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Journal of Magazine Media, Volume 7, Number 2, Summer 2005, (Article)

Published by University of Nebraska Press

DOI: <https://doi.org/10.1353/jmm.2005.0002>

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Media coverage of sexually transmitted infections: A comparison of popular men's and women's magazines

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Abstract

Although sex is a prominent topic in mass media content, the industry has been criticized for not adequately covering the risks of sex, such as infection or unwanted pregnancy. Magazines present one, but an important, source of information about sexual behavior. This study comparatively examines coverage of STIs in articles about sex in two men's and two women's magazines. The results show that men's magazines had fewer articles about sex than women's magazines and a smaller percentage of sex-themed articles in men's magazines contained STI information. Several other differences between men and women's magazines, consistent with evolutionary psychology, emerged from the analysis.

Media coverage of sexually transmitted infections: A comparison of popular men's and women's magazines

by Aimee Larry and Maria Elizabeth Grabe

The late 1980s and early 1990s were marked by an increase in the incidence of several sexually transmitted infections (STIs) among Americans. The Centers for Disease Control and Prevention estimate that there are 65 million people living with an incurable STD. According to the report "Tracking the Hidden Epidemics: Trends in STDs in the United States 2000" (Centers for Disease Control and Prevention, 2001), there are 15 million new cases of STIs reported each year in the United States. Women between the ages of 18 and 25 seem to be at a disproportionate risk for contracting STIs (Centers for Disease Control and Prevention, 2001), and the Planned Parenthood Federation (2001) suggests that women are more likely to contract an STI because they have a larger portion of their genitalia exposed during sex compared with men. The rise in STI rates is attributed to widespread practice of unprotected sexual intercourse and a lack of knowledge about STIs in the U.S. population. A study by the Kaiser Family Foundation (1996) found that most men and women of reproductive age (18-44) seriously underestimate how common STIs are. For example, only 34 percent of women and 22 percent of men said they had heard of chlamydia, currently one of the most commonly reported STIs in the U.S.

STIs and the Media

The mass media provide one avenue for public health officials to disseminate messages about the consequences of unprotected intercourse to sexually active audiences. While the topics of safe sex and STI risk are addressed in news coverage, public service announcements (PSAs), sitcoms, and popular films, most scholars who have examined this issue found that the seriousness of those issues are underplayed and reduced to individual problems with simple solutions (Wallack, 1990). Studies by Huston, Wartella & Donnerstein (1998), the Kaiser Family Foundation (2000), Strausburger (1995), Brown and Keller (2000) and Buerkel-Rothfuss, Strouse, Pettey, and Shatzer (1997) have all demonstrated that sexuality is a staple ingredient of television, magazines, and films in recent years, yet most media messages about sex fail to acknowledge the risks and consequences of unprotected sex. Cope-Ferrar and Kunkel (2002) analyzed sexual content of several popular prime-time sitcoms and found that 82% of the sample programs contained either sexual talk (talking about past or present sexual activity) or sexual behavior (touching, kissing, etc.); but only 11% of the sample contained messages about sexual risk and responsibility when the characters talk about sex, and only 3% of the sample contained those messages when characters were engaged in sexual behavior. The Kaiser Family Foundation (2003) found that "sexual messages are highly prevalent in the television landscape, especially the shows watched by teens." The same study concludes that while sexual activity is abundant, only about 15% of the shows with sexual content include information on risks and responsibilities.

However, another study found that only 25% of shows featuring sexual behavior currently contain references to safe sex (Stanley, 2003).

Men's magazines and women's magazines

Men's magazines and women's magazines, because they are readily available and relatively inexpensive, are positioned to quench unfulfilled needs for information about sex. In fact, in a 1997 national study of high school boys and girls found that 63% of the girls said they received information about sex and contraception from magazines (Sutton, Brown, Wilson & Klein, 2002). Studies have established that much of the focus in women's magazines is on sex and sexual behavior (Durham, 1996; Garner, Sterk & Adams, 1998; McCracken, 1993; Walsh-Childers, 1997). Despite these few magazine studies, most research conducted on media offerings about sex focuses on fictional television content. Media with journalistic intentions are most often excluded from content analyses (see for example the research funded by the Kaiser Family Foundation). It seems reasonable to expect outlets of journalistic information to be held to the same level of scrutiny as media entertainment channels. In fact, the mission of news reporters to inform citizens in a way that would empower them to influence basic conditions in society has been part of the philosophy of journalism for centuries. This goal has also been less tacitly accepted in journalism circles after the Hutchins Commission outlined the responsibilities of the press in 1947. The civic journalism movement, active since the 1980s, is a concrete example of how this perspective is practiced. Particular to the issue of STIs, the public health model of reporting focuses on risk factors, causes, and prevention of disease or social problems that cause harm or death to citizens (Wallack, Dorfman, Jernigan, & Themba, 1993). Although men and women's magazines might not be regarded as capstone examples of socially responsible journalism, these magazines offer factual information to millions of readers on a monthly basis. Researchers such as Lever (1999) argue that writers and editors at teen and young adult magazines have a social responsibility to do a better job at informing their readers of the risks involved in unprotected sex. There are approximately 25,000 consumer magazines currently available to young adults (Magazine publishers of America, 2002). Monthly readership estimates of some of the more popular women's magazines, such as *Cosmopolitan* (14 million) and *Glamour* (two million) suggest wide readership. Moreover, young women consider these magazines to be a significant source of information about sexuality and sexual health (Ferguson, 1983; McCracken, 1993; Pierce, 1993, 1990; Wolf, 1991). Treise and Gotthoffer (2002) found that female teenage focus group respondents believe that magazine articles are an important way for women to find information about sex and sexual health issues, especially when they do not have a family member or friend to discuss those issues with. They also found that respondents (females ages 13-24) reported being heavy consumers of magazines, including but not limited to, *Cosmopolitan*, *Glamour*, *GQ* and *Men's Health*. The focus group participants also reported that they felt sexuality and relationship issues were covered more than sexual health.

