

Embedding Health Messages into Entertainment Television: Effect on Gay Men's Response to a Syphilis Outbreak

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The entertainment education (EE) approach seeks to impact audiences' health behavior by embedding messages in mass media productions, storylines, and characters that appeal strongly to them. Effect on behavioral intentions was examined following a storyline about syphilis in men who have sex with men (MSM) presented in a popular dramatic series.

Five hundred and one MSM drawn from gay Internet chat rooms completed the questionnaire. Differences in item responses between those who did and did not view the syphilis storyline were calculated, and linear regression was used to examine predictors of intentions to take action.

Those who viewed the syphilis storyline were more likely to report intention to get screened and to tell others to get screened for syphilis. Seeing the episode was a predictor of these intentions. Education was also a predictor of intention to tell others to get screened.

Results suggest that exposure to a storyline about syphilis in gay men had a positive public health outcome on users of Internet chat rooms for MSM. Further studies are warranted to examine the extent to which and how the EE approach can produce health-relevant outcomes for U.S. populations, just as the approach has done in the developing world.

In 1999, syphilis cases in the United States reached the lowest rate in more than 40 years. Encouraged by this rate reduction, the Centers for Disease Control and Prevention (CDC) launched a campaign to eliminate syphilis from this country. The

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campaign showed initial promise and produced further reductions in syphilis, particularly among women, infants, and racial and ethnic minorities (CDC, 2002a). Within 2 years of the campaign's launch, however, several U.S. cities reported outbreaks of syphilis in MSM (CDC, 2000, 2001, 2002b; Ciesielski & Beidinger, 2000; Kahn, Heffelfinger, & Berman, 2002). Of particular concern was the fact that many of these new syphilis cases were diagnosed in men who were already infected with human immunodeficiency virus (HIV). Rates of HIV coinfection ranged from 20% to 73% across several U.S. cities, causing concern about potential parallel increases in HIV transmission (CDC, 1999b, 2000, 2001, 2002b; Ciesielski & Beidinger, 2000; Kahn et al., 2002).

Symptoms of syphilis infection can be overlooked or misattributed because they last for only a few weeks and include small, painless, sometimes internal sores, followed by rashes that can be very faint. It was important to inform MSM that they could be at risk for syphilis, and to encourage them to be screened for the disease. Health officials and experts sought avenues through which to disseminate these health messages to large numbers of MSM quickly, and in a form that would motivate them to take health-relevant action.

The broadcast media have the capacity to disseminate information to large audiences very efficiently. Empirical studies have shown that television can increase knowledge about health issues (Brodie et al., 2001; CDC, 1992); change prevention attitudes and norms (Kalichman, 1994; Siska, Jason, Murdoch, Yang, & Donovan, 1992); model prevention behaviors (Basil, 1996); and contribute to behavior change (Andrews, McLeese, & Curran, 1995; Brodie et al., 2001; Fan, 1993; Kennedy, O'Leary, Beck, Pollard, & Simpson, 2004; Myhre & Flora, 2000). Members of populations at risk for HIV infection have reported that they often learn about health issues through television (Beck, Pollard, & Greenberg, 2000; Wolitski et al., 1996). This suggests marked relevance of the medium of television to the problem of communicating messages about syphilis to MSM. Particular types of programming appeal to some audiences more than they do to other audiences. For example, representative survey data show that MSM spend more time viewing prime time dramas and situation comedies in the preceding year than do exclusively heterosexual men.¹

In the United States, health promotion messages have been embedded into the television scripts of situation comedies, soap operas, and dramas (Tannen, 2003). There is little evidence that any of these entertainment formats is superior to the others with regard to potential for behavior change. The EE approach, however, recommends disseminating informative messages by embedding them into continuing serialized dramas, and a body of empirical evidence that this approach has been effective in developing countries has been amassed (Papa, Singhal, & Law, 2000; Singhal & Rogers, 1999).

The EE approach is a carefully developed formula in which many episodes of a serialized drama are broadcast prior to the introduction of embedded health or other prosocial messages. Characters who do or do not act in accordance with these messages are shown both to prosper and suffer. American prime time dramas do not follow EE guidelines, but they do share a number of characteristics with consciously crafted EE programming.

¹Analysis of a public use data set, the National Opinion Research Center's, 1993 General Social Survey, conducted for this article by the first author: $F = 173.29$, $df = 1,1318$, $p < .0001$.

