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INTERVENTIONS TO REDUCE HIV/AIDS STIGMA: WHAT HAVE WE LEARNED?

Lisanne Brown, Kate Macintyre, and Lea Trujillo

This article reviews 22 studies that test a variety of interventions to decrease AIDS stigma in developed and developing countries. This article assesses published studies that met stringent evaluation criteria in order to draw lessons for future development of interventions to combat stigma. The target group, setting, type of intervention, measures, and scale of these studies varied tremendously. The majority (14) of the studies aimed to increase tolerance of persons living with HIV/AIDS (PLHA) among the general population. The remaining studies tested interventions to increase willingness to treat PLHA among health care providers or improve coping strategies for dealing with AIDS stigma among PLHA or at-risk groups. Results suggest some stigma reduction interventions appear to work, at least on a small scale and in the short term, but many gaps remain especially in relation to scale and duration of impact and in terms of gendered impact of stigma reduction interventions.

Stigma and discrimination relating to HIV/AIDS (AIDS stigma) undermine public health efforts to combat the epidemic (Malcolm et al., 1998; UNAIDS, 2002; UNAIDS, 2000). AIDS stigma negatively affects preventive behaviors (e.g., condom use), HIV test-seeking behavior, care-seeking behavior on diagnosis, quality of care provided to HIV-positive patients, and perception and treatment of persons living with HIV/AIDS (PLHA) by communities, families, and partners (Gerbert, Macquire, Bleeker, Coates, & McPhee, 1991; Herek & Glunt, 1988; Herek, 1990; Macintyre, Brown & Sosler, 2001; Malcolm et al., 1998; Muyinda, Seeley, Pickering & Barton, 1997). One of the most surprising elements of AIDS stigma is its ubiquitous nature even where the epidemic is widespread and affecting so many people, such as in sub-Saharan Africa. Therefore, as many in the HIV/AIDS community note, decreasing AIDS stigma is a vital step in stemming the epidemic (Cameron, 2000; Goldin, 1994; Malcolm et al., 1998; UNAIDS, 2000b). Given this situation, it is critical that interventions that effectively reduce AIDS stigma be identified and implemented.

Lisanne Brown, Kate Macintyre, and Lea Trujillo are with the Department of International Health and Development, School of Public Health and Tropical Medicine, Tulane University, New Orleans, LA.

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Address correspondence to Lisanne Brown, Ph.D., Department of International Health and Development, School of Public Health and Tropical Medicine, Tulane University, 1440 Canal St., New Orleans, LA 70112; E-mail: lisanne.brown@tulane.edu

The objectives of this article are to describe interventions aimed at decreasing AIDS stigma, summarize common characteristics and audiences, and identify which aspects of these interventions have proven successful. The term *AIDS stigma* is used throughout this article to refer to all types of stigma related to HIV and AIDS. We have intentionally maintained a global perspective, though the majority of the studies reviewed in this article are stigma reduction initiatives implemented in the United States. With 90% of the burden of disease in poor, less developed nations, the imperative of international public health must be to search for, test, and implement strategies that reduce stigma in these countries.

BACKGROUND

WHAT IS STIGMA?

Stigma is often mentioned together with discrimination and human rights, but in this article we focus on stigma as a separate phenomenon that merits separate interventions. We do recognize, however, that these concepts are related and often interdependent.

Goffman, whose 1963 book on stigma is considered seminal to the topic, defines stigma as an undesirable or discrediting attribute that an individual possesses, thus reducing that individual's status in the eyes of society. Stigma can stem from a particular characteristic, such as a physical deformity, or from negative attitudes toward the behavior of a group, such as homosexuals or prostitutes. Under Goffman's definition, stigmatization is a dynamic process that arises from the perception that there has been a violation of a set of shared attitudes, beliefs, and values. Society thus labels an individual or group as different or deviant. Stigmatization can lead to prejudicial thoughts, behaviors, and/or actions on the part of governments, communities, employers, health care providers, coworkers, friends, and families (Cameron, 1993; Jayaraman, 1998; Zierler et al., 2000). Others have defined stigma as social processes that are linked to societal power structures (Link, 2001; Parker, 2001).

Several authors divide stigma into *felt*, or *perceived*, stigma and *enacted* stigma (Jacoby, 1994; Malcolm et al. 1998; Scrambler 1998; Scrambler & Hopkins, 1986). Felt stigma refers to real or imagined fear of societal attitudes and potential discrimination arising from a particular undesirable attribute, disease (such as HIV), or association with a particular group or behavior (e.g., homosexuality and promiscuity). For example, an individual may deny his/her risk of HIV or refuse to disclose HIV status for fear of the possible negative reactions of family, friends, and community. Felt stigma can be seen as a survival strategy to limit the occurrence of enacted stigma, such as when someone denies their risk of infection or fails to disclose HIV status for fear of being ostracized. Enacted stigma refers to the real experience of discrimination (Jacoby, 1994). For example, the disclosure of an individual's HIV-positive status could lead to loss of a job, health benefits, or social ostracism.

Individuals who hold negative attitudes or who enact stigmatizing or discriminatory behavior have been referred to as the perpetrators of stigma and discrimination (Herek & Capitanio, 1998). In contrast, those with or associated with the condition (e.g., HIV) or the behavior (promiscuous sex) are considered the targets of stigma.

WHAT ARE THE SOURCES OF AIDS STIGMA?

Sources of stigma include fear of illness, fear of contagion, and fear of death. In relation to HIV/AIDS, fear of illness, contagion, and death are common reactions among health workers, coworkers, and caregivers, as well as the general population

(Goldin, 1994; Malcolm et al., 1998). Although in some cases these fears are warranted, in many instances they are based on an inaccurate understanding of how HIV is transmitted (UNAIDS, 2000). There is some evidence that AIDS stigma is one means of coping with the fear that contact with a member of an affected group (e.g., by caring for or sharing utensils with a PLHA) will result in contracting the disease (Meisenhelder & La Charite, 1989).

