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Teresa Mastin ^a; Julie L. Andsager ^b; Jounghwa Choi ^c; Kyungjin Lee ^a

^a Department of Advertising, Public Relations, and Retailing, Michigan State University, ^b School of Journalism and Mass Communication, University of Iowa, ^c College of Communication Arts and Sciences, Michigan State University,

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Health Disparities and Direct-to-Consumer Prescription Drug Advertising: A Content Analysis of Targeted Magazine Genres, 1992–2002

Teresa Mastin

*Department of Advertising, Public Relations, and Retailing
Michigan State University*

Julie L. Andsager

*School of Journalism and Mass Communication
University of Iowa*

Jounghwa Choi

*College of Communication Arts and Sciences
Michigan State University*

Kyungjin Lee

*Department of Advertising, Public Relations, and Retailing
Michigan State University*

Health disparities exist in the United States based on race, gender, and socioeconomic status. One way to alleviate some of the disparities regarding certain diseases or conditions is to increase awareness among populations most affected. Physicians have suggested that direct-to-consumer advertising (DTCA) of prescription drugs could play a role in awareness. Social identity theory suggests that individuals are likely to attend messages if they can identify, often based on race or gender, with people portrayed in the messages. This study analyzed DTCA in 11 years of Black, women's, news, and entertainment magazines to determine whether models in the ads targeted specific populations. Black magazines were more likely to contain ads featuring Black models only than were other genres, which had more DTCA picturing White models only. Health conditions the drugs were intended for varied by genre and over time, with STD drugs appearing primarily in Black magazines, and DTCA for heart disease not published in Black magazines, despite cardiovascular diseases being the No. 1 cause of death for Blacks (and Whites). Women's magazines featured DTCA for a wide variety of drugs, reinforcing their roles as caretakers, with proportionally few ads for women's health. Implications for targeted use of magazine genres as a means of providing health information to specific populations are discussed.

Despite the phenomenal surge in direct-to-consumer advertising (DTCA) of prescription drugs such as Viagra, Vioxx, and Celebrex over the past decade, awareness of the drugs

advertised and their purposes varies by race and ethnicity. This awareness gap is strikingly similar to the health care access disparities in the United States; among populations with less health access, DTCA awareness is also lower than for the majority. Although consumer awareness of advertised prescription drugs hovers around 80%, minorities and individuals living in low-income households have the lowest levels of awareness (*Prevention*, 2001). Little if any research

Correspondence should be addressed to Teresa Mastin, Department of Advertising, Public Relations, and Retailing, Michigan State University, 309 Communication Arts Building, East Lansing, MI 48824-1212. E-mail: mastinte@msu.edu

to date, however, has attempted to determine whether the seemingly ubiquitous DTCA has been particularly targeted to these populations.

Considering the vast health care access disparities in the United States by race and income, it is important to understand what kinds of DTCA are promoted in media targeting people of color. Uninsured Blacks and Latinos are less likely to have access to health care than uninsured Whites (“Women Go Without Care,” 2002). This suggests that more Blacks than Whites will be unable to afford advertised prescriptions, although socioeconomic class accounts for more of the health care disparity than does race (Woolf, Johnson, Fryer, Rust, & Satcher, 2004). Recent studies indicate, however, that DTCA featured in consumer magazines was likely to perpetuate existing disparities by reinforcing the necessity and efficacy of prescription drugs disproportionately by race and condition (Cline & Young, 2004).

In addition, because women have traditionally been the health information seekers and caretakers in the family (e.g., Fisher, Gandy, & Janus, 1981), DTCA may be targeted at female audiences. Women in the United States are more likely than men to experience ongoing health conditions and to take prescription drugs, but they are also more likely to be uninsured (“Women Go Without Care,” 2002). Women’s magazines contain significantly more DTCA than men’s (Woloshin, Schwartz, Tremmel, & Welch, 2001), and women are more likely than men to be aware of the advertisements (*Prevention*, 2001). Considering that two of the most prominent magazines targeted at Black audiences, *Ebony* and *Essence*, have substantially more female than male readers, the gender issue should not be ignored in understanding DTCA.

Although pharmaceutical advertising’s primary aim with DTCA is to create a (perceived) need for a particular drug, discussion of symptoms and treatments for medical conditions may also help to raise awareness of those conditions among minority populations. Recent studies have called for greater communication about screening, prevention, and treatments to minorities and people of low socioeconomic status (Brown, Giles, Greenlund, & Croft, 2001; Coughlin & Thompson, 2005; O’Malley et al., 2001). Aside from policy changes, communication may be one of the most important means of reducing health disparities by increasing awareness of health disparities, which may lead to policy change. For example, Zoller (2005) stressed the need for more communication (education) regarding *Healthy People 2010*’s failure to adequately address women’s needs. In other words, communication is one way in which inequalities can be made known, followed by public discussion and policy change. It is through communication that DTCA, because it is prominent in mass media, may be able to increase awareness, but “there must be an effort to increase the diversity by which the messages are seen and heard” (Allison-Otley, Ruffin, Allison, & Otley, 2003, p. 131).

