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## Message framing and interactivity in direct-to-consumer internet advertisements: visual and textual cues on web sites for prescription medications

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MESSAGE FRAMING AND INTERACTIVITY IN DIRECT-TO-CONSUMER  
INTERNET ADVERTISEMENTS:  
VISUAL AND TEXTUAL CUES OF WEB SITES FOR PRESCRIPTION MEDICATIONS

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
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requirements for the degree of  
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in

The Manship School of Mass Communication

by

Brooke Alayne Harrington  
Bachelor of Mass Communication, Louisiana State University, 2003  
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## **ABSTRACT**

Americans' adoption of the Internet has spawned the increased usage of this medium for direct-to-consumer advertising by pharmaceutical manufacturers, despite the widespread controversy over the ethics of the practice, the educational value of direct-to-consumer advertising, and the ultimate cost of the practices to the public. While the U.S. Food and Drug Administration regulates the industry's advertising within traditional media, the agency does not yet impose standards for direct-to-consumer advertising of prescription medications on the Internet. This content analysis of the visual and textual cues of 100 direct-to-consumer Web sites for prescription medications identifies the unexpected strong presence of gain frames relative to loss frames, as well as the manufacturers' focus on educating consumers, evident within the Web sites' considerable utilization of informational advertising appeals and informational rewards. Possibly, the Internet's ability to support rich media and the virtually unlimited space on the Web sites encourages these manufacturers to employ informational appeals and offer a variety of informational rewards. While the data reveal the manufacturers' strong usage of interactive elements, the industry can improve by fully utilizing the features of the Internet to truly benefit patients as an information source, while attracting prospective consumers. While several shortcomings are evident, including the infrequent usage of minority actors within the advertisements, the pharmaceutical industry appears to have effectively regulated itself through applying the U.S. Food and Drug Administration's direct-to-consumer advertising standards for traditional media to the World Wide Web. Implications of these findings for the pharmaceutical industry and the public are discussed, in addition to the study's impact on future research.



## CHAPTER 1. INTRODUCTION

As Americans obtain more prescriptions (Veracity, 31 July 2005, ¶ 4), health care costs have increased (Cline & Young, 2004, p. 135), the pharmaceutical industry has become more profitable (Jaramillo, 2006, p. 271), and class action lawsuits over allegedly-misleading direct-to-consumer advertisements have become more frequent (Willett, 2005, ¶ 12-13). Furthermore, concerned consumers now receive medical information from sources other than physicians, such as friends, family, and prescription drug Web sites (Lee, Salmon, & Paek, 2007, p. 17; Von Koop et al., 2003, as cited in Macias & Lewis, 2004, p. 43). Thus, research on direct-to-consumer advertising holds major implications for the pharmaceutical industry's spending habits, consumers' consultation of Web sites for medical information, mass communicators' development of advertising plans for these products, and scholars' future investigation into this phenomenon.

While pharmaceutical manufacturers have included direct-to-consumer advertising in their promotional activities since the early twentieth century, the implications of the Food and Drug Administration's 1997 relaxation of the regulations for direct-to-consumer advertising have increased the industry's usage of the practices significantly. These regulatory changes require direct-to-consumer advertisers to allot equal weight to the risks and benefits of the advertised medications, encourage consumers to seek further information through physicians or other sources, and persuade consumers to partake in "medically sound" behavior to treat the respective conditions or illnesses (21 U.S.C. Sec. 352[n]; 21 C.F.R. Sec. 202.1[e]). Since 1997, pharmaceutical manufacturers have become more aggressive in targeting potential consumers by employing many of the strategies and tactics of commercial advertisers (Jaramillo, 2006, p. 277), such as using Internet advertising to promote their products directly to consumers (Macias & Lewis, 2004, p. 43).

The Internet's excellent interactive capabilities offer considerable opportunities for pharmaceutical manufacturers to present advertising messages (Coyle & Thorson, 2001, p. 75). Since Americans' adoption of the Internet in the mid-1990s (Rainie et al., 2005, p. 57-59), the medium has become a major information source on virtually every subject imaginable (Menon, Deshpande, Perri, & Zinhan, 2003, as cited in Huh, DeLorme, & Reid, 2005, p. 712), including health and wellbeing (Winter, 2007, ¶ 2; Henkel, 2002, as cited in Huh, DeLorme, & Reid, 2005, p. 712). Some Americans believe that the Internet is a better source for health information than even their healthcare providers (Macias & Lewis, 2004, p. 43), likely because of the plethora of content immediately available to virtually any Web user. In addition, the Internet offers users privacy and anonymity (Bischoff & Kelley, 1999;

Spain, Siegel, & Ramsey, 2001, as cited in Huh, DeLorme, & Reid, 2005, p. 712), important concerns for consumers who want to keep their illnesses confidential.

Even as early as 1998, prescription medications were among the Internet's four most frequently advertised product categories (Wilke, 1998, as cited in Huh, DeLorme, & Reid, 2005, p. 712). Manufacturers such as Pfizer offer links to product information on their home pages (Pfizer, 2008d), host stand-alone Web sites for their products, and strategically advertise on third-party Web sites, especially sites with health-related content, and on popular search engines such as Google. In addition, print and broadcast direct-to-consumer advertisements increasingly refer consumers to the Web sites of the advertised prescription medications. In 1996, a year before the FDA's relaxation of the direct-to-consumer regulations, only 14 percent of direct-to-consumer advertisements featured URLs; by 1998, 57 percent of advertisements offered Web addresses (Wilkes, Bell, & Kravitz, 2000, as cited in Huh, DeLorme, & Reid, 2005, p. 712).

Unfortunately, drug abusers have also discovered the benefits of the World Wide Web; some addicts illegally obtain medications through online pharmacies that suspiciously do not require prescriptions. Medications available at these online pharmacies include more than lifestyle drugs such as Viagra; users can also obtain powerful, addictive painkillers such as Oxycontin and Lortab pills through these sites (Narcanon Southern California, 2008, ¶ 2; WLWT, 28 February 2007, ¶ 3). Moreover, many of these online pharmacies are based in foreign countries and offer black-market or synthetic versions of drugs approved by the Food and Drug Administration (Drug Enforcement Administration Office of Diversion Control, 2008, ¶ 3; WLWT, 28 February 2007, ¶ 6). According to the U.S. Office of Diversion Control, "patients" qualify for the prescription through an online questionnaire instead of a personal consultation, and consumers who purchase controlled medications on the Internet may receive jail time because of the absence of a doctor/patient relationship (Drug Enforcement Administration Office of Diversion Control, 2008, ¶ 1). Luckily, many of the Internet's major search engines, including Google, MSN Search, Yahoo!, and AOL Search, have united to combat the potential consequences of obtaining medications from online pharmacies by rejecting advertising from these companies (Narcanon Southern California, 2008, ¶ 9). The Drug Enforcement Administration also recently launched Operation Cyber Chase, a campaign to eliminate online pharmacies operating illegally (Drug Enforcement Administration Office of Diversion Control, ¶ 3).

Americans' reliance on the Internet for health information, the increasingly aggressive promotion of medications to consumers, and the ubiquity of direct-to-consumer advertising campaigns have captured the attention of many social science researchers, mass communication practitioners, governmental agencies, and consumers. Especially following the Food and Drug Administration's relaxation of the stringent regulations for direct-to-consumer advertising in 1997, the advertising practices of the pharmaceutical industry have inspired ethical debates (Willett, 2005, ¶ 11), concern among consumers (Rockoff, 3 August 2005, ¶ 9) and voluntary moratoriums (Jaramillo, 2006, p. 269; Aikin, 25 October 2005, p. 6; Willett, 2005, ¶ 1).

### **1.1 Purpose of Study**

This quantitative content analysis explores the visual and textual cues which comprise the gain and loss frames and the transformational and informational advertising appeals of the home pages of 100 Web sites for prescription medications that ranked among IMS Health's list of the top-selling drugs in the United States from January to December 2006, the most recent data publicly available free-of-charge (Lamb, 2007, p. 34-37). Moreover, the present study investigates whether advertisers have capitalized on the unique qualities of the Internet, including the medium's ability to support features that attract consumers, such as colorful graphics, audio, video, and interactive elements. Thus, the present research contributes to the foundation of research on emergent trends in Internet promotion of pharmaceuticals and investigates how pharmaceutical manufacturers are encouraging consumers to take the necessary steps to obtain prescriptions for the advertised medications.

Scholars have addressed the need for further research on the advertising tactics used in direct-to-consumer campaigns; Roth (2003) notes the scant data on this subject and considers his content analysis on the effects of advertisers' message strategies on consumers to be "exploratory" (p. 181). The benefits of ongoing research on how advertisers utilize the Internet are also noteworthy. First, since the Internet is the most recently developed medium available to advertisers, subsequent studies on this communication channel are necessary to satisfactorily establish the medium's uses and gratifications for both advertisers and consumers. Also, the Internet's relatively short lead time allows advertisers to update and modify content frequently, so this medium requires continuous monitoring because Web content can change considerably in such a short interval (Macias & Lewis, 2004, p. 48). Due to advertisers' ability to instantly update the sites or add new content as frequently as desired or necessary, academic research on direct-to-consumer Web sites can become outdated sooner than data gathered from a sample of print

advertisements from the same brand. For example, Macias and Lewis (2004), whose research framework strongly guides this study, compiled data for their content analysis of prescription drug Web sites in March 2001 and identified only 90 functioning Web sites for these products (p. 47). Merely seven years after Macias and Lewis' (2004) study, virtually every top-ranking brand of prescription medications sold in the United States now offers a Web site. Ongoing research on direct-to-consumer Internet advertising is crucial because the product selection can also change quickly: for instance, the U.S. Food and Drug Administration can withdraw medications from the market, manufacturers may discontinue or voluntarily recall products, or drug classes may become obsolete (U.S. Food and Drug Administration, 2008a, ¶ 3, 5).

Since the Internet and direct-to-consumer advertising on the Web are relatively new phenomena, current research should incorporate and test existing theories while combining elements from a variety of studies to depict how modern pharmaceutical advertisers are communicating with potential customers. Therefore, the present study is a composite of influential direct-to-consumer advertising studies conducted over the past five years on the visual and textual cues present in these types of campaigns, and will contribute to existing research by illuminating the Internet advertising tactics of current pharmaceutical advertisers. The studies which contribute to the present research design are recent content analyses of print and Internet direct-to-consumer advertising campaigns which have helped researchers, practitioners, and consumers document pharmaceutical manufacturers' advertising tactics following the Food and Drug Administration's 1997 amendments to the once-stringent regulations of the practice (Jaramillo, 2006, p. 261; see Macias, Pashupati, & Lewis, 2007; Mastin, Andsager, Choi, & Lee, 2007; Young & Cline, 2005; Kaphingst, Rudd, Dejong, & Daltroy, 2005; Menon et al., 2003).

For example, Young & Cline (2005, p. 351), Cline and Young (2004, p. 132), and Macias and Lewis (2004, p. 46-47), indicate that frames of direct-to-consumer advertising can be comprised of both visual and textual cues that coalesce to communicate the overall message to the audience. The influence of these advertising frames is powerful enough to affect viewers' attitudes toward a featured product, the parent company, or the entire industry. Visual cues common within direct-to-consumer advertising include humans, cartoons, trade characters, body parts, the advertised products, and combinations of these subjects (Cline & Young, 2004, p. 137), while textual cues pharmaceutical advertisers utilize include instrumental motivational cues and informational rewards to convey product risks and benefits to consumers and encourage them to seek additional information (Young & Cline, 2005, p. 351). Another considerable influence on the design of the present study is Roth's (2003) content analysis of the

advertising message strategies pharmaceutical companies employ in direct-to-consumer prescription drug print advertisements (p. 181).

While the samples of Young and Cline (2005, p. 353), Cline and Young (2004, p. 131), and Roth (2003, p. 183) are direct-to-consumer magazine advertisements, Choi and Lee (2007, p. 138) and Macias and Lewis (2004, p. 47) examine forms of direct-to-consumer advertising on the Internet such as prescription drug Web sites. For example, Choi and Lee (2007) focus on the relationship between how consumers' processing of Internet information for prescription medications on the Internet determines whether they will speak with their healthcare providers about acquiring the advertised medication (p. 138).

Fewer Internet-focused studies concern the attributes of the Web sites for pharmaceutical products than on consumers' perceptions of online health information, yet several important studies on prescription medication Web sites have emerged. Huh, DeLorme, and Reid (2005) argue that Web sites for prescription medications fail to provide the risk data crucial for consumers to make an informed decision about whether to seek a prescription for the advertised product because of the Web sites' omission of adequate comparative data (p. 712). Contrastingly, Macias and Lewis (2004) found that prescription drug Web sites typically offer risk and benefit data that is more substantive than print advertisements, which remain a major expenditure for direct-to-consumer pharmaceutical advertisers (p. 43). Like Macias and Lewis' (2004, p. 47) study, the objectives of the present research focus upon the attributes of the World Wide Web that provide a better opportunity for pharmaceutical manufacturers to tout their products than print advertisements, while still providing sufficient information on the risks and potential side effects of the advertised medications.

## **1.2 Significance of Direct-to-Consumer Advertising Research**

The relationship between the pharmaceutical industry, the Food and Drug Administration, and the mass communication field has intrigued many social science researchers since the agency's 1997 amendments to the regulations on direct-to-consumer advertising. The present study can further contribute to academia's understanding of the relationship between pharmaceutical companies' use of prescription drug Web sites as informational or transformational, the visual and textual cues within the direct-to-consumer advertisements, and how this presentation may affect patients' drug inquiry. In addition, since the academic study of direct-to-consumer advertising on the Internet is relatively new (Macias & Lewis, 2004, p. 43), this research can effectively test the hypotheses and results

of Roth (2003, p. 181-183), Cline and Young (2004, p. 138-139), Young and Cline (2005, p. 354), and Macias and Lewis (2004, p. 46) on the prevalent frames and advertising appeals within the direct-to-consumer advertisements to help fortify the foundation for future research on the pharmaceutical industry's advertising practices.

Continuous study of the facets of direct-to-consumer advertising on the Internet can also help the Food and Drug Administration evaluate the online practices of pharmaceutical manufacturers, which the agency currently does not directly monitor (Knowles, 1997, ¶ 1). Research on the textual and visual cues within direct-to-consumer advertisements can also help the U.S. Food and Drug Administration (FDA) examine pharmaceutical advertisers' claims, as well as determine the necessity of future modifications to the regulations and the scope of these potential amendments. Finally, this study may aid New Zealand in anticipating and appropriately responding to future trends in direct-to-consumer advertising, since the nation remains the only country other than to the United States to allow this type of promotion (Health Action International, 2001, p. 1). This data may also help Britain better evaluate the risks and benefits of allowing direct-to-consumer advertising, since the country is currently considering whether to permit these practices in the near future (Hoffman & Wilkes, 15 May 1999, ¶ 1).

In order for pharmaceutical manufacturers to continue investing heavily in research and development—the companies devoted \$55.2 billion to research and development of biopharmaceuticals in 2007 (Sharer, 2007, p. 4-5)—these organizations and their shareholders require copious data on potentially misleading advertising messages displayed on the drug brands' Web sites. Manufacturers can also employ this data to avoid future lawsuits on misleading advertising, especially if the results of the present study indicate that manufacturers should offer more information on the drug to prospective consumers, despite the absence of Internet advertising regulations from the Food and Drug Administration (Knowles, 1997, ¶ 1).

This study's data may also benefit the in-house and contract research organizations of the pharmaceutical industry (Yen, 22 June 2001, ¶ 1) by introducing new facets of direct-to-consumer advertising for future study (Bodenheimer, 2000, ¶ 1). For example, Takeda Pharmaceuticals utilizes its own in-house research and development department (Takeda Pharmaceuticals, 2008, ¶ 2). The industry's independent research organizations that may benefit include the Kaiser Family Foundation, IMS Health, and the National Institute for Mental Health.

Health care providers and medical professionals' associations may also benefit from this content analysis of the visual and textual cues of prescription drug Web sites. The data may enable doctors to anticipate the arguments of pharmaceutical advertisements, pharmaceutical representatives, or patients in support of the advertised drug

brands. Medical professionals' organizations such as the American Psychological Association, the American Psychiatric Association, the American Medical Association, and the Pharmaceutical Researchers and Manufacturers of America frequently address direct-to-consumer advertising within their respective publications, ethical codes, and Web sites (Pharmaceutical Research and Manufacturers of America [PhRMA], 2008, p. 2). Data from this study can potentially help these associations determine whether further modification of their respective criteria for accepting pharmaceutical manufacturers' advertising for publication in trade journals is necessary.

Further, since the pharmaceutical industry's advertising practices, especially on the World Wide Web, are not as established as the tactics of advertisers for mainstream products, categorizing the Web sites' content can indicate potential areas of improvement to these practices as soon as possible. Improvements in the communication tactics of pharmaceutical advertisers will benefit consumers and advertising professionals, in addition to the pharmaceutical industry. In addition, this research offers the unique opportunity to examine the campaigns' attributes which motivate consumers to obtain pharmaceutical manufacturers' products, since they are not readily accessible like mainstream commercial products (Jaramillo, 2006, p. 262). Research on direct-to-consumer marketing can help advertising agencies, especially those specializing in pharmaceutical advertising, avoid potential lawsuits for misleading advertising claims or violation letters from the Food and Drug Administration (U.S. Food and Drug Administration, 2008c, ¶ 3). Advertising professionals managing pharmaceutical manufacturers' accounts can also apply this data to subsequent campaigns to accurately present the risks and benefits of the medications, and thereby persuade consumers in a more straightforward manner.

Research on advertising message frames of direct-to-consumer advertising potentially impacts millions of American consumers because the visual and textual cues that comprise these frames can shape target audience's beliefs and attitudes toward the product and advertiser (Cline & Young, 2004, p. 131), while motivating them to ask their doctors about the advertised products (Willett, 2005, ¶ 11). A better understanding of direct-to-consumer pharmaceutical campaigns can also improve prospective patients' abilities to interpret the advertisements' arguments. Further, ensuring that the frames and appeals identified within the advertising campaigns match the advertisers' intent may result in better-informed patients who can communicate more effectively with their doctors. The knowledge gleaned from this content analysis of prescription medication Web sites may also help awaken the public regarding whether the industry is using its presence on the World Wide Web to inform or persuade (Macias &

Lewis, 2004, p. 46), and help them determine the benefits and risks of accessing prescription medication manufacturers' Web sites for crucial health information.



## CHAPTER 2. LITERATURE REVIEW

The proliferation of prescription drug advertising, especially the in-depth information that accompanies the campaigns, invites consumers to participate more fully in maintaining their health (Smith, 1998, as cited in Singh & Smith, 2005, p. 369), and Ratzan (2007, p. 101), Lee, Salmon, and Paek (2007, p. 107), and Mastin, Andsager, Choi, and Lee (2007, p. 49) argue that as prospective patients gain awareness of the prescription medications through direct-to-consumer advertising, they are more likely to hold positive attitudes toward these practices. Lee, Salmon, and Paek (2007) conducted a survey to assess consumers' attitudes toward direct-to-consumer advertising, focusing upon consumers' sources of health information and consumer socialization (p. 107, 115). The study revealed consumers' likelihood of holding favorable views increases according to whether they consult their families, friends, or the media for health information, as opposed to their physician alone (p. 107). However, Lee, Salmon, and Paek (2007) explain that consumers that obtain medical information from the media via direct-to-consumer advertisements, as well as their family and friends, are also more likely to inquire about particular pharmaceuticals during their doctors' appointments (p. 107).

Numerous studies explore the degree pharmaceutical advertising influences the audience's sense of control over maintaining their health. For instance, Wilson and Till (2007) identified the correlation between respondents' interest in health maintenance and the subjects' views of direct-to-consumer advertising in their analysis of secondary survey data (p. 270). The authors developed and tested a model representing the effectiveness of direct-to-consumer advertisements by using secondary research: the results of nearly 7,000 telephone surveys administered by the Interuniversity Consortium for Political and Social Research (Wilson & Till, 2007, p. 274). According to the model, the major influencers in direct-to-consumer advertising's effectiveness include the level of respondents' involvement in their healthcare, in addition to respondents' health, education (which also correlates with respondents' healthcare involvement), age, and attitudes toward the U.S.' health care structure (p. 273). After testing their model against the survey data, Wilson and Till (2007) concluded that respondents who are most involved in maintaining their health are most likely to seek information from their physicians or inquire about the advertised medication (p. 278).

Singh and Smith (2005), who administered a survey to a sample of 288 American men and women to determine their attitudes, knowledge, and behavioral intentions regarding direct-to-consumer advertising, concluded that many consumers may develop positive attitudes toward prescription drug advertising because of the

information's "empower[ing]" effects (p. 369). The survey consisted of 50 total questions assessing consumers' demographics, knowledge of the Food and Drug Administration's regulation of the practices of direct-to-consumer advertising, their reactions to pharmaceutical advertisements, and their likelihood of drug inquiry (Singh & Smith, 2005, p. 373). After analyzing the survey results, Singh and Smith (2005) identified the correlation between the respondents' education and skepticism of direct-to-consumer advertising (p. 374). In addition, the survey showed that direct-to-consumer advertising did not make consumers feel more informed regarding their health maintenance, and nearly two-thirds of the sample (65 percent) did not think average Americans exposed to pharmaceutical advertising would effectively assess the risk and benefit claims contained within the text (p. 374). However, the results may have been skewed due to the high percentage of survey respondents who were well-educated: almost half (48.6 percent) of the sample held Bachelor's, Master's, or Ph. D. degrees (p. 373).

Choi and Lee (2007, p. 141) explored whether consumers who consult drug brands' Web sites are more or less likely to ask their physicians about those particular prescription drugs by surveying consumers of various age groups who were self-reported Internet users. The researchers discovered that respondents who consulted the Web for medical information viewed the Internet as a credible source, and were therefore more likely to bring up the information during doctor visits (Choi & Lee, 2007, p. 145). In fact, Choi and Lee (2007) assert that respondents consider the Internet to be a more credible source for information on prescription medications than traditional media such as television and newspapers (p. 145).

## **2.1 Governmental Regulation and the History of Direct-to-Consumer Advertising**

The U.S. Food and Drug Administration has regulated the safety of the foods, drugs, and cosmetics Americans consume since 1906, when Theodore Roosevelt approved the Pure Federal Food and Drugs Act (U.S. Food and Drug Administration, 2006, p. 1). The modern direct-to-consumer advertising practices of the pharmaceutical industry have developed from years of cooperation with the Food and Drug Administration (FDA), a complex relationship which began in 1938 when the FDA passed the Wheeler-Lea Act to prohibit deceitful advertising practices and the Food, Drug, and Cosmetic Act to promote safe labeling practices in response to the Elixir "therapeutic disaster" of 1937 (U.S. Food and Drug Administration, 2006, p. 4). The manufacturers of Elixir, a sulfa drug marketed for children, did not realize the product contained antifreeze and the improperly labeled

medication inadvertently killed 100 people (Ballentine, 1981, ¶ 1). According to Ballentine (1981), the Food, Drug, and Cosmetic Act became the guiding principle for the Food and Drug Administration's subsequent activities (¶ 1).

The Federal Trade Commission (FTC) regulated pharmaceutical advertising until 1962, when the Kefauver-Harris Drug Amendments transferred complete authority to the Food and Drug Administration (U.S. Food and Drug Administration, 2006, p. 5). From 1962 through the beginning of the 1980s, much of the governmental regulation of direct-to-consumer advertising involved the broadcast media, but pharmaceutical manufacturers' increasing integration of print media vehicles provoked some of the most dramatic changes in the regulations of direct-to-consumer advertising at the time (Jaramillo, 2006, p. 269).