HIV stigma is often layered on top of many other stigmas associated with such groups as homosexuals and prostitutes and such behaviors as injection drug use and sex outside of marriage. These layers of stigma have unfortunately helped to extend and deepen AIDS stigma among those infected as well as those affected by the disease, such as family members of those infected (Herek, 1993; Parker & Aggleton, 2002; Rushing, 1995; Sontag, 1990). AIDS stigma by association with someone who is HIV-positive is commonly called secondary stigma and can affect family and friends of PLHA (e.g., orphans), as well as health care workers.

HOW IS AIDS STIGMA MANIFESTED?

The HIV/AIDS pandemic has evoked a wide range of reactions from individuals, communities, and even nations, from sympathy and caring to silence, denial, fear, anger, and violence. Stigma is an important factor in the type and magnitude of the reactions to this epidemic (Malcolm et al., 1998). Research has shown that AIDS stigma can have a variety of negative effects on HIV test-seeking behavior, willingness to disclose HIV status, health-seeking behavior, quality of health care received, and social support solicited and received (Boyd, Simpson, Hart, Johnstone & Goldberg, 1999; King, 1989; Malcolm et al., 1998; Muyinda et al., 1997; Raveis, Seigel, & Gorey, 1998; Sowell et al., 1997).

Silence and denial may be the most pervasive reactions to stigma, as signified by the title of the 1999 International AIDS Conference in Durban, South Africa: "Breaking the Silence." For some individuals, not knowing one's HIV serostatus is far preferable to being tested (Cameron, 2000). Many fear that HIV testing is not confidential, which could lead to unwanted disclosure to family, employers and others in the community and ultimately lead to discrimination (Kayawe, Kelly & Baggaley, 1998; UNAIDS 2000). All of this prevails when there is little treatment available for the majority of HIV-positive individuals in developing countries. As one commentator on the situation in Zimbabwe said recently, "Why should I go and get tested when I know for a fact I won't be able to get the necessary treatment?"

Literature on caregiving shows that fear of contagion and fear of death have clear negative effects on health care workers' attitudes toward and treatment of PLHA (Gerbert et al., 1991; Kelly, St. Lawrence, Smith, Hood, & Cook, 1987; Weinberger, Conover, Samsa, & Greenberg, 1992). These attitudes range from mild disdain to refusal to treat to outright abuse of PLHA. But it is important to recognize that stigma can also affect health workers themselves, as often they are associated with HIV/AIDS just by caring for PLHA.

Physical harm of PLHA has been documented in the United States (North & Rothenberg, 1993; Rothenberg & Paskey, 1995; Sowell, Seals, Moneyham, Guillory, & Mizuno, 1999; Zierler et al., 2000) and in numerous reports from developing countries (Ogunyombo, 1999). Probably one of the most publicized events occurred in a Durban township in 1998. Gugu Dlamini, an AIDS activist, was killed by members of her community for openly disclosing her HIV status. This incident highlights the po-

TABLE 1. Methodological Criteria for Inclusion Into Review

Focus of Study	Report Statistical Significance of Results	Comparison Group Required
Attitudes toward PLHA among various subgroups of the general population	Yes	Yes
Willingness to treat PLHA among health care workers	Yes	Yes
Coping with perceived stigma among at risk or HIV+ individuals	Yes	No

Note. PLHA = persons living with HIV/AIDS.

tential consequences of AIDS stigma and points to the collective and communal as well as the individual level of involvement necessary to reduce stigma.

METHODS

This study aims to answer the following questions: What do we know about strategies for reducing AIDS stigma? What types of interventions have been tested and how successful have they been? What are the gaps in our knowledge about reducing AIDS stigma?

STUDY SAMPLE

AIDS stigma intervention studies included in this review were identified by searching the following computerized databases: AIDSLINE, MEDLINE, SOCIOFILE, PSYCHINFO, and POPLINE. Examples of key words used in the database searches include HIV/AIDS, prejudice, stereotyping, stigma, intervention, health education, behavior change, and attitude change. Additional articles were identified through examination of the references from the articles identified through the computerized database search.

There were three main criteria for inclusion in the review. First, the study had to have evaluated an intervention that included some component to reduce AIDS stigma (but it did not have to be the primary component of the intervention). Second, the study design had to have been either experimental or quasi-experimental and had to have included a control or comparison group, with the exception of those studies that were conducted among at-risk or HIV-infected populations due to methodological and ethical constraints (see Table 1 for a summary of these criteria). It is difficult, if not impossible, to identify an appropriate comparison group for studies with HIV-infected populations. Finally, we only included studies published in a peer-reviewed journal before December 31, 2001.

Using these criteria, we identified 22 studies that evaluated interventions aimed at reducing AIDS stigma. The majority of these studies were conducted in the United States (13 out of 22). Three studies were conducted in other developed countries (Canada, England, and Scotland). The remaining six studies took place in Nigeria (2), Tanzania (1), Thailand (1), South Africa (1), and Uganda (1).

It should be noted that many of the interventions presented in this review were not aimed exclusively at reducing AIDS stigma but involved many other components as well (i.e., increasing awareness and knowledge of HIV/AIDS, promoting behavior change, etc.). This review focuses on the stigma component within these comprehensive interventions.

TABLE 2. Types of Interventions

Type	Information–Based Approaches	Skills Building	Counseling Approaches	Contact With Affected Groups
Definition	Fact–based information based written and/or verbal communication	Learning strategies for resolving negative attitudes Learning a coping behavior	Providing support for positive behavior	Interaction between affected groups and general public
Examples	• Written information (e.g., pamphlet) • Video • Classroom–type factual presentation • Media advertisements • Peer education • Guided group discussions	• Role–play • Master imagery • Reframing and relaxing techniques • Group desensitization • Scripting	• One–on–one counseling • Support groups	• Live testimonials • Interaction with PLHA • Visualization of being a PLHA (empathy)

Note. PLHA = persons living with HIV/AIDS.

