
The Effects of Sexual Social Marketing Appeals on Cognitive Processing and Persuasion

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Increasingly, social marketers are using sexual information in public service announcements and collateral material for a wide range of causes. This study builds on previous research to explain how sexual appeals can affect cognitive processing and persuasion for "help-self" social marketing topics. It also goes beyond traditional single-message research designs by testing matched pairs of appeals (sexual/nonsexual) for 13 social marketing topics. The major finding was that sexual appeals were more persuasive overall than matched nonsexual appeals for social marketing topics. Sexual appeals also stimulated more favorable ad execution-related thoughts but had a negative effect on cognitive elaboration (e.g., support and counterarguments). Respondents also reported that sexual appeals were more attention getting, likeable, dynamic, and somewhat more apt to increase their interest in the topic than were nonsexual appeals. These findings suggest that persuasion is largely the result of peripheral processing and distraction from somewhat unpleasant messages when receivers are expected to counterargue the message or be resistant to change.

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The authors thank Michael Belch, Chris Puto, the *JA* editor Ron Faber, and three anonymous reviewers for their helpful comments on earlier drafts of this article. Grateful appreciation is also extended to Walid Afifi and Kirkland Ahern for invaluable assistance with data collection.

Introduction

Sexual information, whether in the form of pictures, stories, or sounds, has been shown to evoke a predictable range of emotional responses within viewers. Advertising research reveals that sexual appeals are attention getting, arousing, affect inducing, and memorable (for review, see Belch, Belch, and Villarreal 1987). These attributes may be one reason social marketers and nonprofit organizations use sexual appeals for a variety of topics ranging from skin and breast cancer (*Newsweek* 1996) to sexually transmitted diseases to attempts to increase attendance at opera performances and university sporting events (Associated Press 1999; Chism 1999). These instances and others suggest that sexual appeals may be effective for social marketing, despite the lack of empirical evidence that indicates the efficacy of these appeals beyond the consumer product context. Verification of these effects (or lack thereof) will prove valuable to social cause organizations that use—or are considering using—sexual appeals.

Goals of the present research are twofold: One, to build on and integrate prior sexual appeal research and two, to determine if and how sexual appeals are effective for a range of socially relevant topics (e.g., the arts, literacy, disease prevention, health). To achieve these goals, this study employed a method and analysis plan particularly suited to the experimental investigation of message effects: a replicated treatment comparison (Jackson 1992).

Review

Sexual Appeals in Advertising

Appeals utilizing overt sexual information are common in American mainstream consumer advertising (Reichert et al. 1999; Soley and Reid 1988), and the effects of these appeals are well documented (for review, see Belch, Belch, and Villarreal 1987; Percy and Rossiter 1992). Sexual appeals can be

broadly defined as messages, whether as brand information in advertising contexts or as persuasive appeals in social marketing contexts, that are associated with sexual information. Usually represented as images, verbal elements, or both, sexual information can be integrated with the message to greater or lesser degrees.

Although advertising researchers have examined several types of sexual information (e.g., nudity, behavior, physical attractiveness, double entendre) from either information processing or emotional perspectives, an important underlying conceptual commonality is that the information evokes sexual thoughts and/or feelings in the viewer. To this end, there are several generalizations that can be drawn across these studies.

For one, perceptual and processing resources are directed toward the sexual information in the ad instead of toward the brand. Consistently, studies have demonstrated that sexual appeals attract attention to the ad, typically without a corresponding advantage for brand information processing (e.g., brand name recall; Alexander and Judd 1978; Grazer and Keesling 1995; Reid and Soley 1981, 1983; Severn, Belch, and Belch 1990; Steadman 1969). These findings led MacInnis, Moorman, and Jaworski (1991) to advance the proposition that hedonic appeals (i.e., sex) increase motivation to process the ad execution, largely at the expense of the brand.

Work by LaTour (1990; LaTour and Henthorne 1993; LaTour, Pitts, and Snook-Luther 1990) has provided insight into the emotional impact of sexual appeals, specifically the level and nature of evoked arousal and attitudes toward the ad and brand. Typically, there is a direct relationship between the positively valenced arousal evoked by sexual appeals and evaluations. It is important to note that both arousal and valence are influenced by factors such as gender and explicitness of the appeal (e.g., LaTour and Henthorne 1993). Attitudes also are influenced by the relevance of the sexual appeal to the product (Simpson, Horton, and Brown 1996). Additional support for these findings can be found outside the advertising literature (Dekker and Everaerd 1989; Lang et al. 1993).

Given these findings, Elaboration Likelihood Model (ELM) provides a framework to understand the role of sexual appeals in persuasion (Petty and Cacioppo 1983, 1986). According to ELM, persuasion can occur along a continuum of elaboration. Persuasion resulting from extensive issue-relevant thinking is referred to as central route processing; receivers engage in vigilant examination of message information, carefully scrutinize arguments, generate new arguments, and recall arguments from memory. As motivation and ability to engage in systematic elaboration is

reduced (e.g., distraction or low involvement), receivers are less likely to engage in effortful elaboration and are, consequently, more likely to rely on peripheral cues or heuristics (e.g., positive affect, number of arguments) to guide decision making. Evidence suggests this process occurs in response to sexual ad appeals. For example, several studies have shown a purchase intention advantage for sexual appeals despite a decrease in brand information processing (Grazer and Keesling 1995; Severn, Belch, and Belch 1990). These findings suggest that, as motivation is reduced, respondents are influenced by peripheral cues (e.g., affective reactions to the sexual imagery), not by extensive message elaboration.

On the basis of prior research, it appears that the emotional nature of sexual information in advertising plays an important role in processing, evaluation, and persuasion. Evidence clearly indicates that sexual information attracts attention, is interesting and engaging, and directs processing resources toward the sexual stimulus instead of the brand. Because social marketers are using sexual information in public service announcements (PSAs) and collateral material, it is important to understand how sexual appeals may influence audiences for social marketing topics.