The FDA Commissioner in the early 1980s, Kenneth Feather, later considered a major turning point in the regulation of direct-to-consumer advertising to be the pharmaceutical company Ciba Geigy's proposal for a direct-to-consumer advertisement that "trivialized" the usage of prescription medications (Feather, 1997, as cited in Jaramillo, 2006, p. 269). Feather incited the Food and Drug Administration to enact a voluntary moratorium on advertising to consumers in 1983 so the agency could determine subsequent regulatory actions for direct-to-consumer advertising practices (Jaramillo, 2006, p. 269; Aikin, 25 October 2005, ¶ 6). Two years later, after extensive research on an audience's ability to interpret prescription drug warnings, the FDA ended the moratorium and modified its requirements for this type of advertising: direct-to-consumer advertisements needed a "brief summary" of the potential side effects of the product (21 U.S.C. 352[n]). Although data on the expenditures of the pharmaceutical industry varies somewhat depending on the source, these companies' spending ballooned from \$11.4 billion to \$29.9 billion between 1996 and 2005 (Donohue, Cevalco, & Rosenthal, 2007, p. 1).

In 1997, the FDA removed the "brief summary" clause for broadcast advertisements due to the limits of the medium, providing that the advertiser directed consumers to another source for additional information on the medication (Division of Drug Marketing, Advertising, and Communications, 1999, ¶ 2). Essentially, the FDA wanted to ensure that consumers were exposed to the medications' labels and risk information (Jaramillo, 2006, p. 269). In 1999, the agency amended its regulations, requiring "...an information hotline, a recommendation to seek supplemental information in print form, a recommendation to seek out a physician to inquire about the drug, a [W]eb site, and a 'major statement' of side effects communicated in a 'consumer-friendly' manner" (Division of Drug Marketing, Advertising, and Communications, 1999, ¶ 5).

The FDA monitors and explores the advertising practices of the pharmaceutical industry by notifying companies of their regulatory violations, conducting independent research, and painstakingly reviewing the advertising claims of new and existing prescription medications (U.S. Food and Drug Administration, 2006, p. 2). While manufacturers voluntarily present these claims within the direct-to-consumer advertising campaigns to the Food and Drug Administration for review (Aikin, 25 October 2005, ¶ 18; Roth, 2003, p. 181), the agency does not approve the actual direct-to-consumer advertisements (Coleman, Hartley, & Kenamer, 2006, p. 548; Aikin, 25 October 2005, ¶ 18). Pharmaceutical manufacturers that are in compliance with the Food and Drug Administration's direct-to-consumer advertising regulations receive violation letters from the agency (U.S. Food and Drug Administration, 2008c, ¶ 3; Willett, 2005, ¶ 7), and these companies must meticulously heed the FDA's warnings because of the agency's power to prosecute the companies, recall or seize the products, issue injunctions, or place the manufacturers in "administrative detention" (Roth, 2003, p. 181).

Research indicates that the Food and Drug Administration has become increasingly scrupulous about drug approvals following the adverse effects, injuries and deaths caused by patients' long-term use of particular medications to treat cholesterol and heart disease such as Vioxx (Armstrong, 1 November 2007, ¶ 3, ¶ 5). The agency now investigates treatments for chronic illnesses much more closely, and on average, issues a declining number of drug approvals per month (Armstrong, 1 November 2007, ¶ 2). The FDA's meticulous requirements ensure the safety of the medications sold in the United States and that companies can provide consumers with extensive information on the risks and benefits of these products (U.S. Food and Drug Administration, 2006, p. 2).

However, the lengthy approval process can frustrate manufacturers, who are required to await the Food and Drug Administration's approval prior to launching a direct-to-consumer advertising campaign (Bren, 2007, ¶ 12-13). For instance, the agency may issue "approvable letters" which list concerns the companies must address before the medication can be approved (Armstrong, 1 November 2007, ¶ 5). Complying with the FDA's requests can be problematic because of the extensive research the agency may require to address the concerns of the approvable letter (Armstrong, 1 November 2007, ¶ 5). For example, Bristol-Meyers Squibb received an approvable letter from the FDA about its diabetes treatment, Pargluva, in 2005 (Armstrong, 1 November 2007, ¶ 5). The letter required the manufacturer to submit additional research on the cardiovascular impact of the medication, but Bristol-Meyers Squibb abandoned its efforts to obtain the FDA's approval after realizing that obtaining that data would require an additional five years of intensive research (Armstrong, 1 November 2007, ¶ 5).

Other governmental agencies also help protect consumers from misleading information in direct-to-consumer campaigns: one of the most recent investigations of direct-to-consumer advertising involves Pfizer, the manufacturer of the top-selling cholesterol treatment, Lipitor, and the House Energy and Commerce Subcommittee on Oversight and Investigations (“House subcommittee investigates Lipitor ads,” 8 February 2008, ¶ 1). The House must determine whether some of Pfizer’s campaign executions used a stunt double for Lipitor’s celebrity endorser, Robert Jarvik, who developed the artificial heart (“House subcommittee,” 8 February 2008, ¶ 1; Owens, Parks, Petyerak, Ibanga, 2008, ¶ 1). The House subcommittee alleges that Pfizer’s representation of Jarvik as a “medical expert” is misleading: he is a medical scientist, not a certified cardiologist or a licensed physician (“House subcommittee,” 8 February 2008, ¶ 2). Pfizer has cooperated with the government’s investigation and voluntarily removed the questionable Lipitor advertisements (“Pfizer voluntarily withdraws Lipitor advertising featuring Dr. Robert Jarvik,” 25 February 2008, ¶ 1).

However, some investigations may inadvertently affect the Food and Drug Administration’s ability to regulate direct-to-consumer advertising practices, such as the class action lawsuits consumers use to police the industry (Willett, 2005, ¶ 15). Willett (2005) describes the negative implications of this “follow on litigation,” defined as class action lawsuits filed by the public against pharmaceutical manufacturers citing damages inflicted by the defendants’ advertising claims (¶ 11). She believes these attempts to “regulate through litigation” undercut the U.S. Food and Drug Administration’s ability to regulate the industry and “...create an unfair burden” for the manufacturers involved in the litigation because the company already complied with the FDA’s regulations in order to receive the approval to market the drug (Willett, 2005, ¶ 15).

For example, in 2001, a group of consumers filed a class action lawsuit against Schering-Plough, the manufacturer of Claritin, for false advertising (Willett, 2005, ¶ 17). The New Jersey Supreme Court’s decision for the Claritin trials reflects the reasoning of Willett’s argument: the court ultimately rejected the petition for certification the plaintiffs requested due to the Food and Drug Administration’s jurisdiction and expertise over the issue and the products’ unavailability to consumers in the absence of a prescription. Unfortunately for the state’s taxpayers, the trial lasted for two years just to reaffirm the FDA’s decision that the advertisements were permissible (Willett, 2005, ¶ 21).

Consumers also filed a class action lawsuit against Merck & Co. in 2004 for wrongful death and personal injury caused by long-term usage of the cholesterol treatment Vioxx (Lamb, 22 June 2006, ¶ 10). Although the

Vioxx trials are currently in process, the plaintiffs have been less successful than Merck & Co. at convincing the jury of the drug's harm (Nordqvist, 22 November 2006, ¶ 3). Of the eleven cases that had issued verdicts by November 2006, the plaintiffs had won four lawsuits, while Merck & Co. had won seven (Nordqvist, 22 November 2006, ¶ 11). However, the successful plaintiffs received millions of dollars for their injuries, and since Merck & Co. opted to handle each of the 24,000 lawsuits filed within the class action suit individually, the company's ultimate price will likely be much higher (Nordqvist, 22 November 2006, ¶ 3).

State agencies can also determine what advertising practices are permitted, although experts cite the considerable obstacles to this practice ("Read Two Drug Ads and Call Me in the Morning," 2002, ¶ 5). Several state legislatures have initiated bills regarding the nature of direct-to-consumer advertising; however, many bills die before reaching Congress ("Read Two Drug Ads," 2002, ¶ 8). For example, in 2001, twelve state legislatures proposed direct-to-consumer advertising legislation, but only West Virginia adopted the bill as a law. The West Virginia statute directs drug manufacturers to disclose advertising expenditures and the subsequent effect on the prices of medications to the West Virginia Public Employees Insurance Agency ("Read Two Drug Ads," 2002, ¶ 5).

## **2.2 The Direct-to-Consumer Advertising Debate**

Scholars, pharmaceutical industry representatives, physicians, governmental agencies, and consumer groups continue to debate the advertising practices of the pharmaceutical industry (Coleman, Hartley, & Kenamer, 2006, p. 548; Jaramillo, 2006, p. 270, 273-275). While some studies indicate direct-to-consumer advertising helps to fortify consumers' role in managing their own healthcare and encourages patients to seek additional information from their physicians (Singh & Smith, 2005, p. 371), other research indicates that healthcare costs have risen partly because of Americans' more frequent doctor visits (Willett, 2005, ¶ 10).

Further, within the eleven years since the Food and Drug Administration's modifications, researchers have identified trends within the pharmaceutical industry that coincide with the growth of direct-to-consumer advertising, including exponential increases in spending by pharmaceutical companies on advertising and promotion (Huh & Langteau, 2007, p. 151; Findlay, 10 September 2002, p. 2), as well as by consumers on prescription medications (Veracity, 31 July 2005, ¶ 3; Findlay, 10 September 2002, p. 3). American doctors now prescribe a greater quantity of prescriptions to patients: in 1992, the average U.S. citizen held 7.3 prescriptions; by 2000, the average reached 10.4 (Fillon, 2004, as cited in Veracity, 31 July 2005, ¶ 4). The Kaiser Family Foundation (2003, p. 4) reports that

consumer spending on prescription medications rose considerably from approximately \$46.9 billion annually in 1990 to \$140.6 billion in 2001. By 2007, Americans spent nearly \$200.7 billion on prescription drugs (Kaiser Family Foundation, 2007, p. 1).

### **2.2.1 Opposition to Direct-to-Consumer Advertising**

Opponents of direct-to-consumer advertising believe the pharmaceutical manufacturers' marketing tactics too closely mirror those of commercial advertising (Jaramillo, 2006, p. 272, 277). These critics do not believe pharmaceutical manufacturers can successfully balance their profit motives with educating consumers since financial goals may discourage these corporations from providing completely thorough information about the medications (Bell, Wilkes, & Kravitz, 2000, p. 1092). Moreover, the success of direct-to-physician marketing concerns critics of direct-to-consumer advertising because the general public is much more vulnerable to persuasion than these well-schooled professionals who are already familiar with the risks associated with the medication (Bell, Wilkes, & Kravitz, 2000, p. 1092).

Jaramillo (2006) believes the tendency of the pharmaceutical industry and the FDA to view direct-to-consumer advertising as typical commercial advertising for mainstream products ultimately harms consumers, and she raises ethical questions about direct-to-consumer advertising in spite of its widespread usage (p. 261, 277). Admittedly, the media vehicles of direct-to-consumer advertising of prescription medications and advertising for traditional products are identical, including broadcast media such as radio and cable and network television, print media such as magazines and newspapers (Jaramillo, 2006, p. 270, 272), and advertising on the Internet (Macias & Lewis, 2004, p. 43), including banner advertisements and brand Web sites.

Just as mainstream advertisers, direct-to-consumer advertisers utilize celebrities, inventors, doctors, politicians, and other public figures to promote products ("House Subcommittee Investigates Lipitor Ads," 8 February 2008, ¶ 1). Pharmaceutical manufacturers may issue video news releases (VNRs) (see Roche, 2007) to television networks, or press releases (see Pfizer, 2008e) to magazines and newspapers. Many companies offer free trial periods or samples of the products to prospective consumers (see Eli Lilly & Co., 2007). For instance, Merck's Viagra offers a Value Card that qualifies consumers to receive their fourth prescription of the year at no charge (Pfizer, 2008f, ¶ 1).

Furthermore, critics question whether the advertisers' motives are to aid consumers or to attain more profits (Singh & Smith, 2005, p. 371), especially since pharmaceutical manufacturers' profits have increased considerably since direct-to-consumer advertising was deregulated in 1997 (Jaramillo, 2006, p. 271). According to a *Fortune* Global 500 report, the top ten pharmaceutical manufacturers in 2007 earned profits ranging from approximately \$11.05 million (Johnson & Johnson) to \$4.2 million (Wyeth) ("*Fortune* Global 500 Industries: Pharmaceuticals," 23 July 2007). Controversy over pharmaceutical manufacturers' expenditures has also grown following a recent study that indicates these companies spent more money on product promotion than on research and development in 2004 (24.4 percent versus 13.4 percent of each sales dollar) (ScienceDaily, 8 January 2008, ¶ 2).

The hype and demand created by direct-to-consumer advertising also detracts from the advantages of generic medications (Singh & Smith, 2005, p. 371), which often provide the same benefits as the branded medications (Jaramillo, 2006, p. 273). Pharmacists at CVS, a national drugstore chain, recommend generic medications to patients because the lack of advertising costs results in a lower-priced product (CVS, 2008, ¶ 2). In many cases, the same companies that promote the branded medications also manufacture the generic versions, which require approval from the Food and Drug Administration just as the branded medications (CVS, 2008, ¶ 3).

Just as within commercial advertising, the ethics and accuracy of the content of direct-to-consumer advertising is debatable (Huh, DeLorme, & Reid, 2004b, p. 570; Macias & Lewis, 2004, p. 43). As Cox, Cox, and Zimet (2006, p. 79), and Singh and Smith (2005, p. 372) discuss, critics believe the risk information contained in direct-to-consumer arguments is too complex for the average person to comprehend, and therefore patients cannot adequately determine the seriousness of the potential complications. Coleman, Hartley, and Kenamer (2006) also explain that direct-to-consumer advertising may "false[ly] comfort" consumers who seek health information (p. 548).

Further, Singh and Smith (2005) explain that the "...breakthrough advances pharmaceutical manufacturers advertise may not be entirely truthful, and that in some cases, older (and more established) treatments may be more effective" (p. 369). For example, Anderson (2001) argues that the advertising claims of Searle and Merck (the manufacturers of Celebrex and Vioxx, respectively), may have magnified the benefits of the medications: both drugs utilize COX-2 specific inhibitors to prevent ulcer development in patients, yet the companies' consulting physicians explained that not all arthritis sufferers need medications that included COX-2s because of the slight chance of developing ulcers from regular arthritic treatments (p. 453). In response, Searle and Merck separately explained that



COX-2s can benefit all arthritis sufferers when used as a preventative measure and help patients avoid spending money on medications to treat side effects from other arthritis medications (Anderson, 2001, p. 453).

Finally, critics contend that the tendency of direct-to-consumer advertisers to encourage consumers' self-diagnosis can potentially be detrimental to their health if they seek a potentially dangerous or harmful product (Singh & Smith, 2005, p. 371). In addition, direct-to-consumer advertising may compromise the traditional doctor-patient relationship by allowing the consumer more control over his or her healthcare, whereas before the growth of this type of advertising, physicians held the ultimate authority over patients (Huh, DeLorme, & Reid, 2004b, p. 570).

### **2.2.2 Advocacy of Direct-to-Consumer Advertising**

While prominent advocates of direct-to-consumer advertising include the Food and Drug Administration and the U.S. pharmaceutical manufacturers (Coleman, Hartley, & Kennamer, 2006, p. 549), many consumers also support the practice. Advocates of direct-to-consumer advertising believe the advertisements provide consumers with much-needed information about their health by helping them identify the condition that may be affecting their health and encouraging them to visit their doctors (Kaiser Family Foundation, 2003, p. 9). In response to critics' arguments about manufacturers' inability to fully reconcile the goals of profit and consumer education in direct-to-consumer advertisements, proponents of the practice believe these goals can coexist (Bell, Wilkes, & Kravitz, 2000, p. 1092). Advocates believe not only are consumers capable of effectively assessing the risks and benefits of these medications, but manufacturers also realize that withholding information ultimately does not benefit them (Bell, Wilkes, & Kravitz, 2000, p. 1092).

Pharmaceutical manufacturers and other proponents of direct-to-consumer advertising believe that arming consumers with information on treatment options expands their role in their healthcare (Huh, DeLorme, & Reid, 2005, p. 790). Further, the U.S. Food and Drug Administration's audience research data indicates that consumers can indeed process the risks presented within direct-to-consumer advertisements (Jaramillo, 2006, p. 269). Proponents argue that information from direct-to-consumer advertising helps patients recognize whether they may be suffering from the condition advertised, become knowledgeable about potential treatment options, or increase their awareness of alternatives to their current treatments (Huh, DeLorme, & Reid, 2004b, p. 572; Kaiser Family Foundation, 2003, p. 9). In addition, the traditional "paternalistic" doctor-patient relationship (Singh & Smith, 2005, p. 370) may not necessarily benefit the patient. For instance, proponents of direct-to-consumer advertising believe

the time-sensitive nature of this type of advertising can also improve patients' healthcare. Consumers no longer must rely solely on their doctors to communicate the benefits of a newly introduced medication, since direct-to-consumer advertising potentially "bridges the information gap between pharmaceutical companies and doctors/patients" (Singh & Smith, 2005, p. 370).

Moreover, third-party research indicates that direct-to-consumer advertising does not automatically result in prescriptions for consumers for the advertised product (Kaiser Family Foundation, 2007, p. 7). The Kaiser Family Foundation (2003) reports that direct-to-consumer advertising increases sales of the product category (i.e. arthritis treatments), but does not increase sales for particular drugs more than others within the category (p. 7). The report surmises that direct-to-consumer advertising potentially "...prompts previously untreated patients to talk to their doctors about advertised treatments," but the doctors do not prescribe the patients the drug they requested (Kaiser Family Foundation, 2003, p. 7). However, additional studies on this possibility are necessary in order to make these claims with certainty (Kaiser Family Foundation, 2003, p. 7).

In response to concerns over the rising prices of prescription medications and the profit motives of pharmaceutical manufacturers, direct-to-consumer advertising practices may soon change. In November 2007, economist James Love of Knowledge Ecology International proposed that the Food and Drug Administration replace the patents presented to pharmaceutical companies with cash prizes from an "innovation fund" of \$80 billion (Simons, 30 November 2007, ¶ 3). Love and his supporters believe this clause would prevent the costs of prescription drugs from continuing to rise: since the drugs would not be patent-protected, other manufacturers could develop their own versions, creating competition which would eventually decrease the market price of the products (Simons, 30 November 2007, ¶ 3). Love explains that the federal government can recoup the cost of the "innovation fund" over time since it will no longer pay high prices for these products through the Medicare program (Simons, 30 November 2007, ¶ 14).

Finally, the increased reliance on the Internet by pharmaceutical manufacturers to disseminate product data and by consumers to retrieve health information further intensifies the debate over the attributes of direct-to-consumer advertising. Currently, 80 percent of Americans habitually access the Internet for health information (Von Koop et al., 2003, as cited in Macias & Lewis, 2004, p. 43), and the World Wide Web has recently become a substantial tool for pharmaceutical advertisers to promote prescription medications. Unfortunately, neither pharmaceutical advertisers nor concerned consumers can consult the Food and Drug Administration's policies of

direct-to-consumer advertising on the Internet to ensure that all relevant information is included on prescription medication Web sites; while the agency has established regulations for print and broadcast direct-to-consumer advertisements, no guidelines exist for Internet advertising of prescription medications (Knowles, 1997, ¶ 1).

As Neil Postman writes in *Amusing Ourselves to Death* (1986), the limits inherent within each mass communication medium determine the quality of the information presented to consumers (p. 6). Thus, pharmaceutical manufacturers' widespread usage of the Internet to reach consumers may foreshadow future changes to the Food and Drug Administration's regulations, since modifications to its policies on direct-to-consumer advertising typically are responses to trends in the dominant media vehicles of direct-to-consumer advertising.

### **2.3 Direct-to-Consumer Advertising on the Internet**

Internet advertisers' ultimate objective is to attract consumers to the products' home pages to elicit an array of potential behavioral responses (Cox, Cox, & Zimet, 2006, p. 47). Message characteristics of Internet advertising which may influence consumers' motivation, opportunity, and ability to process messages include "... attention devices, encoding variability, message framing, and choice of message mood tone" (Cox, Cox, & Zimet, 2006, p. 47). Researchers have identified several message strategies of direct-to-consumer advertisements on the Internet (Macias & Lewis, 2004, p. 49). Macias and Lewis (2004), who examined the interactive characteristics of 90 prescription medication Web sites, found that direct-to-consumer advertisements utilized a greater quantity of monetary inducements than commercial advertisements (p. 49). In addition, Cox, Cox, and Zimet (2006) have identified Internet advertising strategies such as "popups," "popunders," banner advertisements, sponsorship Web sites, viral messaging, and home pages (p. 47). Sponsorship Web sites are essentially editorials about the particular product, while viral messaging, which has only recently emerged among these more established Internet advertising vehicles, is deliberate e-mail marketing between consumers (Cox, Cox, & Zimet, 2006, p. 47).

For consumers seeking health information, a major appeal of the Internet is the abundant Web sites that provide detailed health-related content free-of-charge to Internet users. For instance, the Mayo Clinic offers an interactive guide to help patients identify the condition from which they are suffering by requesting users to mark their symptoms on a checklist (Mayo Clinic, 2008, ¶ 1). After the Mayo Clinic's interactive guide narrows down patients' possible illnesses, the site offers users multiple pages of information about the plausible conditions, their respective symptoms, and the various treatment options (Mayo Clinic, 2008, ¶ 1). In addition, the Yale School of

Medicine Web site offers free “podcasts,” downloadable educational health videos that are viewable on users’ portable media devices (Winter, 1 October 2007, ¶ 1). The Cleveland Clinic’s Health Edge videos are also a popular source for educational health videos, boasting 8,000 subscribers in 2007 (Winter, 1 October 2007, ¶ 10). Finally, Microsoft Corporation also became a host of health information in late 2007 by unveiling its search engine and information portal called “Health Vault” (“Health care: The vault is open,” 4 October 2007, ¶ 3). Health Vault’s search engine capabilities and customizable home pages allow advertisers to target consumers based on the particular information they seek (“Health care,” 4 October 2007, ¶ 7).

Since the Internet has become such a valuable resource for Americans concerned about their health (Macias & Lewis, 2004, p. 43), direct-to-consumer Internet advertising accounts for an increasingly large portion of pharmaceutical advertisers’ media mix (Putrevu & Lord, 2003, p. 45). Von Koop et al.’s (2003, as cited in Macias & Lewis 2004, p. 43) survey of patients’ usage of the Internet to obtain health information showed that 80 percent of consumers consult the Web, and nearly all of those respondents reported a better comprehension of their respective conditions afterwards. In fact, of the consumers who are the most heavily involved in their medical treatment, slightly more patients chose the Internet over their healthcare provider as their primary source for medical information (Von Koop et al., 2003, as cited in Macias & Lewis, 2004, p. 43). Therefore, the content of these product Web sites and the quality of the information hold significant implications for the majority of American consumers who retrieve health information from these sites. Unfortunately, even though the U.S. Food and Drug Administration has modified the regulations on direct-to-consumer advertising after Americans’ adoption of the Internet in the 1990s, specific parameters do not yet exist for direct-to-consumer advertising on the Internet (Knowles, 1997, ¶ 1).

Regardless of the absence of the Food and Drug Administration’s regulations on direct-to-consumer advertising on the Internet, advertisers have capitalized on the interactive features of the World Wide Web. Novartis’ Fluvirin campaign in September 2007 emphasizes the freedom and creativity the Internet allows pharmaceutical advertisers if they adopt “Web 2.0,” a more innovative approach to advertising on the Internet that encourages the use of rich media content like audio and video (Donnelly, 1 February 2008, ¶ 4). Novartis and its advertising agency, Cadient, developed an Internet-based contest hosted on YouTube, a popular video-sharing site, to promote Fluvirin, Novartis’ vaccine for the influenza virus (Donnelly, 1 February 2008, ¶ 1). The pharmaceutical manufacturer’s innovative marketing campaign involved soliciting videos from YouTube users on how the flu

affected their lives, and the first-place winner in each of the three categories received \$500 (Donnelly, 1 February 2008, ¶ 1).