ANALYTICAL STRATEGY

To facilitate synthesis and presentation, the studies reviewed here were classified into three categories based on the study goals and target population: (a) Increase tolerance of PLHA among segments of the general population, (b) increase willingness to treat PLHA among health care providers, and (c) improve coping strategies for dealing with AIDS stigma among those at-risk or already infected with HIV.

A variety of interventions were tested across these three categories. To further facilitate this review, the interventions tested were divided into four groups: information-based approaches, skills building, counseling approaches, and contact with affected groups (Table 2). The authors defined these groups based on the AIDS stigma literature and the specific studies included in this review.

Information-based approaches are used in nearly all 22 intervention studies reviewed in this article and are generally didactic. The information is delivered through a variety of channels including advertisement, leaflets, information packs, videos, or presentation in a class or lecture. The content generally includes factual description of the disease, modes of transmission, and methods of risk reduction. With respect to stigma, the information generally emphasizes that PLHA are not to blame for getting HIV/AIDS and that they should be accepted into the community, school, clinic, and so on.

Skills-building interventions aim to teach skills for diffusing conflicting situations at the individual or small-group level. Examples include master imagery and group desensitization. In master imagery an individual is presented with a hypothetical situation where they have contact with a PLHA and is taught appropriate coping skills for resolving the situation. Group desensitization teaches relaxation training first and then progressively exposes the individual or group to a number of situations in which there is exposure to PLHA, utilizing the newly learned relaxation techniques to decrease tension in a hypothetical situation.

Counseling is a strategy used to provide information on HIV/AIDS, allow for more intimate discussion of concerns, and provide social support for behavior change or maintenance of safe behaviors. An example of this approach is a support group for PLHA, in which individuals receive within a safe environment personal support for re-

TABLE 3. Summary of HIV/AIDS Stigma Interventions by Focus of Study and Target Population

Reference	Country	Study Population at Baseline	Study Objective and Description of Intervention	Study Design Stigma Measures	Results
Attitudes toward PLHA among various subgroups of the general population					
Ashworth et al., 1994	U.S.	Mothers participating in WIC program (95% black) *n* = 217	*Information*: To determine which of two educational approaches (1) Videotape on AIDS; (2) one–on–one standardized session with a counselor has a greater effect on HIV/AIDS knowledge and attitudes of women participating in WIC program. Stigma component: to improve attitudes toward PLHA	*Study design*: Randomized experimental design with control and two experimental groups; pre– and posttest, with second posttest at two months. *Measures*: Modified version of CDC Health Risk Survey that includes question on whether PLHA should be isolated.	Both experimental groups showed higher tolerance for PLHA as compared to controls at first posttest, these effects did not differ across treatments. However by the second posttest the level of tolerance was the same in all three groups (control group decreased and experimental groups increased levels of tolerance).
Batson et al., 1997	U.S.	Young women in introductory psychology course *n* = 96	*Contact*: To assess effect of intervention that induced empathy towards PLHA through mock pilot radio broadcast testimonials of female PLHA with different type of HIV acquisition (blood transfusion and sexual behavior), on attitudes toward a young woman with AIDS specifically and PLHA generally.	*Study design*: Randomized–block 2 × 2 × 2 factorial design, pretest/posttest (12 per group). *Measures:* Empathic feelings (tested high versus low empathy) for the PLHA and attitudes toward PLHA.	Empathy scores higher in high–empathy group than in low; higher empathy for victim–not–responsible than for victim–responsible but both significant. Inducing empathy for a member of a stigmatized group (young woman with AIDS) can improve attitudes toward group as a whole.
Bean et al., 1989 Study 1	U.S.	Psychology students/ volunteers *n* = 192 (62 male and 130 female)	*Information, counseling, contact*: To reduce AIDS anxiety/fear and improve attitude toward PLHA through intervention that uses a combination of factual information, social contact, case studies, and group desensitization	*Study design:* Randomized two–way fixed effects experimental design stratified by gender. One control and five treatment groups. *Measures*: • AIDS Social Anxiety Scale • AIDS visitation scale • Control of PWAs/ HIV scale • Rights of PWAs Scale	All treatment groups had higher knowledge scores and lower anxiety scores as compared to control group. The brief desensitization group showed lower score for social restriction of PLHA.

Bean et al., 1989 Study 2	U.S.	Psychology students/ volunteers *n* = 53 (22 male and 31 female)	*Skills building:* To test two role–play strategies, improvisational vs. controlled role play, to reduce AIDS anxiety/fear and improve attitude toward PLHA	*Study design:* Randomized three–way fixed–effects experimental design with one control and two experimental groups, one stratified by subject gender, the other stratified by subject and experimenter gender. *Measures:* • Volunteer willingness scale • Homophobia scale • Fear of AIDS patients scale • Attitude toward patient scale	Improvisational group reported more positive attitude toward PLHA, higher scores on granting rights to PLHA. Intervention did not reduce measured fear. Experimenters with same sex subjects had stronger role play effects than with the opposite sex.
Bean et al., 1989 Study 3	U.S.	Psychology students/ volunteers *n* = 58	*Skills building*: To test three variations of experimenter–guided imagery: (1) mater imagery, (2) Empathy instruction, (3) and implosion (coping skills for anxiety) to reduce AIDS anxiety and improve attitude toward PLHA.	*Study design:* Randomized one–way fixed effects design with one control and three experimental groups. *Measures*: (See Bean Study 1 and 2)	The three levels of imagery reduced AIDS anxiety and increased altruism as compared to control, but no differential effects between treatment groups.
Bellingham & Gilles, 1993	England	Participants in 6 youth training centers in Nottingham, aged 16–19 *n* =173 treatment *n* = 164 control	*Information and skills building:*To evaluate the impact of an AIDS education program designed for young adults. Program included component on opinions and reactions towards PLHA. Intervention composed of factual information, in–depth discussion, and role–play.	*Study design*: Randomized trial with pretest–posttest design. Posttest conducted 2 weeks after intervention. Youth centers randomly assigned to treatment and control. All trainees aged 16–19 years attending the six centers included in sample; 71% response rate. *Measures:* • PLHA should be quarantined • PLHA had themselves to blame for infection	Although experimental group significantly improved their knowledge of HIV as compared to control after the intervention, there were no observed effects on sexual behavior, intentions, or attitudes towards PLHA. Most participants in both groups held positive attitudes at posttest, although 25% felt that people with AIDS should be quarantined and a third thought that those with HIV had only themselves to blame.