Research findings about the coverage of sex in women's magazines indicate that articles in magazines include information on how to have better sex, attract and please men, and they

provide information on sexual anatomy and functioning (Garner, Sterk, & Adams, 1998). One study of health topics in women's magazines from the 1970's found that "established" women's magazines (*Ladies Home Journal*, *Woman's Day* and *Cosmopolitan*) focused mainly on diet, exercise, nutrition and mental health issues. The "new" magazines (*Ms.*, *Working Woman*, and *Essence*) focused the majority of their coverage on reproductive health issues (birth control, child birth practices, infertility, and abortion/miscarriages), followed by mental health, then diet, exercise and nutrition, with no coverage of STIs or AIDS (Weston & Ruggiero, 1986). Even in the late 1980s and early 1990s, when the incidence of STIs sharply increased among women, women's magazines tended to focus on pregnancy and childbearing issues and abortion, rather than the prevention or treatment of STIs (Walsh-Childers, 1997). More recently, Walsh-Childers, Gotthoffer and Lepre (2002) analyzed content of popular teen and women's magazines between 1986 and 1996, including *Cosmopolitan* and *Glamour*, and found a decline in the amount of sexual health articles during that decade. Only 9.7% of articles in teen's magazines (*YM*, *Sassy*, *Teen* and *Seventeen*) had STIs as their main focus, and 8.1% had AIDS/HIV as a main focus. Non-health related sex topics were the main focus in 56.8% of teen magazines. Among women's magazines, including *Cosmopolitan* and *Glamour*, only 4.6% of the articles coded had STIs as the main focus, and 7.5% of the articles had AIDS/HIV as the main focus. Non-health related sex topics were the main focus in 52.8% of the articles. Even though few articles in both women's and teen magazines had STIs as the main focus of articles, some information was included in articles with a different main focus. During the decade of 1986-1996, mentions of specific STIs were found in 32.8% of the articles, and mentions of AIDS/HIV were found in 25.8% of the articles. In women's magazines, STIs were mentioned in 15% of the articles with a non-health sexual topic, and AIDS/HIV was mentioned in 18.8% of them. This study demonstrates the lack of STI information when an article has sex (a non-health topic) as a main topic.

In another study, focus group respondents reported seeing some sexual health issues covered in magazines; the topics most often cited were AIDS/HIV, condom use, breast cancer, birth control, pregnancy, and prostate cancer. Respondents reported seeing less coverage of other STDs, such as chlamydia and HPV (Treise and Gotthoffer, 2002). One respondent even suggested that magazines focus almost exclusively on AIDS/HIV. The teenage male participant was quoted as saying "All they ever talk about it HIV. Do they even realize how many more STDs there are out there?"

While only a handful of studies have examined the coverage of Sexually Transmitted Infections in women's magazines, even fewer have studied the coverage of STIs in men's magazines. In her analysis of sexual health coverage, Walsh-Childers (1997) found slightly more coverage of STIs in men's magazines than in women's magazines between 1986 and 1996. Three percent of all articles coded in men's, compared with 2% in women's magazines, featured STI information, with prevention (rather than risk, treatment, consequences and symptoms) being the focus of the information. Men's magazines covered a broader range of STIs than did women's magazines. HIV/AIDS was given the most attention, followed by herpes, gonorrhea, syphilis, and chlamydia.

The messages young men receive about sex are worth examining because men in their 20s are considered to be at high risk for STIs (Bradner, Ku, & Lindberg, 2000). Young adult men are also hardest to reach with prevention information and education, simply because they are no longer associated with institutions that traditionally provide prevention education (Bradner et al., 2000).

Coverage of sexually transmitted infections in magazines directed at young, single men and women has not been the primary focus of any existing research. A study by Walsh-Childers' (1997) examined the coverage of sexuality, contraception, STIs, and reproductive behavior in several popular magazines. While this study was instrumental in describing the content of sexual health issues across many genres of magazines, it did not centrally focus on the magazines that could provide information to the group most likely to be affected by STIs, which are young adults. Therefore, it is still somewhat unclear if, and to what extent, magazines targeted to young adults are providing information about the prevention, testing, symptoms, risks, health consequences, and treatment of STIs. This prompts the first two research questions of this study.