In March 2003, a popular national network television series, *ER*, broadcast two episodes that contained a storyline about MSM diagnosed with syphilis. Broadcast of this storyline presented an opportunity to assess whether a televised drama could have a measurable effect on theoretically important psychological determinants of syphilis screening of MSM.

According to the theory of reasoned action (Ajzen & Fishbein, 1980) and other influential theories of behavior change, an individual's *intentions* to engage in a behavior are an important determinant of the behavior. Intentions, in turn, are predicted partly by *subjective norms*, the individual's perception that salient others hold strong opinions about whether the behavior is performed. Intentions and subjective norms (1) have predicted the performance of several health behaviors (e.g., Fishbein, Hennessey, Yzer, & Douglas, 2003; Janz & Becker, 1984; Kraus, 1995) and (2) are not constrained by access to services and other potential barriers to health behavior. This study examined the intentions of MSM to be screened for syphilis and to tell other MSM to be screened. Presumably, telling other MSM to be screened would indicate increased listeners' perceptions of normative pressure to be screened. Regular viewers of television shows have reported relying on them for health information more heavily than occasional viewers do (Beck, Pollard, & Greenberg, 2000), so it was hypothesized that the intentions of MSM who are regular viewers of *ER* would be affected more greatly.

Methods

Participants

Individuals who were "on-line" in established Internet chat rooms for MSM during the week after the second *ER* episode were eligible for invitations to participate in the study. Invitations were posted in chat rooms serving MSM in 8 urban areas (Atlanta, Chicago, Ft. Lauderdale, Houston, Los Angeles, Miami, New York City, and San Francisco) identified by the CDC (personal communication with Susan DeLisle, CDC, February 4, 2004) as having the greatest number of early syphilis cases among MSM in 2003. Sixty-six percent (66%) of invitations to participate were issued in these cities. The remaining invitations were issued in gay chat rooms that serve MSM in other large urban areas such as Dallas, New Orleans, and Boston as well in resort areas popular with gay men such as Key West and Palm Springs.

Procedure

The survey was called a Survey on Media and Health and was available on a web page for one week after the television broadcasts. Volunteers in a community-based organization (CBO) used a standard script to invite men who were on-line in gay Internet chat rooms to visit the web site and to complete the questionnaire. These invitations were issued in 218 time intervals that were distinct by chat room name and city, date, and time of day. Approximately 12,500 chat "monikers" or nicknames were counted during the timed invitation intervals in the sample. Invitations were posted in the main window for a particular chat room during an invitation interval. In addition, the CBO volunteers "personalized" 1,018 of the invitations by sending them to individual nicknames by private "chat" messaging. It is likely that many individuals return to the same chat rooms frequently, some users do

not view the main chat window text, and that some may use several nicknames even simultaneously so an unduplicated count of the number of individuals who were invited to complete the survey is not available.

Confidentiality

Personal identifiers were not required for participation in the survey, and the confidentiality of the survey was communicated to potential participants along with the invitation to participate. A private provider using industry-standard, secure socket layers and data encryption devices maintained the Internet-based survey. There was no tracking or recording of electronic identifiers.

Measures

Demographics. Of the 16 items on the survey instrument, 5 were questions about demographics. The respondent entered his age in years into a text box. There were also items about race (White, African American, Asian, American Indian, Alaska Native, and other) and about whether the respondent had a Hispanic family background. The respondent also was asked whether he was employed. Income level in the previous year was indicated on a 4-point scale where 1 < \$25,000 and 4 > \$75,000. Highest educational level completed was indicated on a 5-point scale where 1 = junior high school and 5 = postgraduate training.

Exposure. The survey contained questions about regular viewing of five weekly television programs (*West Wing*, *ER*, *6 Feet Under*, *Will & Grace*, and *Sex and the City*). Regular viewing was defined for respondents as viewing a show at least twice a month. Respondents also were asked about television exposure to five health topics (Viagra, human growth hormone [HGH], syphilis, smoking, and plastic surgery) and (after the intention items described below) whether they had seen the *ER* episodes about gay men with syphilis. Chatting or seeing chat on the Internet was assessed to control for possible effects of indirect exposure to the broadcasts. There was also a query about previous completion of the survey to help identify duplicate responses.