The campaign was immensely successful: the contest drew 12,000 viewers and Novartis' sample entries attracted 800,000 users (Donnelly, 1 February 2008, ¶ 9). The employees of Novartis' agency Cadient note how much easier placing the video contest on YouTube was than if the agency would have promoted the competition via Novartis' Web site or a health-related site (Donnelly, 1 February 2008, ¶ 4). While the contest was unbranded, Novartis provided a hyperlink to information about its vaccine (Donnelly, 1 February 2008, ¶ 5), and users could view the commercials for numerous branded pharmaceutical products, in addition to the Fluvirin advertisements (Donnelly, 1 February 2008, ¶ 4). This campaign illustrates pharmaceutical manufacturers' eagerness to convey advertising messages through many different methods, and the Internet provides nearly limitless possibilities.

### **2.3.1 Interactivity of Web Sites**

Coyle and Thorson (2001) believe the nontraditional medium of the Internet is capable of dramatically changing users' experience in evaluating products and developing attitudes toward brands (p. 75). The World Wide Web has steadily gained importance within the branding sector of the advertising industry (Hansell, 1998, as cited in Coyle & Thorson, 2001, p. 65) partially due to the medium's ability to present users with a more realistic experience than traditional media through interactive rich media (Coyle & Thorson, 2001, p. 65). Rich media engage users' senses through video, audio, and animation, and have become integral to many Internet advertisers' repertoires (Hansell, 1998, as cited in Coyle & Thorson, 2001, p. 65).

The vividness and interactive qualities of the rich media on the Internet can create a virtual world that can potentially prevail over users' reality, a phenomenon called telepresence (Coyle & Thorson, 2001, p. 66). Vividness refers to the medium's ability to simulate reality through stimulating users' senses, and Coyle and Thorson (2001) believe animated graphics, video, and audio contribute significantly to the vividness of a medium (p. 68). Essentially, the greater number of senses the medium can arouse, the more vivid the experience becomes to users (Coyle & Thorson, 2001, p. 68).

Communication researchers offer several interpretations of the concept of interactivity. For instance, Steuer (1992, p. 84, as cited in Coyle & Thorson, 2001, p. 67) equates the term with the users' ability to "modif[y] the form and content of a mediated environment in real time" (Coyle & Thorson, 2001, p. 67). Rafaeli and Sudweeks (1997,

p. 3, as cited in Coyle & Thorson, 2001, p. 65) believe “interactivity” refers to the interrelatedness or consistency within a progression of messages, while Blattberg and Deighton (1991, as cited in Coyle & Thorson, 2001, p. 65) argue that interactivity facilitates direct communication unbound by space or time. Coyle and Thorson (2001) maintain that many Web sites’ usage of metaphors communicates the advertisers’ comfort with the interactive capabilities of this nontraditional medium: the authors cite Alligator Records’ Web site, which features a virtual downtown scene with “clubs” users can enter to hear the record label’s artists (p. 67). McMillan and Hwang (2002) agree that a Web site’s layout, especially the inclusion of extensive interactive elements or graphics, can affect the users’ inclination to spend time on the site by causing slow loading (as cited in Starr, 2006, p. 16). Coyle and Thorson (2001) also argue against the usage of extensive graphics, which can make the site appear too “busy” and may affect viewers’ desire to remain on the site (p. 67-68).

Coyle and Thorson (2001) tested the effects of varying levels of interactivity and vividness on users’ attitudes toward Web sites experimentally (p. 68). The researchers posited that the highly vivid and extremely interactive Web sites would cultivate the most significant changes in attitudes, since these dimensions help cultivate the medium’s telepresence and create a more realistic experience for users (p. 68). The researchers presented 68 subjects with sixteen variations of four Web sites, each using different levels of audio, animation, choice ability, and mapping (the latter two variables are dimensions of interactivity). To the surprise of the researchers, only Web sites with high levels of vividness—and not those using high interactive levels—produced statistically-significant changes in the respondents’ attitudes toward the Web site (Coyle & Thorson, 2001, p. 75). Despite these findings, Coyle and Thorson (2001) encourage further research on the effects of these dimensions of nontraditional media, as well as advertisers’ usage of the Internet for marketing products in general (p. 75).

Macias and Lewis (2004) used specific criteria to determine each Web site’s interactivity in their content analysis of 90 prescription medication Web sites (p. 51). Interactive content on Web sites is designed to attract consumers, encourage them to further explore the Web site, and convey advertising messages (Macias & Lewis, 2004, p. 44). Due to the Internet’s capability to host interactive features and rich media, the authors argue that prescription medication Web sites may meet the Food and Drug Administration’s criteria for pharmaceutical advertising more easily than traditional media (Macias & Lewis, 2004, p. 44). Interactive content on a prescription medication Web site may include quizzes for the viewer of the advertisement, live chat or instant message, message boards, or multimedia such as audio and videos. Macias and Lewis (2004) cited the use of e-mail updates,

newsletters, glossaries, frequently-asked questions, and site maps within their content analysis of prescription medication Web sites, but also reported a variety of unclassifiable interactive elements such as pollen forecasts and flu reports (p. 51). The researchers had predicted the importance of this category early in their report, since they anticipated they would encounter many items that did not fit well into the existing categories for this variable (Macias & Lewis, 2004, p. 48).

RQ1. What percentage of the prescription medication Web sites included in the study uses each of the following interactive features: quizzes, live chat, message boards, videos, audio, text-size adjustments, animated graphics, e-mail updates/newsletters, frequently-asked questions, glossaries, site maps, or other?

## **2.4 Framing through Textual Cues**

The appeals, strategies, and visual and textual cues of this type of advertising present challenges best addressed by framing theory, which originated within motivational psychology. Framing theory examines the techniques advertisers use to construct messages, the qualities and effectiveness of “approach” versus “avoidance” frames, and the effects of framed messages on an audience (Wedell, 1997, as cited in Tsai 2007, p. 364). Entman (1993), the first mass communication researcher to apply framing to the media, links frames to the potential power of the text’s ideas on the audience (p. 51). Due to framing’s capacity to strongly influence the audience, he encourages scholars to develop a more comprehensive understanding of the paradigm in order to contribute to the foundation of mass communication research (Entman, 1993, p. 51).

Entman (1993) maintains that frames seek to “diagnose, evaluate, and prescribe” (p. 52). Frames are typically difficult to detect due to their subtlety and cannot be immediately classified as “positive” or “negative” without accounting for the many contributing factors within the frame’s context (Entman, 1993, p. 52). In addition, Vasterman (2005) explains that authors can subconsciously transmit frames: “Selective perception prevails; news that seems to confirm the chosen frame will be reported, while other facts and opinions are neglected...” (p. 514).

Positive (“approach”) frames emphasize the benefits the consumer gains through purchasing the brand, while negative (“avoidance”) frames communicate how the brand can help the consumer avoid pain or psychological losses (Tsai, 2007, p. 364). News frames are present within the text itself, and consumers use their existing schema to interpret these frames and determine whether to subscribe to the news frame (D’Angelo, 2002, p. 875).

While many advertisers use media frames to effectively communicate with the consumer, the type of frame that is most effective for accomplishing the advertisers' goals depends upon the characteristics of the target audience (Tsai, 2007, p. 367; Cox, Cox, & Zimet, 2006, p. 81). Consumers' receptivity to advertising frames depends upon how motivated they are to interpret the message, whether they have the opportunity to do so, and how skillfully they are able to decode the information (MacInnis et al., 1991, as cited in Cox, Cox, & Zimet, 2006, p. 47). Although much of the research on positive versus negative framing is conflicting, studies consistently show that negative framing works best on consumers with "high processing motivation" or who are highly-involved in the decision-making process (Tsai, 2007, p. 366). Within the advertising realm, consumers with high processing motivation have developed solid schema on the arguments of the advertisement (Tsai, 2007, p. 367), and are invested in evaluating the logic of the argument because the issue is personally relevant or they have an acute need to process the information. For instance, college students would be less highly motivated to process the arguments of an advertisement citing their personal risk of Alzheimer's disease than an audience comprised of people over 60 years old.

While framing theory frequently guides the research of mass communication scholars (see D'Angelo, 2002; De Vreese, Peter, & Semetko, 2001; Entman, 1993), considerably less research examines the framing practices of direct-to-consumer advertising in nontraditional media such as the Internet. In addition, the Internet's development and widespread usage seems to parallel the growth of direct-to-consumer advertising over the previous eleven years, and examining the relationship between these forms of communication may uncover trends not yet visible or present within the executions designed for traditional media.

#### **2.4.1 Framing in the Pharmaceutical Industry**

Pharmaceutical marketers recognize the importance of communicating early detection behaviors to consumers, especially with the symptom-free or rapid onset of many potentially life-threatening or chronic diseases. Often, these companies convey the dangers of ignorance to consumers through positive, negative, or combined framing of advertising messages (Cox & Cox, 2001, p. 91). In fact, pharmaceutical companies' frames are often dominant enough to reach national news coverage (Coleman, Hartley, & Kennamer, 2006, p. 548-549). Coleman, Hartley, and Kennamer (2006) analyzed the frames of national newspapers' coverage of prescription drugs and identified eight frames, including "power relationships; benefits; law and policy; health, science, medicine, and



technology; drawbacks; doctor-patient relationship, and cost” (p. 556). By identifying these frames, the researchers outlined the pharmaceutical industry’s role in “framing the debate” over direct-to-consumer advertising (p. 558). While the researchers found that reporters of these newspapers used “drawback” frames most often, they used “benefits” frames nearly as often, indicating their attempt to balance the coverage (Coleman, Hartley, & Kennamer, 2006, p. 555-556). Most of the frames of pharmaceutical industry sources focused on the power relationship with the Food and Drug Administration, yet these sources presented benefits frames almost as frequently (Coleman, Hartley, & Kennamer, 2006, p. 554). When the newspapers cited the Food and Drug Administration as a source, benefits frames were most prevalent (Coleman, Hartley, & Kennamer, 2006, p. 556).

Anderson (2001) compared the frames within the corporate press releases for Celebrex and Vioxx to the subsequent news coverage of Searle and Merck & Co., the respective manufacturers of the medications (p. 452). The first frame Anderson (2001) recorded was “painkiller without side effects” (p. 452), followed by cost frames, and finally by the positioning frame which helped Merck & Co. and Searle position the items within the news coverage as desired (p. 453). Even though over a third of the news stories were coded as “neutral,” Anderson (2001) noted the companies’ relative success in setting the agenda for the coverage, since four times as many stories presented “favorable” rather than “unfavorable” coverage (p. 452). The framing techniques Searle and Merck & Co. employed in their respective press releases helped both companies foster positive consumer attitudes towards the brands and also generated impressive sales (Anderson, 2001, p. 452).

The risks inherent in taking prescription drug medications inspired the research of Cox, Cox, and Zimet (2006), who examined how consumers process the product risk information included in direct-to-consumer advertisements based upon the gain- or loss-framing of the messages (p. 80, 82-83). Cox, Cox, and Zimet (2006) conducted two experiments to test how gain- and loss-framed advertisements affected consumers’ reactions to risk information: the topic of the first experiment was skin cancer, while the topic of the second was Hepatitis-B (p. 83, 86). In both experiments, the authors presented gain- and loss-framed messages for both detection and prevention products to respondents: the advertisements for detection products encouraged consumers to get tested to determine whether they may be affected, while the advertisements for the prevention products explains the benefits of using the product to ward off future negative outcomes (Cox, Cox, & Zimet, 2006, p. 84, 87). Contrary to their hypotheses, Cox, Cox, and Zimet (2006) discovered that loss-framed messages did not encourage consumers’ “risk-seeking behavior” or their intent to use the detection products, and messages with gain frames did not encourage

consumers' "risk avoidance" behavior or their use of the prevention products (p. 88). Instead, the authors report that loss-framed messages elicited reluctance in both sets of respondents to engage in risk-seeking behavior (both immediately and in the long-term). In addition, Cox, Cox, and Zimet (2006) did not observe any difference in respondents' behavioral intentions after exposure to the prevention products and the detection products (p. 88).

Contrastingly, Lauver and Rubin (1990, as cited in Cox & Cox, 2001, p. 91) found no conclusive evidence on the effectiveness of either type of framing, Banks et al. (1995, as cited in Cox & Cox, 2001, p. 91) cite the persuasiveness of loss framing, and Rothman et al. (1993, as cited in Cox & Cox, 2001, p. 92) argue that gain framing is more effective. However, when researchers accounted for the involvement of subjects, the effectiveness of these types of frames became more evident.

Although some media scholars believe positively framed (gain) messages elicit a similar type of response from consumers, other researchers suggest that negatively framed messages encourage cognitive elaboration among respondents, which is both an important factor in message evaluation and may lead to eventual acceptance of the advertising message (Tsai, 2007, p. 365). Rothman and Solvey's 1997 experiment (as cited in Cox & Cox, 2001, p. 93) uncovered the effect of the type of health behavior advocated (disease detection versus prevention) on the persuasiveness of gain versus loss-framed messages. Disease-detection messages were more effective when framed negatively, as opposed to prevention messages, which were more persuasive when framed positively (Cox & Cox, 2001, p. 93). Rothman and Solvey (1997, as cited in Cox & Cox, 2001, p. 93) discussed potential causes for the varying effectiveness of gain and loss frames for the promotion of disease-detection versus prevention behaviors, including respondents' existing associations with the behavior and probable negative perception of detection behaviors. Despite the audience's likely negative associations with the disease-detection behavior, the authors believe reminding consumers that the potential negative outcomes of the illness are much worse than the distress elicited by the disease-detection behavior (Cox & Cox, 2001, p. 93).

However, Tsai (2007) explains that data is conclusive regarding the gain/loss frame and high-involvement topics, such as the risk information on prescription medications (p. 364). Tsai (2007, p. 364) and Maheswaran and Meyers-Levy (1990, as cited in Cox & Cox, 2001, p. 92) discovered that loss-framed messages persuade highly involved respondents more effectively than gain-framed messages. For instance, consumers who believe a medical condition directly applies to them report the loss-framed messages to be more persuasive (Cox & Cox, 2001, p. 92). In these cases, loss frames are more effective than gain frames (Tsai, 2007, p. 366).

- H1. A greater number of the direct-to-consumer Web sites for pharmaceutical medications included in the study will contain more dominant loss (risk) frames than dominant gain (benefit) frames.

To examine the information quality of direct-to-consumer prescription drug Web sites, Macias and Lewis (2004, p. 45) used a scale employed by Bell, Wilkes, and Kravitz (2000, p. 331) to group the medical information. Bell, Kravitz, and Wilkes (2000) conducted a content analysis of 320 direct-to-consumer advertisements for prescription medications from magazines from 1989-1998 (p. 329). While the frequencies of the fifteen conditions are not directly comparable to the present study due to Bell, Kravitz, and Wilkes' (2000) inclusion of multiple advertisements of the same brands (p. 332), understanding which conditions appeared most often within the magazines in their study underscores the importance of direct-to-consumer advertising for that brand during the nine-year time period. The frequencies of each of the medical conditions for Bell, Kravitz, and Wilkes' (2000) study were: allergies (n = 46), obstetric/gynecologic (n = 45), dermatologic (n = 37), cardiovascular (n = 36), HIV/AIDS (n = 33), tobacco addiction (n = 23), urologic (n = 19), musculoskeletal (n = 17), gastrointestinal-nutritional (n = 17), and psychiatric-neurological (n = 17), infectious (non-HIV) (n = 16), diabetes (n = 9), respiratory (n = 3), and cancer (n = 2) (p. 332-334). Bell, Kravitz, and Wilkes (2000) also noted the increase in direct-to-consumer advertising of medications for chronic, potentially dangerous conditions such as diabetes and HIV/AIDS over the nine-year period: 75 percent of the brands (n = 101) within the sample treated these types of conditions (p. 334).

Of the 90 prescription medication Web sites of Macias and Lewis' (2004) study, the most frequently occurring condition was psychiatric/neurological disorders (n = 14) (p. 48). Treatments for this condition included brands such as Aricept, Wellbutrin, and Zoloft (p. 48). The least frequently occurring medical conditions in Macias and Lewis' (2004) study included cancer, diabetes, gastrointestinal conditions, and tobacco addiction (n = 2) (p. 48).

- RQ2. Of the 15 medical conditions the Web sites in this study are classified into, which medical condition uses loss/risk frames most often?

#### **2.4.2 Advertising Appeals**

According to Macias and Lewis (2004), the goal of direct-to-consumer advertising appeals is to convince and motivate the audience to act: to ask their physicians about the brand, discuss treatment options with their friends or family, or seek more information through the outlets provided by the advertiser, such as toll-free numbers and

informational CDs or DVDs (p. 46). Both Macias and Lewis (2004, p. 46-67) and Roth (2003, p. 182) classified the advertising appeals within their respective content analyses as transformational or informational.

The transformational appeals Macias and Lewis (2004) discuss are considered emotional appeals, and typically utilize “warmth, humor, or fear” to convey the advertising message (p. 46). According to the elaboration likelihood model proposed by Petty and Cacioppo (1986), transformational appeals are most conducive to peripheral processing, which does not elicit high elaboration (consideration) from the audience because the arguments are less likely to be evaluated rationally (p. 125, 128). The other appeal Macias and Lewis (2004) cite within direct-to-consumer advertisements is the informational appeal, which includes “comparative advertising, open versus close-ended comparisons, and one versus two-sided comparisons” (p. 46). In contrast to emotional or transformational appeals, consumers evaluate informational appeals through central processing methods, meaning that they focus on and evaluate the logic of the argument. Therefore, in the case of direct-to-consumer advertisements, transformational appeals may negatively affect consumers’ ability to process the arguments, which could be detrimental to their information gathering for such a high involvement decision as choosing to take a prescription medication. Macias and Lewis (2004) explain that informational appeals include “...comparative advertising, open versus close-ended comparisons and one versus two-sided comparisons” (p. 46). Woloshin et al. (2001, as cited in Macias & Lewis, 2004, p. 45-46) have uncovered considerably more instances of emotional appeals and ambiguous language in direct-to-consumer print advertisements than scientific data (67 percent, 87 percent, and 50 percent, respectively).

In Roth’s (2003) content analysis of the advertising appeals within 143 different magazine advertisements for prescription medications, he hypothesized that the direct-to-consumer magazine advertisements in his study would feature more informational appeals than transformational appeals. Roth’s (2003) data confirmed his assumption: 81 percent of his sample was coded as “Informational only,” while 19 percent was coded as “Transformational only” (p. 186). Another major element of Roth’s (2003) study concerned the effectiveness of the advertising messages with the transformational or informational appeals (p. 182). However, he discovered that the transformational strategy, which communicates happiness and social approval, was more effective than the informational strategy in terms of advertising awareness (p. 187). The informational strategy alone, which contained disease and symptom information, was negatively correlated with advertising awareness (p. 186).

Despite the negative association with advertising awareness Roth (2003, p. 186) discovered in his study of print advertisements, the data from Macias and Lewis’ (2004, p. 53) content analysis of prescription medication

Web sites indicate that the informational advertising appeal was used more frequently than the transformational appeal. Consequently, Macias and Lewis (2004, p. 53) also discovered that the risk information on the Web sites was more extensive than in Bell, Wilkes, and Kravitz's (2000) content analysis on print advertisements.

- H2. A greater number of the direct-to-consumer Web sites for pharmaceutical medications included in the study will contain dominant informational advertising appeals, rather than dominant transformational advertising appeals.

The researcher adopted only the advertising appeals portion of Roth's (2003) study because the other variables did not correspond to the present study. For example, while advertising awareness is a major variable in Roth's (2003, p. 183) research, the variable was not included in the present study. Secondly, Roth's (2003) sample consisted of magazine advertisements (p. 183), and much more data on advertising awareness exists on print campaigns than on Internet direct-to-consumer advertising. Finally, even if the researcher had chosen to replicate Roth's (2003) study entirely, his use of secondary data instead of original research to determine advertising awareness (p. 183) decreased the credibility of his study. In addition, the secondary data Roth (2003) consulted to determine the effects of direct-to-consumer advertising on awareness consisted of "field studies" each year from 1996 to December 1999 (p. 183). While compiling longitudinal data improves the reliability of the data, Roth's study was published in 2003, when even the newest data set was four years old (p. 183).

- RQ3. Of the 15 medical conditions the Web sites in this study are classified into, which medical condition uses informational advertising appeals most often?

### **2.4.3 Instrumental Motivational Cues**

Advertisers employ various instrumental motivational cues within the text of the campaigns to encourage the audience to take action. Young and Cline (2005), who assessed the texts of 225 magazine advertisements for prescription medications, define instrumental motivational cues as incentives such as the informational rewards, medical rewards, and instrumental punishments that help communicate the drug's benefits to consumers and encourage drug inquiry (p. 355). Macias and Lewis (2004) believe Bell, Kravitz, and Wilkes (2000, as cited in Macias & Lewis, 2004, p. 45) contributed significantly to the study of direct-to-consumer advertising by identifying these coupons and other incentives as "inducements," and categorizing the persuasive appeals the pharmaceutical advertisers in terms of "...effectiveness, social-psychological enhancements, ease of use, and safety" (p. 45).

Macias and Lewis (2004) categorized reminder cards, free samples, free trials, and vouchers or coupons as inducements, and discovered through their content analysis of 90 direct-to-consumer Web sites that over half included financial motivators such as “money-saving offers, books and monographs, reimbursements, and gift certificates for completing patient feedback surveys” (p. 49). Interestingly, only 2.7 percent of the Web sites in Macias and Lewis’ (2004) study offered programs designed to support consumers in their treatment; examples include the e-mail-based Zyban Advantage program and weight management plans (p. 49). In response to the lack of patient support programs, the authors argue that a primary purpose of the Web sites should be to assist and support consumers in their decisions regarding treatment options through offering detailed information and forums for consumers’ queries (Macias & Lewis, 2004, p. 49).

Macias and Lewis (2004, p. 43) partially developed their research design from Bell, Kravitz, and Wilkes’ (2000, p. 329) study, although these teams of researchers utilized different types of samples (direct-to-consumer Web sites versus print advertisements). Bell, Kravitz, and Wilkes (2000) content-analyzed 101 unique print advertisements for prescription medication brands published in magazines from 1989-1998; however, much of the data presented is for the total of 320 advertisements within the study (p. 333). Within Bell, Kravitz, and Wilkes’ (2000) study, the print advertisements’ usage of inducements was varied: less than 9 percent of the brands advertised offered rebates, 4 percent offered free samples, and 3 percent of the brands presented money-back guarantees (p. 333). According to the authors, 39 percent volunteered additional information, including printed materials or video/audio (p. 333). Overall, 17 percent of the brands mentioned one or more incentives within the advertisements (Bell, Kravitz, & Wilkes, 2000, p. 333).

**Informational Rewards.** Informational rewards are textual cues which motivate patients to seek information through toll-free phone numbers (Young & Cline, 2005, p. 355), subscribing to e-mails or newsletters, joining patient support groups, and sending for informational DVDs or CDs, brochures, or binders (Macias & Lewis, 2004, p. 49). Other informational rewards include links to the brands’ or companies’ press releases, news coverage, and third-party editorials or Web sites sponsoring the products (Young & Cline, 2005, p. 355). Young and Cline (2005) reported that almost all (97 percent) of the print advertisements included in their study offered one type of informational reward, and many offered as many as three types (p. 357-358). Macias and Lewis (2004) discovered that almost half of the sites provided supplemental information upon patients’ request (p. 49).

