such as the United States life skills-based programs have been said to reduce alcohol and tobacco use (Botvin, Griffin, Paul, & Macaulay, 2003), reduce substance use (Griffin, Botvin, Nichols, & Doyle, 2003), and contribute to reductions in gang crime and reoffending (Botvin et al., 2006).

More generally, in relation to HIV, life skills are said to facilitate the negotiation of risk and vulnerability in the face of the epidemic. They enable people to communicate openly and freely about sex and drugs, indicating their preferences and what they wish to avoid. They result in clear thinking, having the right attitudes and staying safe.

Much of the impetus behind the use of life skills approaches in HIV education has been donor driven--particularly by United Nations agencies such as UNICEF and World Health Organization (WHO)--and has been targeted toward high prevalence regions in the developed world. However, more than a decade later the effectiveness of life skills-based interventions remains uncertain, because not only is it difficult to define what life skills actually are when they encompass matters as diverse as knowledge acquisition, attitude development, and mental and physical skills, but also there have only been a limited number of rigorous reviews of the outcomes of life skills-based work. According to the WHO, “Skills that can be said to be life skills are innumerable, and the nature and definition of life skills are likely to differ across cultural settings” (WHO/Western Pacific Regional Office, 2003). A recent development agency report suggested that “the concept of life skills education is difficult to grasp in program documents” and that “the term *life skills* remains imprecise and even unclear to most actors” (Tiendrebeogo, Meijer, & Engleberg, 2003, p. 14). A recent review of life skills work in southern Africa concluded that life skills programs in general are too simplistic to offer any valuable solution to the complex needs of African young people (Crewe, 2007).

By way of contribution to ongoing debate concerning the nature, effects, and effectiveness of life skills-based education within the field of HIV prevention, this article offers a review of the literature with special (although not exclusive) focus on work undertaken in developing countries. It addresses the following question: How effective is life skills-based education in equipping children and young people with the information and skills necessary to make responsible sexual and reproductive choices?

WHAT IS LIFE SKILLS-BASED EDUCATION FOR HIV PREVENTION?

Life skills-based education differentiates itself from skills-based health education in the content of topics that are covered. Skills-based health education focuses on health; life skills-based education concentrates on a number of topics such as human rights, citizenship, and social issues such as health (WHO, 2003).

To conduct the analysis, we had first to decide on what for the purposes of the review would constitute life skills-based education. Our working definition was as follows: Life skills-based education for HIV prevention has the goal of increasing knowledge and supportive norms, through teaching skills and increasing motivation and intention to change behaviors. It is important to recognize however, that in many programs and interventions, life skills-based training is included as part of a larger education program which may or may not make use of participatory methods.

The kind of skills encompassed by such a definition are many. Commonly cited life skills include communication and listening skills; negotiation and refusal skills; decision-making and problem-solving skills; and coping and self-management skills, such as increased self-esteem and the ability to manage feelings and stress (UNICEF, 2006). Other frequently measured life skills, particularly within the field of HIV and AIDS education, include condom and contraceptive use, the ability to obtain condoms and other preventive measures from service providers, and the ability to negotiate their correct use with sexual partners.

REVIEW OF REVIEWS

Although there exist no reviews focusing specifically on life skills-based education, much is known about successful approaches to HIV prevention, especially with young people. In 2006, WHO published a systematic review of the evidence of what works in preventing HIV with young people in developing countries (WHO, 2006). The report graded evidence from 80 interventions as “ready,” “steady,” or “go” for implementation and scale-up. Although the review did not single out programs and interventions using life skills-based education, findings suggest that there is enough evidence to implement and scale up these kinds of actions in schools, communities, and for young people most at-risk (i.e., young sex workers, injecting drug users and men who have sex with men).

Other reviews within the same or related fields have established the following findings. First, good quality and appropriately implemented programs of sex and relationships education do not hasten the onset or frequency of sexual activity (Kirby, Laris, & Rolleri, 2006; Magnani, MacIntyre, Karim, Brown, & Hutchinson, 2005; Speizer, Magnani, & Colvin, 2003; UNAIDS, 1997). This finding has been confirmed for developed (Kirby, 1994) as well as more recently for developing country settings (Kirby, Laris, & Rolleri, 2005). In some cases, programs achieved changes in

behavior such as delay in the onset or frequency of sexual activity, increased condom use, and increased use of other forms of contraception (Kirby et al., 2006; Magnani et al., 2005).

Second, evaluated interventions had no or very little impact on biological outcomes such as reduced sexually transmitted infection or pregnancy rates (Jewkes et al., 2007; Kirby et al., 2006; Magnani et al., 2005; Ross et al., 2007; UNAIDS, 1997; WHO, 2006). Programs taught by youth organizations other than school may be more effective (Kirby et al., 2006). These organizations incorporated features such as directly tailored activities, small group sizes, voluntary participation, and young people were reached using existing organizations or structures (Kirby et al., 2006).

