

*AIDS Education and Prevention*, 19(3), 209–217, 2007  
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## ASSOCIATION BETWEEN EXPOSURE TO AN HIV STORY LINE IN *THE BOLD AND THE BEAUTIFUL* AND HIV-RELATED STIGMA IN BOTSWANA

Ann O'Leary, May Kennedy, Katina A. Pappas-DeLuca,  
Marlene Nkete, Vicki Beck, and Christine Galavotti

HIV stigma militates against prevention and care efforts and is a significant problem in sub-Saharan Africa. During 2001–2003, after collaboration with CDC scientists from the Centers for Disease Control and Prevention, the television drama *The Bold and the Beautiful* aired an HIV-related story line. The story line involved a man who tested positive for HIV, was accepted by his HIV-negative fiancée, and with her, adopted an AIDS orphan in Africa. We wished to test the hypothesis that viewers of this story line would report significantly lower AIDS-related stigma than nonviewers. We surveyed a sample of residents of Botswana shortly after the story line aired there. We assessed the association between viewership of the soap opera and HIV stigma. Compared with nonviewers of the show, viewers indicated significantly lower levels of HIV stigma, when other related factors were controlled statistically. These results are suggestive that stigma was reduced after watching a television drama in which HIV infection was treated in a nonstigmatizing, humane manner.

Stigma was defined by Ervin Goffman (1963) as an attribution reducing a person “in our minds from a whole and usual person to a tainted, discounted one” (p. 3). AIDS is a disease with many of the characteristics that generate stigma, including the possibility of contagion; physical deformity (sometimes); its tendency to affect already marginalized populations, such as sex workers, men who have sex with men, and drug users; and the implication of a sexually promiscuous lifestyle.

The prevalence of HIV stigmatizing beliefs in sub-Saharan Africa appears to be high (Bond, Chase, & Aggleton, 2002; Piot, 2001). Data from the 2001 Botswana AIDS Impact Survey, a population-based survey conducted periodically, found that

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Ann O'Leary, May Kennedy, Katina A. Pappas-DeLuca, and Christine Galavotti are with the Centers for Disease Control and Prevention, Atlanta, GA. Marlene Nkete is with the National AIDS Coordinating Agency, Botswana. Vicki Beck is with the University of Southern California, xxx.

Address correspondence to Ann O'Leary, Prevention Research Branch, Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, 1600 Clifton Rd., MS E-37, Atlanta, GA; 30333; e-mail: aoleary@cdc.gov

The authors acknowledge the insightful comments of Doug Fleming and Marion Carter and the statistical assistance of Philip Hastings, Chris Wells, and Wayne Johnson. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

47% of men and 38% of women endorsed agreement with the statement that a teacher who has HIV/AIDS should not be allowed to teach; 61% of men and 59% of women reported that they would not buy vegetables from a shopkeeper who has HIV/AIDS (Letamo, 2003).

In efforts to avoid becoming targets of HIV stigma, individuals may avoid activities or locations believed to be associated with HIV, such as clinics, venues where testing and other prevention services are provided, and even condom use (Valdiserri, 2002). Stigma has been found to discourage HIV testing in the United States (Stall et al., 1996; Hutchinson, Corbie-Smith, Thomas, Mohanan, & del Rio, 2004) and South Africa (Kalichman & Simbayi, 2003). It may also inhibit disclosure of positive serostatus to others and reduce adherence to treatment regimens that require public behaviors (Chesney, 2003). It can even cause violence against HIV-infected persons (Medley, Garcia-Moreno, McGill, & Maman, 2004).

Mass media entertainment has been shown to influence attitudes and even behavior. Television viewers may be particularly likely to attend to prevention messages when they are delivered dramatically by a character the viewers care about (O'Brien & Albrecht, 1992; Papa, Singhal, & Law, 2000). Moreover, messages may be more likely to be recalled if they are presented in the context of a story line that viewers follow over time (Brinson & Brown, 1997).