TABLE 3. continued

Reference	Country	Study Population at Baseline	Study Objective and Description of Intervention	Study Design Stigma Measures	Results
Fawole et al., 1999	Nigeria	Secondary school students in urban Ibadan *n* = 223 treatment *n* = 217 control	*Information and skills building*: To improve knowledge, attitudes and behavior of secondary school students through a school–based AIDS education program that included 6–weekly AIDS/HIV education sessions that lasted 2–6 hours each and included lectures, film, role–plays, stories, songs, debates, and essays.	*Study design:* Quasi–experimental design pretest and posttest at 6 months after the intervention. 11 mixed–sex public schools divided into 2 groups based on geographical location *Measures:* • Willingness to touch/ care for PLHA • AIDS is a 'white–man's disease • Dislike having someone with AIDS sitting next to them	Intervention students significantly more likely to be tolerant of people living with HIV/AIDS as compared to controls. For example, for the question "Would you be willing to touch and care for someone with AIDS?", 79% of the intervention group said yes, whereas only 14.3% of the control responded positively ($p < .05$).
Gill & Beazley, 1993	Canada	Primary school students (Grade 6) in one school district of Nova Scotia *n* = 135 treatment *n* = 130 control	*Information and skills building*:To assess the impact of Learning about AIDS on Grade 6 students' knowledge of HIV/AIDS and attitudes towards PLHA. Student–centered, activity–oriented program integrated with language arts or health education for 200 minutes of class time. Includes homework assignments designed to promote parental involvement.	*Study design:* Quasi–experimental design with pretest, 3–month posttest and comparison group. Fourteen elementary schools randomly assigned to treatment or comparison group. One class in each school selected to participate in the study. *Measures:* Attitudes toward PLHA (14 items)	Attitudes toward PLHA among treatment group were significantly more positive than those of the comparison group at both pretest and posttest, with the change significantly larger in treatment group. Parental assistance did not have an effect.
Klepp et al., 1997	Tanzania	Primary school students in two districts *n* = 814	*Information, skills building:* To test the effect of education program that included factual information, student–created posters songs/poetry, small group discussions, performed plays, and role play that aimed to reduce children's risk of HIV infection and to improve their tolerance of and willingness to care for PLHA.	*Study design:* Randomized controlled community trial with baseline, intervention, and 12–month follow–up. *Measures:* Attitudes toward PLHA (four items, including "I would visit a friend I knew had the AIDS virus")	Average score on attitudes toward PLHA scale significantly improved in the intervention group as compared to the control group. Mean score increased from 6.4 to 8.8 in intervention group as compared to 6.9 to 6.5 in control group ($p = .0015$)

Kuhn et al., 1994	South Africa	Secondary school students in socio–economically disadvantaged urban African area *n* = 231 treatment *n* = 336 comparison	*Information:* To assess the impact of a pilot AIDS education program in one high school on psychological determinants of behavior including acceptance of students with AIDS. Program included all classes in the school, Teachers and parents. It took place over a 2–week period using structured information sessions, open discussions, and integration of AIDS content into language curriculum. Activities such as role–play and games were also included.	*Study design:* Quasi–experimental pretest and posttest comparison group design. Students in intervention school compared to neighboring school *Measures*: Attitudes toward PLHA (whether students would accept someone with AIDS into their class)	At baseline, students in both schools expressed little acceptance of a person with AIDS. Following the intervention, reported acceptance increased, but remained low—from 17% to 41% in the intervention group and 10% to 11% in the control group. Fear of infection, AIDS is a disgrace or "bad" disease were the most commonly reported reasons for rejection of a PLHA. Program led to rumor that students and teachers in the school had AIDS, which generated much distress.
Maierson et al., 1996	U.S.	4th, 5th, and 6th grade students *n* = 254 (randomly assigned to eight experimental groups)	*Information:* To assess the impact of illness conceptualization, contagion, and perceived similarity on children's reactions to a hypothesized peer with AIDS. Vignettes varied four levels of contagion information and two levels of perceived similarity. Children receiving information about how AIDS is and is not transmitted, higher similarity and higher illness conceptualization were expected to have the most positive reactions towards a hypothetical peer with AIDS.	*Study design:* Experimental pretest, posttest design. Subjects assigned to one of eight vignette conditions using a stratified ransom procedure considering grade and sex. *Measures:* Acceptance of peer with AIDS (6 items including: How happy would you be about this child coming to your school? Would you ask this child to come over to your house?)	The type of information given to elementary school children affected their view of a peer with disease. Information about modes of transmission not sufficient to increase acceptance. Dispelling myths by describing ways HIV is not transmission lead to more positive reactions to peers with AIDS. Possible upward bias due to Magic Johnson announcement during the study period.
Markham et al., 2000	U.S.	Inner–city high school students *n* = 1,491	*Contact:* To determine the impact of HIV–positive speakers in context of a multicomponent HIV prevention program on inner–city adolescents' HIV risk perception and empathy for PLHA.	*Study design:* Randomized trial of 10 schools and students within each school *Measures:* • Fear of hugging a HIV/AIDS–positive classmate • Willingness to help a person with HIV or AIDS	Results show speakers were highly popular with students and teachers and had a positive short–term impact on student's attitudes. The combination of intervention and speakers had greatest impact on outcome variables. Using speakers without other educational components may have minimal effects.