Based on the results of a survey of 886 African American physicians, scholars noted that DTCA “actually may have a role in patient education, increased awareness, and communication between the physician and the patient” (Allison-Otley, Ruffin, & Allison, 2002, p. 202). Consequently, the National Medical Association, the nation’s oldest and largest association of physicians of color, released a 10-point position statement on DTCA.

The purpose of this study is to determine how DTCA attempts to target specific audiences through a content analysis of ads in four magazine genres—aimed at general audiences, Blacks, or women. In this study, we examine visual depictions of model demographics by medical condition across magazine genres to investigate similarities and differences as a function of targeted audiences.

BACKGROUND

During the first half of 2004, pharmaceutical companies spent \$2.1 billion on DTCA, a 35% increase from the same period a year earlier (McGuire, 2004). The dramatic increase in DTCA began after the FDA in 1997 mandated that pharmaceutical companies simplify the information required in prescription drug advertisements (Calfee, 2002; Wilkes, Bell, & Kravitz, 2000). However, the spending directed toward consumers “represents only a small fraction of pharmaceutical companies’ promotional efforts” (Harder, 2005, p. 76). DTCA is one piece in a large puzzle. For example, in 2003, the industry spent \$3.2 billion on consumer-directed marketing, \$5.3 billion on physician-directed face-to-face promotions, \$16.4 billion on free samples, and \$448 million in medical journal advertisements (Harder, 2005, p. 776).

Although DTCA has become a mainstay in various media, its potential benefits and risks continue to be hotly debated. Generally, proponents argue that DTCA provides consumers with information that empowers them to become better stewards of their health care because DTCA has the ability to create awareness of health conditions (Calfee, Winston, & Stempski, 2002; Kaphingst & DeJong, 2004; Perri, Shinde, & Banavali, 1999); the ads encourage consumers to seek information from many sources, for example, physicians and pharmacists (Calfee, 2002; Holmer, 1999; Perri et al., 1999); and produce spillover educational benefits to consumers, for example, better compliance with drug therapies and motivation to change behavior (Calfee, 2002; Pines, 2000; Sellers, 2000).

Conversely, opponents often approach DTCA within a context of negatives generally associated with advertising, arguing that DTCA motivates consumers to choose overly expensive and overrated medications for needless consumption (Chandra & Holt, 1999; Kaphingst & DeJong, 2004; Montagne, 2001; Sellers, 2000); instigates unnecessary office visits, drugs, and medical tests (Pinto, 2000; Wilkes et al., 2000); omits information consumers need to make the best

selections, which may result in drug misuse, or provides misleading information (Chandra & Holt, 1999; Sellers, 2000); spends more time on potential benefits than risks (Kaphingst, Dejong, Rudd, & Daltroy, 2004); and changes the dynamics of the traditional physician–patient relationship to a physician–consumer relationship (Cline & Young, 2004; Hollon, 1999; Perri et al., 1999; Spurgeon, 1999).

THEORETICAL PERSPECTIVE

A solid body of research indicates that social identity influences consumer behavior (for a review, see Forehand, Deshpande, & Reed, 2002). Existing research on social identity theory supports the notion that increased salience of a given social identity can affect perceptions, behavior, and performance. In fact, the more clearly social identity is defined, the more predictive it is of behavior (Tybout & Yalch, 1980). Forehand et al. found that both identity primes, “i.e., stimulus cues that direct attention to some aspect of a person’s social identity,” and social distinctiveness, “i.e., the extent to which the person is unique in the immediate environment,” increased identity salience (p. 1087).

Social identification can occur within the range of individuals’ self identities—ethnicity, gender, age, occupation, economic status, and so forth (Forehand & Deshpande, 2001). The finding that visual cues can activate momentary salience suggests that DTCA featuring models that share social identity characteristics (e.g., race, gender, age) with targeted audiences are likely to be helpful in gaining their attention and encouraging them to attend to the information in an advertisement. Simply, consumers often notice and respond to models with whom they share common social identity characteristics.

LITERATURE REVIEW

Based on social identity theory, we should expect that DTCA presents a representative depiction of the populations it seeks to target. Demographic analyses of models depicted in magazine DTCA indicate that female models are more likely to be included than males (Cline & Young, 2004; Main, Argo, & Huhmann, 2004). Cline and Young found that 34.0% of overall DTCA featured women only, and 28.3% men only, but gender was unevenly distributed by medical condition. For example, men were far more likely than women to be depicted in DTCA for cardiovascular diseases, although these are the top causes of death for both sexes. Main and colleagues found women in 55% of ads and men in 41%, but they did not address medical conditions.