Intentions. Five items measured intentions to engage in several behaviors: (1) *get screened for syphilis*; (2) *tell others to get screened for syphilis*; (3) *practice safer sex more regularly*; (4) *stop taking HGH*; and (5) *stop smoking* on a 5-point Likert scale where 1 = *I will definitely do this* and 5 = *I definitely won't do this*. No change was expected on the latter three intention items; they were included solely to control for response bias.

Data Analysis

Univariate contrasts between individuals who did or did not see the *ER* storyline were conducted. Interval-level data were analyzed with analyses of variance (ANOVA). Ordinal-level data were analyzed using independent samples *t* tests and nonparametric tests for independent samples. Categorical items were analyzed with chi-square tests; the Pearson chi-square values (with continuity corrections)

are reported. Bonferroni corrections were applied to adjust for multiple significance testing. Linear regressions also were conducted to hold demographics and exposure to chat constant while the associations between *ER* viewing and intentions to take action following the broadcasts were examined.

Results

Response Rate and Characteristics of Respondents

Five hundred and one (501) respondents completed the survey; 4 additional responses were eliminated because respondents said they had completed the survey before. A highly conservative response rate estimate is 4% (501 of 12,523 nicknames counted during the intervals in which invitations were posted).²

The median and mean age of respondents was 35.0 (range = 15–63). Eighty-eight percent of the sample was White, and 12.5% reported Hispanic ethnicity. Sixteen percent of the sample reported some postgraduate education; 65% completed a college degree; 14% attended but did not complete college; 5% completed high school; and less than 1% had not completed high school. Ninety-three percent reported current employment. Five percent reported a gross annual income in the preceding year of \$75,000 or more; 18% between \$50,000 and \$74,999; 66% between \$25,000 and \$49,999; and 11% \$25,000 or less. These demographics are similar to those of male Internet users in general (Department of Commerce, 2001).

Fifty-seven percent (57%) of the total sample reported seeing the *ER* storyline about syphilis. Fifty-eight percent (58%) of the total sample reported regular viewership of *ER*.

Comparison of Men Who Did and Did Not Observe the ER Storyline

As shown in Table 1, respondents who saw the syphilis storyline reported significantly greater intentions to be tested for syphilis ($p < .0001$) and to advise others that they should get tested ($p < .0001$) than respondents who had not seen the storyline. In addition, those who saw the storyline were older, had more education, and were more likely to be White. As would be expected, those viewing the episode were more likely to be regular *ER* viewers: 89% of those who saw the storyline about syphilis also reported being regular viewers. More *ER* episode viewers reported engaging in or seeing “chat” on the Internet about syphilis and gay men.

Using two linear regression analyses, we examined a group of predictors of intentions to be tested for syphilis and to advise others of the need to be tested for syphilis. Predictor variables in these analyses were all of the demographic variables, regular *ER* viewership, exposure to the *ER* episode about gay men with syphilis, and seeing or engaging in internet chat about the episode. Table 2 presents the results of both regression analyses.

The sole significant predictor of intentions to be tested for syphilis was having seen the *ER* broadcast about syphilis in gay men ($B = .27$, $t = 4.27$, $p < .0001$).

²This is a conservative estimate because the denominator of 12,523 nicknames counted likely includes duplicated individuals and because not all of the individuals “behind” nicknames may have viewed an invitation.

Table 1. Comparisons of MSM who did or did not see the *ER* broadcasts about syphilis in Gay men

Variable	Saw <i>ER</i> broadcast (<i>N</i> = 288)	Did not see broadcast (<i>N</i> = 213)	<i>F</i> =	<i>p</i> <
<i>Univariate comparisons</i>				
Age	36.4	33.1	15.57	.0001
Income	2.2	2.1	8.48	n.s.
Education	4.0	3.7	18.93	.0001
Intend to get screened for syphilis	3.1	2.4	61.99	.0001
Told others of the need to be screened for syphilis	2.8	2.2	27.59	.0001
<i>Chi-squared comparisons</i>			<i>X</i> ²	
Employed	97%	88%	14.18	.0001
White	91%	84%	3.79	n.s.
Hispanic ethnicity	14%	10%	1.36	n.s.
Regular viewer	89%	18%	243.61	.0001
Saw a recent show about syphilis and gay men	94%	23%	271.27	.0001
Chatted or saw chat discussion about the <i>ER</i> broadcast	57%	17%	79.44	.0001

Having seen the *ER* episode ($B = .16$, $t = 2.42$, $p < .05$) and education ($B = .11$, $t = 2.02$, $p < .05$) were the only significant predictors of intentions to tell others to get screened for syphilis. It is likely that because the overlap between regular viewership and viewing the storyline was so great that no independent effect from regular viewership on intention was detected.