RQ 1: How prevalent is information about STIs in articles about sex in men and women's magazines?

RQ2: With what comparative prominence is sex framed as pleasure, risk, or procreation; and to what extent are these frames integrated in articles about sex?

RQ3: Which STIs enjoy the most coverage in men and women's magazines?

The effects of sexual content in the media

The potential for the mass media to play a role in sex education is evident when one considers theories of mass media effects. In cultivation analysis circles it has been argued that the media play an important role in the decisions people make about sex and sexual behavior (Signorielli, 1993). Although cultivation theory mainly addresses the influence of fictional televised violence on perceptions of reality, a number of studies have tested the cultivation effect in terms of other media content and non-television media channels including cultivation of concerns about the environment (Shanahan, Morgan, & Stenbjørre, 1997); perceptions of race and affirmative action (Gandy & Baron, 1998); consumerism (Allen, 1992), and the impact of natural disasters (Newhagen & Lewenstein, 1992). Together these studies suggest that, when heavily exposed to media, audience members tend to absorb a homogenous set of meanings contained in messages. One study examined this phenomenon regarding sex in the media. The authors suggest that heavy exposure to sex in the media is associated with an increased perception of the amount of sex in the "real world" (Buerkel-Rothfuss et al., 1997). If television viewing and exposure to print media can shape attitudes and influence perceptions of reality, it is reasonable to argue that men and women's magazines might have similar effects. In line with the cultivation hypothesis are other media effects theories that provide evidence that the media play an important role in shaping perceptions and behavior. Studies grounded in theories such as agenda setting, framing, and social learning show that the media tell people both *what* is important in the world around them as well as *how* to think about issues (including matters related to health and sexuality)

and people who inhabit that world (see for example Brown & Newcomer, 1991; Courtright & Baran, 1980; Gagnon & Simon, 1973; Greeson & Williams, 1986; Iyengar, 1991; Kalof, 1999; Kosicki, 1993; Peterson, Moore, & Furstenberg, 1991; Rogers, Dearing, & Chang, 1991; Walsh-Childers, 1990; Zillmann, 2000). When young men and women read magazines such as *Glamour* and *Cosmopolitan*, or *GQ* and *Men's Health* monthly, during the height of their sexually active years, the information about sex could serve to influence attitudes about sexual behavior, including perceptions of risk.

There are, however, also theoretical grounds for considering the media as only one of many sources of sex education with differing degrees of influence, depending on the strength of other socializing agents, such as peers, parents, and schools. Media dependency theory suggests that reliance on media outlets grows when interpersonal communication is inadequate in fulfilling information needs. DeFleur and Ball-Rokeach (1982) suggest that dependency on media increases when people feel the need to deepen their understanding and interpretation of non-mediated experiences. If young adults are not receiving adequate information about sex at school or from their parents and friends, media become their leading source of information about sex (Garner et al., 1998). A 1999 survey of Pennsylvania high school students found that teens feel parents had a hard time talking to them about sex and that parents simply preached abstinence (Fay & Yanoff, 2000). Teens said they were more fearful of the embarrassment that would result from talking to their parents about sex than becoming pregnant or contracting STIs (Fay & Yanoff, 2000). In fact, research has documented that when it comes to STI information, young people are more likely to consult and learn more from the mass media than physicians, family, and friends (Clarke, 1998; Steele, 1999; Sutton, Brown, Wilson, & Klein, 2002).

Sexually transmitted infections and evolution

Beyond the assessment of how well magazines might serve an important information function, this study is also concerned with possible variance in framing STI information in women's magazines versus men's magazines. Indeed, there is reason to entertain the possibility that both editorial decisions about sexual content and audience responses to these articles might be explained from an evolutionary psychology perspective. In this sense, editorial decisions can be seen as a socio-cultural consequence of this perspective.

Evolutionary theory about human sexuality suggests that males and females follow different mating strategies to maximize reproductive success (Sadalla, Kenrick, & Vershure, 1987). Women invest more time, energy, and risk in reproduction, and have a greater parental investment than men do. As Symons (1979) suggests, men maximize their chances of procreation through a large number of short-term sexual partnerships. For example, men could have sex with 100 women in one year and produce 100 children, whereas a woman could have sex with 100 men and only bear one child in one year (Buss, 1998). Beyond the time commitment in carrying an unborn child to birth, women also produce considerably fewer eggs and for a shorter period of their lifetime than men produce sperm. The female strategy for successful reproduction is therefore markedly different from the male approach. Women generally mate more selectively than men and pursue sexual partners who show