Studies have shown that Whites outnumber Blacks in magazine DTCA. The proportion in one study was reflective of the U.S. population, however (75.1% White; Census 2000)—76% White and 24% non-Caucasian (Main et al., 2004). As in the case of gender, however, the use of

minorities in DTCA does not provide a true picture of the populations likely to be affected by a condition. Magazine ads for drugs related to cardiovascular diseases and cancer in 1998 and 1999 tended to feature only White models, leading Cline and Young (2004) to conclude that “ethnic minorities are ignored and thus likely fail to gain any educational value that DTCA offers regarding the leading causes of death” (p. 153).

Thus, although gender and race appear to be fairly representative in DTCA *on the whole*, troublesome trends have emerged when the advertising is examined by the medical condition the drug is designed to treat. The depiction “often appears to be less a function of epidemiology than ideology” (Cline & Young, 2004, p. 153). Although the two magazine content studies (Cline & Young, 2004; Main et al., 2004) examined numerous magazines in various genres (i.e., news, business, health, sports, women’s, men’s, seniors, teen, entertainment, and fashion/beauty), the researchers did not look for differences among genres. One study analyzed DTCA as part of a larger study of health-related products, finding the purposes of the drugs advertised in “mainstream” magazines differed from those in Black magazines, with allergy medication as the largest category in mainstream and diabetes the largest in Black magazines, but the study did not examine contents of DTCA beyond condition (Duerksen et al., 2005). Woloshin et al. (2001) analyzed DTCA in women’s, men’s, and general interest magazines, but did not address the demographics of models in the ads or include magazines targeted to racial/ethnic minorities.

It is important to consider magazine genres when studying content, whether that content is editorial or advertising. Magazine genres serve several purposes. Genres cue potential readers to the fact that information found in the pages of specific magazines is tailored specifically toward their interests. Likewise, genres provide advertisers with narrowly defined audiences, which allow advertisers to address readers more personally. Thus, much as health communicators design different campaign messages for different audiences, magazines targeting different audiences tailor their content to fit those populations.

DTCA, like other advertising, is designed to target specific audiences, and the placement of these ads is crucial in understanding who is receiving what kinds of messages. Social identity theory suggests that audience members are more likely to attend messages with models who stimulate identification. This leads to the following research question:

RQ1: Do models share characteristics of race and gender with the magazine genres’ targeted audiences?

Thus, the higher incidence of diseases such as diabetes and HIV among Blacks suggests that DTCA for drugs treating these diseases should be prominent in magazines targeting a Black audience. As shown in Table 1 the leading causes of death for most Americans are heart disease,

TABLE 1
Top 10 Causes of 1996 and 2002 U.S. Deaths Based on Ethnicity and Gender

Cause	1996		2002		1996		2002	
	Black	White	Black	White	Female	Male	Female	Male
Heart diseases	1	1	1	1	1	1	1	1
Cancers	2	2	2	2	2	2	2	2
Stroke	3	3	3	3	3	3	3	4
Lung diseases	9	4	8	4	4	5	4	5
Accidents	5	5	5	5	7	4	7	3
Diabetes	6	7	4	6	6	7	6	6
Homicide	7	—	6	—	—	—	—	—
Influenza/pneumonia	8	6	—	7	5	6	8	7
Chronic liver disease	—	9	—	—	—	10	—	10
HIV disease	4	—	7	—	—	8	—	—
Alzheimer's	—	10	—	8	8	—	5	—
Kidney disease	—	—	9	9	9	—	9	9
Suicide	—	8	—	10	—	9	—	8
Septicemia	—	—	10	—	10	—	10	—
Perinatal conditions	10	—	—	—	—	—	—	—

Note. Data summarized from National Center for Health Statistics (2004).

cancer, and stroke. Given the pervasiveness of heart disease in the United States, if one purpose of DTCA is truly to increase awareness of and educate about symptoms, dosages, and so forth, DTCA for heart disease should be found equally across magazine genres. The fact that readership income is an important variable for ad placement creates an interesting dynamic in the context of DTCA and is complicated because various drugs featured in DTCA may be a necessity for life and/or a certain quality of life for individuals who may be unable to afford the drugs. In such a situation, will a drug that is marketed for heart disease—the number one cause of mortality for Blacks and Whites, men and women—be featured in all magazines or more often in those whose targeted audiences possess higher levels of discretionary income? Given the dearth of research on this, however, we must ask:

- RQ2: Did the FDA relaxation of DTCA regulations in 1997 result in increased prescription drug advertisements placement across magazine genres?
- RQ3: Does the DTCA in each genre reflect medical conditions from which the target audience suffers?
- RQ4: Did the drugs advertised change in the magazine genres to reflect different medical conditions following the 1997 FDA relaxation of regulations?