Overall, effective interventions were shown to have positive effects on knowledge, attitudes, skills and sometimes on behaviors (Gallant, & Maticka-Tyndale, 2004; Jewkes et al., 2007; Kirby et al., 2006; Ross et al., 2007; Speizer et al., 2003; WHO, 1997). However, evaluated programs and interventions tend to be small-scale and short-term in nature (Speizer et al., 2003; UNAIDS, 1997), and it is unclear what the longer term behavioral effects may be. Readers are cautioned that brief periods of instruction (e.g., school interventions), are not very effective no matter how well designed they are (Kirby et al., 2006) as individual behavior is difficult to change (Gallant et al., 2004; Kirby, 1995), not least because of structural and contextual factors (e.g., gender norms and attitudes as well as the availability or nonavailability of protective resources such as condoms), which may limit young people's ability to put into action what has been learned.

More generally, it has been suggested that a variety of measures constituting a comprehensive approach to HIV prevention is needed if substantial and lasting success is to be achieved (UNAIDS, 2005). Central to success is addressing both societal vulnerability and individual risk (Mann & Tarantola, 1996). The evidence-informed, menu-driven approach promoted by UNAIDS identifies seven key principles for HIV prevention success, along with 12 essential policy actions. These include addressing cultural norms and beliefs; promoting gender equality and rights; supporting the mobilization of a community based response; implementing programs in a differentiated and locally relevant manner; having the necessary coverage, intensity and scale; and promoting linkage between HIV prevention and sexual and reproductive health.

On its own any one of the above actions is unlikely to succeed. In combination, with coverage intensity and scale, success is possible. Although life skills-based work may have a role to play as part of a larger package of programming or intervention, on its own it is likely to have more limited effects. But what are these effects and what evidence is there that they can be consistently brought about?

METHODS

In the remainder of this article, we review the published literature concerning the effectiveness of evaluated interventions using life skills-based education for young people. The review builds on previous work by focusing specifically on actions and interventions that have included life skills training and by drawing conclusions about the effectiveness of the life skills-based approach in HIV and AIDS education.

Evaluated interventions were identified in three principal ways. First, a search was undertaken of high quality databases including Medline, Embase, Popline, PsycINFO, ERIC, Sociological Abstracts, Social Sciences Abstracts and the Univer-

sity of Leeds Health Education Database. These databases were chosen because together they contain a comprehensive overview of the peer-reviewed literature in the field of young people's sexual and reproductive health. Second, hand searches were undertaken of the articles and papers referred to in the bibliographies and reference lists contained in existing reviews. Third, contact was made with a number of researchers and program managers with experience in life skills-based education and HIV prevention (see Appendix 1). Time and resources precluded a wider survey of individuals and organizations.

Databases were searched for the years 1990 to 2007 using keyword combinations that included the search terms: life skills, youth, adolescent, young people, HIV and AIDS, evaluation, interventions, and effectiveness. Programs and interventions were included if (a) they contained some form of life skills training (see definition), (b) they included more than one educational session, (c) the evaluation design included a comparison group and (d) the evaluation design included a period of follow-up. For the purposes of the review, life skills training was defined as including one or more of the following skills-building exercises: communication or negotiation skills, decision-making skills, coping skills or self-management, and risk reduction skills.

CATEGORIZATION AND ANALYSIS

Studies were grouped according to one of three research designs: (a) randomised controlled trials also known as the "gold standard" of research designs, (b) controlled pretest/posttest studies, and (c) nonexperimental evaluation designs not utilising randomization or a control group but often involving qualitative research methods. A higher weight of evidence was assigned to experimental studies versus non-experimental studies although there is considerable debate whether randomized controlled trials constitute the only gold standard in sexual and reproductive health research (Kippax & Van De Ven 1998; Van de Ven & Aggleton 1999; Kippax, 2003). For the purposes of interpreting the evidence from experimental evaluations, the qualitative nature of non-experimental studies provided "the meat on the factual bones" with young people's rich reports stemming from focus group discussion and in-depth interviews.

To substantiate the focus of life skills programming in high-prevalence countries of the developed world, a second level of analysis was conducted based on location of study. Studies conducted in developing country settings were reported separately from studies conducted in developed countries.

If the ultimate goal of life skills programs is the reduction of risky sexual behaviours, then the effectiveness of life skills evaluations may in part be judged by the range of outcome variables that studies have measured. The third level of analysis therefore was a summary of all reported outcome variables in included studies.

Utilizing the three search strategies outlined above, a total of 66 evaluated life skills programs were identified from a wide range of countries. Forty one of these programs were subsequently excluded because they matched less than three of the four specified inclusion criteria. Twenty-one life skills programs matched all four inclusion criteria and another four life skills programs matched three out of four of the inclusion criteria. A total of 25 evaluated life skills programs were included in the review.

The 25 evaluated life skills programs can be described as follows: 8 programs used a randomised controlled design, 13 used a controlled pretest/posttest design,

and 4 utilised non-experimental evaluation designs. The majority of life skills programs, 21, were implemented in primary and secondary schools and designed for young people in their mid to late teens. The remaining four life skills programs were implemented in community settings.