Miguel Sabido pioneered the dissemination of pro-social messages through serialized novellas, or soap operas. His entertainment-education approach is based on social cognitive theory (Bandura, 1986, 1994). Used predominantly in developing countries to date (Singhal & Rogers, 1999), the entertainment-education approach prioritizes entertainment in order to engage a large audience. There have since been many collaborations between public health groups and the entertainment industry that have resulted in the incorporation of such topics as drunk driving, breast cancer, and teen pregnancy into entertainment formats (Kaiser Family Foundation, 2004).

HIV/AIDS has become a topic that some entertainment-education efforts have begun to address. A radio soap opera employing the entertainment-education approach for promoting HIV risk avoidance was broadcast in Tanzania and was shown to increase HIV prevention-relevant attitudes and behaviors among listeners (Rogers et al., 1999; Vaughan & Rogers, 2000). Another entertainment-education effort that is currently under way in several African countries (and provided data for the present analyses) is studying the mechanisms of role modeling and assessing the value of community reinforcement of radio-broadcast soap opera messages about HIV/AIDS (Galavotti, Pappas-DeLuca, & Lansky, 2001).

In the United States, no nationally broadcast soap opera has adopted the full Sabido-style entertainment-education approach, but some Hollywood writers and producers have been willing to collaborate with public health professionals to embed accurate, timely prevention messages and scenarios into major network programming. Several of these collaborations have grown out of a broad entertainment outreach program initiated by the Centers for Disease Control and Prevention (CDC). One such group is Hollywood, Health & Society in the Annenberg Norman Lear Center at the University of Southern California. In 2001 this group facilitated consultation between CDC experts and writers of the program *The Bold and the Beautiful*. This serialized drama is popular both in the United States, where it reaches approximately 5,000,000 households, and internationally, where it reaches an estimated 350,000,000 households in over 100 different countries. As part of this collaboration, an HIV-related story line was developed in which a heterosexual man, Antonio

(Tony), learns that he has been infected with HIV by a previous girlfriend. His own impulse toward self-stigmatization is countered by supportive friends, his physician, and his fiancée, who is uninfected. His disclosure of his HIV status is rewarded when his fiancée convinces him that she loves him and that they can have a happy, sexually fulfilling life as a serodiscordant couple. They marry and, while honeymooning in an African country, meet a young boy who has been orphaned by AIDS. They visit the orphanage where he stays, hold the babies, and ultimately decide to adopt the boy. They make this decision before learning the boy's HIV status. Both the boy and the couple are made very happy by this decision: The boy now has a loving family and the couple has the child they thought they would never be able to have.

There are several indications that the story line resonated with viewers. When this story line was broadcast in the United States it was followed by an epilogue where the actor playing Tony encouraged viewers to call the CDC National AIDS hotline for more information; a record-setting number of calls were received (Kennedy, O'Leary, Beck, Simpson, & Pollard, 2004). An exploration of the effects of this story line was also recently conducted in India (Rogers, Singhal, & Thombre, 2004). This study collected qualitative data using focus group and in-depth interviews. Results indicated that viewers admired the actions both of Tony, in agreeing to testing and disclosing his status to his partner Kristen, and of Kristen, in insisting on remaining in the relationship. Because of these intriguing findings, we hypothesized that viewers of the program would exhibit lower levels of HIV stigma than nonviewers following exposure to the story line. We were particularly interested to test this hypothesis in southern Africa, and we chose Botswana as the best opportunity to do so.

Botswana has one of the highest HIV/AIDS prevalences in the world, 33% among young pregnant women in Gaborone (UNAIDS, 2005), and *The Bold and the Beautiful* is broadcast there. The HIV story line described above was broadcast in Botswana from late 2002 to early 2003, during the same time frame planned for a population-based HIV-related survey. We were thus able to include a question related to exposure to the television program on the questionnaire, and to use data from this survey, to evaluate our hypothesis regarding HIV stigma and exposure to the *The Bold and the Beautiful*.