METHOD

A content analysis based on social identity theory was conducted to identify and quantify the race, gender, and age of all models featured in four magazine genres' DTCA. Social identity theory suggests that if consumers identify with models featured in advertisements, they will be more

likely to both notice and attend to information provided therein. Consumer magazines were chosen because (a) they cater to narrowly defined audiences; (b) advertisers purchase space in magazines based on market research that provides evidence of audiences' needs and/or desires for products and their ability to afford the products; and (c) consumers can spend an unlimited amount of time on provided information.

In an effort to extend Main et al.'s (2004) study of consumer magazines by adding social identity theory, in this study we included two magazines, *Ebony* and *Essence*, whose primary targeted audiences are Blacks. Three other magazine genres were also examined: entertainment (*Entertainment Weekly* and *People*); news (*Newsweek* and *Time*); and women's (*Good Housekeeping* and *Ladies' Home Journal*). We chose these magazines because they target a range of audiences with minimal audience overlap across genres. Furthermore, *Ebony* and *Essence*'s readerships' annual household income is approximately \$17,000 to \$29,000 less than the other genres examined, which allows for income comparison. Magazine descriptions are provided in Table 2.

We examined a random sample of four magazine genres for an 11-year period, 1992 to 2002, which represents 5 years before (1992–1996) and 5 years after (1998–2002) the FDA relaxed DTCA regulations. For the 1997 calendar year, ads printed from January through August were included with the 1992–1996 ads to reflect the likelihood they were designed and purchased prior to the FDA change (38.3%, $N=108$). Those printed from September to December were included with the 1998–2002 ads (61.7%, $N=174$). Magazine names were placed on separate slips of paper, and one issue was drawn randomly for each month. About 35 issues of each magazine appeared in the sample. For magazines published more than once per month, the first issue of the month was

TABLE 2
Magazine Readership Descriptions

Magazine	Total circulation (in millions)	Median age (years)	Median household income	Readership (%)			
				Black ^a	White	Women	Men
Black							
<i>Ebony</i>	1.66	37.6	\$39,569	91.9	7.2	63.2	36.8
<i>Essence</i>	1.07	36.0	\$40,698	90.2	9.1	75.0	25.0
Women's							
<i>Good Housekeeping</i>	4.47	48.4	\$56,297	9.7	88.2	88.7	11.3
<i>Ladies' Home Journal</i>	4.10	50.3	\$57,214	8.8	89.6	100	0
Entertainment							
<i>Entertainment Weekly</i>	1.65	34.0	\$59,457	15.2	77.8	59.0	41.0
<i>People</i>	3.35	40.8	\$61,720	10.1	85.5	66.0	34.0
News							
<i>Newsweek</i>	3.10	46.0	\$68,073	9.7	85.0	46.6	53.4
<i>Time</i>	4.03	45.9	\$66,028	8.9	85.0	47.0	53.0

Note. Readership descriptions provided in each magazine's 2004 media kit. ^aMediamark Research Magazine Total Audiences Report, Fall 1997.

selected. This sample yielded 132 magazines containing 282 direct-to-consumer advertisements. The unit of analysis was the individual direct-to-consumer advertisement.

Variables

The primary focus of this study is DTCA for prescription drugs. Prescription drugs acquired legally require permission from a physician. This study's definition of a prescription drug mirrors the one used by Main et al. (2004): "any substance that is intended to treat, cure, mitigate, prevent, or diagnose a disease" (p. 129). DTCA was identified by the presence of FDA-required product information, often provided in small type on a page or more following the main page of the advertisement, which featured the product's name, slogan, any images, and sales pitch.

Variables included were determined by previous literature on DTCA (Cline & Young, 2004; Main et al., 2004; Woloshin et al., 2001) and social identity theory. Numerous studies in advertising have used content analysis to examine visual images (Duerksen et al., 2004; Kang, 1997; Kaphingst et al., 2004; Main et al.). Visual images are important because they may be more powerful than text in conveying DTCA messages to people whose functional literacy is low (Kaphingst et al., 2004).

To ensure the reliability of the research, two pretests were conducted prior to the final data collection. The first two authors conducted the first pretest on a random sample of 30 DTCA advertisements not included in the sample used for this study. Disagreements were discussed, and minor changes were made to categories as needed to improve intercoder reliability on several variables. The third and fourth authors conducted the second pretest, after training by the first author, on a random sample of DTCA that was not included in the final data set. To establish intercoder reliability, 11% ($N=14$) of the magazines were coded by the

third and fourth author. Scott's pi (Scott, 1955) was used to establish intercoder reliability. After establishing intercoder reliability, the final sample was divided between the third and fourth author, who coded independently.

Variables were coded as follows:

Drug purpose. Each drug was identified based on the disease or condition to be treated as stated in the ad. This resulted in 38 diseases/conditions. To ease analysis, drugs were then coded into broader categories of purpose, such as women's health (e.g., menopause, vaginal yeast infections, birth control), men's health (prostate, erectile dysfunction), depression/anxiety, and so forth (Woloshin et al., 2001). We were able to identify 19 such categories, and remaining drugs for conditions that appeared in fewer than three ads were classified as other (including anemia, epilepsy, overactive bladder, etc.). Scott's pi = 1.00.