Life skills training varied considerably in intensity, delivery and duration. Life skills training was delivered as separate curricula or incorporated within existing sex and relationship education. In the majority of programs, life skills training was only a component of overall HIV and AIDS education. As a result, very little information was available about the delivery of life skills training (didactic, participatory). All community-based programs utilized the Stepping Stones method.¹

FINDINGS

THE EFFECTS AND EFFECTIVENESS OF LIFE SKILLS-BASED EDUCATION MEASURED IN RANDOMIZED CONTROLLED STUDIES

Two studies measured the short-term effects of life skills programming in Uganda (Kinsman et al., 2001) and South Africa (Harvey, Stuart, & Swan, 2000). Both studies had follow-up periods of 6 months. The South African community randomized *DreamAide* trial showed an increase in knowledge and improved attitudes about HIV and AIDS. Furthermore, students who were sexually experienced displayed more accepting attitudes to condom use after the intervention. On the other hand, a study by Kinsman et al., 2001 in Uganda showed no impact on seven out of nine key outcome variables including knowledge about HIV transmission and condoms. Furthermore, there was no reported change in attitude toward and intentions for condom use. Based on the limited detail about life skills training in the two studies, it is difficult to speculate about why results for these two studies differed.

Five studies measured the long-term effects of life skills programming. All trials had follow-up periods of at least 1 year, the longest follow-up period being 3 years (Ross et al., 2007). All studies measured increased knowledge about HIV and AIDS and/or contraception. Those studies which measured attitudes, also found accepting attitudes toward condom use (Walker, Gutierrez, Torres, & Bertozzi, 2006), intentions to use condoms and increased condom self-efficacy (Stanton et al., 1998). Two studies measured increased communication with a sexual partner (Jewkes et al., 2007; Stanton et al., 1998). Important associated behavior change was measured in three studies by way of increased use of emergency contraception (Walker et al., 2006), avoiding a place to have sex (Maticka-Tyndale, Brouillard-Coyle, Gallant, Holland, Metcalfe, 2004), and reduced alcohol use (Stanton et al., 1998). In terms of sexual behavior, studies found an increased delay of sexual debut (Maticka-Tyndale et al., 2004; Ross et al., 2007; Stanton et al., 1998), increased condom use at first sex (Ross et al., 2007; Stanton et al., 1998), an increase in correct condom use (Jewkes et al., 2007), a decrease in ever having had sex (Maticka-Tyndale et al., 2004), increased condom use at last sex among men (Ross et al., 2007) and among men and women (Maticka-Tyndale et al., 2004), a reduced number of sexual partners among men (Ross et al., 2007) and among men and women (Jewkes et al., 2007), and a

1. See <http://www.stepingstonesfeedback.org/index.htm> (accessed November 11, 2007) for further information.

reduced frequency of transactional sex (Jewkes et al., 2007). However, these effects were not reported consistently across all five studies.

Two studies measured the impact of life skills-based education on behavior change via the biological outcomes of new HIV-1 and herpes simplex virus-2 (HSV-2) infections. Limited evidence of success was found. The study by Jewkes et al. (2007) demonstrated very weak evidence for reduced incidence of HIV-1 and HSV-2 among women and no evidence among men. The study by Ross et al. (2007) showed no impact on either HIV-1 or HSV-2 incidence in either group.

THE EFFECTS AND EFFECTIVENESS OF LIFE SKILLS-BASED EDUCATION MEASURED IN PREINTERVENTION/ POSTINTERVENTION STUDIES

Nine out of 13 studies looked at the short-term effects of life skills-based education in preintervention and postintervention studies. All studies had follow-up periods of 8 months or less. One study failed to report a follow-up period (Aplasca et al., 1995). Results indicated increased knowledge about HIV and AIDS, human reproduction, and contraception in all eight studies. No other impacts were found in the study by James, Reddy, and Ruiter (2006) colleagues. Other studies have reported impacts on the following: intention to abstain from sex (Aplasca et al., 1995; Reddy, James, McCauley, 2003); approval of abstinence among men (Reddy et al., 2003); accepting attitudes toward people living with HIV (Aplasca et al., 1995; Caceres et al., 1996; Chacko, Banu, & Mathew, 2005; Klepp, Ndeki, Leshabari, Hannan, & Lyimo, 1997) accepting attitudes toward condoms (Kinsler, Sneed, Morisky, & Ang, 2004; Martinez-Donate et al., 2004), accepting attitudes toward delayed sexual debut (Aplasca et al., 1995); increased acceptance of contraception, increased self-efficacy and increased prevention-oriented behavior (Caceres et al., 1996); and intention to use condoms (Reddy et al., 2003; Kinsler et al., 2004). Two studies measured increased communication with parents (Kinsler et al., 2004; Klepp et al., 1997); and another measured decreased acceptance of machismo (Caceres et al., 1996).