Bell, Kravitz, and Wilkes (2000) reported similar findings (p. 333). When grouped by condition, nearly half of the total advertisements for allergy medications provided information offers, while 46 percent offered monetary inducements (Bell, Kravitz, & Wilkes, 2000, p. 333). All of the cancer medications (100 percent) within their study volunteered additional information to users, followed by over half (52 percent) of tobacco addiction treatments, 48 percent of allergy treatments, 46 percent of dermatologic medications, and 44 percent of cardiovascular medicines (p. 333). Forty-two percent of urologic medications, in addition to 40 percent of obstetric-gynecologic drugs, 33 percent of diabetes and respiratory medications, and 18 percent of musculoskeletal and psychiatric-neurological treatments, included “additional information” offers in the advertisements (Bell, Kravitz, & Wilkes, 2000, p. 333). Thirteen percent of infectious (non-HIV) medicines, as well as 12 percent of gastrointestinal-nutritional drugs and 6 percent of HIV/AIDS medications, also offered additional information (p. 333).

While thirty percent of tobacco addiction medications and 5 percent of urologic drugs provided patient support, none of the other conditions offered this service (Bell, Kravitz, & Wilkes, 2000, p. 333). Over two-thirds of respiratory medicines offered monetary inducements, followed by 46 percent of allergy medications, 41 percent of dermatologic drugs, 16 percent of obstetric-gynecologic medicines, and 13 percent of infectious (non-HIV) treatments (p. 333). Smaller percentages of the other conditions offered financial inducements, including 9 percent of tobacco addiction treatments, 6 percent of cardiovascular, musculoskeletal, and psychiatric-neurological medications, and 5 percent of urologic medicines (Bell, Kravitz, & Wilkes, 2000, p. 333).

Bell, Wilkes, and Kravitz (2000) used a similar sample of 101 unique direct-to-consumer print advertisements (320 total executions) to explore the educational value of direct-to-consumer advertisements of prescription medications (p. 1092). The researchers examined the presence of five types of medical condition information, including the identification of the particular condition, misconceptions, precursors, prevalence, and symptoms; in addition, Bell, Wilkes, and Kravitz (2000) identified treatment information present within the advertisements, including competing treatments, mechanisms of action, success rates, supportive behaviors, time required for the medications’ onset, and the duration of treatment (p. 1094). The researchers concluded that while the direct-to-consumer print advertisements were informative overall, most of the information was “superficial” (p. 1096) and could be improved dramatically (p. 1092).

Of Bell, Wilkes, and Kravitz’ (2000) condition information codes, 95 percent of the 320 total print advertisements within the sample (101 unique advertisements) named the condition, and 60 percent of

advertisements included symptom information (p. 1095). However, less than 30 percent mentioned precursors to the condition, roughly 12 percent mentioned the condition's prevalence, and only 9 percent provided misconceptions (p. 1095). Regarding the treatment information categories of Bell, Wilkes, and Kravitz' (2000) study, 36 percent explained how the medications worked ("mechanism of action"), less than 30 percent mentioned competing treatments, and 24 percent cited supportive behaviors (p. 1095). Approximately 20 percent described the medications' onset of action, 12 percent mentioned the treatment duration, and only 9 percent cited the medications' success rate (Bell, Wilkes, & Kravitz, 2000, p. 1095). In addition, coders identified relatively few charts and graphs (2 percent of all advertisements) (p. 1096). This study emphasizes the importance of more comprehensive risk information within direct-to-consumer advertisements, in addition to explanations of the effectiveness of the medications and how they work within patients' systems (p. 1096).

**Medical Rewards.** Following inducements, Young and Cline's (2005) second classification within the Instrumental Motivational Cues category is medical rewards, which includes general or specific effectiveness claims as well as claims of the products' ability to extend patients' lives or improve particular "clinical indicators" (p. 355). The researchers also placed claims of negative rewards and comparative claims within this category (Young & Cline, 2005, p. 355). Most commonly, Young and Cline (2005) identified medical rewards in their content analysis (p. 348).

The medical rewards Bell, Kravitz, and Wilkes (2000) uncovered in their content analysis mainly focused on the brands' effectiveness, innovativeness, convenience, and symptom control (p. 329). Effectiveness claims were identified in 57 percent of the 320 non-unique advertisements within the study, while symptom control assertions and innovative claims totaled 41 percent (Bell, Kravitz, & Wilkes, 2000, p. 333). Claims of "psychological enhancement" were identified in 11 percent of the advertisements. Claims of "reduced mortality" due to the medication were present in 7 percent of the total sample (n = 320), while "lifestyle enhancement" assertions were identified in 6 percent (p. 333).

**Instrumental Punishments.** Finally, instrumental punishments include claims of negative outcomes and disclaimers (Young & Cline, 2005, p. 356-357). The researchers identified at least one of these textual cues in half of their sample of direct-to-consumer print advertisements. Most notably, disclaimers were not present in urologic



treatment advertisements, yet identified in nearly 80 percent of both cardiovascular and diabetes advertisements (Young & Cline, 2005, p. 357).

RQ4. What percentage of direct-to-consumer Web sites in the study uses each type of instrumental motivational cues: inducements, informational rewards, medical rewards, or instrumental punishments?

RQ4a. Of the 15 medical conditions that the prescription medication Web sites are classified into, which condition uses each of the following most often: inducements, informational rewards, medical rewards, or instrumental punishments?

#### **2.4.4 Identity Motivational Cues**

According to Young and Cline (2005), identity motivational cues include claims of enabling or improving patients' lifestyles, overall positive feelings, outward appearance, strength/power, control over the condition, or intelligence (p. 355-356). The authors also classified claims of the condition's universality and "personal appeals" from the actor in the advertisement within this category. The results of Young and Cline's (2005) content analysis of 225 direct-to-consumer print advertisements indicated that advertisers utilized at least one identity motivational cue relative to the products (p. 361). The cues advertisers most commonly used to entice consumers include personal control ("freedom") and the universality of the condition, cited within over a quarter of the advertisements (Young & Cline, 2005, p. 348, 361). Intelligence and gaining power were identified least often within the print advertisements (p. 361).

RQ5. What percentage of direct-to-consumer Web sites in the study uses each type of identity motivational cues: claims that the product will enable/improve patients' lifestyles, improve patients' overall positive feelings, improve patients' outward appearance, improve patients' strength/power, improve patients' control over the condition, improve patients' intelligence, claims of the condition's universality, and personal appeals from the main actor in the advertisement?

RQ5a. Of the 15 medical conditions that the prescription medication Web sites are classified into, which condition uses each of the following most often: claims of enabling/improving the patient's lifestyle, overall positive feelings, outward appearance, strength/power, control over the condition, and intelligence, claims of the condition's universality, or personal appeals from the actors in the advertisements?

## 2.5 Framing through Visual Cues

Like the textual cues of direct-to-consumer advertisements, the visual cues of the campaigns can convey a major part of the advertising message. Cline and Young (2004, p. 138) contend that the visual cues of direct-to-consumer advertisements are a crucial variable of these campaigns because while the Food and Drug Administration requires that prescription drug advertisements must either include risk information or directions to sources for additional information (Division of Drug Marketing, Advertising, and Communication, 1999, ¶ 3), the agency does not regulate the visual components of these campaigns (Cline & Young, 2004, p. 132). The prevalence of visual cues in mass communication inspired Cline and Young (2004) to analyze the imagery in 225 print direct-to-consumer magazine advertisements in order to explore the potential implications on consumers (p. 136, 140). Visual cues can encourage peripheral processing (O’Keefe, 1990, as cited in Cline & Young, 2004, p. 138), which can divert the audience’s attention from the informational content within the advertisement. Some scholars argue that medications possess a “symbolic value” because of the various connotations they hold for consumers (Karp, 1996; Montagne, 1996; as cited in Cline and Young, 2004, p. 137); for instance, the image of a healthy person in an advertisement for a medication to treat a chronic, debilitating disease can give suffering consumers the impression that the medicine will return their previous healthy identity to them (Cline & Young, 2004, p. 137). Cline and Young (2004) found that healthy models were the most common images in print direct-to-consumer advertisements, and healthiness and physical activity are visual cues associated with identity rewards, which the ads frequently depicted (p. 147).

On average, Cline and Young (2004) report 1.8 people in each direct-to-consumer print advertisement for prescription drugs, although some ads depicted no people and others depicted as many as nine. In addition, in advertisements with two people, the actors were typically male and female, while single-person advertisements featured females most often (p. 144). Bell, Kravitz, and Wilkes’ (2000) study of 320 print direct-to-consumer advertisements for prescription medications offered similar findings: 72 percent of the brands targeted both men and women, yet more medications targeted women only (18 percent) than men only (10 percent) (p. 333).

The visual cues Cline and Young (2004, p. 142) identified within their sample 225 unique direct-to-consumer advertisements of 18 mainstream magazines are described in Table 1.

**Table 1. Visual Cues of 225 Print Direct-to-Consumer Advertisements (Cline & Young, 2004, p. 142).**

<b>Visual Element</b>	<b>Presence in Percentage of Print Advertisements*</b>
Humans	82.65 %*
Objects	32.65%
Text/Words	26%
Body Parts	20.8%
Products	11.35%
Animals	9.15%

\*Average of study's two coders.

RQ6. What percentage of the prescription medication Web sites included in the study uses each of the following visual cues: people, cartoons, animals, trade characters, body parts, products, or other?

RQ6a. Of the 15 medical conditions that the Web sites in this study are classified into, which percentage uses each of the following visual cues: people, cartoons, animals, trade characters, body parts, products, or other?

Just as within the commercial advertising realm, consumers' socioeconomic status, gender, and race influence the effectiveness of direct-to-consumer advertising messages (Mastin, Andsager, Choi, & Lee, 2007, p. 49). Cline and Young (2004), who applied social identity theory to the imagery, determined that the actors typically did not fit the demographics of the audiences prone to the particular disease because most advertisements featured only Caucasians (p. 153-154). Mastin, Andsager, Choi, and Lee (2007, p. 49) also used social identity theory to content-analyze a decade of direct-to-consumer magazine advertisements, and the results mirrored those of Cline and Young's (2004, p. 153-154) study: the majority of models in the direct-to-consumer ads were Caucasian.

Pharmaceutical companies cannot achieve their advertising and marketing goals without recognizing the demographic and psychographic characteristics of the intended audience. Since the groups absent in the majority of these direct-to-consumer advertisements—such as African-Americans and Asians—typically report poorer health than whites, Cline and Young (2004, p. 154) argue that pharmaceutical manufacturers may not only be alienating key demographics, but also may perpetuate the health information gap between these groups.

Cline and Young (2004) also examined the age of the actors within the direct-to-consumer magazine advertisements, and identified adult actors and actors from multiple generations most often (p. 147). The researchers also noted a comparatively small percentage of older actors and children (p. 147).

RQ7. Of the Web sites for prescription medications included in this study, what are the gender, ethnicity, and age of the main actor within the advertisement?

### **2.5.1 Identity Rewards and Relational Rewards**

Cline and Young (2004) also coded these magazine advertisements based upon the relational rewards displayed in each of the advertisements, including activity level, health, and friendliness (p. 147). Physical activity surfaced most often, and social activity was the second most frequent activity depicted (Cline & Young, 2004, p. 147). Most commonly, healthy-appearing actors were used, and over two-thirds of the sample portrayed a smiling person (Cline & Young, 2004, p. 147).

RQ7a. In what percentage of the direct-to-consumer Web sites in the study does the main actor appear healthy, active, or friendly?

Cline and Young (2004) examined the relational rewards of the magazine advertisements within their sample, such as social, family, romance, and work settings (p. 149). Social contexts were the most common type of relational reward (Cline & Young, 2004, p. 149). Further, Cline and Young (2004) discovered that many of these advertisements featured a person alone, a setting they considered a “nonrelational context” (p. 149).

RQ7b. In what percentage of the direct-to-consumer Web sites in the study does the main actor appear in each of the following settings: family, romance, work, social, or recreational, or other?

## **CHAPTER 3. METHODOLOGY**

The researcher drew from the methodologies of direct-to-consumer advertising researchers such as Cline and Young (2004, p. 139-142), who analyzed the visual cues in direct-to-consumer advertisements, and Macias and Lewis (2004, p. 43), who conducted a content analysis of the incentives and the quality of the information found on 90 prescription drug Web sites. In turn, Macias and Lewis (2004, p. 45-47) built their coding practices upon the methodologies of Roth (1996, p. 183) and Bell, Kravitz, and Wilkes (2000, p. 331), two studies that also influence this study. The instrument for the present study, depicted in Appendix A, was based upon the visual and textual cues and interactive elements used by these researchers.

### **3.1 Operationalization**

Although Macias and Lewis' (2004) study provided the foundation for the present study (p. 47-49), the researcher enriched the study by incorporating additional elements of direct-to-consumer prescription medication Web sites which illustrated how pharmaceutical advertisers are using the Internet to communicate with consumers. In addition, coders participated in a pilot test to examine the integrity of the instrument; the test involved coding 10 Web sites for prescription medications that were not among the 100 top-selling products included in the study. Operational definitions for each of the variables included within this study can be found in Appendix B.

### **3.2 Coding Practices**

To ensure the validity of the sample and the fairness of the study, the researcher collected the Web sites for both the pilot study (10 total Web sites) and the main study (100 total Web sites) at approximately the same time. The Web sites were identified and then accessed using the Google search engine, since merely typing the brand name as the Web address did not necessarily lead to the correct Web site. Once each Web site fully loaded, the researcher used the command "Control + Print Screen" to save the entire Web site as viewed on the monitor. Next, the researcher pasted the Web site onto a new document in Adobe Photoshop CS3 using the command "Control + V" and saved each document in JPEG format for quick access. If the site continued below the images and text visible on the screen upon the site's initial loading, the researcher scrolled as far down as possible while ensuring that the information was continuous from the text and images visible upon the first viewing. In addition, the researcher collected multiple images for sites using Flash technology or videos that played immediately upon the

sites' loading to ensure that all possible images were visible within the JPEGs. All of the images for each of the sites included within the pilot study and the main study were then saved onto a one-gigabyte USB disk for the two coders. This data collection technique enabled the researcher to efficiently collect the data for multiple Web sites, so relatively little time elapsed between collecting the first and the last sites within the samples for the pilot study and the main study.

However, several Web sites on IMS Health's list of the top-selling prescription medications in 2006 were generic drugs, now available without a prescription, did not have a stand-alone Web site, or did not have a Web site at all. For example, arithromycin and sertaline hydrochloride are generic medications, and Zyrtec is now available over-the-counter (McNeil-PPC, 2008b, ¶ 1). Other medications on IMS Health's list either did not have a stand-alone Web site or did not have a Web site at all, including Camptosar, CellCept, Clopidogrel, Forteo, Hyzaar, Lotrel, Mobic, Omnicef, Oxycontin, Pravachol, Previtar, Simvastin, Tryvadia, Zofran, and Zosyn. The preceding Web sites were eliminated from the study because they did not represent the population accurately.

To ensure the study's sample reached 100 medications, the researcher consulted the medications on IMS Health's list of the top-selling medications in 2006 that were ranked between numbers 101-110. The medications selected to compensate for the unavailable drugs on the list included Arimidex, Asacol, Combivir, Kaletra, Premarin, Rebif, Skelaxin, Strattera, Synthroid, Xopenex, Yasmin 28, Zelnorm, and Zyvox.

## **CHAPTER 4. RESULTS**

Prior to collecting the data for the main study of 100 direct-to-consumer Web sites for prescription medications, the researcher conducted a pilot test of 10 Web sites outside of the primary study's sample, equivalent to 10 percent of the primary study's sample, to ensure coders' effectiveness at identifying the listed items within the instrument and test the integrity of the instrument.

### **4.1 Pilot Test**

The researcher selected the sample for the pilot study by choosing every tenth prescription medication from IMS Health's list of the top-selling drugs from January through December 2006, beginning with Number 110 (Lamb, 2007, p. 36). The researcher began at the 110<sup>th</sup>-ranked prescription medication instead of the 101<sup>st</sup>-ranked medication to leave a buffer in case some of the Web sites for the medications among the top 100 were unavailable or nonexistent. Among every tenth Web site ranked between 110 and 200, several medications chosen for the sample either did not have a working Web site or the site could not be located on the Internet. In those cases, the researcher chose the medication immediately following the original drug chosen for the sample. Once the researcher reached the end of the list of the 200 medications, she continued counting every tenth medication by returning to the 110<sup>th</sup>-ranked drug and eliminating any choices that had already been chosen or were marked as not having an available Web site. Based on these criteria, the pilot study included the following medications: Duoneb, Genotropin, Gamunex, Ortho-Tri-Cyclen Lo 28, Reyataz, Rhinocort Aqua, Sandostatin LAR, Trizivir, Xalatan, and Xeloda. Intercoder reliability for the pilot test ranged from 80 to 100 percent, and average 93.75 percent for the total of 64 variables (see Appendix B for the intercoder reliability scores for each variable within the pilot study).

### **4.2 Modifications to Instrument**

While intercoder reliability for the pilot study was quite high, the initial study helped illustrate areas that required refinement within the instrument. Following the pilot study, the researcher determined that other categories had to be added to certain sections of the instrument in order to reflect the composition of the Web sites more accurately. First, within the Condition section of the instrument, the researcher recognized the need for an additional category, "Two or More Unrelated Ailments," since many medications have been approved by the Food and Drug Administration to treat unrelated illnesses. For example, the medication Humira treats juvenile idiopathic arthritis,

moderate-to-severe chronic plaque psoriasis, and Crohn's disease (Abbott Laboratories, 2008e). Treatments for two or more related ailments within an existing condition category were classified within that single condition. For instance, the medication Lamictal treats the related conditions of bipolar disorder and epilepsy, which both represent the psychiatric-neurological category (GlaxoSmithKline, 2008h), and so the coders categorized Lamictal as treating that condition instead of the category for "Two or More Unrelated Ailments." The category "More Than Ten Actors" was added to the Number of Actors section after the pilot study due to the incidence of Web sites featuring large numbers of human actors. Further, within the Identity Rewards section, an "Indeterminate/ Multiple Actors who are Smiling and Not Smiling" code was added to the Friendliness category because of the incidence of body parts shown on these Web sites as well as the sites' tendency to depict multiple actors who are smiling and not smiling.

Following the pilot study, the researcher also added two more categories for the Age section of the instrument detailing the appearance of the actors: "Indeterminate" and "Multiple Actors of Multiple Ages." The "Indeterminate" code was used for Web sites showing only actors' body parts, providing that the subject was human and not a cartoon, trade character, animal, product, or other non-human entity. Coders marked the "Multiple actors of Multiple Ages" code if no dominant actor was shown on the Web site, such as for sites featuring "personal stories" about several actors' experience with the condition and prescription medication. If multiple actors were featured on the Web site, yet all were classified within the same age and gender categories, the coders were instructed to record that age and gender within the Appearance of Main Actor section.

Within the Gender category, a code was added to accommodate those Web sites that featured only human actors' body parts: "Unable to Determine from Image." The pilot study also uncovered the necessity of a "Male and female/Multiple Actors of Both Genders" category because of the incidence of both genders shown together without one appearing more dominant. Finally, for the Informational Rewards section, the pilot study exhibited very few Web sites which featured specific contact information such as telephone numbers, e-mail addresses, and/or mailing addresses on the home page of the Web site, yet many of the sites offered a "Contact Us" link. The "Contact Us" category was added to account for this occurrence.

After the pilot study was complete, each of the two independent coders was alternately assigned half of the 100 Web sites (50 sites each), in order to record the frames, visual and textual cues, message characteristics, and interactive elements, and motivational cues of the home pages of the brands in the study.



### **4.3 Study Descriptives**

The identification variables included the manufacturer of the prescription medication, the condition, and the brand, and the frequencies of these items are described as follows.

#### **4.3.1 Manufacturer**

The primary study sample contained brands manufactured by 46 companies functioning independently or in collaboration. GlaxoSmithKline manufactured and marketed nine percent ( $n = 9$ ) of the brands within the sample of the 100 top-selling prescription medications. Pfizer earned the next-highest number of brands within the sample (8 percent;  $n = 8$ ), followed by AstraZeneca (6 percent;  $n = 6$ ) and Novartis Pharmaceuticals Corporation/ Sanofi-Aventis U.S. (5 percent;  $n = 5$ ). Amgen, Eli Lilly & Co., and Merck & Co. each marketed four percent ( $n = 4$ ) of the brands in the sample, and Ortho-McNeil-Janssen Pharmaceuticals, Inc. and Wyeth Pharmaceuticals Inc. marketed three percent ( $n = 3$ ), respectively. Bayer Health Care Pharmaceuticals, Cephalon Inc., Forest Pharmaceuticals, Inc., Genentech, Inc., King Pharmaceuticals, Inc., Merck & Co./Schering-Plough, and Serpracor Inc. each manufactured two brands (2 percent) within the sample. Finally, the following corporations marketed one brand each (1 percent of the total sample): Amgen/Wyeth, Astellas Pharma U.S. Inc., Biogen Idec, Boehringer Ingelheim, Boehringer Ingelheim/Astellas, Bristol-Myers Squibb, Bristol-Myers Squibb/Merck & Co./IM Clone Systems, Inc., Bristol-Myers Squibb/Otsuka America Pharmaceutical, Inc., Bristol-Myers Squibb/Sanofi-Aventis, Centocor, Inc., Eli Lilly & Co./Abbott Laboratories, Eisai/Ortho-McNeil, Eisai/Pfizer, EMD Serono, Inc., Endo Pharmaceuticals, Genentech/Biogen Idec, McNeil PPC, MedImmune, Ortho-Biotech Products, L.P., Pfizer/Boehringer Ingelheim, Proctor & Gamble Pharmaceuticals, Proctor & Gamble Pharmaceuticals/Sanofi-Aventis, Schering-Plough, Shire U.S. Inc., Takeda Pharmaceuticals, TAP Pharmaceutical Products Inc., Teva Pharmaceutical Industries Ltd., and UCB.

#### **4.3.2 Brand**

The 100 brands of prescription medications and the corresponding manufacturers included within the sample of the primary study are listed in Appendix D.

### 4.3.3 Condition

The most represented condition was for medications treating psychiatric-neurological ailments, which accounted for 22 percent ( $n = 22$ ) of the total sample ( $n = 100$ ). Closely following psychiatric-neurological treatments were medications for musculoskeletal ailments (15 percent;  $n = 15$ ), cardiovascular ailments (13 percent;  $n = 13$ ); cancer (10 percent;  $n = 10$ ), and respiratory ailments (8 percent;  $n = 8$ ). Other conditions listed included urologic and obstetric-gynecologic ailments (5 percent;  $n = 5$ ), gastrointestinal-nutritional, infectious (non-HIV), and more than one unrelated ailment (4 percent;  $n = 4$ ), diabetes and HIV/AIDS (3 percent;  $n = 3$ ), and ailments that were not disclosed within the advertisement (2 percent;  $n = 2$ ). Dermatologic conditions and allergies were the least represented conditions ( $n = 1$ ), each comprising one percent of the total sample.

### 4.4 Hypothesis Testing

In order to address the two hypotheses of the present study, the researcher performed the following statistical tests: frequencies, crosstabulations, chi-square, and Pearson's Product Moment Correlation Coefficient, in addition to computing the measures of central tendency (mean, median, and mode).

- H1. A greater number of the direct-to-consumer Web sites for pharmaceutical medications included in the study will contain dominant loss (risk) frames than dominant gain (benefit) frames.