Sexual Appeals and Social Marketing

Social marketing is a term coined in 1971 to describe the use of marketing principles for social causes (Kotler and Roberto 1989). Fine (1992, p. 3) describes it as "the application of commercial marketing methods to help create demand for 'social products': [for example] energy conservation, woman's rights, 55-mph speed limit, cancer research, gay rights, seat belt use, [etc.]." Concepts frequently employed by social marketers include segmentation, positioning, emphasis on human needs and motivations, and the effective communication of benefits.

A component of most social marketing campaigns is the PSA. Public service announcements come in multiple modalities (e.g., television spots, posters, brochures) and primarily serve to increase public awareness of the issue but also may influence relevant beliefs, attitudes, and behaviors (O'Keefe and Reid 1990). Although outcomes for campaigns range from awareness to behavior change, social marketing often deals with resistant behaviors that may be difficult to change through exposure to PSAs alone (Andreasen 1991). By their very nature, however, PSAs have the potential to be observed and processed by a large cross-section of individuals at various levels of risk and involvement.

Generally, PSAs can be distinguished as "help-self" (aimed at improving oneself in some manner) or "help-other" (encouraging the public to donate time or money; Bagozzi and Moore 1994). The appeal of choice for most help-self social marketing PSAs is fear (see Siegel, Grodsky, and Herman 1986). Although approaches designed to increase anxiety are effective, several researchers have noted the paucity of alternative message strategies for social marketing (e.g., humor, erotic themes) and called for research to determine their effects (Adelman 1992; Atkin and Marshall 1996). In particular, Solomon and DeJong (1986), arguing from a social marketing perspective, suggest that people often are motivated by things they want (e.g., status, sexual pleasure, peace of mind) rather than fear of loss or negative consequences.

These reasons, as well as the reasons advertisers use sexual appeals, may be why social marketers are integrating sexual information into PSAs and collateral materials for a range of issues. For some time, social marketers have used sexual information to promote safe sex behaviors to prevent the spread of HIV/AIDS and other sexually transmitted diseases (e.g., American Social Health Association 1997; Tucson AIDS Project 1992). Recently, however, sexual information has been used in creative ways for causes not explicitly linked to sex. For example, an American Cancer Society PSA featured a mildly suggestive image of a couple applying sunscreen with the headline "How to rub out skin cancer." Similarly, Mothers Against Drunk Driving (MADD) commissioned a PSA featuring a sexually attractive woman as seen through "beer goggles" (*Adweek* 1998). Posters were placed in bars and restrooms as a reminder of alcohol's effects. Obviously, sexual appeals are not applicable to every social marketing situation, but organizations are using these appeals in creative ways to promote awareness and influence beliefs for topics as seemingly unsexy as skin cancer awareness and breast cancer research.

From a social marketing perspective, sexual appeals may be beneficial for the simple reason that they are attention getting and potentially motivating—desirable message characteristics in a saturated media environment. By inhibiting higher-order thought processes and elaboration, sexual appeals also may be effective in situations in which the target group is likely to be antagonistic toward, or counterargue, the advocated position. At-risk populations are especially likely to practice selective avoidance and employ perceptual defenses regarding change messages (e.g., antismoking PSAs targeted toward smokers). In addition, sexual appeals have been shown to produce behavioral change in a dis-

ease-prevention setting (Solomon and DeJong 1986; Struckman-Johnson et al. 1994). For these reasons, exploring the effects of sexual appeals within a social marketing context is important, because if sexual appeals have persuasive effects, advocacy organizations can make better decisions regarding their use.

Research Hypotheses

As noted in the preceding discussion, sexual social marketing appeals are more likely to attract attention to the PSA, or if it is in the form of a brochure, they are more likely to be picked up and read. Messages that attract attention have an increased opportunity to affect persuasion, especially in a saturated marketing environment typified by a passive viewing exposure (Thorson 1990). If sexual information in the appeal is executed appropriately by ensuring that gender considerations, relevance to the issue, and level of explicitness are taken into consideration, we can expect sexual appeals to generate more positive cognitive processing toward the execution of the ad than nonsexual appeals.

H1: If employed appropriately, sexual appeals will stimulate more positive ad execution-related thoughts (e.g., thoughts about layout and/or design of the ad) than will nonsexual appeals.

Although sexual information is attention getting, there is usually no corresponding increase in simple message processing. Reid and Soley (1981, 1983) found that ads with decorative female models increased memory for the image in the ad with no difference in the "noting" or "reading" of body copy. In addition, the Reid and Soley studies examined product categories that were, at a certain level, relevant (fragrances, liquor, cigarettes) to the sexual information (i.e., decorative females models). In the present study, though the topic may not be perceived as relevant to the sexually oriented appeal, the sex information was integrated into the theme of the ad message to make it relevant at that level. Similar to past research, we expect to find no difference in the number of simple lower-order thoughts about the message.

H2: There will be no difference in simple message thoughts for ads with sexual appeals compared with ads with nonsexual appeals.

Playing back what is said or seen in a message and engaging in effortful elaboration are distinct events (Wright 1980). Whereas viewers may note copy points, they may be more or less likely to elaborate on, or centrally process, the substantive arguments of a

message. Sexual information should be expected to have a negative influence on elaboration when coupled with an advocacy appeal (Mackie, Asuncion, and Rosselli 1992). Therefore, we expect less issue-relevant thinking because processing of the emotional information will interfere with receivers' ability and motivation to examine information carefully, scrutinize arguments, and generate new arguments.

H3: Sexual appeals will stimulate less argument elaboration than will nonsexual appeals.