Race/ethnicity of models. Based on health disparities and social identity theory, models were coded for race/ethnicity based on skin color as Black, White, Asian, Hispanic, or of more than one race. Coders identified only two models as Asian, three as Hispanic, and 25 as of more than one race. These three categories were collapsed into one ("others of color") to increase cell sizes and because it was often difficult to agree on which of the latter two categories models were intended to represent. For the first time in U.S. history, the 2000 census provided citizens with an opportunity to identify themselves as more than one race; 6.8 million or 2.4% of U.S. citizens identified as more than one race (Jones & Smith, 2001). It is possible that advertisers are attempting to reach out to individuals identifying as mixed race or biracial. However, research addressing this topic is virtually nonexistent. Nonetheless, in light of research that strongly indicates people like to see people like themselves in advertisements, advertisers are wise to reach out to this rapidly growing population. Scott's pi = .89.

Gender of models. Again based on health disparities and social identity theory, models depicted were coded as male or female, then the ads themselves were coded into one of three categories—female models only, male models only, or female and male models. Scott's $\pi = 1.00$.

RESULTS

To answer the first research question, which asked whether models portrayed in the DTCA shared social identity characteristics with the magazine genres' target audiences, we examined the race and gender of models pictured. Of the 282 ads, 216 (76.6%) contained a person identifiable by gender, and 214 (75.9%) included individuals identifiable by skin color and features (see Table 3). Although most of the ads portrayed White models only (73.4%, $N = 157$), the placement of DTCA by genre clearly demonstrated that models' race in the ads was targeted, especially in Black magazines, $\chi^2(12, N = 214) = 130.33, p < .001$. As shown in Table 3, nearly four in five DTCA ads featuring Black models only (79.5%, $n = 31$) appeared in Black magazines, and these ads comprised three fourths (73.8%) of the DTCA in Black magazines. Two thirds (66.7%, $n = 4$) of the DTCA showing an equal number of Black and White models were targeted at Black readers. Women's magazines contained almost half (49.0%, $n = 77$) of the ads featuring White models only. Almost all of the DTCA in the entertainment genre included White models only (97.1%, $n = 33$),

and 84.3% ($n = 43$) of the news magazines' DTCA depicted Whites only.

Nearly half of the DTCA (49.1%, $N = 106$) included female models only. Females and males together appeared in 32.8% ($N = 70$) of the ads, with only male models in the remaining 18.5% ($N = 40$). Perhaps because ads with female models only were the most frequent, a chi-square analysis of model gender by magazine genre indicated no significant patterns in the use of gender in the DTCA.

Previous studies have indicated that DTCA increased overall after the FDA regulatory changes in 1997 (Lyles, 2002). Our second research question sought to determine whether the four magazine genres were affected equally. To answer RQ2, we used a 2×4 analysis of variance, with Time Period (before and after FDA change) and Magazine Genre (Black, women's, news, entertainment) as independent variables and the Number of DTCA per Magazine as the dependent variable. Results indicated that significantly more DTCA per magazine appeared following the FDA's loosening of restrictions in 1997 ($M = 2.70$) than in the 5 years prior ($M = 1.59$), $F(1, 132) = 23.58, p < .001, \eta^2 = .16$. Magazine genre differed significantly also, with women's magazines ($M = 3.28$) containing the most DTCA per issue overall, followed by news ($M = 2.19$), Black ($M = 1.64$), and entertainment magazines ($M = 1.44$), $F(3, 132) = 15.59, p < .001, \eta^2 = .27$. Most important, an interaction between time period and genre occurred, indicating that DTCA increases were not equal in the magazine genres, $F(3, 132) = 9.66, p < .001, \eta^2 = .19$. Examination of the means in the interaction shows that advertising in Black and women's magazines more than doubled following the FDA relaxation in 1997, whereas advertising in entertainment and news magazines remained fairly stable.

The third research question explored the types of drugs advertised in the four magazine genres. The purposes of the drugs varied significantly by magazine genre, $\chi^2(54, N = 282) = 154.93, p < .001$. Frequency of drug type by genre is displayed in Table 4. Black magazines were most likely to include DTCA for women's health (37.0%, $n = 20$), followed by sexually transmitted diseases, including HIV (14.8%, $n = 8$). Indeed, nearly all of the STD advertisements appeared in Black magazines, and half of those ads featured Black models only (50.0%, $n = 4$). No one drug category was clearly prominent in women's magazines, although skin/topical conditions were most frequent (15.6%, $n = 17$). Entertainment and news magazines were fairly similar in drug purposes, with allergies being the most frequently occurring type of DTCA in both (entertainment 26.5%, $n = 13$; news 25.7%, $n = 18$).