promise of commitment and availability of resources rather than physical attractiveness. In this way women often secure life-supporting resources for themselves and their offspring (Buss, 1998; Symons, 1979). Women also show preference for healthy and attractive men, but these characteristics are not as important to them as they are to men. In fact, men primarily base their mating decisions on a woman's physical appearance because it provides the best cue to fertility and therefore reproductive success (DeLamater & Hyde, 1998). Research suggests that men prefer women who are healthy, young, have clear skin, bright eyes, lustrous hair and prominent variance in their hip to waist ratio (Buss, 1998). When men enter into long-term coupling, they place a greater premium on fidelity than women. The greatest threat to the continuation of a male's genes is cuckolding. When a man commits his time and resources in support of a woman and offspring, sexual fidelity of his partner is the only assurance that he is not advancing another man's genetic immortality. A partner's infidelity does not pose the same threat to a woman's reproductive success. A man's promiscuity might put a woman at risk for STIs, but as long as he honors his commitment of resources to her and offspring her genetic longevity is secure.

STIs may serve a functional role, especially for men, in selecting a long-term mate. First, if a woman has an STI, it can be assumed, rightfully or not, that she has the potential to behave in a promiscuous way. This signals the potential risk of cuckolding—the greatest threat to the longevity of male genes. Second, research suggests that STIs have been present among humans since pre-historic times and have had a negative impact on mating and procreation, especially for women (Immerman & Mackey, 1999). In fact, STIs are far more likely to pose a threat to a woman's than a man's competitive edge in the gene pool. Women are more likely than men to contract an STI after a single sexual exposure, the symptoms of some STIs are subtle and often undetected in women, and medical evidence shows that STIs have a more disastrous effect on the fertility of women. STIs are therefore more likely to lower the biological value of women as potential mates than men. Some STIs jeopardize a woman's ability to conceive while others increase chances of miscarriage, ectopic pregnancy, stillbirth, or passing infection on to an unborn child. As evolutionary theory proposes, the most effective way for a man to assure his genetic future is to mate with women who are fertile, physically fit to carry a fetus to term, and able to deliver a healthy offspring (Buss, 1998). STIs could therefore be seen as a cue, somewhat more important for men than women, in selecting long term mating partners. Research evidence shows that in primate populations where STIs are widespread, males are significantly more likely to inspect a potential mate's genitalia before copulation than female primates do to male partners (Nunn, 2003). In humans, surveys have shown that an STI infection, or prior history of these infections, lowers a woman's sexual attractiveness more significantly than a male's sexual attractiveness (Immerman, 1986; Immerman & Mackey, 1997; Mirotznik, Shapiro, Steinharr, & Gillespie, 1987; Ridley, 1993). If women's magazines indeed serve women's mating strategies and their reproductive edge, one would expect substantial emphasis on STI coverage and a wealth of information about symptoms, treatment, prevention, and health consequences. On the other hand, in the context of evolutionary psychology, men's magazines might be expected to focus on information on how to recognize symptoms of these diseases.

With consideration of gender differences in mate selection, as posed by evolutionary psychologists, and guided by existing research on coverage of STIs in the media, the final research question was posed:

RQ4: How do men and women's magazines compare in terms of emphasis on STI coverage and the specific information (prevention, symptoms, treatment) offered to the respective audiences?

Method

A sample of two popular women's magazines (*Cosmopolitan* and *Glamour*) and two popular men's magazines (*GQ* and *Men's Health*) between the years of 1998 and 2001 were analyzed for their coverage of sex and STIs. The time period was selected for the analysis for two reasons. First, it continues where the Walsh-Childers (1997) study of sexual content in popular magazines leaves off. Therefore, this study provides continuity in accumulating insight into magazine coverage of sex. Second, the data from the CDC (2001) suggest a sharp increase in some STIs (HPV, Herpes simplex, gonorrhea) between the years of 1997 and 2000, highlighting this period for an investigation of media coverage of STIs. Once the sampling frame was defined, one issue per season (fall, winter, spring, and summer) was randomly selected for each magazine per year. In all, articles from 64 randomly sampled issues were analyzed.

The particular two men and women's magazines were selected because of their similarities in terms of editorial goals, readership size, and demography of the audiences. *Cosmopolitan* magazine's website cites a monthly circulation of approximately 14 million young women (cosmopolitan.com, 2001). This magazine is targeted at women of reproductive age between 18 and 34. The editors describe *Cosmopolitan* as "the biggest-selling young women's magazine in the world, famous for its upbeat style, focus on the career woman, and candid discussion of contemporary male/female relationships." *Glamour* is also aimed at young women and has a readership of over 2 million each month. The editorial content is focused on fashion, beauty, careers, love relationships, travel and entertainment. Both magazines are among the highest-selling young women's magazines.

The two men's magazines were selected because of their comparability to the two women's magazines under investigation. *Men's Health* features information on health, fitness, style, nutrition, and relationships to its readers, averaging over 1.6 million a month (Featherstone, 1998). The magazine is directed at men between 18 and 34, but claims to have a high readership of men in the mid-to-upper 30s. About half of *Men's Health* readers are single, and most are college educated. *GQ* is an established men's magazine that covers "fashion, sports, women, journalism, and fitness" and is targeted to the "modern man." *GQ*'s readership is estimated at about 690,000 each month (Featherstone, 1998).

