

Applying Social Marketing Principles to Understand the Effects of the *Radio Diaries* Program in Reducing HIV/AIDS Stigma in Malawi

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ABSTRACT. Relatively little is known about the extent to which health campaigns can play a constructive role in reducing HIV/AIDS-related stigma. The Malawi *Radio Diaries* is a program in which HIV-positive men and women openly discuss day-to-day events in their lives with the goal of reducing stigma in the population. Adopting a social marketing perspective, we analyze the various components of the *Radio Diaries* program in terms of three of the “Four P’s”: product (stigma reduction), place (radio), and promotion (the program itself). We first investigated the important dimensions of stigma and then developed a model to test the demographic and

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This project was funded by the United States Agency for International Development. Authors wish to acknowledge the assistance provided by Kirsten Böse, Glory Mkandawire, Jane Brown, and Lisa K. Folda from the Center for Communication Programs at Johns Hopkins University and Hestern Banda and Esnart Nawanga from Salephera Consulting in Lilongwe, Malawi.

psychosocial correlates of these dimensions. A midterm household survey was then used to determine the relationship between exposure to the *Radio Diaries* program and stigma. In multivariate analyses, lower education and knowledge were associated with stronger beliefs that persons living with HIV should be isolated from others. Exposure to the *Radio Diaries* program did not have a main-effect on stigma, but there was a significant interaction between exposure and efficacy to reduce number of partners such that there was little difference in stigma by exposure level for those with low efficacy, but a significant difference by exposure level for those with high efficacy. Findings are discussed in terms of social marketing principles.

KEYWORDS. Condom use, HIV/AIDS stigma, knowledge, social marketing, self-efficacy

Noticing the rising commercial influence of the mass media in the United States, Wiebe (1952) first raised questions about whether the principles used to sell commodities could not also be used to promote social good. "Why can't you sell brotherhood and rational thinking like you sell soap?" he asked (p. 679). This approach, later termed social marketing (Kotler and Zaltman, 1971), is based on reaching consumers through the appropriate "marketing mix," which refers to decisions about product, price, place, and promotion (the "Four P's" of marketing). It differs from commercial marketing because of the underlying objective, to promote the welfare of the consumer, as opposed to maximize profit. In this paper, we ask whether a social marketing-based approach can be used to understand the effects of a campaign to reduce HIV/AIDS-related stigma. In the campaign, the "product" being promoted, through radio as a "place," is the concept of stigma reduction. We will first describe the "product" and then elaborate on particular aspects of the "place" and "promotion" that define the social marketing effort.

Social marketing techniques used in campaigns to reduce HIV/AIDS have focused on tangible products such as condoms (Eloundou-Enyegue et al., 2005) or voluntary counseling and testing (Hewer et al., 2005); selling an intangible idea such as stigma reduction, however, presents new challenges in applying the "Four P's" of marketing. This paper describes the product of stigma reduction, including the use of formative research to understand

the relevant dimensions of stigma in a population, and the choice of place and promotion in designing a communication intervention.

The Problem of Stigma in HIV Prevention

Reducing stigma related to a disease is a vital part of prevention and treatment, as stigma has harmful effects on prevention behaviors, treatment seeking, social support for those with the disease, treatment adherence, and overall quality-of-life for those with the disease (UNAIDS, 2006). In several studies, people living with HIV/AIDS (PLHA) report rejection by family members upon disclosing their diagnosis (Bennett, 1990; King, 1989), including violence against women with HIV who disclosed (Gielen et al., 1997). More often, PLHA report fear of rejection or isolation, leading to keeping HIV status a secret (Chung and Magraw, 1992; Hays et al., 1993; Siegel and Krauss, 1991; Wolfe et al., 2006). Disclosure often leads to strains on interpersonal relationships, causing PLHA to face isolation and lack of social support (Crandall and Coleman, 1992; Laryea and Gien, 1993; Wolfe et al., 2006). Caretakers and other family members are often targets of secondary stigma, facing similar kinds of rejection from extended family members as PLHA or feeling the burden of keeping the diagnosis a secret from others (Jankowski et al., 1996; Poindexter and Linsk, 1999). One study (Snyder et al., 1999) found that HIV-related stigma served as a deterrent to volunteerism and was associated with attrition and burnout among volunteers working with HIV/AIDS organizations.

Discrimination affects health care and other aspects of life for PLHA. In a recent study in Botswana, Wolfe et al. (2006) reported that over a quarter of respondents feared loss of employment due to HIV status. PLHA have reported discrimination in health care (Lester et al., 1995), and health care providers have reported aversion to treating PLHA (Silverman, 1993). Stigma also impacts treatment because it reduces support and care from family members (Castro et al., 1998), and it hampers medication adherence (Rao et al., 2007) as people skip doses to conceal HIV status. From a prevention standpoint, many studies have demonstrated that fear of HIV diagnosis and stigma toward PLHA are associated with lower likelihood of HIV testing (Chesney and Smith, 1999; Hutchinson and Mahlalela, 2006; Kalichman and Simbayi, 2003; Lee et al., 2005; Myers et al., 1993). Lieber (2006) reported that participants described

fearfulness and embarrassment about talking to health care personnel about the possibility of infection due to fear of rejection and discrimination from friends, family, and health care providers that could result from a positive diagnosis. Such fears could lead to delays in testing, seeking treatment, and engaging in preventive or information-seeking behaviors.

Malawi, HIV/AIDS, and Stigma

Sub-Saharan Africa is home to 60% of the HIV infected population worldwide – 25.8 million people – despite having only 10% of the world's population (UNAIDS, 2006). Malawi has been hit particularly hard with this epidemic. HIV infects an estimated 12.7% of the adult population in Malawi, or 850,000 adults, 59% of whom are women (UNAIDS, 2006). In 2005 there were 78,000 deaths due to AIDS (UNAIDS, 2006). With a population nearing 13 million people and growing at 2.3% each year, combined with 76% of the population living on under US\$2 a day (UNAIDS, 2006), Malawi faces many development challenges made worse by the HIV epidemic. As of 2005, life expectancy for women was 42 years and for men 41 years (UNAIDS, 2006). Combined with maternal mortality and infectious diseases, HIV dampens the productivity of the adult labor force, further threatening the nation's development. Approximately 75% of AIDS cases in Malawi are in adults age 20–40, producing serious economic and family costs among what should be the most productive segment of the population (National AIDS Commission, 2003).