Finally, the fourth research question asked whether the purposes of the drugs advertised in the various genres shifted following the 1997 regulation change. Considering that the dramatic changes in number of DTCA ad after 1997 occurred in the Black and women's genres, we looked at

TABLE 3
Race/Ethnicity of Models in DTCA by Magazine Genre

Models' Race	Magazine Genre				Total
	Black	Women's	Entertainment	News	
Whites only					
<i>N</i>	4	77	33	43	157
%					73.4
Blacks only					
<i>N</i>	31	4	0	4	39
%					18.2
Equal number of Black and White					
<i>N</i>	4	1	0	1	6
%					2.8
More White than Black					
<i>N</i>	2	4	1	1	8
%					3.7
Other of color only					
<i>N</i>	1	1	0	2	4
%					1.9
Total	42	87	34	51	214
%	19.6	40.7	15.9	23.8	100

Note. DTCA = direct-to-consumer advertising. $\chi^2(12, N = 214) = 130.33, p < .001$.

TABLE 4
Purpose of Drug Advertised by Magazine Genre

Drug	Magazine Genre				Total
	Black	Women's	Entertainment	News	
Allergies	4	13	13	18	48
Women's health	20	14	6	0	40
Skin/topical	1	17	6	5	29
Pain relief/arthritis	3	13	4	4	24
Gastrointestinal	0	6	3	10	19
Nicotine addiction	4	2	2	7	15
Diabetes	6	7	0	0	13
Men's health	3	1	0	7	11
Osteoporosis	1	7	0	3	11
Depression/anxiety	2	4	3	1	10
STDs	8	0	1	0	9
Cholesterol	0	2	1	5	8
Hair loss	0	3	3	2	8
Asthma	1	3	1	2	7
High blood pressure	0	5	1	1	7
Heart disease	1	4	0	1	6
Motion sickness	0	0	3	2	5
Children's health	0	3	1	0	4
Other	0	5	1	2	8
Total	54	109	49	70	282

Note. $\chi^2(54, N=282)=154.93, p<.001$.

the types of drugs for these two genres for the two time periods. As shown in Table 5, Black magazines' DTCA became much more diversified after 1997. During the pre-1997 time frame, prescription drugs were advertised for only three conditions—women's health, nicotine addiction, and depression/anxiety. After 1997, DTCA appeared for

TABLE 5
Purpose of Drug Advertised in Black and Women's Genres Before and After FDA Regulation Change

Drug	Black		Women's		Total
	1992–1996	1998–2002	1992–1996	1998–2002	
Women's health	4	16	5	9	34
Skin/topical	0	1	6	11	18
Allergies	0	4	4	9	17
Pain relief/arthritis	0	3	3	10	16
Diabetes	0	6	0	7	13
STDs	0	8	0	0	8
Osteoporosis	0	1	5	2	8
Gastrointestinal	0	0	3	3	6
Depression/anxiety	1	1	0	4	6
Nicotine addiction	4	0	0	2	6
High blood pressure	0	0	4	1	5
Heart disease	0	1	0	4	5
Other	0	0	0	5	5
Men's health	0	3	1	0	4
Asthma	0	1	2	1	4
Children's health	0	0	1	2	3
Hair loss	0	0	2	1	3
Cholesterol	0	0	1	1	2
Total	9	45	37	72	163

11 conditions, most notably STDs and diabetes. Women's magazines contained ads for drugs related to 12 conditions prior to 1997 and 16 afterward, and the increased number of ads in the post-1997 period largely reflect more DTCA, not a major shift toward or away from any specific condition. Obviously, changes in regulation of the drugs themselves and development of new drugs would have also affected the distribution of conditions in the magazine genres.

We examined ads for the leading causes of death for Americans to determine any other trends. Six DTCA ads for heart disease appeared, with four of those in women's magazines and four of the five containing models depicting Whites only. High blood pressure is a related risk; none of the seven ads for these drugs were in Black magazines—most were in women's—and all featured White models only. Ads for diabetes, the fourth leading cause of deaths for Blacks, were slightly more likely to appear in women's magazines (53.8%, $n=7$) than in Blacks' (46.2%, $n=6$). Models in diabetes DTCA were more often Black only (63.6%, $n=7$) than White only (36.4%, $n=4$) in both Black and women's magazines. Thus, the only conditions for which Black models appeared more often than Whites were sexually transmitted diseases and diabetes. Ads with White models only far outnumbered Blacks in ads for hair loss, motion sickness, nicotine addiction, osteoporosis, children's health, allergies, gastrointestinal conditions, depression/anxiety, and skin/topical conditions.