Important associated behavior change was measured by way of self-report. In terms of sexual behavior, one study found an increased delay in sexual debut (Martinez-Donate et al., 2004), another found reduced sexual activity and increased contraceptive use at first sex (Pick de Weiss, Givaudan, & Givaudan, 1993), and the third study measured fewer sexual partners among men (Reddy et al., 2003). As previously, these effects were not reported consistently across all three studies.

Four studies looked at the long-term effects of life skills-based education in preintervention/postintervention studies. All studies had a follow-up period of 1 year or more. The longest follow-up period was 24 months (Magnani et al., 2005). All studies measured increased knowledge about HIV and AIDS, human reproduction, and contraception. Furthermore, results showed increased condom self-efficacy (Magnani et al., 2005; McCauley, 2004), increased condom acquisition (McCauley, 2004), accepting attitudes toward people living with HIV (McCauley, 2004), and increased communication with sexual partner among young women (Antunes et al., 1997). One important associated behavior change was timing of sexual debut (Murray, Toledo, Luengo, Molina, & Zabin, 2000). In terms of sexual behavior, results indicated increased condom use at first sex (Magnani et al., 2005), increased condom use with non-main partners among young women (Antunes et al., 1997), and increased contraceptive use among young women (Murray et al., 2000). As previously, these effects were not reported consistently across all three studies.

TABLE 1. Randomized Controlled Studies From Sub-Saharan Africa and Latin America

Author, Year	Setting, Year	Life-Skills Education	Methods of Assessment	Outcomes
Jewkes et al., 2007	South Africa	Stepping Stones plus voluntary counseling and testing (17 sessions over 3-12 weeks) N = 1,776 35 intervention, 35 control villages	Cluster randomized community trial and nested qualitative study Follow-up at 6-8, 12, and 24 months	No impact on sexual behavior, but weak evidence of a reduction in HIV and HSV-2 incidence in women Increase in communication for all Increase in correct condom use; decrease in number of sexual partners, transactional sex, and violence in men. No impact on biological outcomes
Walker et al., 2006	Mexico, fall 2001-June 2003	Students in Grade 10 in 40 public secondary schools Mean age 16.7 years N = 10,954 - 10 control schools - 15 intervention schools w/condom promotion - 15 intervention schools with emergency contraception (EC)	Cluster randomized trial Self-completed KAP survey at baseline, 1 month postintervention and 1 year postintervention	Increased knowledge about HIV and EC, accepting attitudes towards condom use (young men were less accepting than women). Increased use of EC in EC intervention group.
Ross et al., 2007	Tanzania, 1997-2002	MEMA kwa Vijana sexual health education during last 3 years of primary school N = 7,040 10 intervention, 10 control communities	Community randomized-trial Follow-up at 18 and 36 months	No impact on sexual behavior (sex with sex worker or casual partner) or condom use (intention to use or at last sex) Increased delay of sexual debut and first condom use. Among young men: decreased number of sexual partners in last 12 months and increased condom use at last sex.
Maticka-Tyndale et al., 2004	Kenya, November 2001-February 2002; October 2003	"Primary School Action for Better Health", primary school students aged 11-17 years N = 12,800 40 modified/intervention, 20 control schools	Randomized controlled trial Follow-up at 18 months	No impact on biological outcomes Increased delay of sexual debut and condom use at last sex; decrease in ever having had sex and avoiding a place to have sex in last month
Kinsman et al., 2001	Uganda, 1997-1998	19 extra-curricular sessions based on an adapted WHO/UNESCO guide N = 1,274 20 intervention, 11 control schools	Community randomized trial Follow-up at 6 months	No impact on seven out of nine key variables including knowledge about HIV transmission and condoms, accepting attitudes toward condom use, intentions for condom use

Harvey et al., 2000	South Africa, 1993-1994	DreamAide intervention in three phases for students in standard 8, secondary school N=1,080	Community randomized controlled trial (5 districts) Follow-up at 6 months	Increased knowledge and improved attitudes about HIV and AIDS. Increased condom use among sexually-experienced students receiving drama intervention.
Stanton et al., 1998	Namibia, 1996-1997	5 intervention, 5 control schools 14 sessions, young people aged 15-18 years in secondary school N = 515	Randomized controlled trial Follow-up at 6 months and 12 months	Increased communication with partner, condom use intention, condom self-efficacy; decreased alcohol use. Subgroup analysis among sexually inexperienced young people: increased delay in sexual debut and condom use at first sex.
		5 intervention, 5 control schools		No impact on abstinence or protected sex in either group.