Finally, when ability to engage in issue-relevant elaboration is reduced, receivers are more likely to rely on cues to guide decision making (Petty, Unnava, and Strathman 1991). According to the reasoning underlying the first hypothesis, if the sexual appeal is used appropriately, it should result in a positive response to the ad's execution. Congruent with cognitive response research and the ELM, the viewer is likely to rely on the positive cognitions evoked by the sexual information to guide decision making. This is especially relevant when elaboration on the central arguments is likely to result in counterarguments or avoidance of the message.

H4: Sexual appeals incorporated within social marketing messages will result in a greater level of agreement with the advocated position than will nonsexual appeals.

Method

To examine the effects of sexual social marketing appeals on cognition and traditional communication variables, including persuasion, sexual and nonsexual matched PSAs were tested for 13 distinct social marketing topics (e.g., eating healthy, public library and museum attendance, HIV/AIDS prevention). The study was conducted in three distinct phases: Phase 1 consisted of message development, Phase 2 consisted of pretesting to determine ads to be included in the final manipulation, and Phase 3 was the actual tests of the hypotheses.

Phase 1

Message Development. A list of more than 100 social marketing topics was generated, which two graduate students judged on two criteria: (1) relevance to the respondent sample and (2) potential to be communicated through a sexual appeal. Eighteen topics met both criteria, and a preliminary set of ads (from 4 to 8 per topic) was created to represent both sexual and nonsexual conditions for all the topics. Review by

advertising professionals and researchers for overall communication value reduced the number of pretest ads to 93.

Each message adhered to a standard design format: (1) a printed, one-page, 8.5 x 11 inch ad; (2) a dominant visual in the upper two-thirds of the page, accompanied by a headline, persuasive appeal, and name of the sponsoring agency in the bottom third; (3) a kernel (core) persuasive message developed for each topic, consisting of the verbal elements mentioned; (4) the visual element manipulated to create sexual and nonsexual conditions; and (5) images of heterosexual couples gleaned from magazines and stock photography catalogs. There were two exceptions: Topic 11 featured a painting (nonsexual condition) and a sculpture of two lovers (sexual condition), and Topic 8 only featured a female model in both conditions.

Persuasive appeals were developed from actual written material (i.e., brochures, journal articles) pertaining to the topic of interest (see Table 1). For example, information from pamphlets produced by the American Cancer Society were used to create messages for skin cancer prevention. Messages for three topics contained facts created by the researcher (Topics 4, 10, and 11). For example, the message for Topic 4 mentioned that Congress had appropriated funding for public libraries to purchase new books.

Operationalization. To reflect the definition of sexual appeals discussed previously, sexual information, represented as both images and copy, was integrated with the persuasive message for each topic. First, except as noted, each sexual appeal contained a different image of a couple engaged in mildly suggestive behavior. Images of couples were selected because research has shown that men and women respond similarly to depictions of sexual images of heterosexual couples (Belch et al. 1981; Jones, Stanaland, and Gelb 1998). In addition, couples were dressed in revealing clothing because physical characteristics (i.e., clothing, physique) are determinants of what both sexes perceive as sexual in advertising (Reichert and Ramirez 2000). Second, sexual meaning was woven into the message with a double entendre headline whenever possible. For example, the headline for Topic 4 (libraries) read, "Find out what's 'hot between the covers' at your local library." The headline was meant to be interpreted as sexual when primed by the image in the sexual condition but not in the control condition.

The PSAs constructed in this study reflect a broader conceptualization of sexual appeals compared with past research in this area. Although it is helpful to know the specific effects of physical attractiveness or revealing clothing per se, in actuality these variables frequently are intertwined in most sexual ad appeals.

In addition, many sexual appeals associate the promise of intimacy and sexual attractiveness with the brand through headlines and copy. For these reasons, the results of this study may be generalized beyond social marketing PSAs, perhaps to advertisements that incorporate sexual information as both images and copy with brand information. Care should be taken, however, because the sexual appeals tested in this study were constructed to minimize negative evaluations related to the sexual information.

Phase 2

Next, the objective was to select ads for the 18 topics by finding pairs with matching values on potential confounds and contrasting values on sex. The 93 ads surviving review in Phase 1 were evaluated in sets (approximately 24 ads to a set) by undergraduate raters ($N=106$) on attitude toward the ad (Aad), relevance of the topic, attention paid to the topic, and perception of the ad content as sexual. Best for the experimental manipulation would be ad pairs that matched on relevance and attention but contrasted on perception as sexual. Aad was included to screen for bad messages, not as a control, because it is suspected of being systematically affected by sexual content and implicated in our theoretical model of how sexual appeals work.

Thirteen ad pairs met these criteria. Analysis of the 13 qualifying ad pairs showed no significant differences on relevance of the topic ($F(1,574)=.548, p>.05$) or attention to the topic ($F(1,574)=.03, p>.05$); as expected, however, ads in the sexual condition were perceived as more sexual than were those in the nonsexual condition ($F(1,573)=933.41, p<.000$; $\bar{X}[\text{sexual}]=2.02, \bar{X}[\text{nonsexual}]=5.62$ when 1=sexy, 7=not sexy; t -tests confirmed that each ad pair was perceived differently at the .001 level). Table 1 provides a description of the topics included in the experiment.

Phase 3

Respondents. Undergraduates in business, communication, and journalism courses from three large public universities participated in exchange for extra credit ($N=658$). They ranged in age from 17 to 51 years ($\bar{X}=21.35, SD=4.34$) and were primarily white (80%), African-American (9%), or Hispanic (7%). The sample contained more women (60%) than men.

Experimental Procedure. When respondents arrived for the manipulation, they were given a consent form, which they read and signed. Subsequently, they were randomly assigned a booklet containing a personality

measure (not reported), a treatment ad, and items measuring the dependent variables. Respondents were told they were evaluating an ad because product managers and advertising creators wanted input earlier in the design process. Respondents were instructed to form an impression of the ad and view it as they would normally view an ad in a magazine. After viewing the ad for 30 seconds, respondents were instructed to turn the page and respond to the items. Time taken to complete the manipulation ranged from 10 to 20 minutes. Respondents did not interact throughout the procedure and were debriefed upon completion.