Table 2. Linear regressions assessing predictors of intention to be screened for syphilis and to advise others to be tested for syphilis

Independent variable	Intention to be screened			Advise others to be tested		
	Standardized beta	<i>t</i> value	<i>p</i> <	Standardized beta	<i>t</i> value	<i>p</i> <
Age	-.07	-1.30	n.s.	.04	.73	n.s.
Income	-.06	-1.23	n.s.	-.02	-.37	n.s.
Education	.08	1.49	n.s.	.11	2.02	.05
White	-.05	-1.10	n.s.	-.05	-1.05	n.s.
Hispanic	-.05	-1.14	n.s.	.01	.16	n.s.
Saw <i>ER</i> episode	.27	4.27	.0001	.16	2.42	.05
Regular <i>ER</i> viewer	.09	1.51	n.s.	.63	.53	n.s.
Saw/chatted on the internet	.04	.90	n.s.	1.38	.17	n.s.
$R^2 = .13$				$R^2 = .07$		

Discussion

Taken together, these results strongly suggest that exposure to the television broadcasts of *ER* that incorporated a storyline about syphilis in gay men had a positive public health outcome for these users of Internet chat rooms for MSM. In addition, because some MSM serve as a bridge for the sexual transmission of infectious diseases into the population of heterosexual women (many of whom are of child-bearing age), this innovative approach to the dissemination of health information may have carried an even broader public health benefit.

Because the Internet survey method employed in this study is relatively new, the biases it may introduce are not well understood. It is clear, however, that any interpretation of these results should be accompanied by caveats about the present sample. As is common in studies of gay men (a population for which parameters are unknown), a self-selected convenience sample was employed. The sample obtained may not be representative. Chat room users may be a skewed sample of the population of MSM, and the men who participated may be a skewed sample of MSM users of chat rooms.

On the positive side, as has been observed with other populations (CDC, 1999a; Coomber, 1997; Rhodes, Bowie, & Hergenrather, 2003), this study showed that the Internet enables volunteers with limited funds to gain access to a large group of hard-to-reach individuals in a short period of time. Moreover, MSM who frequent chat rooms may be at relatively high risk compared with other gay men. Many gay male chat rooms are venues for men seeking to make sexual contacts with other men, and one syphilis outbreak has been traced to an Internet chat room (Klausner, Wolf, Fischer-Ponce, Zolt, & Katz, 2000). In fact, the Internet has been described as the gay baths of the new millennium (Chaisson et al., 2003).

In May 2000, the CDC brought together researchers who study the effects of televised health messages to help craft a research agenda centered around a better understanding of the effect of the EE approach (see <http://www.cdc.gov/communication/eersrch.htm>). The current findings add to the mounting empirical support for the claim that variations of this approach can produce health-relevant outcomes in the crowded media marketplace of the United States (Brodie et al., 2001; Kennedy et al., 2004), just as the approach has done in the developing world (Papa et al., 2000).

In the future, studies of the effects of televised health messages that employ theoretically important psychological determinants of behavior should be funded at levels that allow verification of positive findings with longitudinal studies of actual health behaviors. Here, a low-cost validation option would have involved having STD clinics include in intake interview questions about what motivated patients to seek screening. This information might also have suggested additional avenues for communicating compelling health messages to MSM and members of other at-risk populations.

Factors (e.g., “booster exposure”) that may influence the strength and duration of EE effects should now be studied. The next generation of studies also should investigate the feasibility and value of profiling the television viewing habits of particular at-risk populations (e.g., MSM of color) and then of targeting tailored messages to appropriate risk groups via specific shows (e.g., those they watch and that are important to them). Similarly, a promising area for future research is the integration of broadcasts into multimodal preventive interventions.

Health issues have dramatic potential, and the dissemination of accurate, compelling health information via highly rated regular television programming need not undercut the entertainment value of the shows. The potential for a productive partnership between Hollywood and health experts appears to be as vast as the power of the stories we tell ourselves to explain our lives and envision the ways in which they could be better.

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