TABLE 2. Pretest/posttest Studies With Control Group from Sub-Saharan Africa

Author, year	Setting, yr	Life-skills Education	Methods of Assessment	Outcomes
James et al. 2006	South Africa	20 sessions (1/week), 1,141 young people in year 9 of secondary school, average age 15.5 years N = 1,114	Controlled pretest/posttest design Follow-up at 4 months	Increased knowledge only No impact on condom use, reported sexual behavior or psychosocial determinants (attitudes, self-efficacy)
Magnani et al. 2005	South Africa, 1999, 2001	11 intervention, 11 control schools Full coverage life skills education programme with young people from several population subgroups, aged 14-24 years in middle and secondary school N = 3,052	Preintervention /postintervention design measuring a dose-response relationship Follow-up at 24 months	Increased knowledge about sexual and reproductive health, increased perceived condom self-efficacy and condom use at first sex No impact on sexual debut, secondary abstinence or partnering behaviors
Klepp et al. 1997	Tanzania, March 1992 – September 1992	Nigao programme, involving 20 school hours of intervention over 2-3 months in year 6 and 7 students N = 814	Controlled pretest/posttest design Follow-up at 6 months	Increased knowledge and communication about HIV and AIDS, accepting attitudes towards people living with HIV, improved subjective norms and intentions. No impact on attitudes toward sex
		6 intervention schools, 12 comparison schools		

TABLE 3. Pretest/Posttest Studies With Control Group from Latin America and Asia and the Pacific

Author, year	Setting, year	Life Skills Education	Methods of Assessment	Outcomes
Kinsler, et al. 2004	Belize	7 weekly sessions Primary and secondary school students, age 13-17 years N = 150	Controlled Pretest/posttest design Follow-up at 4 weeks	Increased knowledge about HIV, condom use, condom use intentions, parent-child communication; accepting attitudes toward condoms,
McCaulley, et al. 2004	Mexico	3 intervention and 3 control schools First year students, mean age 16 years N = 2,064	Controlled Pretest/posttest design Follow-up at 6 months and 12 months	Increased knowledge about HIV, condom self-efficacy and acquisition, accepting attitudes toward people living with HIV. No impact on condom use among sexually experienced students.
Martinez-Donate, et al. 2004	Mexico	Students in grades 10 and 12 N = 320	Controlled Pretest/posttest design (face-to-face interviews) Follow-up at 3 months	Increased delay of sexual debut, acquisition of condoms, decreased in traditional views on use and provision of condoms. No impact on unprotected sex, facility in obtaining condoms, self-efficacy of protective behaviors.
Murray, et al. 2000	Chile, March 1994 – December 1996	CEMERA N = 4,238	Controlled Pretest/posttest design Follow-up at 12 months and 24 months	Increased knowledge about human reproduction, STIs and contraception, timing of sexual debut, and contraceptive use among young women. No impact on attitudes toward teen pregnancy, when sex is appropriate, contraceptive use among young men.
Antunes et al., 1997	Brazil, 1994	Four gender-specific sessions of three hours each Night students at public junior and secondary schools, ages 18-25 years N = 308	Controlled pretest/posttest design Follow-up at 6 months and 12 months	Improved communication with partner and increased condom use with non-main partner for young women only
		2 intervention, 2 control schools		

Caceres et al., 1996	Peru	Students in secondary school N = 200 14 schools randomly assigned to intervention or control groups	Controlled pretest/posttest design Follow-up at 3 months	Increased knowledge of sexuality and AIDS and acceptance of contraception; decline in acceptance of machismo and discrimination against persons with HIV and AIDS. Improved self-efficacy and prevention-oriented behavior
Pick de Weiss et al., 1993	Mexico	Planeado tu Vida programme, 12 sessions for secondary school students N = 416	Controlled pretest/posttest design Follow-up at 6 weeks, 4 months and 8 months	Decreased sexual intercourse at 8 months and increased contraceptive use at first sex
Aplasca et al., 1995	Philippines	12 sessions over 6 weeks Secondary school students 13 – 16 years N = 845	Controlled pretest/posttest design Follow-up not reported	Increased knowledge and accepting attitudes toward people living with HIV, accepting opinions about delaying sexual debut
Chacko et al., 2005	India	2 intervention, 2 control schools 7 sessions of adapted WHO/ NCERT curriculum for young women in year 9 and 11 no sample size indicated	Controlled- pre/post design Follow-up at 4 weeks	No impact on attitudes Increased knowledge, improved attitudes and skills
		2 intervention, 2 control schools		

THE EFFECTS AND EFFECTIVENESS OF LIFE SKILLS-BASED EDUCATION MEASURED IN QUALITATIVE EVALUATION STUDIES

Four studies looked at the long and short-term effects of life skills-based education in nonexperimental evaluations. Follow-up periods varied from one week to 3 years postintervention. All of the studies measured increased knowledge about reproductive and sexual health, including topics such as HIV and AIDS, and condoms. Three out of four studies increased communication skills (Bhattacharje & Costigan, 2005; Hadjipateras, Akullu, Owero, Dendo, & Nyenga, 2006; Paine et al., 2002) and two out of four studies improved risk perception (Bhattacharje & Costigan, 2005; Paine et al., 2002). Furthermore, studies reported accepting attitudes toward people living with HIV (Bhattacharje & Costigan, 2005), another increased responsibility for HIV (Hadjipateras et al., 2006). In terms of sexual behavior, one study measured a decline in stigma and risky cultural and sexual practices as well as decreased gender violence (Hadjipateras et al., 2006). Another important finding was that study participants identified three primary contexts for condom use (Paine et al., 2002). The study with the shortest follow-up period (Visser, 1996) found no impact on attitudes and behaviors. All three studies utilizing the Stepping Stones method measured impacts at the individual and community levels, including improved communication among sexual partners, respect for women and challenge of traditional practices such as gender-based violence, and an increased sense of community (Bhattacharje & Costigan, 2005; Hadjipateras et al., 2006; Paine et al., 2002).