Measures and Coding Procedures

The following dependent variables were assessed because social marketing campaigns have different objectives at different times, and processing and communication outcomes can be appropriate for different segments at different phases in a campaign (O'Keefe and Reid 1990). In addition, these variables help build on theoretical research in communication and advertising regarding the persuasive nature of sexual appeals.

Thoughts and Cognitions. Respondents' thoughts and cognitive responses were recorded in accordance with traditional thought-listing procedures (Wright 1980). Immediately after viewing the ad, respondents were instructed to list whatever passed through their heads while they viewed the ad. They then were asked to indicate whether each thought or cognition was positive, negative, or neutral (DeBono and Harnish 1988).

Responses were coded into 14 distinct categories (e.g., support and counterarguments, message and ad execution-centered thoughts). Thoughts about executional aspects of the ad (ad design or execution) and message-related thoughts (semantic meaning of the written message) were defined and coded according to widely used protocol (e.g., Severn, Belch, and Belch 1990). These thoughts represented first-order thought processes and were assumed to be distinct from more elaborative processes such as counterarguments, support arguments, and connecting thoughts (Wright 1980). Cognitive responses of the latter type represent systemic or analytic argument-related processing and were combined to measure message elaboration. Thoughts not fitting within these categories were coded as irrelevant and were not included in the analysis.

Approximately 90% of the thought lists were coded independently by two coders (10% were used for training purposes). Training consisted of providing each coder with content categories and definitions and having them independently analyze ads. After coding the responses, results were compared and potential prob-

Table 1
Description of Ad Messages for Each Topic

<i>Topic</i>	<i>Description</i>
1	<i>HIV1:</i> Designed to reinforce the belief that safe sex is an acceptable alternative to unsafe sex. <i>Headline:</i> MYTH: Safe sex isn't any fun.
2	<i>HIV2:</i> Designed to encourage condom use during heterosexual intercourse. <i>Headline:</i> Have condom? Pass go.
3	<i>HIV3:</i> Designed to encourage couples to practice safe sex until they can be appropriately tested for HIV/AIDS. <i>Headline:</i> This couple has two rules: They never say goodnight without a kiss, and they practice safe sex.
4	<i>Public Library:</i> Designed to change young people's negative perceptions about public libraries. <i>Headline:</i> Find out what's 'hot between the covers' at your local library.
5	<i>HIV/Drug:</i> Designed to increase awareness of risky behavior (drinking/drug use) and increased susceptibility to HIV/AIDS and to encourage condom use. <i>Headline:</i> If you can't be good, be careful.
6	<i>5-A-Day:</i> Designed to encourage people to eat at least five servings of fruits and vegetables a day. <i>Headline:</i> Who said fruits and vegetables aren't any fun?
7	<i>Healthy Heart:</i> Designed to encourage people to exercise. <i>Headline:</i> There's more than one reason to keep your heart healthy.
8	<i>Skin Cancer 1:</i> Designed to change the perception that tan skin is attractive. <i>Headline:</i> White can be hot.
9	<i>Skin Cancer 2:</i> Designed to encourage the use of sunscreen. <i>Headline:</i> Playing fair can be fun.
10	<i>Reading:</i> Designed to change perceptions about reading literature. Each ad featured a passage from a work of literature. <i>Headline:</i> Who says literature is boring?
11	<i>Art Museum Attendance:</i> Designed to change perceptions about art museums and encourage visitation by young adults. <i>Headline:</i> Experience the art of love at your local museum.
12	<i>Breast Cancer:</i> Designed to target belief that only certain women are susceptible to breast cancer and to encourage young women to perform breast self exams. <i>Headline:</i> Breast Cancer can strike any woman.
13	<i>Fatherhood:</i> Based on an actual campaign directed toward young men to encourage awareness about the importance of fathers raising children. <i>Headline:</i> Fatherhood is a big responsibility. Think before you act.

lems discussed until high reliability was obtained. Intercoder reliability across the 14 categories was .85.

Persuasion and Communication Variables. Persuasion was measured with a scale of attitude, belief, and behavioral intention statements created and combined for each topic (Keller and Block 1996). The number of items for each specific social marketing topic ranged from 14 to 23. All of these items were measured on a seven-point scale (1=strongly disagree; 7=strongly agree).

Five other communication variables measured the treatment's influence on advertising and persuasion processes (McGuire 1986): (1) Two items measured the ad's ability to gain attention (e.g., "Do you think the ad was attention getting?"), $r=.51, p<.001$, variables were measured on a seven-point scale unless noted (1=very much; 7=not at all); (2) one item was used to indicate how much the ad was liked; (3) two items measured the emotional impact of the ad (e.g., "How powerful do you think the ad was?"), $r=.75, p<.001$; (4) one item, adapted from Gallup and Robinson's protocol (Burton and Purvis 1993), measured the ad's ability to increase interest in the topic ("The sponsoring agency tried to increase your interest in this topic. How was your interest level affected?") (1=increased considerably; 5=decreased considerably); and (5) four items measured the ad's impact on the respondent's thinking or behavior regarding the topic (e.g., "Did the ad cause you to think differently about the topic?"), ($\alpha=.79$). These indicators are used by marketing organizations for copytesting and other practical applications.

Data Analysis

The overall design for this experiment was a between-subjects 2 (sexual appeal/nonsexual appeal) \times 13 (social marketing topic) factorial. Respondents were randomly assigned to 1 of the 26 conditions. All hypotheses pertained to main effects for message type (sexual versus nonsexual), with topics serving only as independent replications. Structurally, this design is identical to what might accumulate for 13 separate experiments, each using a single ad topic.