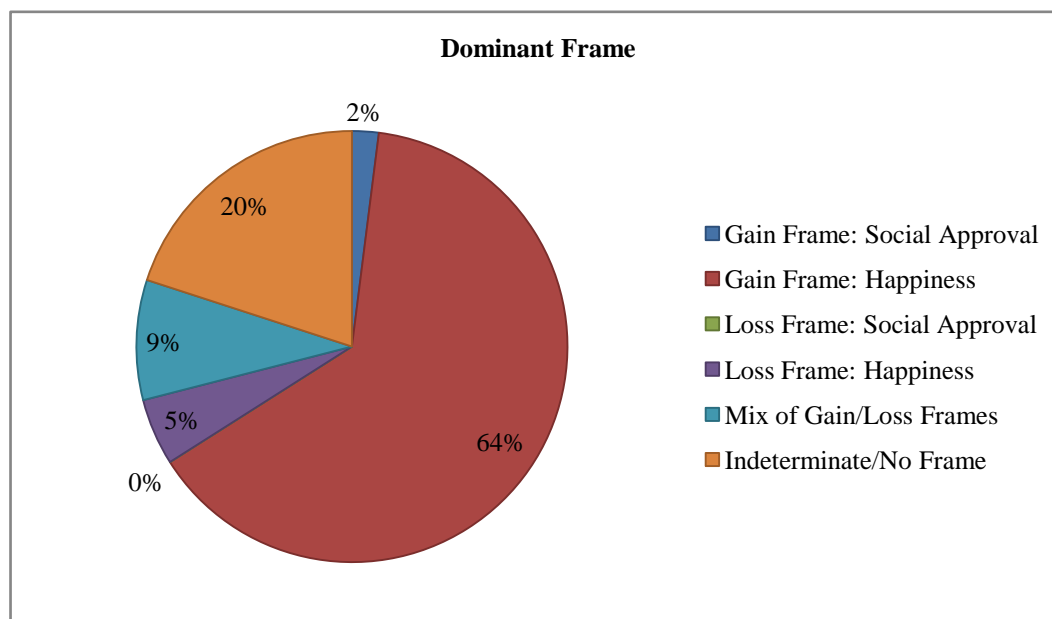
Coders categorized the dominant frames of each of the study's 100 Web sites for prescription medications into the following classifications: "Gain Frame: Social Approval," "Gain Frame: Happiness," "Loss Frame: Happiness," "Mix of Gain/Loss Frames," and "Indeterminate/No Frame." The coded data does not support H1, which posited that loss frames would be more prevalent within direct-to-consumer advertising on prescription medication Web sites. Gain frames were by far the most frequently used dominant frames of the sample; in fact, the combined frequencies of "Gain Frame: Social Approval" and "Gain Frame: Happiness" amount to 66 percent of the coded Web sites ( $n = 66$ ). When combined, the two types of loss frames ("Loss frame: Social Approval" and "Loss Frame: Happiness") are the dominant frames in only five percent ( $n = 5$ ) of the total sample of 100 Web sites.

Individually, the classifications varied considerably. Sixty-four percent of the sample ( $n = 64$ ) utilized the dominant frame of "Gain Frame: Happiness." "Gain Frame: Social Approval" was used in only two percent ( $n = 2$ )

of the coded material. The “Indeterminate/No Frame” category was used second-most often (20 percent;  $n = 20$ ). Loss frames were not used often; in fact, “Loss Frame: Social Approval” was not recorded for any of the Web sites.

The researcher performed a chi-square test on the frequencies of the dominant frame categories recorded for the Web sites within the present study. Since five categories of frames existed and the sample consisted of 100 Web sites, the expected  $N$  of each category was 20. The differences between the expected  $N$  and the actual frequencies of the five categories were so great that the chi-square test revealed that  $X^2 = 130.3$ ;  $df = 4$ ;  $p = .000$ . Therefore, just like the results of the dominant advertising appeals of these prescription medication Web sites, the distribution of the sample’s dominant frames could not be attributed to chance.

**Figure 1. Frequency of Gain/Loss Frames Within Sample.**



Note:  $N = 100$

H2. A greater number of the direct-to-consumer Web sites for pharmaceutical medications included in the study will contain dominant informational advertising appeals, rather than dominant transformational advertising appeals.

The data collected from the sample of advertisements supported H2. Of the dominant advertising appeals recorded within the 100 direct-to-consumer Web sites for prescription medications, half ( $n = 50$ ) used a dominant informational appeal. Thirty-seven percent ( $n = 37$ ) adopted a mix of informational and transformational appeals,

while 11 percent ( $n = 11$ ) utilized the transformational appeal. The dominant advertising appeals in two percent ( $n = 2$ ) of the advertisements were indeterminate or absent.

In order to determine whether the distribution of the dominant advertising appeal for this sample of 100 direct-to-consumer Web sites could be attributed to chance, the researcher computed a chi-square test for the types of dominant advertising appeals recorded (“Informational,” “Transformational,” “Mixed,” and “Indeterminate/No Appeal”). Results of the chi-square test for the dominant advertising appeal were:  $X^2 = 59.76$ ;  $df = 3$ ;  $p = .000$ , and indicate that the significantly greater usage of the dominant informational advertising appeal by the Web sites within the study could not be attributed to chance.

#### **4.5 Research Questions**

To answer the research questions within the study, the researcher applied frequency tests and crosstabulations, tested for chi-square as well as Pearson’s  $r$ , and computed measures of central tendency such as the mean, median, and mode. In addition, the researcher created multiple indices to illustrate the single and multiple uses of variables within the major categories of the study, including interactivity, inducements, informational rewards, medical rewards, instrumental punishments, and identity motivational cues.

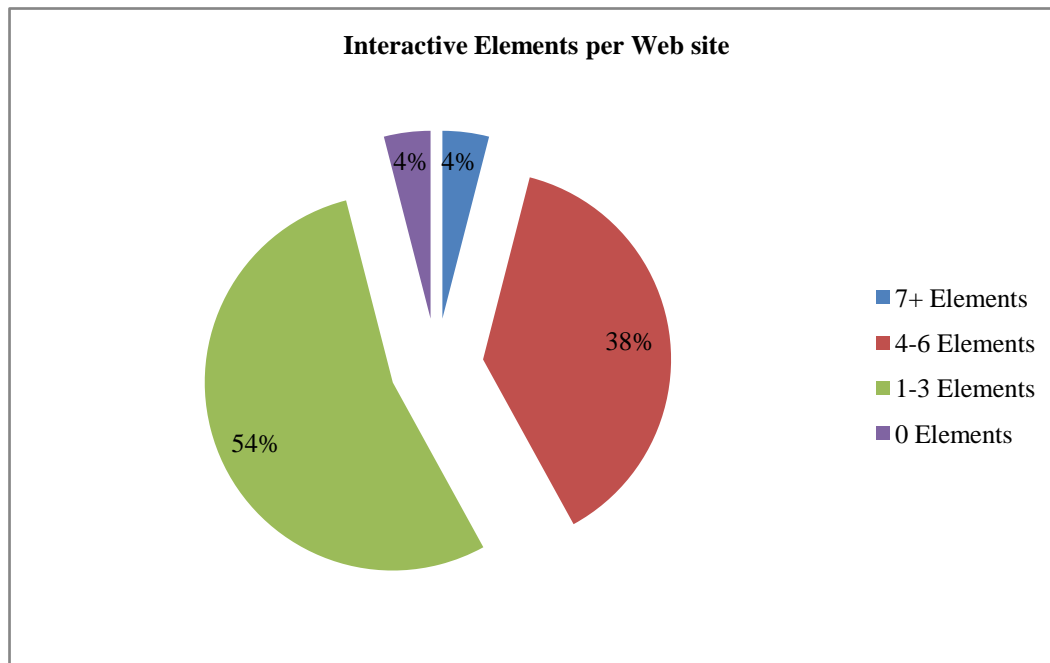
RQ1. What percentage of the prescription medication Web sites included in the study uses each of the following interactive features: quizzes, live chat, message boards, videos, audio, text-size adjustments, animated graphics, e-mail updates/newsletters, frequently-asked questions, glossaries, site maps, or other?

Altogether, 70 percent ( $n = 70$ ) of the Web sites for the prescription medications coded for the present study used some type of interactive feature: quizzes, live chat, message board, videos, audio, text-size adjustments, animated graphics, e-mail updates/newsletters, frequently-asked questions, glossaries, site maps, or other. Several correlations between the categories of interactive elements were significant. First, the Web sites’ usage of animated graphics and videos together strongly correlated ( $r = .278$ ;  $p < .01$ ), in addition to glossaries and site maps ( $r = .287$ ;  $p < .01$ ), and, as expected, video and audio ( $r = .815$ ;  $p < .01$ ). Other significant correlations between elements included videos and quizzes ( $r = .224$ ;  $p < .05$ ), as well as text-size adjustments and live chat ( $r = .197$ ;  $p < .05$ ).

To determine the percentage of the sample that used multiple types of inducements, the researcher created an Inducement Index that summed the frequencies of the variables (quizzes, live chat, message boards, video, audio, text-size adjustments, animated graphics, e-mail updates/newsletters, frequently-asked questions, glossaries, site

maps, or other). Twenty-one percent ( $n = 4$ ) of the total sample ( $n = 100$ ) used three of the interactive elements, twenty percent ( $n = 20$ ) utilized two, 19 percent ( $n = 19$ ) offered four, 13 percent used one, 5 percent used six, 4 percent ( $n = 4$ ) did not utilize any inducements, 3 percent ( $n = 3$ ) provided seven, and 1 percent used one interactive element. Figure 2 illustrates the frequencies of interactive elements when grouped into broader numerical categories.

**Figure 2. Number of Interactive Elements Within Percentage of Sites in Sample.**



Note:  $N = 100$

Results for the individual interactive features varied considerably. Site maps were the study's most frequently used interactive feature: 74 percent ( $n = 74$ ) of the coded Web sites offered this information to users. However, no significant correlation exists between the condition and the usage of site maps ( $r = -.133$ ). "Other" interactive features followed closely behind advertisements' use of site maps: 70 (70 percent) of the coded Web sites offered other interactive options such as pollen counts for users' ZIP codes (Nasonex) or downloadable cookbooks (Zocor). The test for Pearson's  $r$  did not uncover any significant correlations, however ( $r = .058$ ).

Frequently-asked questions were also a relatively a popular interactive features: 35 percent ( $n = 35$ ) of the sites included links to common questions or even posted the questions and answers on the home pages. Thirty-two percent ( $n = 32$ ) of the coded Web sites in the study ( $n = 100$ ) utilized animated graphics. The test for Pearson's  $r$  uncovered a significant correlation between the condition and the usage of animated graphics ( $r = -.229, p < .05$ ).

Twenty-one percent ( $n = 21$ ) of manufacturers provided videos either as links on the brands' home pages or as an introduction or guide to the site that played immediately after the sites loaded, while 79 percent ( $n = 79$ ) of these sites did not utilize videos. Twenty-one percent ( $n = 21$ ) of manufacturers also included the option of text-size adjustments on the brands' home pages. Nineteen of these brands' Web sites (19 percent) included links to glossaries or "common terms," while 16 percent of the 100 direct-to-consumer Web sites ( $n = 16$ ) in the main study used quizzes designed for users to "diagnose" themselves with the condition treated by the advertised medication, to determine the severity of their symptoms, or to help them evaluate whether their lifestyles made them susceptible to the ailment.

Of the 100 sites coded, fifteen percent ( $n = 15$ ) used audio. The discrepancy between the Web sites that utilized video ( $n = 21$ ) and those sites using audio is due to six Web sites that offered videos that immediately played upon the site's loading or could be played without leaving the home page; therefore, the coders were certain of these videos' usage of audio. Coders could not assume the links to videos that directed the users away from the home page included audio because the coders were instructed not to navigate away from the sites' home pages. The test for Pearson's  $r$  revealed no significant correlation between the condition and the usage of videos ( $r = -.036$ ).

Other interactive features were less common. Fourteen percent ( $n = 14$ ) of the sites in the study used e-mail updates and newsletters. According to the data, pharmaceutical manufacturers did not frequently utilize another interactive element: the live chat capabilities of the World Wide Web: only three percent of Web sites for prescription medications offered the live chat option ( $n = 3$ ). Finally, none (0 percent;  $n = 0$ ) of the 100 Web sites coded for the present study included links to a message board.

RQ2. Of the fifteen medical conditions the Web sites in this study are classified into, which medical condition uses loss/risk frames most often?

Only 5 percent ( $n = 5$ ) of the entire sample utilized any loss/risk frames. A crosstabulation of the medical conditions and the dominant frames of the prescription medication Web sites indicates that the advertisements for urological ailments employ the loss/risk frames most often (2 percent;  $n = 2$ ). Besides urological ailments, musculoskeletal, obstetric-gynecologic, and psychiatric-neurological ailments use loss frames second-most often (1 percent;  $n = 1$ ). The specific loss frame each of these conditions employed was the "Loss Frame: Happiness," and no Web sites in the entire sample (0 percent;  $n = 0$ ) employed the "Loss Frame: Social Approval." The test for

Pearson's  $r$  was also conducted to identify significant correlations between the condition and dominant frame of the advertisement; no significant correlation existed ( $r = .052$ ).

As a whole, these fifteen conditions were twice as likely to utilize a mix of gain/loss frames in the advertisements ( $n = 9$ ) as loss frames ( $n = 5$ ). Cardiovascular and psychiatric-neurological ailments, in addition to infectious (non-HIV) diseases, utilized the mix of gain/loss frames most frequently ( $n = 2$ ). Diabetes and musculoskeletal and obstetric-gynecologic ailments mixed gain/loss frames next-most often ( $n = 1$ ).

Altogether, the fifteen conditions were most likely to use the "Gain Frame: Happiness" approach ( $n = 64$ ). Except for the "Undisclosed" condition category, at least one Web site classified into each of these fifteen conditions utilized the "Gain frame: Happiness." The conditions that appeared most frequently on the list of the sites that utilized the "Gain Frame: Happiness" were psychiatric-neurological ( $n = 15$ ), musculoskeletal ( $n = 10$ ), and cardiovascular ailments ( $n = 9$ ). Only two Web sites used the dominant frame of "Gain Frame: Social Approval" (2 percent of the total sample), and these advertisements fell within the psychiatric-neurological classification.

Of the 100 Web sites for prescription medications included within the study, twenty percent ( $n = 20$ ) either did not use a frame clearly or did not use any frame at all. Web sites for cancer medications did not use discernible frames (or did not use frames at all) most frequently ( $n = 4$ ). Treatments for musculoskeletal ailments were also recorded to use either indiscernible or absent frames in the advertisements ( $n = 3$ ). Other reported conditions with unclear or absent frames in advertising included cardiovascular, psychiatric-neurological, respiratory, undisclosed ailments, or two or more unrelated ailments ( $n = 2$ ). Other conditions with one Web site utilizing the "Indeterminate/No Frame" approach included gastrointestinal-nutritional and urologic ailments, as well as infectious (non-HIV) diseases.

RQ3. Of the fifteen medical conditions the Web sites in this study are classified into, which medical condition uses informational advertising appeals most often?

Of the 50 recorded uses of dominant informational appeals, the medical condition which used the most informational appeals was psychiatric-neurological ailments (26 percent;  $n = 13$ ), followed by musculoskeletal illnesses (16 percent;  $n = 8$ ), cardiovascular ailments (14 percent;  $n = 7$ ), cancer (10 percent;  $n = 5$ ), respiratory conditions (8 percent;  $n = 4$ ), urologic ailments (6 percent;  $n = 3$ ), infectious (non-HIV), obstetric-gynecologic, undisclosed diseases, and medications for two or more unrelated ailments (4 percent;  $n = 2$ ). Other conditions such

as diabetes and HIV/AIDS (2 percent; n = 1) also used the informational appeal. No Web sites (n = 0) for treatments for allergies, dermatologic, or gastrointestinal-nutritional ailments utilized the informational appeal. No significant correlation existed between the medical condition and the dominant advertising appeal.

By dividing the amount of Web sites within each of these conditions that utilized the informational advertising appeal by the total number of Web sites classified into each of the fifteen conditions, the data appears slightly different. When analyzed in this manner, 100 percent of the total amount of Web sites for undisclosed ailments used the informational appeal, followed by 66 percent of all urologic medications in the sample, 59 percent of all psychological-neurological medications in the study, roughly 54 percent of cardiovascular medications, 53 percent of musculoskeletal ailments, 50 percent of cancer, respiratory, and infectious (non-HIV) treatments, in addition to medications treating two or more unrelated ailments, 40 percent of all obstetric-gynecologic medications coded, 33 percent of the diabetes and HIV/AIDS medications, and zero percent of all treatments for allergies, gastrointestinal-nutritional, and dermatologic conditions.

Transformational appeals were used by only 11 Web sites included in the study: cardiovascular treatments (27 percent; n = 3), musculoskeletal and obstetric-gynecologic medications (18 percent; n = 2), and infectious (non-HIV), psychiatric-neurological, respiratory, and neurologic drugs (9 percent; n = 1). However, 37 medications within the sample (n = 100) mixed informative and transformative appeals. Mixed appeals were popular among medications for psychiatric-neurologic conditions (n = 6), cancer and musculoskeletal ailments (14 percent; n = 5), and gastrointestinal-nutritional conditions (11 percent; n = 4), as well as cardiovascular and respiratory ailments (8 percent; n = 3), allergies (3 percent; n = 1), dermatologic (3 percent; n = 1), infectious (non-HIV) (3 percent; n = 1), obstetric-gynecologic (3 percent; n = 1), and urologic (3 percent; n = 1) illnesses.

Usage of the mixed appeals was then analyzed relative to the total amount of medications classified into each of the fifteen conditions. By these standards, 100 percent of the allergy, dermatologic, and gastrointestinal-nutritional medications utilized mixed appeals, in addition to 66 percent of all HIV/AIDS, musculoskeletal, and diabetes medications, half of all cancer treatments and medications for two or more unrelated ailments, 38 percent of respiratory medicines, 27 percent of all psychiatric-neurologic medications, 25 percent of infectious (non-HIV) medications, 23 percent of cardiovascular treatments, and 20 percent of all urologic and obstetric-gynecologic medications. Undisclosed ailments were the only category that did not employ any mixed advertising appeals. Finally, coders recorded indeterminate or absent appeals in 2 percent (n = 2) of the total advertisements within the



sample (n = 100). Psychiatric-neurologic medications were the only category in which the medications' Web sites featured indeterminate or absent appeals.

RQ4. What percentage of direct-to-consumer Web sites in the study uses each type of instrumental motivational cues: inducements, informational rewards, medical rewards, or instrumental punishments?

To answer this question, the researcher created indices to sum the variables present in each of these four categories (inducements, informational rewards, medical rewards, and instrumental punishments). Altogether, the Web sites were most likely to utilize medical rewards, present in 97 percent of the Web sites, followed by informational rewards (94 percent), instrumental punishments (86 percent), and inducements (70 percent).

**Inducements.** To compute the frequencies of Web sites within the sample that used either single or multiple inducements, the researcher created an Inducement Index by summing the five variables within the category: "Reminder Cards," "Free Samples," "Free Trials," "Vouchers/Coupons," and "Other" inducements. Seventy percent (n = 70) of the advertisements within the total sample offered some type of inducements, whether the offerings were among those listed or not. According to the data, 44 percent (n = 44) of the sample utilized one inducement, 30 percent of the Web sites (n = 30) did not utilize inducements at all, 20 percent (n = 20) presented two inducements, 5 percent (n = 5) used three inducements, and 1 percent (n = 1) utilized four inducements. Fifteen percent (n = 15) of the total sample (n = 100) offered vouchers/coupons, 12 percent (n = 12) provided free trials, 4 percent (n = 4) supplied reminder cards, and 2 percent (n = 2) provided free samples. However, the most popular individual variable within this category was "Other" inducements, present in 70 percent (n = 70) of the sample. While the frequency of inducements classified within the "Other" category seems to suggest the need for additional categories to accommodate these variables, the items were highly varied. Also, since the coders were instructed to remain on the sites' home pages, they had to include items with ambiguous titles that did not clearly fit into the defined categories within this category. "Other" inducements included downloadable symptom checklists, recipes and cookbooks, progress logs, financial assistance plans and PPA information, television commercials, "articles," "resources," "appointment simulators," sweepstakes to win an iPod, surveys, and an invitation for each hormone therapy patient to share "HerStory."

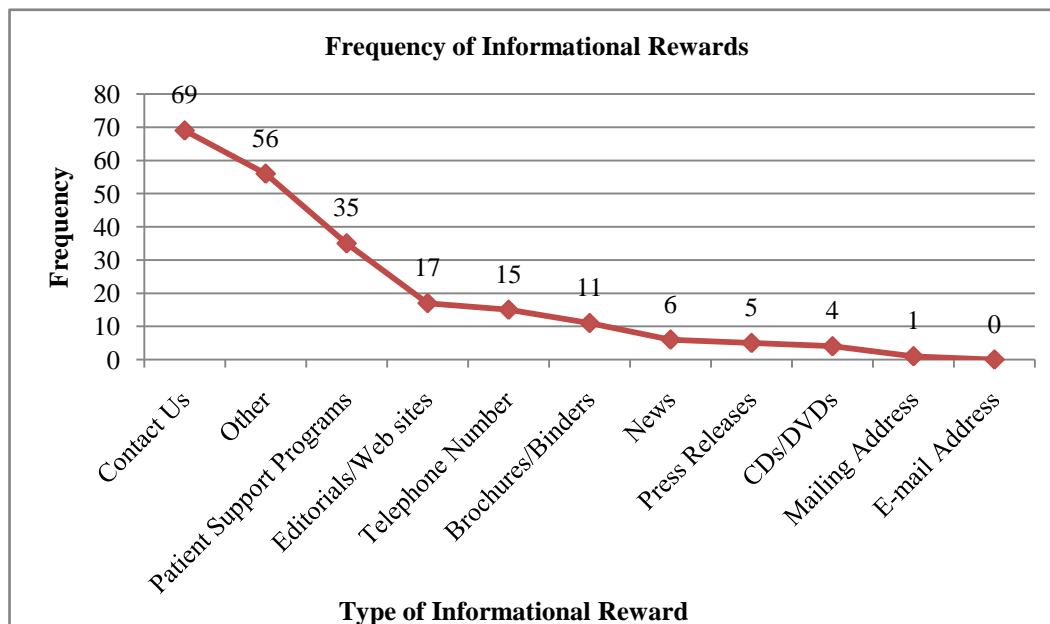
The researcher computed a chi-square test to determine whether the distribution of these Web sites' usage of inducements could be due to chance, which revealed that the usage of these items must be attributed to other

factors:  $X^2 = 16$ ;  $df = 1$ ;  $p = .000$ . In addition, a test for Pearson's  $r$  uncovered no significant correlations between the condition and the presence of inducements.

**Informational Rewards.** Manufacturers used various types of informational rewards to entice consumers as well, including “Contact Us” links, telephone numbers, mailing addresses, patient support programs, informational CDs/DVDs, brochures/binders, press releases, third-party editorials/sponsorship Web sites/other Web sites, news coverage, and other informational rewards. The researcher created the Informational Reward Index to sum the usage of these types of elements within the sample.

Altogether, 94 percent ( $n = 94$ ) of the Web sites within the sample used at least one type of informational reward. Thirty-five percent ( $n = 35$ ) of the sample used two informational rewards, 24 percent ( $n = 24$ ) employed one, 23 percent ( $n = 23$ ) used three, 7 percent ( $n = 7$ ) used four, 3 percent ( $n = 3$ ) used 5, and 1 percent ( $n = 1$ ) used six types and seven types, respectively. The frequency of the individual variables within the Informational Rewards category was scattered, as evident in Figure 3 below.

**Figure 3. Types of Informational Rewards Within Sample.**



Note:  $N = 100$

**Medical Rewards.** To entice consumers, pharmaceutical manufacturers cited medical rewards such as general or specific effectiveness claims, comparative claims, and mentions of the drugs' abilities to extend patients'

lives, improve clinical indicators, and provide negative rewards. Computation of the frequency of Web sites that used single or multiple types of medical rewards required the researcher to create a Medical Rewards Index.

The Medical Rewards Index revealed that overall, 97 percent (n = 97) of the Web sites within the sample (n = 100) cited at least one type of medical reward. Thirty-nine percent (n = 39) of the sample cited four medical rewards, 19 percent (n = 19) used 5 medical rewards, 14 percent (n = 14) mentioned two, 12 percent (n = 12) cited three, 9 percent (n = 9) mentioned one, four percent (n = 4) cited six, and 3 percent (n = 3) did not utilize any medical rewards.