## METHODS

### PROCEDURES

*Sampling.* Data were analyzed from the *Makgabaneng* Radio Serial Drama Listenership Survey, a population-based survey conducted in 2003 of 807 people aged 15–49 years. Individuals in this age group are the most likely to be sexually active and thus at the highest risk for HIV infection. Seven health districts from around the country were selected based on population size, location, urban/rural status, and HIV prevalence. The total of 807 individuals (405 males, 402 females) were interviewed, and refusal rates were low (see Pappas-DeLuca, Koppenhaver, and the *Makgabaneng* Listenership Survey Group, 2005, for a detailed description of study methods).

For this analysis, only respondents with regular access to television ( $N = 419$ ) are included. Although the preponderance of participants with TV access lived in the urban areas, respondents from each of the geographic regions surveyed met this criterion and were included in analyses. Study protocol and questionnaire were reviewed and approved by institutional review boards in Botswana and at the CDC.

*Interviews.* Interviews were conducted in English and Setswana. *The Bold and the Beautiful* is broadcast in English, which is taught in school in Botswana. The mean

TABLE 1. Sociodemographic Characteristics\* of Viewers and Nonviewers of *The Bold and the Beautiful* among Respondents with Regular Access to Television ( $n = 419$ )

	Viewers ( $n = 209$ )	Nonviewers ( $n = 210$ )
Sex female	120 (57%)	84 (40%)
Age*		
15–24	101 (48%)	92 (44%)
25–49	108 (52%)	118 (56%)
Married	56 (27%)	73 (35%)
Setswana most often spoken in home	182 (87%)	191 (91%)
Formally employed*	90 (43%)	104 (50%)
Primary education or less*	20 (10%)	56 (27%)

\*Unweighted data. \* $p < .001$ .

length of time for the complete interview was 57 minutes. Gender of interviewer and respondent were matched, as has been found to generate trust and less socially desirable responding in sexual behavior interviews (Catania et al., 1996).

## MEASURES

*Sociodemographics.* Participants responded to several sociodemographic items, including sex, age, marital status, language spoken at home, employment status, and level of education. These data are presented separately for viewers and nonviewers, in Table 1.

*Serialized Drama Viewership.* Viewership of *The Bold and the Beautiful* was assessed by asking respondents, first, whether they had “ever watched a television serial drama, like a soap opera or an on-going story of some type.” Those who responded “yes” were asked to name the programs, with up to three additional prompts. Those who named *The Bold and the Beautiful* were deemed viewers.

*HIV/AIDS Stigma.* Stigmatizing attitudes were measured with a five-item scale adapted from other work (Herek & Capitano, 1993; Letamo, 2003). To enhance cultural appropriateness, items included in the scale were reviewed by members of the Technical Working Group of HIV-Related Behavioral Surveys and Studies in Botswana and evaluated for cultural relevance. In addition, the scale items (along with all other data collection measures) underwent extensive formative testing that included forward and backward translation between English and Setswana and three pilot tests. A 5-point response format ranging from 1 (strongly agree) to 5 (strongly disagree) was used; item averages became the stigma scores. The items are listed in Table 2. Note that higher scores indicate higher levels of stigmatizing attitudes.

## DATA ANALYSIS

Data were analyzed in SAS-callable SUDAAN to account for the complex survey design. The data were weighted to account for an undersampling of Gaborone households, oversampling of men, the number of eligible residents per household, and nonresponse. Categorical differences between viewership groups were tested with chi-square tests of independence. Differences between groups for stigma scale scores and individual items were examined using weighted  $t$  tests. We used weighted linear regressions, also in SUDAAN, to explore differences between the groups, controlling

TABLE 2. Responses to Stigma Items Made by Viewers and Nonviewers of *The Bold and the Beautiful* Among Respondents with Regular Access to Television ( $n = 415$ )