Three analytic methods are possible for such a design. First, analysis could be conducted in a fixed model analysis of variance with both message type and message topic treated as fixed factors. This is a version of the "language-as-fixed-effect fallacy" first identified by Clark (1973) for psycholinguistic research and now well-known throughout the experimental social sciences. The consequences of treating replication factors as fixed in message effects research have been reviewed very thoroughly by Jackson and Brashers (1994; Brashers and Jackson 1999).

Second, analysis could be conducted in a standard mixed model analysis of variance with message type considered a fixed factor and message topic considered a random factor. This analytic choice has the advantage of underwriting generalization beyond the specific message topics included in the study (Brashers and Jackson 1999; Jackson and Jacobs 1983) and is strongly advocated in many areas of social psychology, communication, and other fields.

Third, analysis could be conducted one topic at a time, with an overall summary via meta-analysis. The advantage of this method is that it allows for explicit attention to the variability in effects from one topic to another, as well as to the overall average effect. In this form of analysis, as in primary analysis, a choice must be made between assuming fixed effects (a fixed underlying treatment effect that is estimated by all of the individual topics) or random effects (a distribution of treatment effects, different for each topic, but describable in terms of a population mean and variance where the members of the population are topics). Random effects analysis is preferable unless there is strong reason to expect that all topics share a common, invariant effect (National Research Council 1992); under the highly restrictive fixed effects assumption, there would be no reason to include multiple different topics in a single experiment, as we have done. Best practice in meta-analysis of communication effects favors treating the individual topics as random effects (e.g., O'Keefe and Hale 1998).

We use a combination of the second and third methods, reporting hypothesis tests conducted via mixed model analysis of variance and providing detailed topic-by-topic information using statistics styled after meta-analysis. Mixed model analysis of variance and random effects meta-analysis are conceptually interchangeable for a design such as this. They are simply different views of the same underlying analysis (Jackson 1991). Hypothesis tests follow the recommendations of Keppel (1991) for mixed model designs and are reported as analysis of variance F statistics. Topic-by-topic effect size is given as Cohen's (1977) d , the "standardized mean difference" between two groups (that is, the difference in two group means divided by their pooled standard deviation). Under the assumption that the individual topics may define 13 separate "true" effect sizes for the common treatment variable, interest centers on two "hyperparameters," the mean and variance of the effect size distribution (National Research Council 1992, p. 139). These correspond, respectively, to the main effects of treatment and the treatment \times topic interaction in analysis of variance statistics (Jackson 1991).

Table 2
Means and Standard Deviations for Cognitive Responses, Persuasion and Communication

	Condition	
	Sexual Appeal	Nonsexual Appeal
Positive execution thoughts	1.28 (1.77)	.74 (1.23)
Message thoughts	.75 (1.08)	.75 (1.17)
Message cognitions	1.87 (2.07)	2.26 (2.45)
Persuasion	6.44 (1.40) ^a	6.31 (1.48)
Attention getting	2.93 (1.39) ^b	4.07 (1.64)
Liked the ad	3.68 (1.71) ^b	4.05 (1.65)
Emotional impact	3.64 (1.56) ^b	4.11 (1.57)
Interest in topic	2.37 (0.74) ^c	2.52 (0.72)
Cognitive/behavior change	4.57 (1.46) ^b	4.61 (1.42)

Notes. Numbers in parentheses represent standard deviations. Means for Persuasion are standardized.

^a1-7-point scale (1="strongly disagree"; 7="strongly agree")

^b1-7-point scale (1="very much"; 7="not at all")

^c1-5-point scale (1="increased considerably", 5="decreased considerably")

Results

A two-factor mixed effects analysis of variance tested the hypothesized effects. Sex, a fixed-effects factor, and its effect was tested against the sex by topic interaction mean square (Keppel 1991). The topic factor was treated as a random-effects factor, and the effects of this factor and the sex by topic interaction were tested against the within-groups error term.

Manipulation Check

An ANOVA was performed to confirm that ads differed as intended. Respondents rated the degree to which they perceived the appeal they viewed as "sexy" on a single-item, seven-point scale (1=very much; 7=not at all). As anticipated, ads with sexual appeals differed significantly from those with nonsexual appeals ($F(1,12)=403.32, p<.001; \bar{x}$ [sexual]=2.90, \bar{x} [nonsexual]=5.82). The topics also differed in terms of perceived sexuality ($F(12, 623)=5.47, p<.001$). Because a main effect for topic is assumed to represent the natural variation in the larger population of treatment conditions, it is inconsequential from a theoretical point of view and has no impact on the analyses. Therefore, topic main effects are reported but not discussed.

Execution and Message-Related Thoughts

Hypothesis 1 predicted that ads with sexual appeals would stimulate more favorable execution-related

thoughts than would those with nonsexual appeals. This hypothesis was supported ($F(1,12)=13.24, p<.01$). As predicted, ads with sexual appeals produced more positive thoughts about the execution of the ad than did the nonsexual appeals (see Table 2 for composite means and standard deviations). Results of the test are summarized in Table 3. It is important to note there was no significant difference for negative or neutral ad execution thoughts. There was also a topic main effect ($F(12,632)=2.87, p<.001$) and a significant interaction between sex and topic ($F(12,632)=1.91, p<.03$). The interaction indicates variation from topic to topic in the size and/or direction of the effect of appeal type. In this case, effect size for each message pair ranged from -.11 to 1.21, with an average effect size of .44 for this variable (see Table 4). To understand magnitude, d is roughly twice Pearson's r . Most persuasion variables have d s between .0 and .5 (Jackson and Brashers 1994). Cohen has suggested that d s of .5 represent "medium" effects and d s of .8 "large" effects; however, decontextualized interpretation of effect size is a highly controversial practice (Rosenthal 1991), so this is mentioned merely to aid in the interpretation of an unfamiliar measure.