The effects of life skills-based education were also evaluated in two studies conducted in the United Kingdom. One study was a randomised controlled trial with a 36-month follow-up period, the other a matched pre/post controlled intervention with a 24-month follow-up period. As before, both studies reported increased knowledge about sexual health on a variety of topics including contraception, the prevalence of sexually transmitted infections, the harms and benefits of sexual activity, and knowledge about sexual activity among peers (Mellanby, Newcombe, Rees, & Tripp, 2001; Wight et al., 2002). However, neither of the two studies measured changes in sexual behavior. Another result was increased reported enjoyment of most recent sexual activity (Wight et al., 2002).

REGIONAL DIFFERENCES

The majority of evaluated programs were conducted in developing countries with an overwhelming focus on Sub-Saharan Africa. Thirteen life skills programs originated in Sub-Saharan Africa (Tables 1 and 2), eight in Latin America and the Caribbean (see Table 3), one each in India and the Philippines (Table 3), and two in the UK (see Table 4). All the nonexperimental evaluation studies were conducted in Sub-Saharan Africa (Table 5).

Studies conducted in Sub-Saharan Africa showed promising results. Three randomised controlled trials measured an increase in delay of sexual debut (Maticka-Tyndale et al., 2004; Ross et al., 2007; Stanton et al., 1998). Among preintervention and postintervention studies, one study measured a long-term increase in condom use at first sex (Magnani et al., 2005) and another a short-term decrease in the number of sexual partners among men (Reddy et al., 2003). Three out of four qualitative evaluations had long-term effects on improved HIV risk awareness (Bhattacharje & Costigan, 2005; Paine et al., 2002), and short-term effects on decreased gender violence and risky cultural and sexual practices (Hadjipateras et al., 2006).

TABLE 4. Experimental Evaluations from the United Kingdom

Author, year	Setting, year	Life Skills Education	Methods of Assessment	Outcomes
Wight et al., 2002	Scotland, 1996-1999	SHARE program for 13- to 15-year-olds, 20 sessions over 2 years from 1993 to 1996 N = 8,430	Randomized controlled trial evaluation Follow-up at 36 months	Increased knowledge about sexual health increased reported enjoyment of most recent sex.
Mellanby et al., 1995; Mellanby et al., 2001	Devon, 1992-1994	25 intervention, 12 control schools A PAUSE, sex education for years 9 and 10 students N = 6,573 10 sessions over 2 years + sex and relationships education by own school	Matched internal and external experimental-control study Follow-up at 12 months or 24 months	No impact on such behavioral outcomes such as: unprotected sex, condom use, oral contraceptive use, unwanted pregnancy Increased knowledge about: contraception, prevalence of diseases and sexual activity among peers, harms/benefits of sexual activity

TABLE 4. Qualitative Evaluation Studies from Sub-Saharan Africa

Author, year	Setting	Life Skills Education	Methods of Assessment	Outcomes
Visser et al, 1996	South Africa	First AIDS Kit programme taught in 5 modules	Self-completion questionnaire 1 week preintervention and postintervention	Increases ($p < 0.005$) in all knowledge scales except susceptibility to HIV and accepting attitudes toward people living with AIDS.
Paine et al, 2002	Gambia	Young people in Standards 6 to 9 in 11 primary and secondary schools N = 339 Stepping Stones adapted to an infertility prevention framework Population aged 15 and above in 2 intervention and 2 control villages N = 563	Focus group discussions with students, interviews with teachers Multimethod study: participatory evaluation; in-depth interviews; focus group discussions, monitoring of condom supplies KAP survey at baseline, 4 and 16 months	No impacts on behavioral intentions and perceptions of condom use. Increases in: risk awareness, knowledge about sexually transmitted infections, HIV and condoms, improved communication skills, including communication about HIV. Women had more positive results compared with men. Other impacts: Participants enjoyed the programme and found the content relevant. Participants identified 3 primary contexts for condom use. Stepping Stones resulted in better dialogue within marriage. Participants shared knowledge with friends and relatives.
Bhattacharje & Costigan, 2005	Ethiopia 2002-2005	Original Stepping Stones program Population of men and women from 19 villages N = 205	Complementary qualitative and quantitative methods Follow-up at 1 to 3 years post intervention	Increased knowledge and communication skills, self-efficacy, improved risk perception, accepting attitudes toward people with HIV/AIDS on an individual level Other impacts: Challenge of traditional practices including a decrease in violence at the community level
Hadjipateras et al, 2006	Angola, Tanzania, Uganda 2004-2006	Original Stepping Stones program Angola: 133 participants in four sites Uganda: 320 participants in four camps Tanzania: 360 participants in four villages	Impact evaluation using mixed methods. Survey at baseline; repeat baseline 6 to 12 months later. No postintervention follow-up	Increased responsibility for HIV, knowledge, communication about SRH, respect for women including self-respect and decreased gender violence; reduced stigma and decline in risky cultural and sexual practices Other impact: Increased sense of community