Formative research in Malawi pointed to a feeling of lack of control over life events and over HIV as a major theme (Rimal et al., 2004). Focus group participants felt helpless in the face of poverty and HIV while recognizing the impact that HIV had on their community in terms of lost adults who could work and care for children and the elderly. Participants expressed pessimism about the effectiveness of condom use and fearful about HIV testing. Fears about HIV testing included feelings that a positive result would invoke, such as depression, suicidal ideation, anxiety, and reactions from others, including insults, teasing, and isolation. In survey data, about 18% of the sample felt that HIV-positive people should keep their status private, and 29% of the sample felt people with HIV should be isolated from healthy people to avoid the spread of the disease.

Perceptions of stigma were also high, with about half of respondents believing that most families would reject a relative who was ill with AIDS; when compared to the 95.8% of people who said they would be willing to take care of a family member with HIV, it seems that either personal responses are subject to a strong social desirability bias or perceived stigma is higher than actual stigma in the community. This formative research pointed to the need to reduce HIV-related stigma and perceived stigma as a means to reduce fear and anxiety associated with preventive and testing behaviors.

The Product: Stigma Reduction

The formative research pointed to a “product” that the population wanted and needed: stigma reduction. This product, however, is ambiguously defined, as the nature of stigma itself is thought to comprise several dimensions that may vary in importance in different populations. In this section we discuss conceptualizations, dimensions and correlates of stigma and a method for understanding stigma in Malawi.

Conceptualizations of Stigma

Scholars point to Goffman’s (1963) formulation of stigma as “an attribute that is deeply discrediting” that reduces the bearer of the attribute “from a whole and usual person to a tainted, discounted one” (p. 3). Others have noted that this interpretation is narrower than Goffman intended, given that he adds, “it should be seen that a language of relationships, not attributes, is really needed” (p. 3). Castro and Farmer (2005) note that the narrower formulation has made conceptualizations of stigma in research “divorced from broader social processes,” (p. 54), whereas Parker and Aggleton (2003) write that “Goffman’s framework has been appropriated in much research on stigma (whether in relation to HIV/AIDS or other issues), as though stigma were a static attitude rather than a constantly changing (and often resisted) social process” (p. 14). As such, it is useful to consider how HIV, PLHA and HIV-related stigma are concepts that are constructed through social interaction, with specific meanings that continuously change over time.

Link and Phelan (2001) conceptualized stigma as a social process in which differences are distinguished and labeled, labeled persons are linked to negative stereotypes, distinctions between “us” and

“them” arise to separate labeled people from the rest of the population, and labeled people experience status loss and discrimination.

Dimensions of Stigma

In most studies of HIV-related stigma, a simpler definition is used for measuring the term, reflecting Herek et al.'s (1998) definition of AIDS-related stigma as “prejudice, discounting, discrediting, and discrimination directed at people perceived to have AIDS or HIV and at the individuals, groups, and communities with which they are associated” (p. 36). Current literature recognizes that there are multiple dimensions of stigma such as fear of casual contact with PLHA, value judgments ascribing blame to PLHA for their condition and about the shamefulness of having HIV, unwillingness to disclose HIV due to perceptions of stigma in the community, and enacted stigma such as isolation and exclusion, abandonment by friends and family, teasing and gossip, and violence (Nyblade and MacQuarrie, 2006; Ogden and Nyblade, 2005). The underlying dimensions of stigma may vary in importance and content in different populations; for example, fear of casual contact may be minimal in populations where antiretroviral drugs are available because PLHA will have fewer visible symptoms. Drawing on the baseline data from our intervention in Malawi, we first explore the primary dimensions underlying HIV/AIDS-related stigma.

Correlates of Stigma

Demographic and psychosocial variables have been found to be correlates of HIV-related stigma. Older individuals tend to hold stronger stigmatizing beliefs (Herek, 1999), but the relationship between gender and stigma is mixed. Higher education is associated with lower levels of stigma (Herek, 1999; Herek et al., 2005; Liu et al., 2005), and higher religiosity has been associated with higher levels of stigma (Herek et al., 2005).

Low HIV-related knowledge is consistently associated with higher levels of stigma across studies (Buseh et al., 2006; Dias et al., 2006; Herek et al., 2005; Kalichman et al., 2006). Low self-efficacy to reduce risk behavior is related to higher levels of stigma (Burkholder et al., 1999; Campbell et al., 2007), but this relationship may be bidirectional: Just as stigma deters people from seeking information about risk reduction, lack of skills about risk reduction may lead people to

distance themselves from those with HIV. The relationship between perceived risk of contracting HIV and stigma is mixed, with some studies showing a positive (Buseh et al., 2006; Herek et al., 2005), and others a negative (Campbell et al., 2007) relationship. Similar explanations are given for these findings. On the one hand, people with high perceived risk, possibly due to truly high levels of risk behaviors, seek to psychologically distance themselves from their risk of HIV by stigmatizing those with HIV (Liu et al., 2005); on the other hand, this distancing may lower perceived risk of contracting HIV. In this paper, we ask whether these findings can be replicated in the Malawian context.

RQ1: What are the dimensions and correlates of HIV/AIDS-related stigma in Malawi?