Hypothesis 2 predicted that ads with sexual appeals would stimulate the same level of first-order message-related thoughts as would nonsexual appeals. This hypothesis also was supported ($F(1,12)=.07, p=.80$). As predicted, ads with sexual appeals stimulated the same number of message-related thoughts as did nonsexual appeals. The standardized effect size for each message pair ranged from -.49 to .37,

Table 3
Analysis of Variance for Cognition, Persuasion and Communication Variables

<i>Dependent Variable</i>	<i>Source</i>	<i>df</i>	<i>F-value</i>	<i>p-value</i>
Positive execution thoughts	Sex (A)	(1,12)	13.24	.00
	Topic (B)	(12, 632)	2.87	.00
	A x B	(12, 632)	1.91	.03
Message thoughts	Sex	(1,12)	0.07	.80
	Topic	(12, 632)	4.13	.00
	A x B	(12, 632)	.97	.47
Message cognitions	Sex	(1,12)	6.58	.03
	Topic	(12, 632)	4.32	.00
	A x B	(12, 632)	.88	.56
Persuasion	Sex	(1,12)	4.77	.04
	Topic	(12, 632)	62.37	.00
	A x B	(12, 632)	.67	.78
Attention-getting	Sex (A)	(1,12)	46.99	.00
	Topic (B)	(12, 614)	4.14	.00
	A x B	(12, 614)	1.95	.03
Liked the ad	Sex	(1,12)	6.77	.02
	Topic	(12, 614)	2.35	.00
	A x B	(12, 614)	1.11	.35
Emotional impact	Sex	(1,12)	13.69	.00
	Topic	(12, 614)	3.68	.00
	A x B	(12, 614)	1.07	.39
Interest in topic	Sex	(1,12)	4.27	.06
	Topic	(12, 614)	1.36	.18
	A x B	(12, 614)	1.48	.13
Cognitive / behavior change	Sex	(1,12)	0.12	.75
	Topic	(12, 614)	1.91	.03
	A x B	(12, 614)	1.19	.29

resulting in an overall average effect size of .04 for this variable (see Table 4). There was also a main effect for topic ($F(12,632)=4.13, p<.001$).

Elaboration and Persuasion

Hypothesis 3 predicted that ads with sexual appeals would stimulate less elaboration than would nonsexual appeals. This hypothesis also was supported ($F(1,12)=6.58, p<.05$). Ads with sexual appeals stimulated fewer counterarguments, support arguments, and connecting thoughts than did nonsexual appeals. The topic effect was again significant ($F(12,632)=4.32, p<.001$). The effect size for appeal type ranged from -1.19 to $.20$, with an average effect size of $-.24$ (see Table 4).

Finally, Hypothesis 4 predicted that ads with sexual appeals would result in greater levels of agreement in the advocated direction. An overall attitude and behavior posttest scale unique to each replicate was standardized and compared between the sex and control conditions. Because the number of items was different for each topic, change scores were transformed into standardized scores (Jackson 1991). Using d as a standardized mean difference enabled us to perform an analysis of variance across topics. The analysis provided support for the hypothesis ($F(1,12)=4.77, p<.05$). As predicted, agreement was higher for ads with sexual appeals than for those with nonsexual appeals. The standardized effect size for this variable ranged from $-.37$ to $.40$, with an average effect across topics of $.13$ (see Table 4). The effect for topic was also significant ($F(12,632)=62.37, p<.001$).

Table 4
Standardized Treatment Effects for Cognition and Persuasion as a Function of Sex and Topic

Topic	Dependent Variables			
	Positive Execution Thoughts	Message Thoughts	Message Cognitions	Persuasion
1	.38	.28	-.11	-.06
2	-.04	.15	-.24	.12
3	.31	-.14	-.41	.39
4	.68 ^a	-.15	.02	.13
5	.03	-.43	.20	.19
6	-.11	.30	-.16	.37
7	.25	.14	-.07	.40
8	.82 ^b	.04	.20	-.14
9	.37	.00	-1.19 ^c	.24
10	1.21 ^c	.34	-.28	-.37
11	.74 ^a	.37	-.53	-.10
12	.62 ^a	-.49	-.41	.15
13	.44	.09	-.10	.16
\bar{d}	.44	.04	-.24	.13
<i>p</i> -value	.003	.80	.03	.04

t-tests: ^a $p < .05$, ^b $p < .01$, ^c $p < .001$

Analyses of several advertising outcome variables revealed additional information about the influence of sexual appeals on the persuasion process. This series of tests indicated that sexual appeals are more attention getting ($F(1,12)=46.99$, $p < .001$), are evaluated more favorably ($F(1,12)=6.77$, $p < .05$), are more emotionally involving ($F(1,12)=13.69$, $p < .01$), and stimulate more interest in the topic ($F(1,12)=4.27$, $p = .06$), but are no more likely to result in subjective cognitive or behavioral change than are nonsexual appeals ($F(1,12) = .12$, $p > .05$). The standardized effect size for the attention ranged from .22 to 1.55, with an average effect of .78. Average effect sizes for the other variables were less pronounced (see Table 5).

Discussion

The purpose of this study was to determine if and how sexual appeals are effective in social marketing. Beyond simply testing persuasion outcome measures, we sought to illuminate the process by identifying and testing several key cognition and communication variables.

Effect on Processing. Support for H1 confirmed that sexual appeals stimulate more positive ad execution-related thoughts than do nonsexual appeals. This indicates that favorable cognitive processing was directed toward the sexual information when it was present, lending support to prior sexual appeal research, as well as MacInnis, Moorman, and Jaworski's (1991) proposition that hedonic cues motivate processing of ad execution elements. Inspection of the effect sizes reported in Table 4 reveals the effect was advantageous for 11 of the 13 topics, with an average overall effect size of .44. As noted, the appeals were crafted to be relevant and free of sexism and to appeal to both genders. Social marketers using sexual appeals risk both offending their audiences and a possible boomerang effect (i.e., more negative execution thoughts) if these guidelines are violated.