TABLE 3. continued

Reference	Country	Study Population at Baseline	Study Objective and Description of Intervention	Study Design Stigma Measures	Results
Newman et al., 1993	U.S.	Students in Grades 6 and 7 n = 645 treatment I *n* = 414 treatment II *n* = 390 control	*Information:* To evaluate the effect of a public school–based AIDS/HIV education program on AIDS knowledge, attitudes and perceived risk of HIV infection. The intervention consisted of a 1–hour education program with video and question–and–answer session. The control group received no intervention.	*Study design:* Quasi–experimental pretest and posttest control group design at 6 months after the intervention. Second intervention group with posttest only. *Measures:* • Tolerance of students with AIDS (2 item scale) • HIV/AIDS patients should not be isolated	The intervention had a no effect on tolerance towards HIV infected students. There were significant differences in tolerance levels between the groups at pretest. Following the intervention both groups increased level of tolerance, but were not significantly different from each other. Some evidence of a testing effect when results of Treatment II included.
Scollay et al., 1992	U.S.	Introductory psychology students *n* = 25 experiment I *n* = 25 experiment II *n* = 25 control	*Information and contact:* To assess the effectiveness of two types of AIDS education presentors—disclosed and undisclosed—on AIDS attitudes and behavioral intent. Disclosed condition defined as a 1–hour lecture by PLHA, where status discussed with the subjects. Undisclosed condition involved same lecture by same individual, but status not disclosed. Control group received no HIV/AIDS information.	*Study design:* Quasi–experimental design pretest and posttest at 4 weeks after the intervention. *Measures:* • Perception of risk • Perception of disease as dangerous • Victim–blame • Self–efficacy	Disclosed group improved significantly over time and more so than the undisclosed and control groups. Effect diminished slightly at follow–up (4 weeks after intervention), though still significantly higher than pretest.
Willingness to treat PLHA among health care workers					
Gerbert et al., 1988	U.S.	Dentists in San Francisco *n* = 36 treatment *n* = 66 control	*Information and skills building:* To increase knowledge of HIV and its oral manifestations, improve performance during examination procedures, and to increase willingness to treat persons with HIV infection through educational interventions based on adult–learning techniques (computerized feedback comparing participants' own knowledge, attitudes, and behaviors with those of fellow participants and with the ideal, periodic bulletins, and telephone calls with experts)	*Study design:* Experimental design with pre–test and posttest 6 months after intervention. Dentists randomly assigned to intervention \and control. Note: participants who completed study represent only 14% of dentists invited into the study. *Measures*: • Attitudes indicating willingness to treat • Fears about transmission to patient • Losing other patients • Upsetting staff • Lack of skills to adequately treat PLHA	Review of pretest scores indicated the need for improvement on all five outcome variables. The willingness to treat score was just above the midpoint of the scale, reflecting dentists' ambivalence toward the issue. At posttest there was a significant improvement among the intervention group as compared to the control on all measures, including the willingness to treat measures.

Held, 1993	U.S.	Physical therapy students Convenience sample *n* = 51 treatment n = 52 control	*Information, skills building:* To reduce fear of AIDS, negative attitudes towards PLHA, and increase health workers' willingness to treat PLHA through a four hour educational unit: Part 1 – factual information, Part 2: skills building.	*Study design*: Quasi–experimental design pretest and posttest at 1 week after the intervention. Random assignment to intervention and control. *Measures*: • Willingness to treat • Intent to treat • Attitudes towards PLHA	Experimental group showed significant improvement in knowledge, attitudes and willingness to treat PLHA. Control group showed no significant change or in some cases a negative change. Mean unwillingness to treat scale changed from 2.29 to 2.02 ($p \leq .05$)
Lueveswanji et al., 2000	Thailand	Oral health personnel (dentists, dental nurses, and dental assistants) *n* = 103 treatment *n* = 46 control	*Information, skills building, contact:* To improve HIV/AIDS related knowledge, increase willingness to treat and improve infection control practices through a three–day continuing education training program that included lectures, videos, role–play, interviews with PLHA and demonstrations.	*Study design:* Quasi–experimental design pretest, posttest (3 months after intervention) with comparison group (not randomly assigned) *Measures:* • Wwillingness to treat PLHA • Pperceived risk of infection when treating PLHA • Prefer to refer PLHA • Attitudes toward PLHA	Knowledge, attitudes and infection control practices improved in experimental group; little change in control group. Willingness to treat PLHA increased from 49% to 64%, no change in the control group. Perceived risk and preference to refer patients did not change and remained high at more than 90%. The intervention was partially successful in changing attitudes. Respondents had positive and negative attitudes towards PLHA before and after the intervention
Sadowsky & Kunzel, 1992	U.S.	Dentists in the U.S. *n* = 929 (20% did not participate in intervention voluntarily)	*Information*: To assess the effect of different intensities of an FCE program on the perception of risk associated with treating PLHA and dentists opinion about their ethical obligation and willingness to treat PLHA during a 2–year period. The different intensities of the FCE program were < 2 hours, 3–6 hours, and > 7 hours.	*Study design:* Quasi–experimental design using weighted, stratified, random sample of U.S. general dentists. Information collected by mail and phone follow–up with 88% response rate. Those reporting taking no course are the control group *Measures:* • Fear of treating PLHA • Equal treatment for PLHA	Less than 20% reported taking no courses; women more likely than men to take courses and to take more hours. Dentists more afraid of caring for than treating PLHA. Respondents' attitudes improved in relation to the numbers of hours of FCE. With an increase in FCA hours, fewer respondents perceived treating AIDS patients as risky as compared to patients with infectious hepatitis, and agreed dentists had an ethical obligation to treat PLHA.