Place and Promotion: The Malawi Radio Diaries Program

To the extent that stigma is a social process, the product of stigma reduction must reach a broad audience, thus necessitating the use of a “place” with a wide reach, such as the mass media. Despite a great deal of public health interest in reducing HIV/AIDS-related stigma, relatively little is known about the extent to which media-based health campaigns can play a constructive role in this endeavor. In HIV prevention efforts, for example, stigma is seen as a crucial problem that interventions need to ameliorate (UNAIDS, 2006), but evaluations of mass media-based interventions have generally not assessed stigma as an outcome. Bertrand et al. (2006) reviewed 24 HIV/AIDS-related mass media interventions that used a variety of approaches (entertainment education, advertisements, and small group activities) as well as various communication channels (television, radio, theater, billboards and live events), and found that interventions focused mostly on knowledge of HIV transmission modes, perceived risk of contracting HIV, self-efficacy for preventive behaviors, interpersonal discussion about HIV/AIDS, condom use, sexual abstinence, high-risk sexual behaviors, and condom use; none of the evaluations measured HIV-related stigma as a result of the intervention.

Interventions to reduce HIV-related stigma have not generally used mass media. Brown, Macintyre, and Trujillo (2003) reviewed interventions to reduce HIV/AIDS stigma, all of which were small in scope. The authors in particular noted their surprise not to find

national mass media interventions addressing stigma published in the peer-reviewed literature. The interventions that were included were assessed in small samples of narrow populations such as university students, often in US-based settings, thus reducing the generalizability of the findings. The extant literature, in fact, provides little conceptual or programmatic guidance to those interested in using the media to reduce HIV/AIDS stigma among the general population.

In Malawi, radio is the most widely used mass media channel. According to the Malawi Demographic and Household Survey, radio ownership in Malawi was 61.9% in 2004 (television ownership was 5.3%); 67% of women and 85% of men listened to the radio at least once a week (NSO and ORC MACRO, 2005). Hence, radio appeared to be the best “place” to promote the “product” of stigma reduction.

Once place was determined, the next step was to determine the format of promotion. Given the complex nature of the product, identifying promotion methods requires thinking beyond usual marketing techniques. Link and Phelan (2001) note the importance of separation and dehumanization in the stigma process. Reversing this process requires more than a slogan or simple pitch; it requires ongoing engagement with audiences. Such engagement could lead to several different forms of promotion such as scripted soap operas or news segments. The inclusion of real people with HIV/AIDS, however, may push against the process of dehumanization; similarity of these speakers to the audience may also be enhanced by the fact that they are real people. Thus, using a promotion format that includes actual people living with HIV/AIDS fits the product of stigma reduction better than other formats. As such, an intervention called the *Radio Diaries* program was developed to promote stigma reduction in Malawi.

The BRIDGE Project

The *Radio Diaries* program was created as part of a larger communication campaign to address HIV/AIDS in Malawi. The BRIDGE project was implemented as a national media campaign built around the “Nditha” theme. *Nditha*, in Chichewa, means “I can,” and it refers to the central message of personal and collective efficacy that was derived from extensive formative research based on social cognitive theory (Bandura, 1986). The central campaign theme was promoted through the *Nditha* tag line, posters, sponsorship of

youth radio programs and radio listening groups, educational games built for community engagement (called the *Hope Kit*) and the *Radio Diaries* program.

The Radio Diaries Program

The *Radio Diaries* program was designed and implemented by the Center for Communication Programs (CCP) at the Johns Hopkins University. Each of six participating radio stations produce a weekly episode featuring two HIV-positive diarists, one male and one female, narrating stories in their own words about issues and key events in their lives, such as interpersonal relationships, medical issues and experiences with the health services community, and coming to terms with their condition. The diarists are people who know their HIV status and are willing and able to talk about their situation openly. The diary segments are around 10 minutes long, and each radio station tailored the program to its needs by supplementing the diary segment with a call-in show, an expert panel, or additional segments on nutrition and AIDS. Table 1 shows the participating radio stations and the programs.

Producers visit the diarists at home to record the program, and the producers then edit the material to fit the radio station's format. The BRIDGE project conducted training to build the abilities of both producers and diarists. Producers were trained to improve their interviewing skills in order to get the best material from the diarists, and they were coached to improve audio and technical quality. The diarists, in turn, worked with a facilitator on how to creatively craft their tales to get a strong reaction from their on-air listeners. Periodically, the groups reconvene for self-assessment sessions and to discuss feedback and lessons learned from the other stations.

Additionally, 18 formal Radio Listeners' Groups (RLGs) were also formed. The RLGs met weekly to listen to the program. The groups gave an opportunity for listeners to provide regular feedback on broadcast quality, comprehension, and general interest in the content. Such input has been used to modify the content of the program accordingly.

Study Hypotheses

In summary, reducing HIV/AIDS stigma (the *Product*) is a crucial goal of interventions designed to prevent the spread of the disease. In

TABLE 1. Description of Participating Radio Stations and Radio Diaries (RD) Programs

Radio station	Station Audience	RD Program Title	Program Description
Capitol FM	Adult, contemporary, covers 60–75% of Malawi	<i>Kalata Yanga</i> (Breaking the Silence)	30 minutes per week, 10 minutes of <i>RD</i>
MBC (Malawi Broadcasting)	General audience with nationwide coverage	<i>Kalata Yanga</i> (Breaking the Silence)	15 minutes per week, includes <i>RD</i> and sometimes experts
Power 101 FM	Music station targeting youth and young adults up to 35 years that covers most parts of the country	<i>Anti-AIDS Program</i>	30 minutes twice a week, includes 10 minutes of <i>RD</i> followed by an expert panel discussion or a call-in format in which listeners call the station with comments and questions
Radio Islam	Religious FM station that covers the entire southern region where the Muslim population of Malawi is concentrated	<i>Ndikutsine Khutu</i> (Can I Tell You a Secret?)	15 minutes twice a week, includes 5 minutes of <i>RD</i> , 5 minutes of expert discussion of the relevant topic, and 5 minutes of feedback
Radio Maria	Catholic devotional radio station that covers all of the south and central regions, and some parts of the north	<i>Ulangizi wa Uzimu pa Matenda a Edzi</i> (Spiritual Counsel on HIV/AIDS Issues)	60 minutes twice a week, includes 10 minutes of <i>RD</i> followed by an expert panel discussion or a call-in format
Trans World Radio	Worldwide, non-denominational Christian, coverage includes parts of Mozambique and Zambia	<i>Moyo Wanga</i> (My Life)	20 minutes twice a week, includes <i>RD</i> and experts

Notes: *RD* = Radio Diaries

Malawi, the mass media, particularly radio (*Place*), would appear to have great potential to reach a broad audience (*Promotion*). Yet, the lack of a conceptual framework for understanding the link between campaign exposure and stigma reduction hampers the ability of campaign designers to strategically address stigma in communication campaigns. This paper seeks to understand the underlying dimensions of stigma toward PLHA in Malawi, the correlates of the primary dimension underlying stigma, and media channels that may be most effective in addressing stigma. We draw upon baseline and midterm data from our HIV prevention intervention in Malawi.