The coding instrument

For purposes of this study, articles were selected for analysis if they centrally dealt with the physical act of sexual intercourse (and oral sex), and/or the sexual health of men and women. Articles about masturbation, dating habits, relationships, and personal grooming were not included. Moreover, articles exclusively about contraception and preventing pregnancy were not included, unless they contained information about STIs or sex for pleasure; contraception information alone was not under consideration in this study. Reader write-ins and reader “confessions” were not included. Articles written by a magazine staff member or other experts (in the case of advice columns) were analyzed. This decision was made because the goal of the study was to make an assessment of journalistic potential to inform the public, and not to examine audience feedback. In total, 64 magazines were analyzed, producing 138 sex-themed articles. Most issues contained more than one article about sex and/or sexual health. Six *GQ* issues (March 1998, June 1998, June 1999, August 1999, August 2000, and October 2001) did not contain any articles about sex or sexual health, and therefore did not produce any content for the study.

The categories of “specific mention of an STI” and “focus of STI information” were based on Walsh-Childers’ (1997) study. The column inches (length and width) of each article were measured so the relative substance of stories about sex with and without STI information could be determined, and comparisons about the space devoted to sex and STI coverage could be drawn across men’s magazines and women’s magazines. The relative prominence of STI information was further determined by the authors by categorizing stories about sex by type. Three different types of articles, varying in journalistic “weight,” were documented: feature stories, news mentions, and advice columns. Features are in-depth investigative articles written by magazine staff members, unique to a specific issue. This type of story is the longest and journalistically the most prestigious because authors are credited through a byline. Thus, when STI information is the subject of a feature story, the editorial emphasis on this topic is signaled. A news mention contains brief information in a section or regular column and does not credit a specific author (e.g., “Cosmo Gyno”). Advice columns are often written by experts and appear in every issue. A reader writes a question to an “expert” (generally a psychiatrist/psychologist or other medical professional) regarding a specific topic or problem and the expert answers (e.g., *Cosmopolitan*’s “Agony”).

The relative prominence of sex articles was also assessed through the presence of visuals (photos, graphics, or tables) that often accompany magazine articles. Existing research not only has demonstrated the importance of visuals in facilitating information recall (Thorson, 1995) but also that readers are more likely to read articles that are accompanied by a visual. Four visual categories were developed by the authors: photos of clothed adults, photos of scantily clad (lingerie or underwear) or nude adults, computer-generated pictures or graphics, and information tables that present information in a summarized form. To assure the mutual exclusivity of these categories, coders used “yes,” “no,” or “not applicable” options within each category to record data.

To answer research question two, if sex articles presented a nuanced perspective on the act, coders documented the presence and dominance of three sex frames in the sampled articles. The first is sex for pleasure, where the article featured information on improving sex, sexual techniques, orgasms, or the physical act of sexual intercourse for enjoyment or recreation. The second frame was defined as sex for procreation. In other words, the article presented information on the physical act of sexual intercourse for the purpose of improving odds for conception. The third frame was sexual health that includes articles with information on STIs or other genital-related problems (e.g., Urinary Tract Infections, yeast infections). Each article was scrutinized for any *additional* information about sex for pleasure, STIs, and sex for procreation using simple “yes” and “no” options. In addition, coders were asked to document the main frame of each article sex-themed article. This category also included an “undetermined option” if a dominant frame did not emerge from the article.

To answer research question three, articles were screened for information about specific STIs. Finally, to address research question four, coders documented the presence of information about prevention, symptoms, health consequences, transmission, risk, testing, treatment, and financial matters in articles that featured STI information.

Data collection

Two coders were trained for this study. The primary coder was a graduate student in mass communications. The other coder is a person with no formal training in mass communication or social science research and acted as the reliability check on the primary coder. A brief orientation session was held prior to the coding to train and familiarize coders with categories. The articles from 10% of the sample (in this case, articles from 7 magazines out of the sample of 64) were used to determine inter-coder reliability. A reliability test showed an acceptable level of agreement between the two coders; Krippendorff’s alpha was 0.82.

Results

The prominence of STI information

In order to answer the first research question of this study, the prominence of sex articles with and without STI information was determined by using several categories as indicators; column inches (length and width), article form (feature, advice column, news mention), and presence of visuals (photos, tables and graphics). The prominence of the articles was then compared across men’s magazines and women’s magazines. Of the 138 sex-themed articles in 64 issues, 47 (34%) were from men’s magazines, and 91 (66%) were in women’s magazines. Several of the women’s magazines had more than one sex-themed article per issue. The average length of the sex-themed articles was 28.25 inches, while the average width of the articles was 12.35 inches. The majority of sex articles (62%) in both gender magazines were feature articles, which are generally the longest article format in magazines. Eighteen percent of the articles were advice columns and 20% were short news mentions. Most articles about sex were accompanied by visuals. Photos were the most

common, and they were found in about half the articles. The content of photos showed propensity for titillation. Almost all (90%) of the photos featured scantily clad/nude adults.