Individual variables within the Medical Rewards category received the following frequencies: 93 percent (n = 93) of the sample (n = 100) utilized general effectiveness claims, 84 percent (n = 84) cited negative rewards, 65 percent (n = 65) presented claims of the medications' abilities to improve clinical indicators, while 64 percent (n = 64) employed specific effectiveness claims. Twenty-nine percent (n = 29) offered comparative claims, while 13 percent (n = 13) claimed to extend patients' lives.

**Instrumental Punishments.** Manufacturers also cited instrumental punishments such as negative outcomes and disclaimers within the direct-to-consumer advertisements. The researcher created an Instrumental Punishments Index to sum the Web sites' usage of single and multiple variables within this category. According to the index, 86 percent (n = 86) of the sample cited some type of instrumental punishment. Sixty-one percent (n = 61) used both claims of negative outcomes and disclaimers, 25 percent (n = 25) presented one type of instrumental punishment, and 14 percent (n = 14) did not employ either element. As for the individual variables within the Instrumental Punishments category, 74 percent (n = 74) cited negative outcomes, while 73 percent (n = 73) offered disclaimers.

RQ4a. Of the 15 medical conditions that the prescription medication Web sites are classified into, which condition uses each of the following most often: inducements, informational rewards, medical rewards, or instrumental punishments?

To address this question, the researcher first employed a crosstabulation of the fifteen conditions and the indices used to compute the frequency of the inducements, informational rewards, medical rewards, and instrumental punishments utilized within the sample. Next, to compute the percentage of the Web sites within each of the fifteen conditions utilizing variables from the four groups, the researcher divided the number of sites using the

cue by the total amount of Web sites coded for that condition. Table 2 depicts the percentage of Web sites within each of the fifteen conditions that used at least one type of motivational cue from the categories.

**Table 2. Percentage of Web sites using One or More Incentives, by Condition.**

<b>Condition/Total Sites in Category</b>	<b>Inducements</b>	<b>Informational Rewards</b>	<b>Medical Rewards</b>	<b>Instrumental Punishments</b>
Allergies (1)	100%	100%	100 %	0%
Cancer (10)	50%	90%	90%	100%
Cardiovascular (13)	62%	100%	100%	85%
Dermatologic (1)	100%	100%	100%	100%
Diabetes (3)	100%	100%	100%	100%
Gastrointestinal-nutritional (4)	100%	100%	100%	75%
HIV/AIDS (3)	0%	100%	100%	100%
Infectious (non-HIV) (4)	25%	100%	100%	100%
Musculoskeletal (15)	73%	93%	100%	100%
Obstetric-gynecologic (5)	80%	100%	100%	80%
Psychiatric-neurologic (22)	77%	91%	100%	82%
Respiratory (8)	75%	88%	100%	75%
Urologic (5)	100%	100%	100%	60%
Undisclosed (2)	50%	100%	0%	50%
2+ Unrelated ailments (4)	75%	75%	100%	100%

Note: N = 100

**Use of Inducements by Condition.** The frequencies of these conditions' usage of inducements such as reminder cards, free samples, free trials, vouchers/coupons, or other types were also tabulated.<sup>1</sup> By performing a crosstabulation of the condition and consulting the Inducement Index, the researcher discovered the following: 100 percent of allergy Web sites utilized two inducements, and 100 percent of dermatologic treatments used one

<sup>1</sup> Please note: Due to rounding, total percentages within these sections may not equal exactly 100.

inducement. Seventy-five percent of gastrointestinal-nutritional Web sites used two inducements and 25 percent used one, and 60 percent of urologic treatments used two inducements, while 40 percent used one.

Other conditions with high usage of inducements were musculoskeletal treatments, 60 percent of which used one inducement, while 27 percent used none and 13 percent used two. In addition, 55 percent of psychiatric-neurologic medications used one inducement, 23 percent used no inducements, approximately 14 percent used two, and 9 percent used three. Inducement use among respiratory medications was similar to that of psychiatric-neurologic treatments: 50 percent of respiratory medicines used one inducement, 25 percent used none, and approximately 13 percent used two and three inducements, respectively. Further, 50 percent of treatments designed for more than one unrelated ailments used one inducement, while 25 percent used no inducements or two. Fifty percent of cancer medications used one inducement and 50 percent used none, while 40 percent of obstetric-gynecologic treatments used one inducement, 40 percent used two, and 20 percent used no inducements.

Several conditions used inducements sparingly or not at all: medications designed to treat HIV/AIDS offered no inducements, while 75 percent of infectious (non-HIV) medications used none and 25 percent used only one. Finally, 38 percent of cardiovascular treatments used no inducements, 23 percent used two, 15 percent used one inducement and three inducements, respectively, and roughly 8 percent used four inducements.

**Use of Informational Rewards by Condition.** The same method was used to analyze each condition's usage of informational rewards, including "Contact Us" links, telephone numbers, e-mail addresses, mailing addresses, patient support programs, informational CDs/DVDs, brochures/binders, press releases, third-party editorials/sponsorship Web sites/other Web sites, news coverage, and other elements not listed. Performing a crosstabulation of the conditions and the Informational Reward Index yielded the following results: 100 percent of allergy medications used one informational reward, in addition to 100 percent of dermatologic treatments. Seventy-five percent of infectious (non-HIV) medicines offered two informational rewards and 25 percent provided one, while 66 percent of diabetes treatments used three and 33 percent used two. In addition, 66 percent of HIV/AIDS medications used one informational reward and 33 percent used three, followed by obstetric-gynecologic treatments: 60 percent of sites classified within this condition used one informational reward, while 40 percent used three.

Cardiovascular medicines also utilized informational rewards heavily: 54 percent used two, 23 percent used one, and roughly 8 percent used three, four, and five informational rewards, respectively. Fifty percent of

undisclosed treatments used two informational rewards and 50 percent used three, the same results as Web sites within the gastrointestinal-nutritional condition category (50 percent used two and 50 percent used three informational rewards). For Web sites classified into the condition “Two or More Unrelated Ailments,” 50 percent used two and 25 percent used none or three informational rewards, respectively. Urologic medications also used informational rewards relatively often: 40 percent offered two, 40 percent used four, and 20 percent provided three. Finally, 40 percent of musculoskeletal treatments used one informational reward, over 13 percent used two, four, and five, respectively, and roughly 7 percent used three, six, or none.

Respiratory medications utilized this type of reward less often: 38 percent of the Web sites classified into this category used two informational rewards, 25 percent used four, and approximately 13 percent used none, one, or three. Over 36 percent of psychiatric-neurologic medications used two informational rewards, 32 percent used three, 18 percent used one, 9 percent used no informational rewards, and almost 5 percent used seven. Finally, 20 percent of cancer drugs used one informational reward, 40 percent used two, and 30 percent used three. Ten percent of cancer drugs did not provide an informational reward.

**Use of Medical Rewards by Condition.** Within the 100 Web sites included in the sample, pharmaceutical manufacturers made claims of general and specific effectiveness, of extending patients’ lives, of the medications’ ability to improve clinical indicators, and of negative rewards. These companies also used comparative claims as well. One hundred percent of dermatologic medications used five medical rewards and 100 percent of allergy drugs cited four medical rewards. Sixty-six percent of diabetes treatments cited four medical rewards and 33 percent used three, while 54 percent of Web sites classified into the cardiovascular condition used four medical rewards, 31 percent used five, and approximately 8 percent used one and six medical rewards, respectively. Half of gastrointestinal-nutritional drugs used four medical rewards, while 25 percent used three and 25 percent used five. Next, 50 percent of respiratory medications used four medical rewards, while roughly 13 percent used one, two, three, or five types. Half of infectious (non-HIV) treatments used two medical rewards, 25 percent used four, and 25 percent used five, while 40 percent of cancer drugs used four, 20 percent used three, and 10 percent used none, one, two, and six medical rewards, respectively. Forty percent of musculoskeletal treatments offered four medical rewards, and over 13 percent used one, two, three, and five medical rewards, respectively. Roughly 7 percent used six medical rewards.

Forty percent of obstetric-gynecologic treatments used four medical rewards, while 40 percent used five and 20 percent used three. Similarly, 40 percent of urologic medicines used two medical rewards, while 20 percent used one, three, and four, respectively. As for psychiatric-neurologic medications, 36 percent cited four, 23 percent used two and five, respectively, and 9 percent used one and three medical rewards, correspondingly. Among the least-frequent usages of medical rewards were HIV/AIDS medications, 33 percent of which cited one, three, and five medical rewards, respectively. One-quarter of medications designed to treat more than one unrelated ailment used two medical rewards, 25 percent used four, 25 percent used five, and 25 percent used six. Finally, no urologic treatments cited medical rewards.

**Use of Instrumental Punishments by Condition.** These conditions' usage of instrumental punishments also varied. First, 100 percent of dermatologic medications used both types of instrumental punishments (claims of negative outcomes and disclaimers), followed by 80 percent of cancer drugs using both types, and 20 percent that used one instrumental punishment. Similarly, 80 percent of obstetric-gynecologic medicines used both types of instrumental punishments, although 20 percent did not utilize instrumental punishments. Seventy-five percent of infectious (non-HIV) drugs used both types, while 25 percent used one; next, 73 percent of musculoskeletal drugs used both and nearly 27 percent used one.

Diabetes medications used instrumental punishments less frequently: 66 percent used both and 33 percent used one type; similarly, 66 percent of HIV/AIDS drugs used both and 33 percent used one. Sixty-four percent of psychiatric-neurologic treatments used both types of instrumental punishments, while 18 percent used none and 18 percent used one. Next, 54 percent of cardiovascular medications used both types, 31 percent used one, and over 15 percent used none. Half of medications designed to treat more than one unrelated ailment used one instrumental punishment, while the other half used both types. Similarly, half of gastrointestinal-nutritional medications used one type of instrumental punishment, although 25 percent used none, and 25 percent used both. Undisclosed medications were relatively similar: 50 percent used none of the types of instrumental punishments, while 50 percent used both types; in addition, 40 percent of urologic medications used no instrumental punishments, 40 percent used both, and 20 percent used one. As for respiratory drugs, 38 percent used one type of instrumental punishment, 38 percent used both, and 25 percent used none. None of the allergy medications used instrumental punishments. Table 3 depicts the sample's usage of each type of instrumental motivational cue.

**Table 3. Greatest Frequencies of Each Type of Instrumental Motivational Cue, by Condition.**

<b>Instrumental Motivational Cue</b>	<b>Percentage of Sites Using 2+ Cues from Category</b>
Inducements	Allergies/Dermatologic (100%); Gastrointestinal-Nutritional (75%); Urologic (60%)
Informational Rewards	Gastrointestinal-Nutritional/Undisclosed/Urologic (100%); Diabetes (99%); Cardiovascular (78%) Infectious (non-HIV)/Unrelated ailments (2+) (75%)
Medical Rewards	Allergies/Dermatologic/HIV/AIDS/Obstetric-Gynecologic (100%); Diabetes (99%); Cardiovascular (93%); Psychiatric-neurologic (91%)
Instrumental Punishments	Dermatologic (100%); Cancer/Obstetric-Gynecologic (80%); HIV/AIDS (75%)

RQ5. What percentage of direct-to-consumer Web sites in the study uses each type of identity motivational cues: claims that the product will enable/improve patients' lifestyles, improve patients' overall positive feelings, improve patients' outward appearance, improve patients' strength/power, improve patients' control over the condition, improve patients' intelligence, claims of the condition's universality, and personal appeals from the main actor in the advertisement?

Improving patients' control over the illness was by far the most heavily represented identity motivational cue within the sample of 100 direct-to-consumer Web sites of prescription medications, present in 84 percent (n = 84) of the advertisements. Claims of the medications' abilities to improve patients' strength and power were also frequent: 38 percent (n = 38) of the Web sites featured this identity motivational cue. Thirty percent (n = 30) of these brands claimed to improve patients' lifestyles, 27 percent (n = 27) emphasized the commonality of the condition treated by the advertised medication, and 23 percent (n = 23) of brands within the sample promised to improve positive feelings. Coders also identified personal appeals from the actors in twenty percent (n = 20) of the Web sites, claims of the medications' abilities to improve intelligence in four percent (n = 4), and claims of the prescription drugs' capacity to improve patients' outward appearance in one percent (n = 1).

The researcher also developed an Identity Motivational Cues Index to determine the usage of single or multiple variables within this category. According to the index, 90 percent (n = 90) of the overall sample utilized some form of identity motivational cue. Twenty-eight percent (n = 28) of the sample used two types of identity motivational cues, while 25 percent (n = 25) used one type, 16 percent employed 3 types, 12 percent (n = 12)



presented four types, 5 percent (n = 5) used six types, and 4 percent (n = 4) utilized five types of identity motivational cues.

Eighty-four percent (n = 84) of the sample suggested that the medications would improve the patients' control over the condition, while 38 percent (n = 38) claimed to improve patients' strength or power, 30 percent claimed to improve users' lifestyles, 27 percent (n = 27) cited the conditions' commonality, and 23 percent (n = 23) claimed to improve patients' positive feelings. Twenty percent (n = 20) of the sample used personal appeals from the actors in the advertisements, 4 percent (n = 4) claimed to improve patients' intelligence, and one percent (n = 1) claimed to improve patients' outward appearance.

RQ5a. Of the 15 medical conditions that the prescription medication Web sites are classified into, which condition uses each of the following most often: claims of enabling/improving the patient's lifestyle, overall positive feelings, outward appearance, strength/power, control over the condition, and intelligence, claims of the condition's universality, or personal appeals from the actors in the advertisements?

Just as for the other motivational elements of these Web sites, the researcher performed a crosstabulation of the fifteen conditions and the appropriate index; in this instance, the researcher used the Identity Motivational Cues Index, originally used to answer RQ7. The data illustrated the following: 100 percent of allergy drugs used three identity motivational cues, and 100 percent of dermatologic medications used one cue. Eighty percent of urologic medications used four cues, while 20 percent did not use any. Three-fourths of medications designed to treat more than one unrelated ailment used one motivational cue, while 25 percent used six; in addition, two-thirds of HIV/AIDS medicines used five motivational cues and one-third used two cues. Diabetes medications also used many of the listed motivational cues: 66 percent used two and 33 percent used four. Half of infectious (non-HIV) treatments used one motivational cue, 25 percent used two, and 25 percent used five, while half of gastrointestinal-nutritional medicines used one cue, 25 percent used two, and 25 percent used three cues.

Forty percent of obstetric-gynecologic treatments used two motivational cues, 40 percent used four, and 20 percent used three, while 40 percent of cardiovascular medications used one motivational cue, 40 percent used two, and 20 percent used none. Next, 36 percent of psychiatric-neurologic drugs used two motivational cues, 18 percent used one, and approximately 14 percent used four and six, respectively. One-third of musculoskeletal treatments used three motivational cues, 27 percent used two, 13 percent used none, and roughly 7 percent used one, four, five, and six, respectively. Next, one-quarter of respiratory medications used no motivational cues, while 25 percent used

one, 25 percent used two, and approximately 13 percent used three and four identity motivational cues, respectively. Finally, none of the Web sites for undisclosed conditions cited any identity motivational cues.

RQ6. What percentage of the prescription medication Web sites included in the study uses each of the following visual cues: people, cartoons, animals, trade characters, body parts, products, or other?

Eighty-one percent ( $n = 81$ ) of the sample utilized human actors in the advertisements, the most frequently used visual cue, followed by “Other” items (24 percent;  $n = 24$ ), including visuals of newsletters and quizzes. Advertised products were used in 19 percent ( $n = 19$ ) of the sample, while ten Web sites (10 percent) presented cartoons, including illustrations of humans or animals that were not considered trade characters, and ten sites used body parts (10 percent). Three percent of the advertisements ( $n = 3$ ) presented trade characters, and two percent ( $n = 2$ ) included photographs of animals. Although humans were the most frequently occurring visual cue within these advertisements, no significant correlation exists between the condition and the advertisements’ usage of human actors ( $r = -.105$ ).

The “Number of Actors” category is also within the Visual Cues section of the instrument, and the category measured how many human actors were shown within these advertisements. The results are as follows: 19 percent ( $n = 19$ ) of the Web sites within the study did not include a human actor. Twenty-six percent ( $n = 26$ ) of the advertisements depicted one actor, 19 percent ( $n = 19$ ) used two actors, 16 percent ( $n = 16$ ) portrayed three actors, 9 percent ( $n = 9$ ) presented four actors, 4 percent depicted six actors, 2 percent ( $n = 2$ ) presented either five actors, eight actors, or more than ten actors, and one percent ( $n = 1$ ) depicted nine actors. To analyze this data, the researcher computed the measures of central tendency:  $M = 2.29$ ,  $Mdn. = 2$ ,  $Mode = 1$ .

RQ6a. Of the fifteen medical conditions that the Web sites in this study are classified into, which condition uses each of the following visual cues: people, cartoons, animals, trade characters, body parts, products, or other?

The researcher conducted a crosstabulation of the fifteen conditions and the visual cues used as subjects of the advertisements (people, cartoons, animals, trade characters, body parts, products, and other), illustrated in Table 4 below.

However, some medications used more than one of the listed visual cues as subjects in the advertisements coded. For example, allergy treatments comprised one percent ( $n = 1$ ) of the sample, yet the one Web site presented

the product and also used cartoons and trade characters. Thus, the usage of each visual element in Table 4 was divided by the total amount of Web sites classified into that particular condition; hence, 100 percent of the allergy medication Web sites used products, cartoons, and/or trade characters.

**Table 4. Usage of Visual Cues by Condition.**

Condition	People	Other	Product	Body Parts	Cartoons	Trade Characters	Animals
Allergies	0	0	1	0	1	1	0
Cancer	8	2	2	1	0	0	1
Cardiovascular	12	4	2	4	2	0	0
Dermatologic	1	0	1	1	0	0	0
Diabetes	2	1	2	1	0	1	0
Gastrointestinal-nutritional	4	0	1	1	1	0	0
HIV/AIDS	3	0	0	0	0	0	0
Infectious (non-HIV)	3	1	2	1	0	1	0
Musculoskeletal	13	4	1	0	2	0	0
Obstetric-gynecologic	5	0	1	0	0	0	0
Psychiatric-neurologic	18	6	1	0	3	0	0
Respiratory	5	3	4	0	1	0	0
Urologic	3	1	0	0	0	0	0
Undisclosed	0	0	0	0	0	0	0
Unrelated ailments (2+)	4	2	1	1	0	0	1
	n = 81	n = 24	n = 19	n = 10	n = 10	n = 3	n = 2

Psychiatric-neurological treatments accounted for 22 percent (n = 22) of the total sample (n = 100). Eighty-one percent of these treatments used people, 27 percent used other subjects, and 13.7 percent employed cartoons. Less than .5 percent included the product in the advertisements. The next most represented condition within the sample was musculoskeletal ailments (n = 15), comprising 15 percent of the sample. Nearly 87 percent of these Web

sites used people as visual cues; 26 percent employed other subjects, over 13 percent used cartoons, and nearly 7 percent presented the products.

Cardiovascular treatments comprised 13 percent of the sample ( $n = 13$ ), and used the following visual cues: people (over 92 percent), body parts and other subjects (nearly 31 percent), and products and cartoons (over 15 percent). Web sites for cancer medications ( $n = 10$ ) used people most often (80 percent), followed by products and “other” subjects (20 percent), in addition to body parts and animals (10 percent). Sixty-three percent of respiratory medication Web sites ( $n = 8$ ) depicted people, while half displayed products, 38 percent showed other subjects, and 13 percent used cartoons. Sixty percent of the 5 urologic conditions in the sample used people, and 20 percent used other subjects.

All of the obstetric-gynecologic medication Web sites ( $n = 4$ ) displayed people, while 20 percent showed other subjects. Similarly, all of the Web sites for gastrointestinal-nutritional ailments ( $n = 4$ ) used people; however, 25 percent showed the products and body parts as well. Three-quarters of the infectious (non-HIV) medication Web sites ( $n = 4$ ) used people, half showed the products, and a quarter depicted other subjects.

Each of the four sites advertising treatments for more than one unrelated ailment portrayed people as the subjects, while half used other subjects and 25 percent displayed products, body parts, and animals. Two-thirds of diabetes medication Web sites ( $n = 3$ ) used people and products, and one-third of the sites presented trade characters, body parts, and other subjects. All of the HIV/AIDS treatment advertisements ( $n = 3$ ) displayed people, and none of the sites depicted any of the other subjects. Neither of the two undisclosed ailments used any of the visual cues listed, while 100 percent of the Web sites for dermatologic treatments ( $n = 1$ ) used people, products, and body parts. Table 5 lists the most prominent visual cues within the Web sites classified into each condition.

The researcher performed the test for Pearson’s Product Moment Correlation Coefficient to explore the correlation between the conditions and the visual cues used as subjects within the advertisements (people, cartoons, animals, trade characters, body parts, products, and other subjects). Significant correlations existed between the advertisements’ usage of particular pairs of visual cues. For instance, Web sites’ usage of people and trade characters correlates significantly ( $r = -.214$ ;  $p < .05$ ), as well as usage of people and cartoons ( $r = -.263$ ;  $p < .01$ ) and body parts and trade characters ( $r = .332$ ;  $p < .01$ ). In addition, the test for Pearson’s  $r$  revealed a significant correlation between the condition and the advertisements’ usage of body parts ( $r = -.255$ ;  $p < .05$ ).

**Table 5. Most Frequent Visual Elements Used by Condition.**

<b>Medical Condition</b>	<b>Most Frequent Visual Elements (&gt;25% of total)</b>
Allergies (n = 1)	Product, Cartoons, Trade Characters
Cancer (n = 10)	People*
Cardiovascular (n = 13)	People*, Body Parts, Other
Dermatologic (n = 1)	People*, Products*, Body Parts*
Diabetes (n = 3)	People*, Products*
Gastrointestinal-nutritional (n=4)	People*, Products, Body Parts
HIV/AIDS (n = 3)	People*
Infectious (non-HIV) (n = 4)	People*, Products*, Other
Musculoskeletal (n = 15)	People*, Other, Cartoons
Obstetric-Gynecologic (n = 4)	People*
Psychiatric-Neurologic (n = 22)	People*, Other
Respiratory (n = 8)	People*, Products*, Other
Urologic (n = 5)	People*
Undisclosed (n = 2)	None
Unrelated Ailments (2+) (n = 4)	People*, Other*, Products

RQ7. Of the Web sites for prescription medications included in this study, what are the gender, ethnicity, and age of the main actor within the advertisement?

The frequencies of the actors' gender varied considerably. First, no actors were present in 19 percent (n = 19) of the direct-to-consumer Web sites for prescription medications. Thirty-four percent (n = 34) of the entire sample (n = 100) used males and females or multiple actors of both genders, 31 percent (n = 31) used females, 12 percent (n = 12) depicted males, and 4 percent (n = 4) used actors whose gender was indeterminate. Accounting for only the advertisements featuring people (n = 81), nearly 42 percent of the Web sites used males and females or multiple actors of both genders; 38 percent used females only; almost 15 percent portrayed males only; and roughly 5 percent showed actors whose gender was indeterminate.

Of the complete sample ( $n = 100$ ) of prescription medication Web sites, the ethnicity of the actors was primarily White/Caucasian (41 percent;  $n = 41$ ), although multiple actors of multiple ethnicities were well represented as well (20 percent;  $n = 20$ ). Blacks/African-Americans and actors whose ethnicity was indeterminate accounted for seven percent ( $n = 7$ ) of the sample; three percent of the actors were Hispanic ( $n = 3$ ), two percent ( $n = 2$ ) were Asian, and the ethnicity of the actors in one percent ( $n = 1$ ) of the sample did not fit into the above classifications. No significant correlation existed between the condition and the ethnicity of the actors within the advertisements.