Reducing Stigma

We sought to determine whether a mass media-based intervention could be used to reduce HIV/AIDS-related stigma. This was done through the *Radio Diaries* program in which HIV-positive men and women openly discussed day-to-day events in their lives. The purpose of the program was to promote perceptions of similarity between HIV-positive individuals and members of the listening audience by depicting HIV-positive men and women as ordinary folks who shared the same hopes and aspirations in life and battled the same day-to-day problems as most Malawians. At the midterm point of the campaign, after almost a year of airing the *Radio Diaries* program, we evaluated the association between exposure to the program and HIV/AIDS-related stigma, testing the following hypothesis:

H1: After controlling for known predictors, exposure to the *Radio Diaries* program will be negatively associated with stigma.

Given the study design, one of the primary threats to validity in inferring campaign effects is the influence of extraneous variables; the same variables that affect stigma may also affect exposure to the intervention. In this case, the extraneous variables could comprise personality or attitudinal factors; for example, those who are predisposed to having lower levels of stigma may be disproportionately more likely to tune in to the intervention channels. Toward this end, we would have greater confidence in the findings if the hypothesized association between exposure to the *Radio Diaries* program and stigma were to remain significant even after controlling for exposure

to other intervention channels. While this finding would not completely rule out the influence of extraneous variables, it would, nevertheless, increase our confidence that the observed correlation may be a manifestation of the underlying effect of the program. Testing the effect of the *Radio Diaries* program after controlling for the effects of other intervention materials is also of practical interest as it would indicate whether exposure to the *Radio Diaries* program was associated lower levels of stigma above and beyond similar associations found for other intervention channels.

H2: The association between exposure to the *Radio Diaries* program and stigma will be significant even after controlling for exposure to other intervention channels.

METHOD

Data for this study come from two waves of data collected in Malawi – one in 2004 ($N = 890$) and another in 2006 ($N = 881$), hereby referred to as baseline and midterm, respectively. The baseline research was conducted in eight districts in Malawi – Balaka, Chikwawa, Kasungu, Mangochi, Mulanje, Mzimba, Ntcheu, and Salima. These districts were the designated project sites by the United States Assistance for International Development (USAID), which provided funding for the two-year, behavior change-oriented HIV/AIDS prevention campaign, named the BRIDGE Project. These data were collected in order to obtain benchmark measures of behaviors and behavioral predictors in order to (subsequently) evaluate the effectiveness of the campaign that we were about to initiate. The midterm survey, similar in design to the baseline survey, was conducted in only four (Kusungu, Mulanje, Mzimba, and Salima) of the eight districts, primarily because of reduced funds. The four districts were selected for inclusion in order to maximize both diversity of participants and geographical representation.

Based on previous surveys conducted by the research team, we first developed a draft survey instrument in English, which was translated into Chichewa and Tumbuka and back-translated into English by members of a research team in Malawi. Researchers then compared the back-translated version with the original and discrepancies were resolved through discussion. Each question item was then discussed

among interviewers in order to ascertain clarity, facilitate its administration, and make it suitable for the local vernacular. This modified questionnaire was then field tested among Lilongwe residents, and feedback from them was incorporated into the final draft of the survey instrument. An identical procedure was adopted for the midterm surveys as well.

Procedures

Surveys were designed to collect information that could be generalized to the larger population. A sample representative of the focal districts was drawn by randomly selecting households within each district and selecting no more than one individual per household. All households within the specified district had equal chance of being included in the survey. Each day, interviewers selected the first individual at random from the selected household and then they followed a pattern in which they selected a male adolescent (defined as between 12 and 21 years old) from the first household that they visited, a female adolescent from the second household, a male adult from the third household, and a female adult from the fourth household. The order was then changed on the subsequent day. This method was thought to be the best compromise between a completely random procedure of selection from each household (the first party each day was selected at random), on the one hand, and the need to have a sufficient representation of both youth and adult participants, on the other.

After selecting the participant, informed consent forms were administered orally. For adolescents, permission to interview was also obtained from either a parent or guardian. All questions were administered orally and interviewers recorded the responses on paper.

Instrumentation

Stigma

At baseline, 14 items were used to measure the underlying dimensions of stigma (items are listed in Table 2). Questions focused on people's attitudes toward disclosure of HIV-positive status, greater medical expenditure to take care of PLHA, and greater interactions with PLHA. Responses were recoded onto three-point scales, higher scores representing higher levels of stigma. The reliability of the index comprising the 14 items ($\alpha = .69$) was moderate, and the overall

TABLE 2. Underlying Factor Structure of Stigma Toward People Living with HIV/AIDS (PLHA)^a

	Factor 1 Isolation	Factor 2 Secrecy	Factor 3 Health care	Factor 4 Mistreatment	<i>M(SD)</i> ^b	Cronbach's α ^b
HIV + students not be allowed to attend school	.76	.09	.06	-.02		
Better to stay away from PLHA for safety reasons	.74	.01	.14	.07		
PLHA should be isolated from healthy people	.69	.02	-.08	.17		
PLHA should be left to fend for themselves	.68	-.07	-.07	.03		
HIV + teachers should not be allowed to teach	.67	.09	-.05	.00	1.64 (.65)	.76
Prefer to keep HIV + family member's status secret	.06	.89	.04	.07		
Should keep one's own HIV + status a secret	.05	.88	.04	.06		
HIV + family/friend would not reveal status	.00	.87	.01	.04	1.40 (.69)	.86
PLHA not entitled to better medical care	-.02	-.01	.75	-.05		
PLHA should not get the best medical care	-.01	-.06	.70	.15		
HIV spending should be less than other diseases	.11	.14	.51	.01	2.69 (.44)	.45
PLHA in community are mistreated	.00	.11	-.19	.80		
PLHA should be separated, not treated like others	.18	.06	.18	.62		
Most would not provide care for PLHA	-.01	-.01	.43	.52	1.30 (.43)	.37

^aCell entries are standardized factor loadings.