Item	Viewers (M, SE, CI) $n = 208$	Nonviewers (M, SE, CI) $n = 207$
Stigma scale total (coefficient alpha = .72)*	1.98, 0.06 (1.86–2.09)	2.23, 0.06 (2.12–2.34)
I would let children from this family play with children from another family, even if I suspected that the other children had the AIDS virus.	2.37, 0.10 (2.17–2.58)	2.54, 0.10 (2.35–2.73)
I would be willing to buy fresh fruits and vegetables or prepared food from a shopkeeper even if I thought the shopkeeper had the AIDS virus.*	2.41, 0.10 (2.22–2.61)	2.89, 0.09 (2.71–3.07)
I would let children from this family go to school if their teacher had the AIDS virus but was not sick.*	1.59, 0.06 (1.46–1.72)	1.86, 0.07 (1.72–2.00)
I would be willing to have an extended family member who had the AIDS virus live in my household.	1.73, 0.05 (1.58–1.88)	1.85, 0.07 (1.70–2.00)
I would be willing to care for an extended family member who had the AIDS virus.	1.76, 0.09 (1.58–1.94)	2.01, 0.09 (1.83–2.18)

Note. M = mean. SE = standard error. CI = confidence interval. \* $p < .05$ .

for sociodemographic variables that were found to be associated with scores on the stigma scale.

## RESULTS

### DIFFERENCES BETWEEN VIEWERS AND NONVIEWERS: SOCIODEMOGRAPHICS

Table 1 presents sociodemographic characteristics of *The Bold and the Beautiful* viewers and nonviewers. Three statistically significant differences between viewers and nonviewers were observed: Compared with nonviewers, viewers were more likely to be female, less likely to be formally employed, and more likely to have had more than a primary school level of education.

### DIFFERENCES BETWEEN VIEWERS AND NONVIEWERS: HIV/AIDS STIGMA

Differences between the two viewership groups for the stigma scale and each stigma item are presented in Table 2. Scores for the two groups on the stigma scale were significantly different ( $p < .05$ ). Although in exploratory analyses only two of the individual items attained statistical significance, means for all items showed a similar pattern. In order to statistically control for factors associated with stigma scores, a multivariate regression analysis was conducted. The model, presented in Table 3, included sex, age, education, employment, and *The Bold and the Beautiful* viewership status. One demographic factor was found to be significantly associated with stigma scores: males had higher levels than females (beta = .27,  $t = 3.38$ ;  $p < .01$ ). *The Bold and the Beautiful* viewership was associated with lower stigma scores (beta =  $-.19$ ,  $t = -3.02$ ;  $p < .01$ ).

## DISCUSSION

These results suggest that stigma may be reduced after viewing a televised serial drama in which HIV infection is treated in a nonstigmatized, humane manner. Characters in the drama were accepting of Antonio, and his fiancée continued to love him and re-

TABLE 3. Ordinary Least Squares Regression Analysis of Adjusted Models for Stigma Related to HIV<sup>a</sup> and Exposure to the Bold and the Beautiful among 415 Respondents

Model Variables	Beta (t)
Exposure to the Bold and the Beautiful	
Viewers vs. Nonviewers	-0.19 (-3.02)**
Sex	
Male vs. female	0.27 (3.38)**
Age (years)	
15-24 vs. 25-49	0.20 (1.71)
Education	
None/primary only vs. higher	0.12 (0.92)
Employment	
Formally Employed	-0.01 (-0.05)
R <sup>2</sup>	0.09

Note. <sup>a</sup>Human immunodeficiency virus. \*\* $p < .01$ .

main committed to their relationship after his disclosure. Characters modeled close physical contact with HIV-infected children and wished to adopt an AIDS orphan irrespective of his HIV status. Our stigma items were particularly related to belief in the possibility of casual HIV transmission, and thus it is plausible that viewing the story line influenced this type of stigma. Characters often touched others who were, or might have been, HIV infected. The stigma scale distinguished viewers and nonviewers significantly, even when several potential confounders were controlled statistically. In Botswana, with its very high HIV/AIDS prevalence, reducing HIV stigma could have widespread effects, both for those living with HIV and for the many families, communities, and caregivers affected by the disease. Because the *The Bold and the Beautiful* is broadcast in 100 countries reaching tens of millions of homes, content that is effective in changing attitudes or beliefs like those related to HIV stigma, have the potential for global impact.