Removing the advertisements featuring non-human actors or no actors at all (19 percent;  $n = 19$ ) provides the opportunity to further analyze the data on the actors' ethnicities. Within the Web sites using human actors ( $n = 81$ ), over half used White/Caucasian models, nearly a quarter used multiple actors of multiple ethnicities, almost 8 percent used either Blacks/African-Americans and actors whose ethnicity was indeterminate, roughly four percent depicted Hispanics, over two percent displayed Asians, and one percent portrayed other ethnicities.

Within the entire sample ( $n = 100$ ), the advertisements used multiple actors of multiple ages most frequently (18 percent;  $n = 18$ ), followed by actors who were 30-39 years old (15 percent;  $n = 15$ ), followed by 20-29 years old (13 percent;  $n = 13$ ), and of indeterminate ages (10 percent;  $n = 10$ ). Eight percent ( $n = 8$ ) of the Web sites used actors who were 40-49 years old and 60+ years old; seven percent ( $n = 7$ ) employed actors ages 50-59 years old; and two percent ( $n = 2$ ) used children. None of the advertisements used adolescents. The test for Pearson's  $r$  revealed a correlation between the condition treated by the advertised medication and the age of the actors within the advertisement ( $r = -.220$ ,  $p < .05$ ).

RQ7a. In what percentage of the direct-to-consumer Web sites in the study does the main actor appear active, healthy, or friendly?

Among the identity rewards coders recorded within the sample of 100 direct-to-consumer advertisements were the activity level, health, and friendliness of the actors. When analyzed relative to the entire sample ( $n = 100$ ), actors were active in 78 percent of the Web sites ( $n = 78$ ) and passive in 4 percent ( $n = 4$ ). Of only the Web sites featuring human actors ( $n = 81$ ), over 96 percent included active subjects and roughly 5 percent depicted passive subjects. The test for Pearson's Product Moment Correlation Coefficient revealed no significant correlations between activity level and the condition treated by the advertised medication.

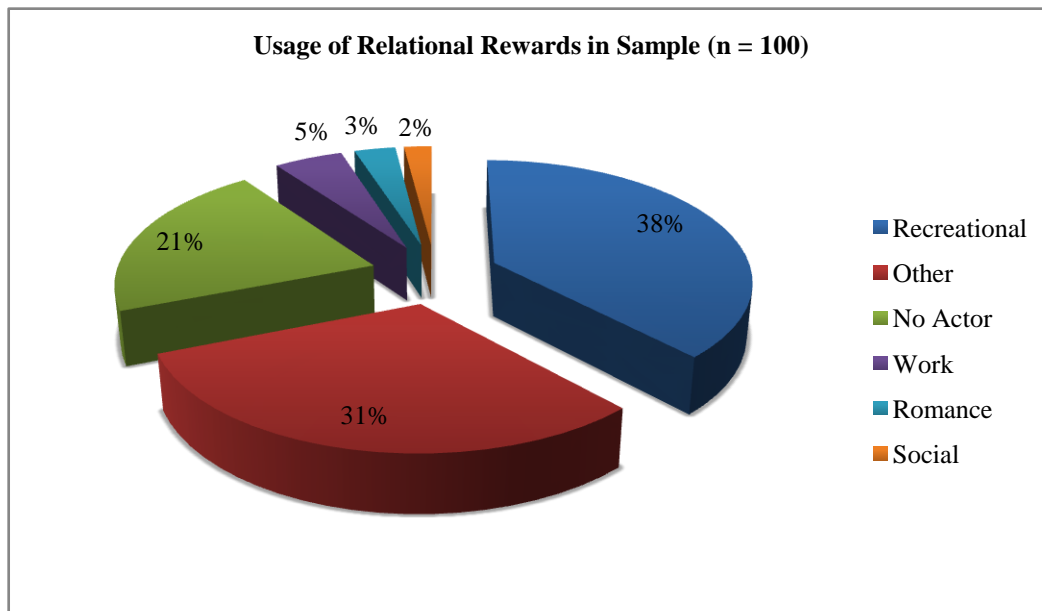
Healthiness was another identity reward included within the 100 direct-to-consumer Web sites for prescription medications. Of the complete sample ( $n = 100$ ), 68 percent ( $n = 68$ ) of the Web sites depicted healthy actors, 19 percent ( $n = 19$ ) did not include humans, 8 percent ( $n = 8$ ) depicted actors whose health was indeterminate, and 5 percent ( $n = 5$ ) portrayed ill actors. When analyzed for just the Web sites depicting humans ( $n = 81$ ), roughly 84 percent showed healthy people, nearly 10 percent showed people whose health was indeterminate, and over 6 percent portrayed ill people. The results of the test for Pearson's Product Moment Correlation Coefficient revealed no significant correlations between the condition and the health of the actor.

Coders also documented the friendliness of the actors in the advertisements. Within the entire sample ( $n = 100$ ), 64 percent ( $n = 64$ ) of the actors were smiling, 11 percent ( $n = 11$ ) of the Web sites included either multiple actors who were smiling and not smiling or actors whose friendliness was indeterminate, and 6 percent ( $n = 6$ ) contained unsmiling actors. Of just the advertisements featuring people ( $n = 81$ ), 79 percent were smiling, over 13 percent included either multiple actors that were smiling and not smiling or actors whose friendliness was indeterminate, and over 7 percent of actors were "unfriendly" (not smiling). No significant correlations were found between the condition and the friendliness of the actor, but strong correlations were identified between the friendliness of the actor and the health of the actor ( $r = .9; p < .01$ ) and the actors' activity level ( $r = .852; p < .01$ ).

RQ7b. In what percentage of the sample does the main actor appear in each of the following settings: family, romance, work, social, recreational, or other?

The most frequent relational reward depicted within the sample of the 100 direct-to-consumer advertisements was the "Recreational" setting (38 percent;  $n = 38$ ). Frequency of the other relational rewards is depicted in Figure 4 below.

**Figure 4. Usage of Relational Rewards.**





## **CHAPTER 5. DISCUSSION**

The noteworthy findings of this content analysis of 100 direct-to-consumer Web sites for prescription medications provide insight into the framing practices of direct-to-consumer advertisers on prescription medication Web sites, most notably the more pronounced usage of gain frames than loss frames. The study also indicates these pharmaceutical manufacturers have applied the informational appeals commonly used in print executions to Internet advertisements. Furthermore, the present research reveals the overwhelming usage of Caucasian actors as the main actors in the advertisements and the depiction of recreational settings as relational rewards.

The following discussion of the present study's visual, textual, and interactive elements explores the differences between print and Internet direct-to-consumer advertisements, and examines the implications of this study's major findings.

### **5.1 Comparison to Previous Literature**

By combining multiple studies on visual and textual cues used to entice consumers to ask their doctors about the advertised medications, this research tests the findings of other studies on direct-to-consumer advertisements. The present study supports data from previous Internet-based studies on direct-to-consumer advertisements, such as Macias and Lewis' (2004) content analysis of the attributes of 90 prescription medication Web sites, yet offers an updated and expanded perspective of the interactive elements and visual and textual cues used by these pharmaceutical manufacturers. In addition, the present study demonstrates the similarities and differences between print and Internet advertising of prescription medications.

#### **5.1.1 Manufacturer**

Macias and Lewis (2004, p. 47) reported 28 unique manufacturers of the 90 prescription medication Web sites in their study, or approximately 3.2 brands per manufacturer. When the researchers compiled the data in 2001, the most frequent manufacturers operating the Web sites for prescription medications were AstraZeneca and Ortho-McNeil Pharmaceuticals (with 8 each), as well as Roche Labs, Pharmacia, Pfizer, and GlaxoSmithKline (with 7 each). The present study revealed marked differences: 46 manufacturers offered one or more Web sites for prescription medications, an average of 2.17 brands per manufacturer. The differences in the numbers of manufacturers offering brands could be attributed to the dissimilar sample selection processes of Macias and Lewis

(2004) and the researcher of the present study, increased competition within the pharmaceutical industry, or the companies' greater usage of partnerships to market products.

### **5.1.2 Brand**

Pharmaceutical manufacturers have expanded their product selection and now offer many versions of products, including generics or over-the-counter versions. Thus, brands qualified for inclusion within the present study were much more numerous than for Macias and Lewis' (2004, p. 47) study of direct-to-consumer advertisements on the Internet. Macias and Lewis' (2004) Internet study utilized all the Web sites for prescription medications that were available in 2001, but only 90 prescription medication Web sites qualified for their study (p. 47). Similarly, Bell, Kravitz, and Wilkes' (2000) content analysis consisted of 101 unique brands, but the researchers consulted 18 magazines over a nine-year period to collect the sample (p. 329).

Whereas Macias and Lewis' encountered difficulty in finding any Web sites at all for any prescription medication, recent increases in manufacturers' use of the Internet for promotional and marketing purposes provides an excellent population for this research and for subsequent studies. The 100 Web sites within the previous study were chosen from a list of 200 top-selling drugs published by IMS Health in 2006 (Lamb, 2007, p. 35), and many more medications could have been sampled: IMS Health also publishes a list of the 500 best-selling medications ("PharmaLive.com special reports: Top 500 prescription drugs of 2006," p. 3). In fact, barring the time constraints of the present study, potentially thousands of Web sites could have been included in the sample.

The ease of access to the sites in the present study dramatically contrasts with Macias and Lewis' (2004; p. 47) sample; unless medications were generic or discontinued, the vast majority of the present study's population was functioning Web sites. The researcher chose not to include more than one hundred sites (besides the ten sites collected for the pilot study) to ensure the sample was comparable to other studies' samples and also to provide a strong foundation for future research involving direct-to-consumer advertising on the Internet.

### **5.1.3 Condition**

Macias and Lewis (2004) assigned the highest number of the 90 brands in their sample to the following conditions: psychiatric-neurologic (roughly 16 percent), obstetric-gynecologic and other (9 percent), and musculoskeletal ailments (8.8 percent) (p. 48). The 101 brands in Bell, Kravitz, and Wilkes' (2000) content analysis

of direct-to-consumer print advertisements were classified into the dermatologic, HIV/AIDS, and obstetric-gynecologic conditions most commonly (p. 329). Least common were tobacco addiction, cancer, diabetes, infectious (non-HIV), and respiratory treatments. According to Bell, Kravitz, and Wilkes (2000), 30 percent of the sample included brands for life-threatening conditions, including HIV/AIDS and cardiovascular ailments; in addition, 75 percent of the conditions were chronic (p. 334).

The present study echoes the usage of psychiatric-neurologic and musculoskeletal treatments in Macias and Lewis' (2004) study, but contrasts with Bell, Kravitz, and Wilkes' (2000) study due to the present study's low frequencies of HIV/AIDS treatments and of dermatologic medications. In addition, cancer medications were represented more strongly in the present study than in Bell, Kravitz, and Wilkes' (2000) research (p. 333).

The reasons for the higher representation of certain conditions within the present sample could potentially be due to the variety of medication classes now utilizing the Internet due to the increased competition among medications in the class. In addition, the sample for Macias and Lewis (2004, p. 47) was based upon the availability to the data (whether the Web site existed) and Bell, Kravitz, and Wilkes (2000) collected their data over a nine-year period, while this study was based upon the drugs' popularity in terms of sales (p. 329).

#### **5.1.4 Dominant Gain Frames (Hypothesis 1)**

The first hypothesis of this study asserted that a greater percentage of the direct-to-consumer advertisements within the sample would utilize loss/risk frames than gain/benefit frames. Despite the inconclusive research on gain and loss frames in general, the researcher assumed the sample's prevalence of risk/loss frames due to Tsai's (2007, p. 365) and Cox and Cox's (2001, p. 93) research indicating the greater effectiveness of loss-framed messages specifically for health communication.

However, the data obtained from this content analysis of direct-to-consumer Web sites did not support this hypothesis. In fact, the results of the frequencies of the dominant frames were dramatically different from Tsai's (2007, p. 365) study. "Gain Frame: Happiness" was dominant within two-thirds of the sample in the present study, and loss frames were present in only 5 percent, and no use of the "Loss Frame: Social Approval" was identified.

The hypothesis was likely unsupported in the present study for several reasons. While research indicates the greater effectiveness of loss frames, pharmaceutical manufacturers may not necessarily apply this data when

creating these direct-to-consumer Web sites for prescription medications. Tsai's (2007, p. 365) data is relatively new, and although the data for the present study was collected in 2008, the list of top-selling medications is derived from sales figures from 2006. Finally, manufacturers may be reluctant to negatively-frame a sensitive topic like disease since the people seeking medication for their ailments likely grapple with the negative effects of the condition on a daily basis. Possibly, the manufacturers deliberately employ the loss frames to motivate the passive audiences of print media who are not actively seeking the information on the medications to visit the brands' Web sites. To a consumer who was initially motivated by the fear or risk avoidance messages of the print advertisements, the gain frames of the Web sites are comparatively comforting and reassuring. Ultimately, the prospective patient attends his or her doctor's appointment with positive attitude towards the advertised medication, since the Web site was likely the most recent medium the patient actively utilized to obtain this medical information.

#### **5.1.5 Dominant Informational Advertising Appeals (Hypothesis 2)**

The second hypothesis for this study posited that a greater percentage of direct-to-consumer advertisements of prescription medications would utilize informational advertising appeals than transformational appeals. The researcher based this supposition upon research by Roth (2003, p. 181), in addition to authors whose studies formed the basis for the investigation into this topic over the previous several decades, such as Petty and Cacioppo (1986, p. 125). Roth (2003) discovered 81 percent of his sample utilized informational appeals and 19 percent used transformational (p. 181).

Unlike the first hypothesis of the study, the second was supported by the data, since the majority (50 percent) of the direct-to-consumer Web sites utilized a dominant informational appeal. Mixed appeals were used quite often as well, present in 37 percent of the sample. Only 11 percent of the sample in the present study used the transformational frame. The discrepancy between data from the present study and Roth's (2003, p. 181) study could be attributed to the coding procedures: Roth (2003) utilized just two coding categories for the advertisements' appeals: "Transformational only" and "Informational only" (p. 181). The lack of categories in Roth's (2003, p. 181) study likely limited his data collection procedure, and consequently, the depiction of the advertisements' usage of these elements. Additional choices within the present study yielded data that provides a better overall indication of how the sample appealed to the audience.

### 5.1.6 Visual Cues

The sample's usage of visual cues contrasted with the results of Macias and Lewis (2004, p. 49) and Young and Cline (2005, p. 142), studies that contribute to the foundation for the current investigation. The most notable contrasts within this category include the relational rewards, number of actors, and the subjects of the advertisements.

**Relational Rewards.** Young and Cline (2005) found the social setting to be most prevalent, yet the relational rewards of the advertisements included in the present study were most often a "Recreational" or "Other" setting (p. 147-148). Differences in the settings of the advertisements may have been due to Cline and Young's (2004) sample: print advertisements selected from various magazines (p. 131). Magazines are highly targeted vehicles, and the advertisements could have reflected the lifestyle of the publications' readers. Due to the varying demographics of Internet users and the medium's wide appeal, Web sites for prescription medications cannot easily tailor advertisements to an audience with certain expected characteristics. Therefore, these manufacturers may be attempting to present settings that are appealing to as many people as possible, and since the majority of people typically cherish leisure activities, the recreational setting was employed most often.

**Number of Actors.** Cline and Young (2004, p. 144) reported 1.8 actors as the most frequent number of people present within the direct-to-consumer advertisements, while the present study utilized more people per advertisement ( $M = 2.29$ ). These Web sites' inclusion of more human actors per advertisement than in the print advertisements of Cline and Young's (2004, p. 144) study may be attributed to the sites' attempts to convey the universality of the condition, or to appeal to a greater number of people. For instance, most of the sites employing multiple actors included actors of both genders, providing that the medication was not gender-specific.

**Usage of People, Animals, and Other Subjects.** Macias and Lewis (2004, p. 50) reported 80 percent of their sample of 90 prescription medication Web sites used humans or animals, a figure almost identical to these visual cues in the present study (81 percent used people; 2 percent used animals). Surprisingly, fewer advertisements in the present study (32 percent) utilized animated graphics than Macias and Lewis' (2004, p. 50) study (48 percent). However, Macias and Lewis (2004, p. 47) coded the entire Web site, while coders for the present study assessed

only the home pages of each of the Web sites. Finally, the present study uncovered correlations between several of the visual elements, a finding absent from both Macias and Lewis' (2004) and Bell, Kravitz, and Wilkes' (2000) studies. The significant correlations were identified in the usage of body parts and trade characters, as well as between people and cartoons.

The combination of trade characters and body parts could be attributed to advertisers' need to ensure their brand is memorable without associating their product with an identifiable person, and the visuals for the advertisements for medications that treat specific body parts tended to depict that specific body part. For instance, the medication Lamisil, a treatment for nail fungus, portrays the brand's trade character, a menacing creature resembling an evil gremlin, standing beside a person's foot. Of course, the correlation between people and cartoons may be also due to the high frequency of people included in the advertisements, but another possible reason could be the need for another illustrative or informative element besides the person included in the advertisement. Yet if these pharmaceutical manufacturers employ a cartoon to convey the risks, benefits, or other information about the medication, the human actor's presence in the advertisement may not be crucial to the communication of the message of the advertisement. Potentially, advertisers may place humans in these direct-to-consumer advertisements—even when they are not pivotal to the message—to identify with consumers on a personal level. With that reasoning, however, the usage of primarily Caucasian actors in the advertisements may negatively affect the advertisers' opportunity to connect with consumers of other ethnicities.

### **5.1.7 Identity Rewards**

**Activity Level.** The usage of active people in the advertisements echoed Cline and Young's (2004, p. 147) study on the visual cues of the advertisements; only 5 percent of the actors in the present study's sample were identified as passive. The reinforcement of Cline and Young's (2004, p. 147) data on the activity level of the actors communicates the literal version of being proactive about treatment.

**Health of Actor.** Manufacturers' frequent usage of healthy actors in the present study also mirrored the results of Cline and Young (2004, p. 147). When the Web sites did depict ill people, the actors very rarely appeared sick. For instance, an HIV/AIDS medication identified two separate actors by their names and as HIV-positive. However, even these people appeared happy, friendly, and healthy. As Cline and Young (2004) suggest, the

“symbolic value” of a healthy person with the same disease as the viewer is typically very positive and inspiring (p. 137). The suffering viewers do not want to see a mirror image of themselves; rather, the viewer is more receptive to the message when confronted with an ideal.

**Friendliness of Actor.** Like Cline and Young’s (2004, p. 147) study, the vast majority of the actors in the advertisements appeared friendly because they were smiling. The consistent use of friendly actors is likely due to the same reasons as the frequent usage of healthy actors within direct-to-consumer advertisements, regardless of the medium the campaigns appear: patients likely aspire to become an idealized version of themselves. Instead of feeling isolated and suffering quietly, they want to appear friendly, happy, and approachable.

Another interesting finding within the advertisements’ usage of friendly actors included the significant correlations between several of the elements. Correlations were identified between friendliness and activity level, which were not present in Cline and Young’s (2004, p. 147) study. In addition, the researcher found correlations between friendliness and health. Not only do the correlations show the powerful association between happiness and pro-activity, they also suggest that a patient who is not pro-active cannot be happy, and a patient who is not healthy cannot appear friendly.

### **5.1.8 Appearance of Actor**

**Gender.** The usage of female actors in the advertisements of the present study differed dramatically from Macias and Lewis’ study. Females were identified in 81 percent of Macias and Lewis’ (2004, p. 50) study, while the present study featured females in 31 percent of advertisements. Further, males were depicted in 70 percent of advertisements within Macias and Lewis’ (2004, p. 50) study, but were shown much less often (12 percent) in the present study. The Web sites within the present study’s sample also were much more likely to utilize males and females together (34 percent of the total) than to portray a single gender, although Macias and Lewis did not utilize this coding category.

This difference could be due to Macias and Lewis’ (2004) exposure to multiple executions of the same campaign, since they examined 18 magazines appealing to readers of practically every demographic (p. 47). For instance, if a prescription drug treats a condition relevant to males and females, the advertiser would likely not depict a female in the advertisement for a men’s magazine.

The present study supports data from Cline and Young's (2004, p. 144) study, which also identified the direct-to-consumer advertisements' frequent usage of multiple actors. In addition, single-gender advertisements used women most often, just as in the present study. The consistency of this element within both of these studies indicates the higher likelihood of women to seek health information. However, since the instances of female-only advertisements were less pronounced within the present study than in both Macias and Lewis' (2004, p. 50) and Cline and Young's (2004, p. 144) study, pharmaceutical advertisers of medications for both genders may have begun to recognize the vast appeal of the Internet to many demographics and may be using female-only advertisements less often to appeal to a wider target.

**Age.** Most often, the Web sites within the present study used multiple actors of multiple ages (18 percent). Of the age categories, however, 30-39 year-old actors were used most frequently, followed by 20-29 year olds. Only 8 percent of the Web sites in the present study used actors classified into the oldest category, "60+ years old." Children were used even less often in Macias and Lewis' (2004, p. 50) study: 38 percent of the Web sites portrayed children, while the Web sites in the present study reported very few Web sites that used children. Cline and Young's (2004, p. 147) study reflected the usage of actors within advertisements within the present study. Actors of multiple ages were used very often, and the authors noted few children or elderly people.

Interestingly, the researcher discovered a correlation between the condition and the age of the actors within the advertisement that was not identified in Cline and Young's (2004) study. This finding appears to contrast with the actors' age data in the previous paragraph, since the advertisements appear to favor younger actors. However, the usage of actors of particular ages in relation to the condition sheds a favorable light on the manufacturers, since they apparently are not promising youth with the usage of the medication. Yet, when analyzed in terms of the high activity level of the actors in the advertisements, perhaps the manufacturers are instead promising youth in the form of vitality.

**Ethnicity.** Overall, the ethnicity of the actors within the current study's sample of direct-to-consumer advertisements for prescription medications was White/Caucasian, noted in 42 percent of the advertisements. However, multiple actors of multiple ethnicities were also used, albeit half as often as White/Caucasian actors. Surprisingly, only 3 percent of the sample utilized Hispanic actors, yet multiple manufacturers offered the option for the user to view the Web site in Spanish. The overwhelming use of White/Caucasian actors within the



advertisements echoes the data of Cline and Young (2004, p. 144), whose research also identified a majority of White actors.

Interestingly, no correlation existed between the condition and ethnicity, a finding that suggests the advertisers cast primarily White/Caucasian actors in the advertisements for a reason other than the relevance of the condition to this particular ethnic group. Alienating ethnic groups by including only Caucasians in advertisements serves neither the manufacturers nor the consumers. However, the current study's use of multiple actors of multiple ethnicities is promising, even though this category was cited much less often than the White/Caucasian classification. The inclusion of races other than Caucasians (in addition to many of the sites' availability in Spanish) indicates manufacturers' recognition of the disparate demographics of not only Web users, but of the ethnic makeup of American citizens.

### **5.1.9 Interactivity**

Within the present study, manufacturers' usage of several of these interactive elements is more pronounced than in Macias and Lewis' (2004, p. 51) content analysis of direct-to-consumer Web sites potentially because these researchers collected data in March 2001, over seven years before the data collection period for present study (p. 47). Pharmaceutical manufacturers have increasingly offered Web sites for prescription medications over the previous decade, and coupled with the Americans' usage of the Internet for health information, the increased emphasis on the interactive elements is logical.

Macias and Lewis (2004) explained that the "Other" category proved quite beneficial within their content analysis because of the array of elements outside of the defined categories of their instrument, and this category was also advantageous within the present study (p. 48). However, "Other" features were five times more frequent within the present study than in Macias and Lewis' (2004) study: the researchers reported the presence of "Other" elements in just 14 percent of their sample (p. 48). Site maps were the most frequent interactive element offered on the 100 Web sites for prescription medications, present in almost three-fourths of the sample, while only 50 percent of Macias and Lewis' (2004) sample of Web sites utilized site maps (p. 48). This increase in manufacturers' usage of site maps is likely due to a greater quantity of Web pages now accessible to users on each brand's Web site.