^bPertains to the index comprising items that load onto a given factor. Each index ranged from 1 to 3, higher values reflecting greater levels of stigma.

mean of the index was $M = 1.44$ ($SD = .34$) on a three-point scale. Items were then subjected to a principal component factor analysis with varimax rotation in order to obtain discrete factors with minimal overlap. As shown in Table 2, this procedure resulted in four factors. The first factor, which explained 20.8% of the variance, comprised five variables, each of which pertained to the idea that PLHA should be isolated from the rest of the community. These five

items were averaged into an index, named “Isolation” in Table 2 ($\alpha = .76$; $M = 1.64$, $SD = .65$). The second factor, which explained an additional 16% of the variance, comprised three variables: desire to keep the HIV-positive status of a family member a secret, belief that one should keep one’s HIV-positive status a secret, and belief that most friends and relatives would keep their HIV-positive status a secret. The three items were averaged into an index, named “Secrecy” in Table 2 ($\alpha = .86$; $M = 1.40$, $SD = .69$).

The third factor, which explained 11.9% of the variance, comprised three variables, each one pertaining to health care policy: beliefs that HIV/AIDS-related expenses are more than they need to be and that PLHA are getting more medical care than should be provided. Even though these three items clustered into a factor, they had a low reliability score ($\alpha = .45$) and hence they were dropped from subsequent analyses. The fourth factor, which explained 8.2% of the variance, comprised three questions that pertained to mistreatment of PLHA: beliefs that PLHA are mistreated in the community and that most community members would not provide care for PLHA. As was the case for the third factor, the reliability score ($\alpha = .37$) was unacceptably low, and hence it was dropped from subsequent analyses.

At midterm, four questions were asked to mirror those asked at baseline pertaining to the first factor, isolation: people’s belief that PLHA should be avoided, they should not be allowed to go to public places, they should be separated from everyone else, and HIV-positive teachers should not be allowed to teach in schools. Responses, each scored on a five-point Likert-type scale, were subjected to a principal component factor analysis, which revealed a unidimensional structure. The four items were then averaged into an index ($\alpha = .86$), with higher scores representing higher levels of stigma ($M = 1.59$, $SD = .91$).

Demographic Indicators

Standard demographic indicators used in the study were sex, age, years of formal education, and strength of religious beliefs (measured on a three-point scale ranging from “not at all religious” to “very religious.”)

Psychographic Indicators

Knowledge about HIV was measured at baseline through 11 items, each one asked in a true/false/don’t know format. Questions focused

mostly on modes of transmission (sexually, through mosquito bites, mother-to-child, etc.). Each correct response was awarded one point (maximum score = 11) and the total percent of correct responses was calculated ($\alpha = .69$; $M = 58.1\%$, $SD = 20.9$). At midterm, 13 questions were asked (two more than baseline: one that asked about the role of condoms and another that asked about whether sex with virgins cures AIDS), and the total percent of correct responses was calculated ($\alpha = .50$, $M = 77.8\%$, $SD = 14.1$).

Perceived risk to HIV was measured at baseline as the average response to five questions that asked participants their beliefs that they could get infected with HIV in the next six months, year, two years, five years, and ten years ($\alpha = .95$). At midterm, three similar questions were asked about participants' susceptibility to HIV in the next six months, year, and lifetime ($\alpha = .94$).

Self-efficacy to use condoms was measured at baseline through five questions that asked about participants' confidence in their ability to use condoms every time they had sex, to use condoms even if their partner did not want to, to talk about using condoms, to initiate discussions about condom use, and to plan ahead to use condoms. Responses, each scored on a five-point scale, were averaged into an index ($\alpha = .91$). At midterm, four similar questions were asked about efficacy to use condoms; responses, scored on five-point scales, were averaged into an index ($\alpha = .93$).

Self-efficacy to reduce number of sexual partners was measured at baseline through three questions that asked about participants' confidence in their ability to remain faithful to one partner, remain abstinent if not in a committed relationship, and have sex with only the person they loved and trusted. Responses, scored on five-point scales, were averaged into an index ($\alpha = .89$). Similar three questions were also asked at midterm, responses to which were averaged into an index ($\alpha = .68$).

Exposure to Intervention Channels

At midterm, respondents were asked whether they had heard of or seen the *Nditha* Campaign on the radio, on billboards, in posters, in conversations, and through the *Hope Kit*. They were further asked if they recognized the campaign tag line and whether they listened to the campaign's *Youth Alert Mix* radio program. Exposure to each intervention channel was scored as one point so that the total

exposure ranged from 0 (no channels) to 8 (exposure to all channels; $\alpha = .70$; $M = 3.77$; $SD = 2.04$).

Exposure to the Radio Diaries Program

Exposure to the *Radio Diaries* program was measured through four questions: whether respondents had heard about the program (scored as 0 for “no” and 1 for “yes”); the number of programs heard (responses ranged from 0 to 6); how many times respondents had heard the programs, even if the same episode was repeated (range from 0 to 6); and how they typically listened to the program (did not pay much attention, paid some attention while doing something else, paid quite a bit of attention while doing something else, or listened very closely without doing anything else), scored from 1 to 4. Responses were standardized and averaged into an index ($\alpha = .93$).