TABLE 3. continued

Reference	Country	Study Population at Baseline	Study Objective and Description of Intervention	Study Design Stigma Measures	Results
Uwakwe, 2000	Nigeria	Registered nurses pursuing BSc nursing program *n* = 68 treatment *n* = 73 control	*Information and skills building:* To improve knowledge, attitudes, beliefs regarding HIV/AIDS, PLHA and infection control behaviors through a 7–week training and IEC program that included 28 lectures, seminar, multimedia presentation and discussion sessions. Dissemination of information through print and electronic media.	*Study design:* Quasi–experimental design pretest, posttest with comparison group (not randomly assigned). *Measures:* • Fear of treating PLHA • Equal treatment for PLHA	Minor improvements in experimental group compared to control regarding attitudes. Concern about treating AIDS patients decreased from 80% to 53%. Percent who thought PLHA should be given ID cards decreased from 42% to 20%; no change in control, while those who wanted the right to choose to treat PLHA decreased significantly from 80% to 24% in the intervention group; with no change in control group
Coping with perceived stigma among at risk or HIV–positive individuals					
Kaleeba et al., 1997	Uganda	Clients of (TASO) *n* = 232	*Information, counseling:* To improve life of PLHA through promotion of disclosure and acceptance by family and community through one–on–one counseling approach. This is an evaluation of an ongoing PLHA support organization.	*Study design:* Convenience sample; semi–structured interviews, focus groups, 24 key informant interviews, case studies of clients. *Measures:* • Coping of clients and families • Disclosure	90% reported revealing serostatus to someone. Family support, 79%; community acceptance, 76%; HIV knowledge, 98%; condom use, 33%; and abstinence, 45%
Perry et al., 1991	U.S.	A symptomatic at–risk adults testing for HIV *n* = 307	*Information, skills building and counseling:* To examine the effectiveness of three different psychoeducational interventions in reducing emotional distress after HIV testing: standard post–HIV test counseling, a three–session interactive video, or a six, 1–hour stress prevention program (SPT).	*Study design:* Randomized longitudinal design, no control, and three experimental groups. Pretest before HIV testing and posttest at 3 months. *Measures:* • Beck depression inventory • Brief symptom inventory • State anxiety inventory • Trait anxiety inventory	Seronegative subjects' distress level decreased for all groups. No differential treatment effects. Seropositive subjects in SPT group had reduced distress as compared to other two groups. Distress levels did not increase for other two groups.

Simpson et al., 1998	Scotland	Pregnant women *n* = 3,024	*Information, counseling:* To assess uptake and acceptability of HIV testing among prenatal women offered the test through four combinations of leaflets, duration of discussion, and midwives who discussed HIV in different depths of detail. All women in experimental groups offered HIV test. The all blood test pamphlet aimed to normalize HIV.	*Study design:* Randomized controlled trial, one control, four experimental groups, only posttest. *Measures:* • Knowledge of HIV (11 items) • Satisfaction with services (5 items) • Anxiety (6 items)	Uptake rates for intervention was 35%, as compared to 6% for control group. All intervention groups had significantly higher rates as compared to control group. Effects, including satisfaction and anxiety, did not differ by type of intervention.

Note. WIC = Women, infants and children; PLHA = persons living with HIV/AIDS; PWA = persons with AIDS; FCE = focused continuing education; SPT = stress prevention program.

solving issues or situations such as disclosure or instances where the PLHA feels that they are being excluded or shunned by their spouse, families, or communities. Counseling can include some skills building.

Contact creates an environment in which the general population can interact with the stigmatized group, either directly (e.g., PLHA speaking to an individual or group) or vicariously (e.g., through the media or recorded testimonial). The theory is that a more personal relationship with a PLHA, either through face-to-face conversations or hearing a testimonial from infected or affected individuals, will demystify and dispel misinformation and generate empathy, which in turn reduces stigma and prejudice (Allport 1954; Brewer & Miller, 1984).

Multi-intervention or multichannel approaches were common in the studies reviewed, based on the premise that no single effort is sufficient. In addition, some studies tested different strengths or modes of the same intervention strategy (e.g., different levels of intensity of providing information in order to test a dose-response effect). Generally in a multi-intervention study, the first intervention group receives information or a combination of the standard of care (i.e., the standard post-HIV-test counseling) plus the new information/educational component that is being tested. The next intervention group builds on the first by adding another type of intervention or a deeper layer of information, with the aim of creating synergistic effects. Comparisons are then made between comparison and intervention groups and between interventions groups.

Each study was reviewed with respect its goal, target population, the type of intervention tested, methodology used, and results. Table 3 presents a summary of this analysis.

REVIEW OF METHODOLOGIES USED IN THE STUDIES REVIEWED

Ten of the 22 studies used a randomized experimental design with a control group (see Table 3 for descriptions of the studies and their designs). The remaining 12 studies used some type of quasi-experimental design that included a non-randomly selected comparison group, with the exception of the Uganda study, which did not include a control or comparison group (Kaleeba et al., 1997). Eight studies tried to assess whether change was maintained after the intervention. For most of these studies the time frame was 2-6 months after the intervention (Ashworth, Du Rant, Gaillard, & Rountree, 1994; Fawole, Asuzu, Oduntan, & Briegere, 1999; Gerbert et al., 1998; Gill & Beazley, 1993; Lueveswanij, Nittayanata, & Robinson, 2000; Newman, DuRant, Ashworth, & Gaillard, 1993; Perry, Rishman, Jacobsberg, Young, & Rances, 1991). The Klepp, Ndeki, Leshabari, Hannan, & Lyimo (1997) study was the only one that measured change 12 months after the intervention.

RESULTS

ATTITUDES TOWARD PLHA AMONG VARIOUS SUBGROUPS OF THE GENERAL POPULATION

Negative attitudes of PLHA among the general population are one of the most common manifestations of AIDS stigma, which could potentially lead to discriminatory actions (e.g., exclusion). Interventions to increase tolerance and acceptance of PLHA are aimed at decreasing these negative attitudes and promoting positive attitudes toward PLHA.

Fourteen of the 22 studies aimed to increase tolerance toward PLHA among different segments (or proxies) of the general population using a variety of intervention

strategies with mixed success. In addition, the target group, setting, and scale of these studies varied tremendously. The Ashworth et al. (1994) study is the only one that tested an intervention to promote tolerance toward PLHA in a nonstudent sample, in this case WIC mothers. The intervention consisted of information alone and did not lead to any long-term changes.