Less than half (31%) of the 138 sex-themed articles contained information about Sexually Transmitted Infections. Articles that contained STI information were slightly more likely to be accompanied by a photo (83.7 versus 71.6%), graphics (4.7 versus 3.2%), and summary tables (25.6% versus 11.6%) than articles without STI information. Yet it seems that articles with STI information enjoyed less journalistic weight in the magazines. More feature stories about sex did not contain (70.6%) STI information than did (29.4%) contain STI information. The same pattern emerged for news brief columns: 80.8% of the sex articles did not contain STI information. Yet, 48.2% of advice columns about sex contained STI information. A t-test was performed to assess if there was a statistically significant difference in the column inches of articles with and without STI information. The results were not significant, indicating that articles with STI information enjoyed about the same prominence than sex-themed articles without this type of information.

Sex frames

The second research question asked about the dominant frames that shape information in sex articles. This study examined the main topic or dominant frame in each article, which could be one of three: sex for pleasure, sex for procreation, and sexual health. The main topic of “sexual health” does not necessarily mean information about Sexually Transmitted Infections was included in the article. The main topic of “sexual health” also included information about pap smears, genital cancers, urinary tract infections, etc. Simple frequency analysis of the data showed that the most common main topic was sex for pleasure (65%), with sexual health (32%) and sex for procreation (3%) enjoying much less prominence. In addition to being the most prominent main topic in articles about sex, information about sex for pleasure was also featured in 70% of articles that had sex for procreation or sexual health as the main topic.

The articles with information about sex for pleasure were longer than articles that did not contain any sex for pleasure information (articles with the main topics of sex for procreation or sexual health were grouped together). The mean length for articles with sex for pleasure information was 31.59 inches and the mean width was 13.26 inches. The mean length for articles without any information about sex for pleasure was 20.60 inches, and the mean width was 10.28 inches. A t-test was performed to analyze the difference in the mean length and width of articles that included and did not include sex for pleasure information. A significant difference emerged for length: $t(136) = 2.475$, $p = .015$ and near significant difference for width: $t(136) = 1.858$, $p = .065$, (see Table 1). There were no significant differences for articles that did and did not include STI information for either length or width.

Table 1**Mean lengths and widths in articles with and without sex for pleasure information**

	Sex for Pleasure			STI Information		
	Present	Absent	t	Present	Absent	t
Length of Article	31.59	20.60	2.48*	25.30	29.59	-.952
Width of Article	13.26	10.28	1.86	12.31	12.37	-.034

*p < .05

Using cross-tabulation and chi-square analysis, a significant association ($p = .001$) was found between the main topics and the article form. Sixty-nine percent of the articles with sex for pleasure as the main topic were feature articles, 23% were advice columns, and 8% were news mentions. Only one article with sex for procreation as the main topic was a feature story; the remaining three were news mentions. By contrast, 50% of the articles with sexual health as their main topic were feature articles, 11% were found in advice columns, and 39% were news mentions. A number of significant differences emerged in cross-tabulations of the articles' dominant frame with the use of visuals. The results are summarized in Table 2. Most articles with the sex for pleasure and sexual health frames were accompanied by visuals. Articles with the sex for procreation frame never featured visuals. It also appears that photographs were more likely to be associated with articles featuring the sex for pleasure frame whereas informational graphics and tables were more often used with articles that centrally featured the sexual health frame. This shows a tendency to attract attention to articles about sex for pleasure with titillating photographic images and underplaying sexual health articles. This pattern in the data suggests that information about sexual health is not packaged to be associated with sensuality as often as sex for pleasure is. At the same time sex for pleasure is less likely to be associated with information graphically depicted or summarized.

Table 2**Differences in visual displays by main topics**

	Sex For Pleasure	Sex for Procreation	Sexual Health
% of articles with photos of clothed adults	31%	0	43%
% of articles with photos of nude or semi-nude adults	53%	0	36%
% of articles with graphics	3%	0	5%
% of articles with tables	12%	0	25%

STI information was found in 9% of articles that had sex for pleasure as the main topic, while more than 90% of the STI information was found in sexual health articles. This suggests that information about STIs and information about sex for pleasure were treated as separate entities, as the two topics were infrequently featured in the same article. No STI information was found in sex for procreation articles. This signals the social construction of sex into neatly separate dimensions: procreation, pleasure, and disease.

Type of STIs in coverage

Research question three-probed coverage of specific STIs. HIV/AIDS was the most-covered STI, and was found in 42% of the articles with STI information. Other STIs received coverage in the following order of prevalence: information about the Human Papilloma Virus (HPV) was found in 38% of articles, followed by chlamydia and herpes (each found in 35% of the articles), gonorrhea (19%), trichomoniasis (12%), hepatitis B (7%), and finally, both syphilis and pelvic inflammatory disease were found in 5% of the articles with STI information. This coverage is not consistent with the information provided by the CDC about the incidence of STIs in America. According to the CDC, HIV is one of the least-reported STIs among heterosexuals but it received the most coverage in the magazines, which are targeted primarily at a heterosexual audience. The CDC (2001) shows that chlamydia and HPV are the most commonly reported STIs, yet information about these infections was found in less than half of the articles that contained information about STIs.