Overall, exposure to the *Radio Diaries* program was moderate to high: Approximately 55% of the sample reported hearing about the program. When probed further, self-reported exposure increased to 62%. Of those who listened to the program, more than 50% reported listening to more than two programs and 61% reported listening to the program by paying close attention to it.

RESULTS

The first research question sought to determine the correlates of HIV/AIDS-related stigma. Each of the two primary dimensions of stigma (isolation and secrecy) from our measures at baseline comprised a separate dependent variable in a hierarchical regression model. In the first step, we added demographic indicators, followed by the psychosocial predictors in the second step. Results are shown in Table 3. Also shown in Table 3 are the zero-order correlations between the two dimensions of stigma and their predictors. (Mean values were substituted for all predictors with missing values.)

Predictors of the First Dimension of Stigma: Social Isolation

Three of the four demographic variables shown in Table 3 (being female, being older, and having lower levels of education) were associated with the first dimension of stigma – the belief that PLHA should be isolated. These variables collectively explained 8.8% of

TABLE 3. Predictors of HIV/AIDS-related Stigma at Baseline from Regression Equations

	Dimensions of Stigma					
	Isolation			Secrecy		
	r^a	β^b	β^c	r^a	β^b	β^c
Step 1: Demographic Indicators						
Female	.12***	.07*	.04	.13***	.12**	.10**
Age	.17***	.09**	.05	.08*	.05	.03
Education	-.28***	-.23***	-.15***	-.14***	-.09**	-.09*
Strength of religious beliefs	.01	.01	.01	-.07	.04	-.07*
Step 1 ΔR^2 (%)		(8.8***)			(3.7***)	
Step 2: Psychosocial indicators						
Knowledge about HIV/AIDS	-.37***		-.30***	-.08*		-.02
Perceived risk to HIV	.02		.01	-.03		-.03
Self-efficacy, condom use	-.14***		.01	-.11**		-.07 [^]
Self-efficacy, partner reduction	-.15***		-.07 [^]	-.04		.02
Step 2 ΔR^2 (%)			(8.5***)			(.5)
Total R^2 (%)			(17.3***)			(4.2***)

^aZero-order correlation between dimension of stigma and predictor.

^bStandardized beta from regression equations with Step 1 variables in the model.

^cStandardized beta from regression equations with all (Step 1 and Step 2) variables in the model.

[^] $p < .1$.

* $p < .05$.

** $p < .01$

*** $p < .001$.

the variance. Among the psychosocial factors, knowledge about HIV/AIDS, self-efficacy to use condoms, and self-efficacy to reduce number of sexual partners were associated with lower levels of stigma. When the demographic and psychosocial variables were entered into the model, only two variables – education and knowledge about HIV/AIDS – remained significantly associated with stigma; self-efficacy to reduce number of sexual partners was marginally significant. Collectively, these variables explained 17.3% of the variance.

Predictors of the Second Dimension of Stigma: Secrecy

The second dimension of stigma was the belief that one's HIV status should be kept secret. In zero-order correlations, three of the four

demographic variables – being female, being older, and having less education – were associated with higher levels of stigma. Collectively, these three variables explained 3.7% of the variance in stigma. None of the psychosocial variables made an impact on the second dimension of stigma. When all the variables were added into the model, significant predictors of the second dimension of stigma were: being female, having lower levels of education, having stronger religious beliefs and (marginally) having lower levels of self-efficacy to use condoms.

Effects of the Radio Diaries Program

Hypothesis H1 predicted that, after controlling for the known predictors, exposure to the *Radio Diaries* program would be negatively associated with stigma. This hypothesis was tested with the midterm data, results of which are shown in Table 4 Model 1. As was the case with the baseline data, the two significant predictors of stigma at midterm were knowledge about HIV/AIDS

TABLE 4. Intervention Exposure as Predictors of HIV/AIDS-related Stigma at Midterm

	r^a	Model 1	Model 2
		β^b	β^c
Female	.05	.01	-.02
Age	.00	-.06	-.07*
Education	-.16***	-.13***	-.11**
Strength of religious beliefs	-.05	-.03	-.04
Knowledge about HIV/AIDS	-.22***	-.15***	-.13***
Perceived risk to HIV	-.08*	-.10**	-.10**
Self-efficacy, condom use	-.11**	.00	.01
Self-efficacy, partner reduction (SEPR)	-.18***	-.13***	-.14***
Exposure to <i>Radio Diaries</i> (RD)	-.11**	-.04	.01
Exposure to other intervention channels	-.21***	–	-.14***
Interactions: SEPR x RD	-.04	-.07*	-.09*
Total R ² (%)		(9.7***)	11.0***)

^aZero-order correlation between stigma and predictor.

^bStandardized beta from regression equations for Model 1, which includes all variables, except exposure to intervention channels, in the equation.

^cStandardized beta from regression equations for Model 2, which includes all variables.

* $p < .05$,

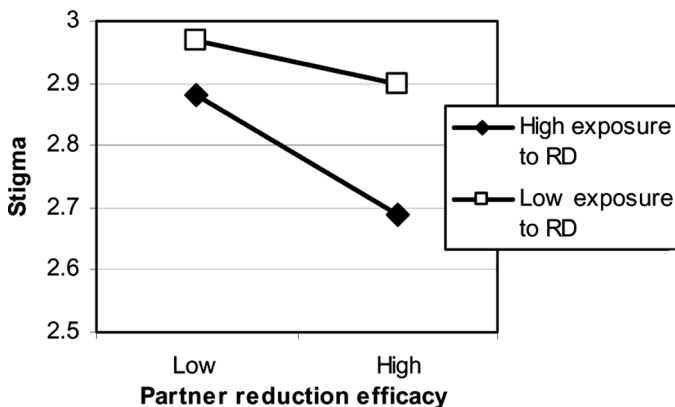
** $p < .01$,

*** $p < .001$.

and education, both of which were negatively associated with stigma. In addition, perceived risk and self-efficacy to reduce number of sexual partners were also associated with stigma. Table 4 shows that, although exposure to the *Radio Diaries* program was associated with lower levels of stigma in a bivariate relationship ($r = -.21, p < .001$), this relationship did not hold when other predictors were included in the model (shown in Model 1).