DISCUSSION

DTCA for prescription drugs became a phenomenon in the 1990s, with substantial increases in the pharmaceutical companies' spending for the ads occurring when the FDA relaxed its restrictions in 1997 (Lyles, 2002). Our findings indicate a concurrent increase in the number of DTCA per magazine in the 5 years following the changes compared to the previous 5 years. Overall, the magazines we examined contained an average of 2.70 ads per issue after 1997, almost double the number in the early to mid-1990s. This suggests a greater opportunity for consumers' exposure to the ads, as indicated in surveys that show DTCA awareness increased about 25% after 1997 (Lyles, 2002).

Of importance, our results indicate that DTCA in magazines did not increase evenly across genres, however. DTCA in Black and women's magazines escalated dramatically after the 1997 changes, while the number of ads in news and entertainment magazines remained relatively stable. In Black magazines, the amount of DTCA increased more than 300% after 1997, suggesting that pharmaceutical companies began to seriously focus on targeting Blacks as prescription drug consumers. Some of this growth, of course, may be attributable to more drugs entering the market, but considering that news and entertainment genres were largely unchanged, targeted marketing must explain much

of the increase. Similarly, women's magazines contained more than twice as many direct-to-consumer ads after 1997 as before, further supporting the idea that pharmaceutical companies became more savvy in reaching specific audiences. Because the Black magazines we studied have more female readers than male readers, it appears as if DTCA is designed primarily to attract women's attention. A key finding in our study, then, is that Black women seem to have become one of the fastest-growing audiences intended for DTCA.

To further explore this shift, we examined the models pictured in the DTCA in the four magazine genres. Social identity theory suggests that ads featuring models similar to an intended audience in terms of race and gender (among other characteristics) will be more successful in catching the audience's attention. Our findings further support the increase in targeting DTCA to Blacks, as nearly three fourths of the ads in Black magazines portray Black models only. This compares to less than 5% of the ads in the three other genres. Conversely, fewer than 10% of the DTCA in Black magazines picture White models only; nearly 90% of the ads in the other magazines contain White models only. These significant differences indicate that advertisers may be relying on the tenets of social identity theory to produce DTCA that will succeed in increasing awareness—and perhaps consumption—among Black readers. Future research should examine how Black audiences interpret the racially targeted content, especially those readers who also consume news, entertainment, or general women's magazines. Blacks in particular have been found to use race as the primary criterion to establish similarity with others (Smedley & Bayton, 1978). If this is still true, do the disparities in portrayal of models of color affect Black readers' assessments of DTCA?

In addition to the significant differences in the races of the models pictured across magazine genres, we found that the types of drugs advertised varied significantly. This finding has great consequence if previous research indicating that DTCA has the potential to call attention to health conditions and their treatments is accurate (e.g., Kaphingst & DeJong, 2004; Perri et al., 1999; Pines, 2000). In Black magazines, DTCA most often appeared for drugs to treat women's health issues, mostly birth control pills, menopause relief, and treatments for vaginal yeast infections. It is not surprising that women's health should be frequently addressed because *Essence* and *Ebony* have large female audiences, but the finding that women's health DTCA was not as prominent in general women's magazines seems unusual. Further examination indicates that 16 of the 20 women's health ads in Black magazines were for birth control pills (and these 16 represent 75% of the 21 birth control ads in our sample). Similarly, nearly all of the DTCA for sexually transmitted diseases, including HIV and herpes, appeared in Black magazines. This is a rational response on the part of pharmaceutical advertisers, considering that

rates of STDs are significantly higher among Blacks than Whites (Sexuality Information and Education Council of the United States [SIECUS], 2004). Further, although the incidence rate of HIV in Blacks and Whites is roughly equal *over time*, HIV diagnosis has risen much more dramatically in recent years among Blacks than Whites, whose rates have remained relatively stable (Centers for Disease Control, 2005b). The women's magazines that target primarily White women contained very few ads for birth control or STDs. Perhaps in part that is due to the fact that White women are slightly more likely than Black women to use prescription birth control (25.4% of Whites, 19.1% of Blacks; Centers for Disease Control, 2005a); thus, pharmaceutical companies are attempting to increase their consumers among Black women. These findings suggest that pharmaceutical companies appear to have a particular interest in the reproductive concerns of Black women. African American women do have more unintended pregnancies than other women (Beck et al., 2002); however, such findings warrant further exploration in future research studies, as there is a high rate of unintended pregnancy in the United States for all women—almost one third of births and one half of pregnancies (Henshaw, 1998).