Gender comparisons

One of the main goals of this study was to compare coverage of sex and STI information in men's magazines and women's magazines. Frequency analysis, one-way chi square analysis, cross-tabulation and t-tests show several statistically significant differences between magazines aimed at the two genders. Information about STIs was found in 44% of the sex articles in women's magazines, and in only 6% of the sex articles in men's magazines (see Table 3).

There were also differences in the coverage of sex for pleasure. In women's magazines, 58% of the articles contained information about sex for pleasure, whereas in the men's magazines, 79% of the articles had information about sex for pleasure. Cross-tabulation and one-way chi-square analysis showed that this result was approaching significance ($X^2 = 2.824$, d.f. = 1, $p = .093$).

Women's magazines, while having more information about STIs than men's magazines, offered information about sex for procreation in only 5% of articles and *never* featured procreation as the main topic (see table 3). In men's magazines, 21% of articles about sex contained some information about sex for procreation and 8% of the articles featured procreation as the main topic (see table 3). Sexual Health was the main topic in 42% of the articles in women's magazines and 13% of the articles in men's magazines.

Although STIs pose more devastating reproductive consequences to women, men's magazines were more likely to emphasize prevention, risk, treatment, and health consequences than women's magazines. In fact, in articles with STI information, prevention references were found in 100% of the articles in men's magazines compared to 55% of women's magazine articles. Treatment information was provided in 66.7% of men and 27.5% of women's magazine articles. Risk information was featured in 100% of men's magazine articles and in 35% of women's magazine articles. Health consequence information was found in 33% of the men's magazine articles compared to 20% of women's magazine articles. It was only with information about STI symptoms that women's magazines (44% of articles) fared better than men's magazines (33% of articles). While noteworthy, none of these comparisons were statistically significant.

Table 3**Summary of differences between men's magazines and women's magazines**

Variables	Men's Magazines	Women's Magazines	<i>p</i>
STI information present	6%	44%	.001
Main Topic: Sex Pleasure	79%	58%	.05
Main Topic: Sex for Procreation	8%	0	.001
Main Topic: Sexual Health	13%	42%	.05
Articles with HIV	67%	40%	n.s.
Articles with chlamydia	33%	35%	n.s.
Articles with HPV	33%	38%	n.s.
Articles with herpes	67%	33%	n.s.
Articles with gonorrhea	67%	15%	.05
Articles with syphilis	0%	5%	n.s.
Articles with hep. B	33%	5%	n.s.
Articles with trich	33%	10%	n.s.
Photos of Clothed Adults	19%	42%	.05
Photos of Nude Adults	40%	50%	n.s.
Graphics	0	6%	n.s.
Informational Tables	6%	21%	.05
STI Articles: Prevention	100%	55%	n.s.
STI Articles: Symptoms	33%	44%	n.s.
STI Articles: Health Cons.	33%	20%	n.s.

STI Articles: Transmission	33%	33%	n.s.
Variables	Men's Magazines	Women's Magazines	<i>p</i>
STI Articles: Risk	100%	35%	n.s.
STI Articles: Testing	0	13%	n.s.
STI Articles: Treatment	66%	27.5%	n.s.
STI Articles: Financial	0	3%	n.s.

Discussion

This study shows that, knowingly, or perhaps without calculation, producers of media fare play on the ancestral desire for humans to mate with attractive partners by showing images of beautiful people and including messages about the pleasures of sex to attract an audience. Yet, while sex and sexuality are pervasive topics in the media, messages about safe sex and the dangers of intercourse are much less popular. Perhaps these patterns in editorial decision making are a socio-cultural byproduct of evolutionary psychology. While the journalistic responsibility of informing citizens about socially relevant issues, including public health, suggests that information about STIs should be prevalent in articles about sex, such off-putting information concerning a titillating topic might not be as popular among readers as an entertaining or pleasurable spin on the topic. After all, research shows that sex sells, especially when it is offered in a pleasurable frame (McCleneghan, 2003; Shields, 1997). In this sense the results of the study reported here reaffirms the much-debated tension between journalistic responsibility to inform and audience entertainment to sell magazines.

Largely ignoring the subject of Sexually Transmitted Infections, the majority of the articles about sexual intercourse, in both men and women's magazines, centrally focused on sex for pleasure. Such articles provided advice and information on how to improve sexual intercourse as a pleasurable recreational act. Sex for pleasure articles were also most prominently featured in the magazines. Those stories tended to be longer and visually more titillating because photos of nude or scantily-clad adults, which were more likely to accompany sex for pleasure articles than articles centrally dealing with sex as an act of procreation or articles about sexual health. As previously discussed, research has shown that photos increase the likelihood that a reader will read a story and also enhance recall of the information in the story. If articles about sex for pleasure have more photos, it is likely that

readers will be more inclined to read and process the information in those stories than articles without photos.