We further explored the effects of interactions between exposure to the program and other predictors of stigma. One such interaction was found to be significant – that between exposure to the program and self-efficacy to reduce the number of sexual partners. Following Aiken and West's (1991) recommendations, the two constituent variables were centered and standardized before inclusion into the regression equations. The nature of the interaction, which appears in Figure 1 is plotted as the relationship between efficacy and stigma along two values of exposure to the *Radio Diaries* program – one standard deviation above and one standard deviation below the mean (shown as “high exposure” and “low exposure,” respectively). As shown in the figure, partner-reduction efficacy was a determinant of how exposure to the *Radio Diaries* program affected stigma: When efficacy was low, exposure seemed to make only a minimal difference on stigma; however, when efficacy was

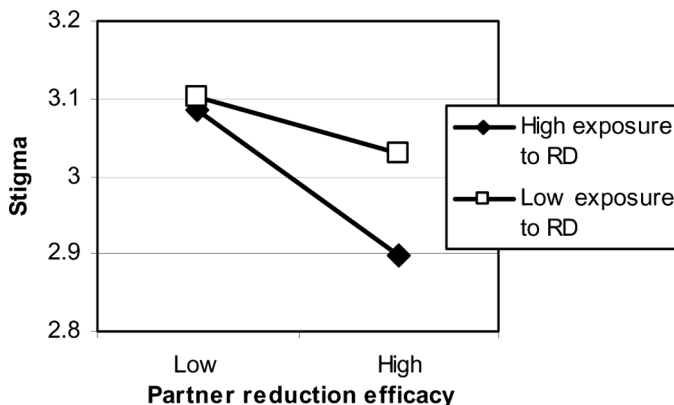
FIGURE 1. Joint Effects on Stigma of Exposure to the *Radio Diaries* Program and Self-Efficacy to Reduce Number of Sexual Partners



high, exposure to the program was significantly associated with lower levels of stigma.

Our second hypothesis, which predicted that the *Radio Diaries* program's effects would be significant above and beyond the effects of exposure to other intervention channels, was also tested in a similar manner. Results are shown in Table 4, Model 2. In this regression model, the composite score of exposure to eight intervention channels was also included in the equation. Exposure to other intervention channels was significantly associated with lower levels of stigma in both bivariate ($r = -.21, p < .001$) as well as multivariate ($\beta = -.14, p < .001$) relationships. Exposure to the *Radio Diaries* program was not directly associated with stigma, but its interaction with self-efficacy was. As shown in Figure 2, when efficacy to reduce number of sexual partners was low, exposure to the *Radio Diaries* program did not affect stigma. However, when efficacy was high, exposure to the program was significantly associated with lower levels of stigma. Hence, effects of the *Radio Diaries* program was much greater if people's efficacy was high than if it was low.

FIGURE 2. Joint Effects on Stigma of Exposure to the *Radio Diaries* Program and Self-Efficacy to Reduce Number of Sexual Partners, Taking Into Account Exposure to Other Intervention Channels



DISCUSSION

Using social marketing principles, this paper described the BRIDGE campaign in terms of the product (reduction of stigma), place (radio), and promotion (the *Radio Diaries* program). We did not describe the “price” in social marketing terms mainly because, unlike the situation in typical commercial marketing campaigns, we did not have control in manipulating the price of the product in the overall marketing strategy. Some potential price items in our campaign could have been that of inaction – that more and more persons living with HIV would be subjected to stigma, which could result in lower testing rates, lower rates of disclosure, etc. Nevertheless, data from this paper indicate that, by focusing on the promotion of similarity between HIV-positive persons and the target audience, the campaign was associated with lower levels of overall stigma. Future research efforts could certainly look at the relationship between price and various outcomes.

Effects of the Program

We found interventions focusing on self-efficacy are likely to produce positive outcomes. At midterm, self-efficacy to reduce the number of sexual partners had both a main-effect as well as an interaction effect (with exposure to the *Radio Diaries* program) on stigma. The main-effect indicated that those with higher levels of efficacy (to reduce their number of sexual partners) perceived lower levels of stigma (belief that PLHA should be isolated from others). One interpretation of this finding is that when people perceive that they are able to protect themselves from HIV, they do not fear or stigmatize others who are HIV-positive; in this situation, people would adopt a more open attitude toward PLHA. Conversely, when people perceive that they are unable to protect themselves – as might be the case if protection is seen as something that happens by chance, beyond one’s control – there is a greater motivation to create a social distance between oneself and someone else living with the disease, thus resulting in greater levels of stigma.

This interpretation can also explain the interaction effect that we observed between self-efficacy to reduce number of sexual partners and exposure to the *Radio Diaries* program on stigma. When individuals’ efficacy beliefs were weak, their level of stigma was high,

regardless of the level of exposure to the program. In other words, when individuals perceive that they do not have the ability to protect themselves from HIV, hearing about the positive aspects of lives of people with the disease does not affect their negative attitudes (about the need to isolate PLHA). This is consistent with the interpretation for the main-effect of efficacy on stigma noted above. When people's efficacy to protect themselves is high, however, they are not threatened by the disease, and hence they would likely be more open to hearing about others who are struggling with the disease. If so, greater exposure to the *Radio Diaries* program would result in lower levels of stigma.

We might think of this as an avoidance-based explanation – that when efficacy is low and people feel they cannot control their fate, there is a greater need to avoid thinking about the disease. In this situation, the *Radio Diaries* program would be an unwelcome intrusion. When efficacy is high, however, there are fewer reasons to avoid the topic, and people would be more open to being drawn in by the stories of people living with the disease. While speculative, this explanation is worthy of further inquiry.