Although these results are suggestive, it is important to note that causal inferences cannot be drawn from this cross-sectional, nonrandomized study. An important additional limitation is that we had no pre-HIV story line stigma data with which to compare our postexposure data. Thus, it is possible that viewers with a special interest in HIV, and whose AIDS stigma was lower to begin with (e.g., individuals who know others who are HIV-infected or are themselves infected), were drawn to the story line and elected to view it. If this kind of self-selection were the case, our data may reflect a spurious association between viewership status and stigma. However, there are a few things that argue against self-selection bias and the possible effect on stigmatizing attitudes. First, this serial drama, is largely an entertainment vehicle, and viewers do not watch it for educational content or even socially relevant content; rather they are caught up in the many entertaining stories. Like other soap operas, *The Bold and the Beautiful* portrays several story lines at once, involving characters whose lives are of greatest interest to ongoing viewers (Museum of Television and Radio, 1997). In fact, the HIV story line occupied only a small fraction of the programs. Onetime or short-term viewers would have poor comprehension of story lines and thus would be unlikely to be influenced one way or the other. We believe it reasonable to assume, however, that most of the viewers who report exposure, are longtime viewers, as research shows that serial drama viewers tend to watch the same program for many years (Museum of Television and Radio, 1997). Furthermore, other recent studies provide results consonant with our own. A longitudinal study obtained a simi-

lar result recently in the United States, where an HIV-related story line in the situation comedy *Girlfriends* reduced stigma more among viewers than nonviewers, relative to their preexposure scores (Kennedy et al., 2005).

Our measure of exposure to *The Bold and the Beautiful* was very crude, reflecting the fact that it was not the primary purpose of the survey. However, assessing only minimal exposure should militate *against* significant findings rather than producing spurious ones. Participants were included in the viewer group who may have received little or no exposure to Tony's HIV story line.

Viewers of *The Bold and the Beautiful* differed from nonviewers in that they were more likely to be female, less likely to be employed, and more likely to be educated. The first two results are not surprising; the third may be related to the fact that the program is broadcast in English, which is taught in school in Botswana. Individuals who watch television there tend to be more highly educated (Thapisa & Megwa, 2002, pp. 60–61).

Although some research has been devoted to effects of American programming when it is viewed abroad (reviewed in Elsamar & Hunter, 2003), more is needed. In the Indian study of the HIV story line of *The Bold and the Beautiful* described earlier, though the Indian viewers admired the characters' nonstigmatizing actions, they felt that these actions would be highly unrealistic in their country, where societal HIV stigma is very high. It may be that in Botswana, with its extremely high HIV/AIDS prevalence, viewers could more easily identify with a young adult infected with HIV and conceive of a relationship in which one member was HIV-positive. In addition, the fact that one segment of the story line included a visit to an orphanage in Africa may have been particularly salient for viewers in Botswana, where approximately 15% of children in rural areas are estimated to be orphans (Arnab & Serumaga-Zake, 2006). Qualitative research exploring local understandings of foreign media would help elucidate how audiences interpret these types of programs; further quantitative research assessing the effects on relevant attitudes and behavior is also greatly needed.

Education-entertainment efforts generally use public funds to develop story lines from scratch for the purpose of public health education. If effective, the present strategy, utilizing health experts as consultants for commercial TV shows, may be a highly cost-effective one. However, it is only possible when writers and producers are willing to work with others to benefit public health. In the case of *The Bold and the Beautiful*, the producers' interest in AIDS was stimulated by meetings with University of Southern California representatives, as well as reports from the International AIDS Conference in South Africa. The potential impact of an internationally popular show like "The Bold and the Beautiful" can be especially great. We encourage continued consultation with public health specialists by writers of commercial programming. It will be essential in future evaluation of this approach, however, to collect baseline (preexposure) data regarding the outcomes of interest. When possible, exploration of effects of international media within the various cultures where it is received, and particularly differences that may exist among them, is recommended.

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