Regarding first-order message thoughts (H2), there was no substantial difference between the two conditions. Although processing was directed toward the execution of the ad, respondents still processed the message (e.g., noting or replaying copypoints), prima-

Table 5
Standardized Treatment Effects for Communication Variables as a Function of Sex and Topic

Topic	Dependent Variables				
	Attention to the Ad	Liked the Ad	Emotional Impact	Interest in the Topic	Cognitive or Behavior Change
1	.30	.31	.03	-.14	-.17
2	.36	.58 ^a	.29	-.17	.02
3	.57 ^a	-.04	-.36	-.01	-.31
4	.92 ^b	.18	.72 ^b	.74 ^b	.10
5	.96 ^c	.27	.43	.41	.15
6	.49 ^a	-.10	.21	-.24	-.25
7	1.31 ^c	.44	.66 ^a	.59 ^a	.53 ^a
8	1.55 ^c	.39	.51	.40	-.21
9	1.09 ^c	.04	.31	.34	-.03
10	.83 ^b	.96 ^b	.72 ^a	.42	.71 ^a
11	.22	-.36	-.04	-.20	-.31
12	.56	.31	.05	.04	-.02
13	1.01 ^a	.15	.20	.46	-.02
\bar{d}	.78	.24	.29	.20	.02
<i>p</i> -value	.000	.02	.003	.06	.75

t-tests: ^a $p < .05$, ^b $p < .01$, ^c $p < .001$.

rily because the sexual appeals were relevant to the topic and/or theme of the ad. This finding also corresponds with prior sex appeal research. Together, these findings suggest that, if utilized appropriately, sexual appeals are likely to result in a meaningful advantage for processing the PSA with little or no disadvantage for message comprehension. From a social marketing standpoint, viewers are likely to respond favorably to the PSA without being distracted from the core message.

Effect on Elaboration. The prediction that sexual appeals would stimulate fewer cognitive responses toward the message than would nonsexual appeals (H3) also was supported. Respondents had fewer support and counterarguments and connecting thoughts to persuasive messages that employed a sexual appeal. Specifically, elaboration was lower in 10 of the 13 topics (Table 4), which suggests a fairly consistent effect across topics. This finding indicates that persuasive messages employing sexual information inhibit

elaboration or systemic processing, a desirable outcome for topics or appeals likely to evoke counterarguments. Cigarette smokers, for example, may be likely to disparage or counterargue assertions made in typical social marketing appeals but be less likely to do so in response to appeals containing sexual information.

Sexual information may inhibit elaboration two ways. First, processing directed toward the sexual information limits resources available for elaboration, though no sexual appeal study has tested this effect directly. Second, positive responses to sexual information (i.e., message-induced affect) may decrease motivation to engage in effortful elaboration. According to Mackie, Asuncion, and Rosselli (1992, p. 253), "The results of multiple experiments converge on the conclusion that positive mood undermines elaboration of persuasive messages." Research is needed to determine which explanation is most relevant in this context.

Effect on Persuasion. Hypothesis 4 also predicted a main effect for sex such that sexual social marketing appeals would result in a higher level of persuasion than would their nonsexual counterparts. Confirmation of this hypothesis suggests that sexual appeals can be persuasive beyond the commercial product context. Although the result was statistically significant, the average effect size for this variable was not large (.13). Sexual appeals were advantageous, however, for 9 of the 13 topics. Because of the reduction in systematic elaboration, the overall advantage for this variable supports the likelihood of persuasion through ELM's peripheral route. Greater agreement with the advocated position, albeit temporary, is a desirable outcome. Consider the MADD poster and HIV/AIDS brochures mentioned previously. Both messages were present in or near the usage context: posters placed in restrooms and bars to prevent drinking and driving and brochures describing safe sex practices in explicit detail distributed as patrons left bars and clubs. The results of the present research suggest that these two PSAs are attended to, liked, apt to inhibit counterarguments, and, as a result, temporarily influence risky behavior.

Analysis of the communication variables provides additional support for the hypothesized framework, as well as offers insight into the persuasion process. Respondents reported that the sexual appeals were more attention getting, more likeable, more dynamic, and somewhat more likely to increase their interest in the topic. As might be expected, however, there was no self-reported cognitive or behavioral differences between the two types of appeals. The pattern of findings reflect the emotional effect of sexual information in PSAs, while suggesting that persuasion, if it occurs, is not a result of thoughtful elaboration of the arguments in the appeal.

Topic-to-Topic Variability in Effect Size

What sense can be made of the significant variability in effect size from topic to topic? The 13 message topics chosen for this study represent a well-specified category; all are social marketing topics, all are of type help-self, and all were screened thoroughly for known confounds. Despite topical variety within the category, all 13 messages appeared equally suitable for the sexual appeal manipulation prior to collection of data. Nevertheless, for all 9 dependent variables there was appreciable variability in effect size from topic to topic, and for 2 of the dependent variables, this effect size variance was statistically significant.

Quite commonly in meta-analysis of related experiments, significant effect size variability is thought to

demand a search for moderators of the effect, identified through a search for plausible subsets of effect sizes that are homogeneous. All 13 effect sizes for each dependent variable were obtained using common methods with a common pool of respondents and materials chosen to represent a single defined category of messages. No obvious theoretical basis exists for subcategorizing the topics. We can, however, divide them into three groups, one addressing sexual behavior ($n=5$), one pertaining to health ($n=5$), and one dealing with culture ($n=3$). This sort of partitioning improves within-set consistency on some dependent variables while worsening it on others, and it offers no clear picture of how the effect of sexual appeals varies along dimensions that could be used in practical design situations.