Four studies were conducted among small groups of university psychology students in the United States, which tested contact; different types of skills building; and a combination of information, counseling, and contact (Batson et al., 1997; Bean, Keller, Newburg, & Brown, 1989). All four studies showed an increase in tolerance toward PLHA or a reduction in stigmatizing attitudes in the intervention groups as compared with control groups. Few differences were found among the intervention arms. Although these studies test some innovative intervention strategies (e.g., master imagery), the generalizability of the findings is questionable given the small and possibly biased samples. In addition, none of these studies assessed any long-term impact of the interventions.

As the number of children and youth who are infected or affected by HIV/AIDS and attending schools increases, there is greater risk of stigmatization by teachers and classmates who may fear contracting the disease from them or have stigmatizing views of PLHA. Rejection and isolation can result in negative consequences for all students. Eight intervention studies aimed to promote tolerance of PLHA among primary and secondary school children with mixed results (Bellingham & Gilles, 1993; Fawole et al., 1999; Gill & Beazley, 1993; Klepp et al., 1997; Khun, steinberg, & Matthews, 1994; Markham et al., 2000; Maierson, Roberts, & Prentice-Dunn, 1996; Newman et al., 1993). Although all studies did increase the knowledge levels of students, the effect of the interventions on attitudes toward PLHA had mixed results. In South Africa, for example, the students did report increased acceptance of PLHA, but the level remained low (41% at follow-up, up from 17% at baseline; Khun et al., 1994). Fear of infection and belief that AIDS is a disgrace or "bad" disease were the most commonly reported reasons for rejection of a PLHA among the South African students. Of note, the intervention led to a rumor that students and teachers in the school had AIDS, which generated much distress.

A randomized community trial among primary-school children in Tanzania tested a 3-month program consisting of AIDS-related information, small-group discussions about risk reduction, student-created posters depicting perceptions of HIV risk factors, and role play (Klepp et al., 1997). One of the objectives of this program was to improve the students' tolerance of and willingness to care for PLHA. At the 12 month follow-up attitudes toward PLHA among the schoolchildren had significantly improved.

WILLINGNESS TO TREAT PLHA AMONG HEALTH CARE WORKERS

There continues to be concern about health care workers' reluctance to care for and treat PLHA, particularly among dentists (Sadowsky & Kunzel, 1994; UNAIDS 2000b). Therefore, several interventions have tried to increase the willingness of health care workers to provide care for PLHA. Five studies were identified that evaluated interventions to increase the willingness of health care workers to treat PLHA among oral health personnel in the United States and Thailand, nurses in Nigeria, and physical therapy students in the United States (Gerbert et al., 1998; Held, 1993; Lueveswanji et al., 2000; Sadowsky & Kunzel, 1992; Uwakwe, 2000). Three of the five studies tested a combination of information and skills-building strategies (as com-

pared with information alone or no intervention) to improve attitudes toward and increase willingness to treat PLHA. Lueveswanji et al. (2000) tested three strategies—information, skills building, and contact—to improve the attitudes and practices of oral health personnel in Thailand. Sadowsky and Kunzel (1992) tested different intensities of information.

In general these interventions were successful in improving knowledge about AIDS, infection control practices, and willingness to treat PLHA. However, in several of the studies, the interventions were not successful in reducing fear of infection. For example, in Thailand the perceived risk of infection and preference to refer patients remained high (above 90%) after the intervention.

COPING WITH PERCEIVED STIGMA AMONG AT-RISK OR HIV-POSITIVE INDIVIDUALS

The three studies that aimed to help those at-risk or HIV-positive cope with perceived stigma all used a combination of information-based and counseling approaches (Kaleeba et al., 1997; Perry et al., 1991; Simpson et al., 1998). Kaleeba et al. (1997) conducted a participatory evaluation of the TASO support group program in Uganda, which resulted in almost universal disclosure to at least one person (90% reported revealing serostatus to someone). However, this study was conducted among a convenience sample of program clients and did not include a comparison group.

Perry et al. (1991) and Simpson et al. (1998) tested interventions to reduce stress associated with those seeking HIV testing. Perry et al. tested the effectiveness of three different psychoeducational interventions in reducing emotional distress after HIV-testing: standard post-HIV test counseling, a three-session interactive video, or a stress prevention program (SPT) that consisted of six 1-hour sessions. Distress among HIV-positive subjects was only reduced in the intense stress prevention program; the counseling and video strategies did not result in any changes in anxiety (Perry et al., 1991).

Simpson et al. (1998) tested four combinations of different types of leaflets (HIV test specific vs. an all blood test pamphlet aimed to normalize HIV) with midwives who discussed HIV in different levels of detail. The women in the four experimental groups were offered an HIV test. All four experimental groups had significantly higher testing rates as compared to the control group. Satisfaction and anxiety related to testing did not differ by type of intervention.

SUMMARY AND IMPLICATIONS

Throughout history many diseases have carried considerable stigma. The list includes leprosy, tuberculosis, cancer, mental illness, and many sexually transmitted diseases. HIV/AIDS is only the latest disease to be stigmatized. This review of interventions has helped demonstrate both strengths and weaknesses of the interventions tested to date to reduce AIDS stigma. However, given the magnitude of this pandemic one could hardly claim that the area of stigma reduction is well studied. This section discusses some of the lessons we can draw in terms of content and methodology, and it outlines gaps for future research.

There are several limitations of these studies. First, the majority present hypothetical encounters with PLHA, which does not ensure that people will be tolerant in actual encounters. For example, none of the studies among health care workers di-

rectly observed their behavior. Therefore, we don't know if their expressed willingness to treat will be translated into actual behavior.

Second, the majority of these interventions were tested among small samples of select populations; thus, the generalizability of the findings is questionable. This is particularly true for those studies aiming to increase tolerance of PLHA among the general population.