Other conditions targeted by the DTCA do not seem to represent the various groups' risk for some illnesses. For example, Blacks are more likely than Whites to die of heart diseases—371.0 of every 100,000 Black men and 263.2 of 100,000 Black women died of heart diseases in 2002 compared to 294.1 and 192.1 White men and women, respectively (Centers for Disease Control, 2005b)—yet ads for heart medication appeared at a ratio of 1:4 in Black magazines versus women's. Diseases related to HIV are the seventh leading cause of death for U.S. Blacks, which would explain why pharmaceutical companies are more likely to place DTCA for HIV in Black magazines than in the other genres studied. Diabetes, however, is the fourth leading cause, and diabetes DTCA was more likely to occur in women's magazines, although it should be noted that Black models only were more frequently portrayed in diabetes ads than White models only in magazines targeted primarily at Blacks. The placement of diabetes ads in women's magazines more often than in Black magazines may reflect the increasingly widespread occurrence of adult-onset diabetes. The fact that Black models appear most often in diabetes DTCA suggests that, according to social identity theory, Black readers may be more likely to attend to those ads regardless of magazine genre. Unfortunately, ads containing White models only outnumbered those with Black models only for nearly every disease or condition except diabetes and sexually transmitted diseases. This suggests a clear discrepancy between causes of death, such as heart disease and its relatives (high blood pressure, atherosclerosis), and the frequency of targeting at-risk audiences by race.

This finding may also reflect a concept of magazine economics. Of the magazines examined in this study, the

readerships of the two magazines that target Black audiences have substantially lower household incomes compared to the readerships of the other magazines. Therefore, when determining which drugs to promote in Black magazines, advertisers may have decided to feature drugs for diseases that have the most negative impact on quality of life if neglected—HIV/AIDS and diabetes. In other words, individuals who have limited financial resources would be more likely to make the purchase of these drugs a priority because of the diseases' debilitating effects. Unlike HIV/AIDS and diabetes, individuals suffering from high blood pressure can go about daily life and not be aware that they have the condition, which is why high blood pressure is often referred to as the silent killer. Individuals with limited financial funds are less likely to seek out preventive health care and therefore would less likely be tested for high blood pressure simply because an ad made them aware of the fact that many people are unaware that they have the condition. That said, DTCA and health communicators are in positions that enable them to continually remind people of diseases and conditions to which they are susceptible. Future research should examine whether health communication campaign messages or DTCA are more effective in raising awareness about less obtrusive diseases such as high blood pressure or cholesterol.

Women's magazines did not contain one clearly dominant category of DTCA, but included drugs for a wide range of diseases and conditions, most likely due to women's roles as caretakers and decision makers regarding health issues. This is supported by the fact that DTCA in women's magazines included both children's health and Alzheimer's drugs—and medication for the family dog, although we did not code that. The apparent targeting of female consumers across drug purposes may also explain why no differences emerged in the gender of models pictured by genre. Women are expected to seek health information for the care of their husbands, children, and aging parents. Therefore, women are often portrayed as caring for men in the ads. Previous research has found that women are, not surprisingly, far more aware of DTCA than men (*Prevention*, 2001). Future studies should examine exactly what information women seek in these ads and how they perceive their roles as depicted in DTCA.

CONCLUSION

In this study, we sought to determine whether DTCA for prescription drugs targets Blacks and women specifically by advertising in magazines designed for these audiences and differentially employing models of color or female models. We found significantly different patterns of drugs and portrayals between Black magazines and genres aimed at other target audiences. As in any content analysis, it is beyond the scope of this study to determine how the DTCA is interpreted by Black and female readers or whether these ads successfully affect consumer behavior. Furthermore, a

critical variable in the awareness and use of the ads is whether people can afford to act on the messages they contain and obtain prescriptions for the drugs. It is worth noting, however, that average household incomes of Black magazine readers are much lower than those of readers of the other genres we studied, a fact that may very well affect what drugs advertisers choose to promote in magazines that cater to Black audiences.

Blacks' lower household incomes, which undoubtedly contribute to inadequate health care, are at least partially responsible for the premature health-related deaths of 80,000 African Americans each year in the United States (Satcher et al., 2005). Therefore, because minorities, Blacks in particular, have fewer doctor visits and limited access to preventive health care, we cannot afford to discount the potential educational value of DTCA for this population. The repetitive nature of DTCA may serve as a valuable tool to create awareness regarding underdiagnosed diseases prevalent in Black communities, which may encourage individuals to obtain medical care. Of course, this does not help individuals who have neither health care coverage nor money to purchase advertised drugs, but we argue that DTCA can be of assistance to those who do have health coverage and may be unaware that particular symptoms forewarn of conditions that need medical attention or encourage preventive health care, as some common medical conditions have no symptoms (e.g., high blood pressure).

Although the primary purpose of DTCA from a business perspective is to drive pharmaceutical sales, it is important to acknowledge the educational value of DTCA, especially for minority populations.

According to Black physicians, whose patients are primarily minorities, DTCA is a valuable tool in the arsenal of patient health care (Allison-Ottey et al., 2002, 2003). More specifically, DTCA generally encourages individuals to be more proactive in their health care, ranging from providing awareness of new drugs to encouraging patients to be more involved in their treatment plans. Simply, the results of our study support that DTCA is a valuable health information resource.

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