A very different approach is suggested by O'Keefe's (1999) discussion of effect size variability. O'Keefe examined 23 meta-analyses of persuasive message effects, looking not at the average effect size, but at evidence of effect size variability. He concluded that "message-to-message variability in persuasive effects is genuine and common" and that "there is commonly substantial variability in persuasive effects, even when moderator variables are used to create subclasses of effect sizes" (O'Keefe, 1999, pp. 91-92). The effect size variability observed in this study is entirely consistent with O'Keefe's (1999, p. 89) conclusions; across 23 meta-analyses, he noted that the average standard deviation of r was .17 and that it was "rare for the standard deviation to be smaller than the mean." To compare the results reported here with what O'Keefe observed for other persuasive message variables, it is necessary to convert d to r ; doing so produces means and standard deviations very similar to what O'Keefe (1999) observed in the 23 meta-analyses of similar situations, with all 9 variables yielding standard deviations at or below the mean standard deviation for the persuasion variables examined by O'Keefe.

In short, for no predictable reason, ads that looked equally fertile as settings for sexual appeals produced effect sizes approximately as variable as those observed for other persuasive strategy variables. O'Keefe's (1999) arguments favor treating this variability as part of what must be described when discussing a message variable's effects. As O'Keefe (1999) notes, this does not mean that nothing of practical or theoretical significance can be said about the effects of sexual appeals. On the contrary, it can be said with confidence that, for any new topic within the general category of help-self social marketing messages, it is much more likely that a sexual appeal will improve

the ad's effectiveness than that it will harm it. As O'Keefe (1999, p. 92) noted, "substantial variability in effect, as observed in the present results, does not necessarily imply any impaired ability to reach reliable generalizations about mean effects."

Directions for Future Research and Limitations

Determining if these results are applicable to other categories of PSAs is one avenue of additional research. The topics tested in this study could be categorized as help-self (Bagozzi and Moore 1994), or topics directly affecting the viewer. The results show that sexual appeals are effective for encouraging betterment of oneself (e.g., eating healthy, visiting an art museum or library) and minimizing risk (e.g., drugs and HIV, condom use). Caution should be taken, however, when generalizing these conclusions to help-other social marketing campaigns (e.g., charities, volunteerism). Future research could determine if sexual appeals designed to stimulate the giving of money and time can generate awareness and develop interest in the topic, as well as encourage change or reinforce beliefs, attitudes, or behaviors regarding each issue.

Because the present research bridged two areas previously unexamined in concert, an effort was made to test a broad array of topics representing a range of alliances with sex information. For example, sexual appeals were directly relevant to sexual behavior in five of the topics tested (e.g., condom use, fatherhood, risky behavior and sex), as well as to five topics related to health but not directly relevant to sexual behavior (e.g., exercise, diet, breast and skin cancer). Three other topics were neither health-related nor directly relevant to sexual information, though sex was integrated into each appeal (museum and library visitation, reading). Now that general effects have been documented, additional research can build on these findings by examining the relationship of topic to sex. For example, Heckler and Childers's (1992) two-dimensional model of incongruency may reveal important insights. Sex appeals for HIV prevention could be conceptualized as "expected-relevant," whereas library visitation might be represented as "unexpected-relevant." This framework could be useful for predictions regarding memory outcomes of PSAs.

An obvious limitation of this study, as well as much advertising and message effects research, is the difference between naturalistic and forced exposure. Maintaining internal validity entails the sacrifice of a true viewing experience and subsequent responses to ads and PSAs. Unfortunately, most of what is known about sexual ad appeals is derived from single-exposure,

forced-exposure settings. Although sexual appeals often are criticized for distracting viewers from processing brand information, in real-life situations, consumers view ads many times, affording them the opportunity to learn information about the brand over time.

Finally, involvement and perceived risk of the respondents may have been lower than that of high-risk target individuals for some social marketing topics. Overall, however, most topics chosen for this study were directly applicable to the undergraduate sample: issues related to sun exposure (tanning), unsafe sex, and poor eating habits. Information for these topics is available in the waiting rooms of most campus health centers. In addition, all appeals were crafted to be relevant to the sample. The breast cancer appeal, for example, was only viewed by female respondents, and the primary theme was that all women are susceptible to breast cancer, despite the absence of risk factors (e.g., age). Care should be taken, however, when extending the results to other topics and target groups other than students.

Conclusion

What guidance do the results of this study provide for those developing social marketing campaigns? First, sexual appeals can be persuasive, sometimes more so than other types of appeals used in social marketing campaigns, especially if the sexual appeal is crafted in such a way as to be relevant to the topic. Persuasion, however, is likely to be the result of peripheral processes and, as a result, may be transient. Second, regarding other communication outcomes, sexual appeals are attention getting, likeable, dynamic, and somewhat more apt to increase interest in the topic than are nonsexual appeals. In a saturated media environment, the ability to attract favorable attention and interest to the message is vital. Third, sexual appeals have a negative effect on the elaboration of message content (support and counterarguments and connecting thoughts). They did not, however, result in a serious deficiency with regard to copypoint processing. This pattern is consistent with what we know about affective reactions to sexual stimuli generally, especially the tendency of positive affective states to inhibit critical examination of message content. At the very least, this study provides new opportunities for additional research into the effects of sexual appeals integrated within social marketing PSAs.

Beyond the value of the results, this study illustrates some broader scientific and practical benefits to be gained from design and analysis improvements. Using multiple replications of the treatment contrast, we are able to broaden our conceptualization of treat-

ment effects from a vision of the treatment as a single value to a view of the treatment as a distribution of effects, different for each implementation, but with some average and some range of likely variation around that average. Although good methods for modeling message effects as variables are not yet well worked out, the practical utility of message effects research can be enhanced by advancing to a more sophisticated conception of effect size that recognizes and explicitly models nonuniformity in the advantage or disadvantage of any abstract strategic choice.

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