TABLE 6. Summary of Outcome Measures From Included Interventions

1. Knowledge	4. Behavior
AIDS	Sexual behavior
HIV transmission	Delay of sexual initiation for sexually inexperienced
PLWHIV	Secondary abstinence
Sexual and reproductive health	Frequency of sexual activity
Condoms	Enjoyment of most recent sex
Machismo	
Sexuality	Number of sexual partners in specified time period
	Transactional sex
2. Attitudes/norms/intentions	Partner choice
Attitudes toward	
PLWHIV	Contraceptive use
Sexual activity	Unprotected sex
Teen pregnancy	Condom use at last sex
Contraceptive use	Condom use at first sex
Delaying sexual initiation	Unwanted pregnancy
Norms	
Condom use norms	Other behavior
Subjective norms	Alcohol use
Condom acquisition	Intimate partner violence
Person who traditionally provides condoms	
When sex is appropriate	5. Biological outcomes
Context for condom use	STI incidence
Condom use intentions	HIV incidence
	HSV-2 incidence
3. Skills and abilities	Pregnancy
Skills	
Communication with partner	6. Community-level outcomes
Communication about AIDS	Sense of community
Parent-child communication	Ease of obtaining condoms
	Decreased gender-related violence
Abilities	Diffusion of knowledge to non-participants
Risk awareness	
Condom self-efficacy	
Self-efficacy	
Self-respect	
Self-esteem	

Note. PLWHIV = people living with HIV; STI = sexually transmitted infection; HSV-2 = herpes simplex virus type 2.

Eight out of 25 included studies were conducted in Latin America and the Caribbean. Latin American studies reported increased contraceptive use (Murray et al., 2000; Pick de Weiss et al., 1993; Walker et al., 2006), an increase in delay of sexual debut (Martinez-Donate et al., 2004; Murray et al., 2000), increased condom use with casual partners (Antunes et al., 1997), and reduced frequency of sexual intercourse (Pick de Weiss et al., 1993).

The two Asian (Aplasca et al., 1995; Chacko et al., 2005) and European studies (Mellanby, Phelps, Crichton, & Tripp, 1995; Wight et al., 2002) found no impact on reported sexual behavior. However, Wight et al. (2002) found that their intervention measured a sustained increase in reported enjoyment of most recent sex.

SUMMARY

OUTCOME VARIABLES

Table 6 provides a summary of the outcome variables or “effects” from all 25 studies included in the review. They are grouped into the following categories: knowledge; attitudes, norms, and intentions; skills and abilities; behaviors; biological outcomes; and community-level outcome variables. The effectiveness of the life skills-based

education approach was reported for knowledge; attitudes and intentions; skills and abilities; community-level outcomes; and to a lesser extent, for behaviors. There was no evidence of success for biological outcome variables.

SUMMARY OF RESULTS

A detailed analysis of the study results suggests that life skills-based education embedded within a HIV and AIDS curriculum or intervention has limited effects on reported sexual behavior and/or HIV-1 or HSV-2 incidence. Overall, studies with follow-up periods of 1 year or more achieved better results compared with those with shorter follow-up periods. The majority of outcomes were measured at the individual and not community level (e.g., challenge of traditional practices). Studies that looked at the short-term effects of life skills-based education showed increases in knowledge and improved attitudes but rarely a change in behavior. On the other hand, studies looking at the longer term effects of life skills-based education reported increases in knowledge, improved attitude, intentions to change behavior, improved skills and sometimes a change in behaviour--all variables except biological outcomes.

In addition, several studies measured increased communication skills, improved risk perception, decreased experiences of gender violence and an increase in reported enjoyment of recent sex. One of the two studies that measured biological outcomes, showed a positive trend for decreased HIV-1 and HSV-2 incidence among women, but these changes were not statistically significant. Life skills-based education consistently increased the delay of sexual debut in several Sub-Saharan African studies and increased contraceptive use in Latin American studies. Reports of increased condom use were rarely found. Interventions using the Stepping Stones method achieved other potentially relevant results at the community level such as diffusion of knowledge and challenging traditional practices.

DISCUSSION

The results of this literature review show that the effectiveness of life skills-based education in changing sexual behavior in young people is limited. The review identified a surprising number of rigorously designed and evaluated interventions in developing countries many of which had follow-up times of 1 year or more. Most interventions used life skills training as a component of the overall education strategy and were not labeled as life skills interventions as such.

The majority of reported program interventions had been implemented in secondary schools with students in their midteens. Very few interventions had taken place outside of the class room or had engaged young people under the age of 15 years. Based on the information available, it was hard to tell what the life skills component of the interventions contained. As is evident from Table 6, outcome variables varied considerably and were not consistent across the majority of studies. Studies included in the review were of varying size ranging from 11,000 students to as little as 133 students. Because of a number of factors, such as sample size, study design, intervention design, and follow-up period the results as a whole were difficult to interpret.