This avoidance-based explanation can also be applied to another finding: that efficacy to use condoms was not associated with stigma. Its zero-order correlation with stigma was significant, but the relationship was rendered non-significant in a multivariate model that took into account the effect of other variables. This is in contrast with efficacy to reduce number of sexual partners, and this finding likely reflects the differential qualities of the two underlying behaviors: Whereas condom use restricts *how* one can have sex, being faithful exclusively to one partner restricts *frequency* with which one has sex. In this regard, it appears that condom use is much less restrictive. Hence, having lower efficacy for condom use is likely to invoke lesser amounts of avoidance, in comparison to having lower efficacy to reduce the number of sexual partners, with the result that its impact on stigma would be lesser as well. This hypothesis is also worthy of further tests.

We found that knowledge about HIV/AIDS was consistently associated with lower levels of stigma (in all but one relationship tested in this paper), as has been found by other researchers (Buseh et al., 2006; Dias et al., 2006; Herek et al., 2005; Kalichman et al., 2006). We should note that the significant relationship between knowledge and stigma was observed even after controlling for the effects of education. The underlying explanation for this finding

likely centers around the role of myths in beliefs about HIV: less knowledgeable individuals are likely to subscribe to myths surrounding HIV prevention (that, for example, the disease can be transmitted by mosquitoes) as well as to those surrounding people with HIV (that casual contact with a person living with HIV can spread the disease).

In our midterm data, we found a negative relationship between perceived risk and stigma: People who believed they were at risk to HIV were less likely to perceive stigma toward PLHA. Conversely, those who believed that they were not at risk to HIV were more likely to have stigmatizing beliefs. It is difficult to tell whether this finding is due to social distancing – that, to the extent that the disease and those who have the disease are perceived as distal from one's daily life, one's own vulnerability toward the disease would also be perceived to be lower. Alternatively, the explanation may lie in egocentric bias – the tendency to view oneself in an unrealistically optimistic manner, also known as the optimistic bias or unrealistic optimism (Weinstein, 1980). Viewing oneself in an optimistically biased manner would not only result in lower levels of perceived risk but it would also engender a greater mental distance between oneself and someone living with HIV.

Both the baseline and midterm data revealed that participants' education was the most consistent predictor of stigma. Participants with higher education levels were significantly less likely to have stigmatizing beliefs, in comparison to those with lower levels of education, as revealed by both bivariate as well as multivariate associations. This finding, in combination with the finding reported earlier on the relationship between knowledge and stigma, speaks to the likelihood that, unlike interventions that seek to change human behavior, those that seek to change attitudes (in this case, toward PLHA) can accomplish a great deal by focusing mostly on knowledge dissemination and education. Of course, we do not know whether changes in attitudes brought about in this manner will also result in more accommodating behaviors toward PLHA; it does appear, though, that if the goal of the intervention is to change attitudes, the intervention can focus mostly on debunking myths and disseminating accurate information.

Of the four dimensions of stigma – support for keeping PLHA in isolation, belief that HIV status should be kept secret, lack of support for greater health care expenses on behalf of PLHA, and absence of day-to-day interactions with PLHA – that emerged from our baseline data, isolation and secrecy were the two that had acceptable levels of

reliability. Further, between these two dimensions, isolation emerged as the one with the highest level of predictive validity (as measured by percent variance that could be explained). At baseline, being female, older, less educated, and being less knowledgeable about HIV/AIDS were associated with higher levels of isolation-related stigma. Being female and being less educated were associated with higher levels of secrecy-related stigma at baseline.

LIMITATIONS

The primary limitation of this study is that the observed associations are all contemporaneous correlations and thus we cannot assert any causal direction in the pattern of findings reported in this paper. Nevertheless, the central purpose of this paper is not to demonstrate changes in stigma as a result of the intervention; rather, our purpose was to show the underlying structure of stigma as a construct, determine its correlates, and provide preliminary evidence that a mass media-based approach could be used to reduce stigma.

Another limitation of the study is the reliance on self-reports for all measures. While this is a problematic issue in most studies of this type, it is an especially important one for this study because of the high level of social desirability associated with stigma, the central construct. It is likely that the great deal of attention paid to this topic in Malawi in recent years has resulted in reductions in people's stigma; but it also likely made people act in socially desirable ways – especially when asked to express their attitudes to researchers from the capital city of Lilongwe. To the extent that this happened, our concern would be that it happened at a disproportionately higher rate among those who were predisposed to positive changes – for example, those who were already knowledgeable or those who were well educated. Hence, to the extent that we found these two variables to be predictive of lower levels of stigma, we have no way of delineating intervention effects from social desirability biases.

CONCLUSION

It is a marketing truism that, everything else remaining constant, campaigns that understand and cater specifically to the needs, desires,

and motivations of their consumers are more likely to succeed. In our paper, we found that social marketing-based campaigns to reduce stigma should focus on understanding two characteristics of their audience: their self-efficacy and their education. The same message is likely to have differential effects on stigma, depending on whether audience members perceive that they are able to take HIV prevention measures (more specifically, to use condoms) and whether they are well educated.

Although there are a great many interventions currently underway in Africa and other places to promote HIV prevention activities, we are unable to find large-scale interventions designed specifically to reduce HIV/AIDS-related stigma. Furthermore, we do not yet know what role the mass media can play in this endeavor. Results reported in this paper provide preliminary evidence that, in a rural setting like Malawi, radio programs can be used to address stigma toward PLHA. The program, which achieved approximately 60% exposure among the general audience, featured documentary stories from HIV-positive individuals. The central strategy adopted by the program was to promote perceptions of similarity between the HIV-positive diarists and their listeners. It appears that exposure to the *Radio Diaries* program was associated with lower levels of stigma. This paper cannot conclusively determine whether the observed effects were due to the program disproportionately attracting positively predisposed individuals or that listening to the program resulted in stronger beliefs that people living with HIV/AIDS were ordinary folks who just happened to be HIV-positive, thus reducing the social distance between the diarists and the audience members. The *Radio Diaries* model is currently being adapted in other African countries, including one in Ethiopia. It is hoped that more rigorous study designs will be used to determine its true impact. The finding in this paper – that lowest levels of stigma were observed among those whose exposure to the program and self-efficacy to reduce number of sexual partners were both high – is an encouraging first step.

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