Third, there was a tremendous diversity in the measures used to assess stigma. Although some studies used well-established scales measuring knowledge, stress and anxiety, others used single measures, such as "students would accept someone with AIDS into their class."

Finally, the measurement of stigma was rudimentary in a number of studies, often based on a single question in a survey. Although some studies developed and tested scales to measure the concept of tolerance toward an HIV-positive person, others reported tolerance levels such as willingness to sit beside/eat with/share utensils with a PLHA.

Fourth, few studies assessed the long-term effect of the antistigma interventions. Only one study (Klepp et al., 1997) looked at program impact 12 months after the intervention, whereas the remaining studies assessed impact immediately after the intervention or 2-6 months following the intervention. Therefore, we have little evidence as to whether these interventions have any sustained impact.

IMPLICATIONS FOR INTERVENTIONS

Although the majority of the studies did report some positive results, many also found negative and mixed results. For example, several studies report evidence of superficial changes in attitudes based on improved knowledge, but little change in deep-seated fears. We still know very little about what it takes to change attitudes in the long term. Many of the studies report very high variability across the interventions tested in terms of type, content, intensity and target population. A review of these results, even though they all had an element of stigma-reduction within their design, is difficult with so many other elements varying.

Most of the studies show that information together with skills building is more effective in raising knowledge levels and reducing some stigmatizing attitudes among the general population, as compared with information alone. Those studies that tested information alone, such as Ashworth et al. (1994), were not successful in changing attitudes two months after the intervention. Therefore, it seems clear that information is not sufficient to change attitudes or effect behavior toward those with HIV/AIDS.

As is common in much health communication research, many of the studies tested several different modes of the same strategy (e.g., different approaches to providing information or coping skill acquisition). In general, these studies found no differences between intervention groups. For example, Simpson et al. (1998) used different depths of information and presented it in varying lengths of time to test whether in-depth information or more time taken in presentation had a stronger or weaker effect on acceptance of HIV testing by antenatal women. Although nearly all the intervention groups in this study had higher acceptance rates than the controls, no intervention group was found to have significantly greater acceptance rates than the others, and this lack of difference between groups was echoed in other studies.

The studies reviewed here suggest that contact with PLHA might be one of the most promising approaches, though it is clearly not sufficient without improved understanding about the disease (i.e., together with information approaches). Contact

alone had a short-term impact among high school students in Texas (Markham et al., 2000) but had greater (though not statistically significant) impact when combined with information. The impact of the contact method is well illustrated by the Scollay, Doucett, Perry, and Winterbottom (1992) study that showed the significant effect of the educational session given by someone who has disclosed their status, compared with the same person giving the same session but not disclosing they were HIV-positive.

Most of the studies reviewed here used some form of multi-component design to the intervention. This is presumably based on the assumption that no "magic bullet" is available to alter something as complex as the stigma of a disease. However, we can still conclude little about which types of mixed method interventions work best for reducing stigma. Each mix seems to have something to recommend it, and yet no studies have tackled the relative impact of different strategies systemically.

RECOMMENDATIONS FOR FUTURE RESEARCH

In terms of gaps in our knowledge of how to reduce stigma, this review can begin to point in a few directions. First, relatively few interventions to reduce AIDS stigma have been conducted (or at least rigorously evaluated, documented, and published). Many more interventions need to be tried. If future research is to benefit and learn from past interventions, the results of these studies need to be widely disseminated.

Second, not all types of interventions have been tested in all settings or populations. For example, inducing empathy for PLHA through direct contact has proven successful in reducing stigma and increasing positive attitudes in the United States. However, we do not know much about how well this approach works in developing countries. Consider, for example, how many PLHA there are living in many communities in Africa, and yet stigma remains despite their presence (although most do not know their status).

We were surprised not to find any studies testing national level interventions to combat stigma. We had expected to find studies on the effect of mass media campaign on stigma, but if the programs do exist they have not been evaluated or documented in the published literature. Mass media programs have great potentially for helping to reduce stigma and should be tested.

This review tells us that multimethod approaches appear to reduce stigmatizing attitudes, at least in the short term and on a small scale. But we need experiments and programs that scale up efforts to combat stigma. We need evidence of multichannel, comprehensive programs, targeting whole communities, not only health workers or PLHA, whose lives are centered within complex worlds in their own communities and whose reaction to the stigma of AIDS will be influenced by the community's norms. In such comprehensive programs, once stigma has been reduced, does it remain at a low level? In effect, the question of what drives stigma is an especially important and complex one given the rapidly changing and dynamic situation that surrounds the epidemic.

Despite lots of anecdotal evidence women are often blamed for the spread of HIV/AIDS in many parts of the world, none of the studies reviewed here investigated the possible gendered aspects of stigma. A few of the studies in an educational setting did look at differences between boys and girls, but they were clearly not designed to look at the specific gender differences. No study looked at different messages that could be tailored to men and women, nor were there any efforts to compare differential impact of male versus female contacts for different gendered audiences.

Finally, the increased access to drugs in the developing country contexts may have important effects on stigma and must be documented. Reduction in stigma for some infectious diseases can probably be traced to the availability of drugs that have cured, masked, or delayed the onset of final illness or at least treated the worst symptoms of the diseases (Macintyre & Macdonald, 2000). Therefore, it will be highly instructive to observe the impact of the collection of protease inhibitors on AIDS stigma in multiple settings and cultural contexts.

To conclude, the ubiquity of stigma and its persistence even in areas where HIV prevalence is high makes it an extraordinarily important yet difficult area of research. One would expect stigma to decrease with increased visibility of HIV, but this is not the case in much of Africa. Given the fact that AIDS stigma introduces enormous barriers to public health programs—from the denial and silence to problems associated with disclosure, health-seeking behavior, and the communal violence and breakdown of communication that ended Gugu Dlamini's life—it behooves the international public health community to begin to use more creativity in designing AIDS stigma interventions and to implement them on a significant scale.

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