Studies employing the life skills approach achieved important gains in improved knowledge and changed attitudes. On a whole, longer term evaluations of 1 year

or more showed positive effects such as increased knowledge, improved attitudes, and intentions to change behavior and better skills. Successes in achieving behavior change were rare and if so only occurred in sub-group analysis. Moreover, behavior change was not consistent across studies. There was little evidence to consistently demonstrate that life skills-based education impacted on intention to change behavior as well as improved abilities and skills. From what was observed, only a minority of studies consistently measured skills as an indicative outcome. The most widely reported skill related to communication with sexual partners and/or parents about HIV and AIDS. None of the other commonly cited life skills such as negotiation and refusal skills, learning to work as a team, decision making and problem-solving skills, increased self-esteem, and the ability manage feelings of stress were reported. A minority of studies measured self-efficacy related to prevention-oriented behavior, condom self-efficacy, or the ability to acquire condoms. None of the studies included in the review looked at the ability to negotiate correct condom use.

The review confirmed findings from previous reviews of sexual and reproductive health interventions among young people. First, none of the interventions hastened the onset of frequency of sexual activity. Second, life skills-based education interventions had no or very little impact on HIV-1 and HSV-2 incidence. However, the study by Jewkes et al. (2007) showed a trend of decreased HIV-1 and HSV-2 incidence among women, although these differences were not statistically significant. Findings also showed that interventions evaluated over a longer time period, 1 year or more, had some, albeit limited, success in picking up effects on sexual behavior. Subgroup analysis seemed important in order to harness positive behavioral outcomes. Those studies which found positive outcomes showed that women differed from men, and sexually experienced young people differed from sexually inexperienced young people. This may be due to the fact that sexual behavior among young people may be sporadic and hard to measure. Anecdotal evidence also suggests that young men and young women become sexually active at different times and to varying degrees throughout their teenaged years. It is hard to say whether any of the studies took these underlying gender differentials into account when analysing their results.

Life skills training may have a valuable role to play within HIV and AIDS education programs. However, the findings from the review suggest that life skills training only works in combination with other education approaches (i.e. multisession, curriculum based, adult led, gender sensitive). For example, interventions that focus on overall sexual health are more effective than those that focus on narrow conceptions of disease prevention (Casey & Thorn, 1999). Ideally, life skills programs should be designed incorporating the perspectives and needs of young people and allowing them equal participation in the learning process (Casey & Thorn, 1999). However, not all skills-based approaches are life skills approaches and not all participatory approaches are life skills approaches. Teachers and educators may be unfamiliar with participatory approaches.

Furthermore, a successful life skills-based program promotes a supportive social environment and emphasises persuasion and enablement. Interventions using the Stepping Stones method reported other positive effects such as achieving risk awareness and enabling participants to understand the contexts for condom use. An additional feature was diffusion of knowledge to nonparticipants. The narrow focus on achieving behavioral outcomes may be at the loss of documenting other positive impacts such as enhanced personal communication and attitudes toward sexual pleasure.

Review of these studies indicates that there is a need for sustained responses to HIV prevention for young people which increase knowledge and encourage communication about sex and relationships. In order to better evaluate these sustained responses, future studies require longer follow-up periods (6 months or more) and should provide more detail about the interventions they implemented such as the delivery of life skills training. Considering the large disparities in the outcomes achieved for young women versus men, and sexually experienced versus sexually inexperienced young people, future studies are encouraged to disaggregate results by sex, age and status of sexual initiation.

In the light of the available evidence, it is hard to say with whom and in which contexts life skills-based education works best. What this review reveals is that the impetus for driving life skills approaches in hyperendemic countries has not achieved the desired results and young people are still becoming infected with HIV at unacceptably high rates. One could therefore suggest that life skills alone are not a panacea for young people's ills. Findings from this review suggest that life skills education under the best of circumstances achieves modest results for behavior change. It may be unrealistic to think that relatively short-term skills-based interventions will lead young people to think clearly and stay safe considering the barriers they face in accessing information, condoms, contraception and in overcoming social stigma associated with sex and relationships. Life skills education provides no quick fix in HIV prevention among young people in developing countries.

APPENDIX 1

Individuals and Their Institutional Affiliation (at the time of the study) Consulted for the Identification of Evaluated Life Skills Programs

Isolde Birdthistle—London School of Hygiene and Tropical Medicine, UK

Aoife Doyle—London School of Hygiene and Tropical Medicine, UK

David Ross—London School of Hygiene and Tropical Medicine, UK

Tania Boler—ActionAid, UK

Tina Wallace—ActionAid, UK

Alice Welbourn—Stepping Stones, UK

Maria Zuurmond—CAFOD UK

Sue Goldt—UNICEF, Eastern and Southern Africa

Mary Crewe—University of Pretoria, South Africa

Rachel Jewkes—MRC, South Africa

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