Across most cultures intercourse with multiple partners is more closely associated with the sexual behavior of men than women. Women mostly have sex within a committed relationship for procreation purposes. However, there is growing acceptance that women enjoy sex, and magazines with articles about sex for pleasure therefore have the potential to play an educational role. Indeed, the study reported here shows that women's magazines encourage their readers to be sexually active without cultivating an understanding of proper protective measures when having sex. Thus, this study adds support to existing evidence that women have access to information about enjoying sex with little emphasis on how to protect themselves from contracting STIs.

Articles with sex for procreation as the overriding theme were overall not plentiful. Yet, the fact that it was the central focus in a small number of articles in men's magazines and never the central focus in women's magazines is worthy of note. As evolutionary theory suggests, men are biologically positioned to have sex with more partners than women. Articles with the central focus of sex for procreation often explained how to keep sperm healthy, revealed information about sexual positions that maximize the odds of sperm reaching an egg, and gave advice about how men should protect their testicles from injury in sports (which could have harmful effects on sperm). This finding suggests that male fertility takes higher priority in men's magazines than female fertility in women's magazines. The lack of sex for procreation articles in women's magazines also shows that young women are not too often reminded of their reproductive role perhaps because they are socialized, from an early age, to view motherhood as the pinnacle of female existence. Young boys are not encouraged to cultivate the same priority for parenthood. Perhaps men's magazines play a functional role in prompting just that at a later point in men's lives.

Women's magazines featured more articles with sexual health as the main topic as well as more information about STIs than men's magazines. This is not surprising, considering the fact that women are more likely than men to contract an STI from a single encounter and face more severe health consequences from these infections. STIs such as chlamydia and gonorrhea can cause a woman to become infertile, but rarely have the same effect on a man. The lack of information about STIs in men's magazines reflects their diminished risk in becoming infertile. In line with evolutionary psychology, this lack of emphasis on STI information does not encourage men to be more selective in sexual engagement. At the same time, more emphasis on STI information in women's magazines sends a message to women that they carry responsibility for their reproductive health. Perhaps this message might even cultivate fear of contracting an infection and serves a function in reproductive theory by keeping women abstinent or monogamous.

Research focusing on the sheer volume of STI information in magazines targeted at men versus women does not fully reveal gender differences. In fact, subtle variance in how STI information is framed across men and women's magazines provides valuable insights into gender distinctions. Even though men are less likely to acquire STIs from women than

women from men, the issues of prevention and risk are more often the focus of STI articles in men than women's magazines. Men's magazines were also more likely to present information on health consequences and treatment, which is somewhat surprising, considering a man's fertility and overall health are impacted less than a woman's when contracting an STI. This finding might be interpreted as evidence that, in an evolutionary sense, STI information in magazines favor the male mating strategy. By providing less education about the risk, prevention, and treatment of STIs in women's magazines than in men's magazines, women are likely to continue to be more vulnerable to contracting these diseases than men. As discussed earlier in the paper, Sexually Transmitted Infections serve two important cues to men in making long-term mating decisions: it signals the potential that a woman might be promiscuous and reflects negatively on her procreative health. According to this study's findings, women who read the magazines under investigation might cultivate a heightened awareness of STIs but are unlikely to be empowered by information about how to prevent or treat these diseases. In this sense, sexually transmitted infections, as a cue for men in mate selection, is likely to persist to the detriment of women's reproductive health. At the same time, men's magazines did not provide much information to aid in detecting STI symptoms—something that might support their long term mating strategy in selecting healthy and monogamous females. It might be worthwhile for future studies to further probe the media's role supporting mating strategies for men and women in line with evolutionary psychology principles. This study provides a small glimpse into the intersection between biology and social artifacts.

Although the study reported here cannot make causal claims about the effects of the patterns in magazine content on attitudes about sexual behavior, mass communication effects theories such as agenda setting, cultivation, and media dependency suggest rather important potential effects. According to media dependency theory, young people might turn to magazines, such as the ones studied here, for information about sex. Reliance on media grows when interpersonal communication is inadequate in fulfilling information needs. Research cited earlier in this paper suggests that young people are not receiving adequate information about sex at school or from their parents and that media outlets are a prominent source of information about sex. In the context of media dependency on popular magazines for information about sex, agenda setting and cultivation effects must also be considered. Although audience research is necessary to test these effects, it is possible to hypothesize that the relative absence of information about STIs in magazine articles about sex will not accent the importance of safe sex on the agenda of young adults. This idea is particularly troubling because risky sexual behavior is most likely to occur during young adulthood years. Moreover, the reported differences in content across men's and women's magazines might cultivate and reinforce different worldviews about sex and its risks among gender groups. Targeting editorial decision makers at popular magazines for young adults seems to be an effective strategy for public health workers.

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