The data was also fairly similar in terms of other elements: Macias and Lewis (2004, p. 51) identified quizzes in 14 percent of their sample of 101 direct-to-consumer prescription medication brands, while 16 percent of the sample for the current study used this interactive element. Frequently-asked questions were present in two-thirds of Macias and Lewis' (2004, p. 51) sample, while in only 35 percent of the present study. Macias and Lewis (2004) also found that 30 percent of their sample utilized personal appeals (p. 50), while this element was only present in 20 percent of the present study.

Although the present study may appear to mirror—or even fall short of—Macias and Lewis' (2004, p. 49-52) study in several of these elements, the former study's exploration of the entire Web sites of these brands may have yielded links to items not visible from the home page, which is the only Web page coded for each of these medications in the present study. Therefore, the concentration of such a variety of elements on the home page of these Web sites indicates manufacturers' strong efforts to provide a visually stimulating, content-rich Web site that will instantly capture consumers' attention and entice them to explore the information and tools provided.

**Vividness.** Data from Coyle and Thorson's (2001, p. 65) interactivity study help illustrate the benefits of the Web sites' usage of interactive features within the present study. For example, Coyle and Thorson (2001) explain that vivid elements of Web sites, which include audio, videos, and animation, cultivate stronger attitudes among users towards the Web site and the brand (p. 67-68). Thus, manufacturers apparently have become increasingly cognizant of how increasing Web sites' telepresence, or creation of a virtual experience that more closely mirrors reality, ultimately can benefit their brands.

The rich media available on a Web site can convey dramatically different messages about the advertised brands. Macias and Lewis' (2004) study and the current study identified roughly the same amount of videos (20 percent and 21 percent, respectively) and audio (13 percent and 15 percent, respectively) (p. 50-51). However, some of the Web sites within the present study utilized "site guides," providing videos of hosts (often nurses or other credible spokespeople) who helped users navigate the Web sites. Whether the viewer chooses to utilize the site guide or site map, this element communicates the manufacturers' commitment to informing the patients and helping them use the site to their benefit to a greater extent.

Despite the stereotypes of older people's reluctance to adapt to new technologies such as the Internet, the Web sites in the sample do not overlook this group. One-fifth of the Web sites in the sample utilized text-size

adjustments, which shows how the manufacturers have accommodated older patients with poor or failing eyesight. These companies definitely realize that elderly Americans seek health information on the Internet quite often, and also recognize this group's buying power. In addition, elderly people's greater reliance on prescription medications to treat the many conditions that affect primarily older people, including arthritis, menopause, and impotence, makes this demographic an excellent target. In spite of these factors, however, younger actors were still used more frequently than older actors in the advertisements that did not portray a group of people of multiple ages. Perhaps if the advertised drugs are taken to prevent a condition from occurring later in patients' lives, these Web sites may indeed be targeting a younger demographic than their primary target audience. Another potential reason advertisers may include mainly younger actors in the advertisements may be similar to the reason they include healthy (rather than ill) actors: so consumers can view an idealized version of themselves. Consequently, the viewers then link the brand's effect on their health to the ideal of being young again.

#### **5.1.10 Instrumental Motivational Cues**

**Inducements.** Inducements for Bell, Kravitz, and Wilkes' (2000) study were classified into different categories than in the present study; the authors used patient support inducements, financial, and informational inducements (p. 333). While the categories for the corresponding items in the present study were adapted from Young and Cline's (2005, p. 357) study instead, many of the individual variables roughly correspond to the following sections of the instrument: inducements, informational rewards, medical rewards, instrumental punishments, and identity motivational cues. Thus, some of the categories are comparable. For example, Bell, Kravitz, and Wilkes (2000, p. 333) identified monetary inducements such as rebates in their study, which corresponds to the variable "Vouchers/Coupons" within the inducement section of the present study's instrument. In addition, Young and Cline (2005) reported relatively little usage of product and/or financial incentives, identifying this element in only 17.3 percent of the entire sample (p. 357).

Usage of inducements in the present study was quite pronounced in comparison to Macias and Lewis' (2004) study: 70 percent of the present study's sample offered some type of inducement, and over a quarter of the Web sites in the current study utilized multiple inducements (p. 50-52). In contrast, Macias and Lewis (2004) identified financial inducements or motivators in only 39 percent of advertisements (p. 49). The more extensive usage of inducements in the present study may indicate that pharmaceutical manufacturers are unafraid of criticism

from opponents of direct-to-consumer advertising for offering monetary inducements or other incentives in exchange for higher sales figures. Another possible reason for the pronounced role of financial inducements in these Web sites could be that the advertisers recognize consumers' hesitance about paying the high prices of prescription medications, and are willing to cater to the public to eradicate this reluctance. Also, now that the public is aware of direct-to-consumer advertising's ultimate role in increasing the prices of the promoted brands, the advertisers may be attempting to erase this mindset by associating financial inducements with the direct-to-consumer advertisements.

**Informational Rewards.** Informational rewards were used very frequently within the present study: 94 percent of the Web sites within the sample presented at least one type of informational reward. The sites offered "Contact Us" links and "Other" elements most often, followed by patient support programs, found in approximately 36 percent of the sample. Support groups were used more frequently by Web sites in the present study than in Bell, Kravitz, and Wilkes' (2000, p. 333) study, which only identified this informational reward in 4 percent of the sample.

However, 39 percent of the advertisements in Bell, Kravitz, and Wilkes' (2000) study offered to send additional information (p. 333), whereas additional information such as brochures and binders and other print materials were offered much less often in the present study. Macias and Lewis (2004) also reported a high incidence of Web sites' offers to send additional print materials (32 percent) (p. 49). The disparity between the offers of additional information, namely print, could be attributed to Americans' increased usage of the Internet to obtain health information. Waiting for a brochure to arrive in the mail is no longer necessary; by accessing an Internet search engine, users can access virtually infinite information on the advertised medication.

**Medical Rewards.** Successful direct-to-consumer advertisements typically convey the medications' ability to help patients control their conditions, so citing negative rewards is ultimately a major part of most campaigns. The present study confirmed this assertion: 84 percent of these advertisements included claims of increasing users' control. Similarly, Bell, Kravitz, and Wilkes (2000) discovered that the most commonly cited benefits of the advertised medications were the effectiveness and control over the symptoms (p. 333). However, the most common medical reward of Young and Cline's (2005) study was the specific claims of effectiveness, present in 96 percent of

the sample (p. 359). Like the present study, claims of extending patients' lives were infrequent, except for cardiovascular treatments (Young & Cline, 2005, p. 359).

The statements of control, the most common medical reward present in Bell, Kravitz, and Wilkes' (2000, p. 333) research and the present study, indicate the manufacturers' recognition of the patients' need to feel as if their disease does not necessarily have to ruin their lives. As for the lack of advertisers' claims that using these brands can extend patients' lives, the advertisements technically cannot outright guarantee this result, since the effects of the medications ultimately depend on the individual. However, the Web sites that offered personal appeals from the actors in the advertisement did seem to insinuate the respective advertised medications' role in saving their lives (i.e. by preventing another heart attack). Since the medications' life-saving abilities, as described by the endorsers, are not typically reflected in the fine print of the advertisements, the personal stories of the actors in the advertisement almost seem to be anomalies or even embellished versions of the occurrences.

**Instrumental Punishments.** Instrumental punishments, such as negative outcomes and disclaimers, were quite prevalent within the present study: nearly three-quarters of the sample provided one or both of these items. Young and Cline (2005), contrastingly, noted significantly fewer instances of the items within this category: 50.7 percent of their sample contained one type of instrumental punishment (p. 359). While Macias and Lewis (2004) did not explicitly term the item "instrumental punishments," the authors identified legal information such as privacy policies within 81 percent of advertisements (p. 50). Considering the U.S. Food and Drug Administration does not yet regulate the content of direct-to-consumer advertising on the Internet, the manufacturers of the brands in the present study appear to be providing many of the same elements required within print and broadcast advertisements, a step towards more comprehensive risk and benefit descriptions for users.

#### **5.1.11 Identity Motivational Cues**

Macias and Lewis (2004) identified personal testimonials in 30 percent of the advertisements (p. 51), while the present study featured 20 personal appeals. Just as within Macias and Lewis' (2004, p. 51) study, claims of the medications' effectiveness and the patients' ability to control symptoms by using the medication were prevalent, while comparative claims were used relatively infrequently. While specific effectiveness claims were present in two-thirds of the sample of the present study and virtually all of the manufacturers made claims of the medications'

general effectiveness, the relative shortage of comparative claims is intriguing. In addition, the 29 medications offering comparative claims were often not referring to a competing medication; some Web sites offered comparative data on varying potencies of the advertised medication.

Essentially, these identity motivational cues are the origin of much of the controversy over direct-to-consumer advertising of prescription medications; by employing these claims, manufacturers do appear to be marketing the prescription drugs as commercial, mainstream products. While the advertisers do use clinical indicators and other specific data to make many of these claims, they should also offer hyperlinks to more comprehensive data or provide that information to the consumer through print or e-mailed materials. The clinical studies required to be able to assert this information differ considerably in importance from the experiments mainstream advertisers rely upon, such as the number of uses a paper towel can withstand before being discarded, yet these clinical tests these claims are based upon were not always accessible to users on the home pages of these Web sites.

While some direct-to-consumer advertising critics may not believe the public is capable of interpreting scientific data, no harm is done in providing the information, since uninterested users will likely just return to the home page, while interested but confused users can simply ask their doctors for further explanation of the risks and benefits at their upcoming appointment.

## **5.2 Implications of Findings**

Implications of the present study's findings exist for the Web sites' frequent usage of gain frames and informational appeals, in addition to the types of visual and interactive elements, motivational cues, and other incentives discovered in the sample of the direct-to-consumer Web sites for prescription medications.

### **5.2.1 Frequent Usage of Gain Frames**

Loss frames were so prevalent in previous literature exploring direct-to-consumer advertisements (Roth, 2003) that the researcher assumed the present sample would also support this data. However, this sample's heavy usage of gain frames—notably “Gain Frame: Happiness”—suggests a major change in how the direct-to-consumer advertising industry communicates with the audience. Perhaps gain frames are more appropriate now than in the time of Roth's (2003, p. 181) study because the stigma associated with physical illnesses is dissolving. For instance,

Americans' heavy usage of the Internet to retrieve health information allows their greater understanding of the condition they may be suffering from; prior to the Internet, these patients may have ignored or downplayed the severity of their symptoms to avoid the embarrassment of seeing a doctor. This change may be especially noteworthy for the Web sites for psychiatric-neurologic ailments, most of which feature such a wealth of information that patients are not likely to dismiss symptoms as merely "in their heads." In addition, Web sites' usage of support groups and patient testimonials allow patients to transfer the gain frames of the advertisements to their own lives, associating the positive feelings evoked from the advertising message with the anecdotes from other people who faced the same obstacles.

Furthermore, although most of the manufacturers do not downplay the seriousness of the condition, many of the Web sites in the sample present the usage of medication to control these diseases as a routine necessary for patients to continue living happy lives. In fact, many of the sites emphasize how patients' lives may become even more fulfilled with the usage of the medication. Essentially, even patients suffering from chronic, life-threatening ailments such as heart disease or cancer do not have to function as if their lives are shortened by the condition.

**Gain Frames versus Instrumental Punishments.** Interestingly, many Web sites with gain frames utilized instrumental punishments as well, such as negative outcomes of using the drugs and disclaimers. Apparently, manufacturers are attempting to balance the negative medical information with the positive messages of the advertisement. Understandably, these advertisers may be exercising extreme caution in this realm to avoid class action lawsuits or consumers complaining to the Food and Drug Administration about the claims on the Web site. Regardless, the balancing of the positive and negative information also conveys the manufacturers' recognition of the seriousness of presenting adequate risk and benefit information to consumers.

**Gain Frames versus Medical Rewards.** Although two-thirds of the Web sites used gain frames, the sites' usage of medical rewards contrasted to a certain degree. For instance, a medical reward included in the advertisements was "Claims of Negative Rewards." The majority of the Web sites included this element, which is essentially a loss frame. In addition, many Web sites with gain frames did not include claims of extending patients' lives; in fact, some sites even clearly stated the chances of the medication actually shortening patients' lives. Therefore, the Web sites' ability to project dominant gain frames overall, yet still present loss-framed elements or extremely negative information is intriguing.

**Gain Frames versus Visual Elements.** In addition, the visuals accompanying these gain-framed Web sites that did not include claims of extending patients' lives, or even explicitly denied the medications' ability to do so, did not typically convey this message. However, if the Web sites presented visuals that depicted the lack of medical rewards, the sites obviously would not be effective promotional tools. Moreover, Web sites utilizing the dominant frame of "Gain Frame: Happiness" did not always present visuals that completely conveyed this emphasis on the individual's sense of contentment with his- or herself. For instance, visuals for many of the Web sites deemed "Gain Frame: Happiness" depicted more than one person.

**Lack of Social Approval Frames.** The researcher also explored the possible reasons for the lack of both gain and loss frames regarding social approval, present in only 5 percent of the sample. First, Americans are notoriously individualistic, especially regarding health conditions. For example, Americans often attribute an obese individual's condition to their lifestyle, instead of attributing his or her weight problem to genetics or other factors. Thus, these advertisements may just be projecting this mindset. However, while the sites appear to communicate the individuals' power and ability to control the disease through medication, this message may obscure the true purpose of instilling this sense of power: the patients' individual responsibility to control the disease.

**Notable Usage of Mixed Frames.** Cardiovascular ailments may have used mixed frames most because of the major risks (death) and benefits (living longer) involved in taking these types of medications, as well as the recent lawsuits over medications such as Vioxx, the cholesterol medication that may have caused unnecessary deaths and injuries to users. While the usage of mixed frames indicates the manufacturers' commitment to communicating the considerable risks of the medication, loss frames may even be more effective since a serious illness like heart disease literally may claim the patients' lives at any moment.

### **5.2.2 Frequent Usage of Informational Appeals**

The implications of these findings are positive for both consumers and pharmaceutical manufacturers: first, more informational appeals means that prospective consumers can retrieve some of the information necessary to weigh the risks and benefits of the advertised medication. Further, since this study only analyzed the home pages of these Web sites, the greater usage of informational appeals speaks volumes about the quality of the initial



presentation of the material to prospective consumers. While the visuals presented on the Web pages do not necessarily convey the gravity of the decision to take the advertised medication, the depth and breadth of the accompanying text shows manufacturers recognize the importance of information to consumers, even though the FDA does not currently regulate direct-to-consumer advertising of prescription drugs on the Internet.

Increases in the wealth or quality of information provided within the Web sites may convey manufacturers' response to users' growing comfort with the Internet as a source for health information and treatment options. However, a more informative appeal is not necessarily equivalent to more information: the appeal in these advertisements merely contains more informational than transformational elements. In addition, these manufacturers' willingness to self-monitor by applying many of the FDA's print advertising standards is promising for consumers, the public, advertising professionals, and the future of the pharmaceutical industry.

The positive findings of this study may benefit pharmaceutical manufacturers considerably, since the FDA may not see an immediate need to amend the regulations for direct-to-consumer advertising practices. The presence of more informative appeals than expected, coupled with the extent manufacturers have anticipated consumers' concerns, indicates that pharmaceutical companies understand the gravity of the decision to take medication to treat an illness. In addition, if few consumer complaints are filed with the FDA about these direct-to-consumer Web sites and the FDA has no basis for concern about the quality of the information presented on the sites, the agency may continue to allow the industry to apply its own standards to Internet advertising of direct-to-consumer prescription drugs. Furthermore, just as within any industry, successful businesses remain aware of the competition's advantages in terms of products or services and ensure their company can offer the same or even more advantages to the customer. Since most of these manufacturers' products' Web sites are public and can be accessed by any Internet user, these companies will likely note the advantages of the competition's sites and attempt to offer consumers as many benefits to using the medication as necessary to retain market share.

**Informational Appeals and Internet Users.** Further, while some researchers (Singh and Smith, 2005, p. 373) believe education negatively affects respondents' attitudes towards direct-to-consumer advertising, studies also show that Web users are typically better educated than average Americans. However, Web users must proactively seek the information they find on the Internet, either through click-through advertisements, search engines, or retrieving Web sites from the drugs' print or broadcast advertisements, while broadcast advertisements reach passive

viewers. Web sites allow consumers to seek information without having to call a toll-free number, the information is immediately available, current, and in most cases, the entire Web site is accessible to any Internet user. Unless the Web users seek the information only to formulate arguments against it, the logical assumption is that Internet users are open to the information presented on these Web sites. Moreover, highly educated people would likely appreciate and be more receptive to an informative appeal more than less-educated consumers, especially when the topic involves their health and, in many cases, their lives.

### **5.2.3 Cultivating Positive Attitudes through Informational Rewards**

Respondents' attitudes are the primary factor in determining whether to mention medications during appointments with their doctors, and since most consumers who request a drug leave the appointment with a prescription, manufacturers must do everything possible to cultivate strong, positive attitudes toward not only direct-to-consumer advertising, but for the individual brands as well. The informative nature of the majority of these direct-to-consumer advertisements within the study demonstrates these companies' recognition of consumers' highly involved decision to use medication to treat an illness, in addition to the drug's risks and benefits. Further, according to Singh and Smith (2005), the "empowering" effects of direct-to-consumer advertising can also foster positive attitudes toward the practice (p. 369). Thus, the informational appeals included in half of these Web sites for prescription medications can not only inform the customers, but also remind them that understanding their condition will help them overcome the obstacles they face.

Naturally, positive attitudes towards the brand and/or the manufacturer often result in more successful advertising campaigns and increased sales. While these pharmaceutical manufacturers are attempting to generate higher sales through financial incentives like vouchers and coupons, these companies should focus more intently on cultivating stronger, more positive attitudes among users by appearing more concerned about patients' long-term wellbeing. For instance, providing links to more clinical studies about the brand or medication class can benefit users significantly. Few of these Web sites within the sample utilized this tool, although to receive FDA approval these drugs must first go through extensive studies, and so the manufacturers should be able to provide at least a minimal amount of data to further inform users of the risks and benefits of the medication. In addition, surprisingly few sites offered site updates and e-mail newsletters (14 percent). The manufacturers that did not offer study data,

site updates, or news have forfeited one of the major advantages of the Internet: the ability to instantly update content.

By giving users a reason to visit the Web site regularly or visit the site again after purchasing the medication, the manufacturers have an opportunity to reassure the patients of their decision to take the advertised medication, ensure their long-term usage (if necessary), and encourage these satisfied customers to recommend that family and friends affected with the same condition ask their physicians about the drug. Further, the world's largest search engine, Google, typically lists Web sites in the order of the most recently updated (assuming they are not advertisers, which automatically receive special placement at the top or sidebar of the results) (Google, 2008). A frequently updated site is crucial to a strong Internet presence, since so many users employ search engines to locate content, especially health-related information. Overall, manufacturers have accomplished much by simply drawing the curious users to the Web sites, and should use this opportunity wisely.

#### **5.2.4 Achieving Consistency of Visual Elements and the Overall Message**

Manufacturers apparently struggle to reconcile the dangers of taking the medication and the potential benefits the drug can provide users. Since the U.S. Food and Drug Administration demands extensive clinical data from the companies prior to allowing them market the medications, the benefits of the medication typically outweigh the risks. However, the visual elements of the advertisements do not always convey the seriousness of the decision to take a medication that could potentially be harmful or elicit painful side effects.

A more effective usage of visual elements within direct-to-consumer advertisements on the Internet would be to present consumers with animated graphics demonstrating how the medication works within their bodies, or more extensive utilization of "site guides," videos hosted by credible spokespeople such as nurses who help the user navigate the content of the Web page. In addition, usage of videos allows users to expose themselves to the message as many times as they please, or at the very least, each time they access the site. Each viewing is another opportunity for manufacturers to sell the benefits of the product.

#### **5.2.5 Using Interactive Features to Build Communities for Patient Support**

While advertisements' usage of patient support programs was relatively satisfactory, manufacturers could convey their concern for patients even more by allowing them to network with each other through the Internet. The

virtually nonexistent usage of message boards conveys the manufacturers' reluctance to allow patients to communicate directly with each other; one possible reason for this hesitance may be to avoid users sharing negative comments about the medication that would be viewable to other patients and prospective consumers.

Understandably, manufacturers do not want to facilitate the sharing of potentially harmful information between patients (i.e. instructions on how to increase the dosage of the medication prior to receiving a doctor's permission). However, allowing a carefully monitored message board can cultivate a community spirit, which would dramatically help patients who are suffering with many of these conditions, especially chronic or life-threatening illnesses such as HIV/AIDS or cancer. To illustrate, people's contact with family and friends about the drugs makes them more likely to ask their doctors about the medication (Lee, Simon, & Paek, 2007, p. 107), so essentially providing patients with an opportunity to talk with others and form social networks, even if they never meet in person, can not only help the patients, but will indirectly increase sales for manufacturers as well.

Presumably, many of these sufferers already interact with other people affected with their disease, either through going to the local hospital for chemotherapy or attending support groups in their areas. Including message boards or other tools for community-building such as links to support groups, can emulate these users' realities by giving them a network of people similar to them that transcends distance and time. The simulation of reality contributes considerably to a medium's telepresence, which Coyle and Thorson (2001) discovered significantly strengthens users' attitudes towards the brand (p. 66). Naturally, the Internet is the most qualified medium to use elements of vividness and interactivity, so manufacturers should take advantage of all these components, especially since they are already paying to have an Internet presence. For example, greater usage of the Web's live chat capabilities could help solidify users' experience with the brands by emphasizing the manufacturers' commitment to their understanding of the risks and benefits, while message boards can help build a community of patients with the condition in common without regard to distance and make the brand more personally-relevant.

### **5.3 Limitations**

The present study presents several limitations, including the relatively small sample size of 100 direct-to-consumer Web sites. A larger sample size would have increased the external reliability of the data. In addition, coders examined only the home pages of these prescription medication Web sites in order to determine whether the site utilized a transformational or informational advertising appeal. However, while a Web site's home page may

appear to use the transformational appeal, in some cases, examination of the entire site may have indicated that the informational appeal was dominant instead.

Another limitation of this study involved sites' usage of videos. Since the researcher saved each of the Web sites in JPEG format, which does not support movies, coders had to view the sites with movies on the Internet instead of merely consulting the JPEG images. However, the coders only viewed these Web sites online in order to hear the audio (if available) accompanying the videos. No other attributes of the Web sites were coded online, and in case any differences between the Web site and the saved JPEG image existed, the JPEG file always prevailed. The researcher chose this method to minimize the chance of coders recording any changes in the sites after the data collection was completed. However, the researcher carefully captured multiple images of each of the sites using videos in order to keep the JPEG file as representative of the actual Web site as possible. This problem may be ameliorated if each of the Web sites with videos offered transcripts; however, only one Web site of the 100 within the sample provided this information.

The final limitation of the study was accounting for the sample's usage of "Other" inducements, a phenomenon Macias and Lewis (2004) also observed in their content analysis of prescription medication Web sites (p. 48). While the majority of Web sites included incentives that were not identified in the other inducement categories, the variety of items was too great to classify into additional categories. Even if the researcher had classified some of these items into broad categories, many of the items inevitably would have been excluded (i.e. "appointment simulators" and sweepstakes to win an iPod).

## CHAPTER 6. CONCLUSIONS

The purpose of the present study was to examine how the visual and textual cues of direct-to-consumer advertisements for prescription medications combine to frame the messages and form the dominant appeals of the advertising, and the research effectively achieved this objective. In addition, visual cues such as the subjects of the advertisements were analyzed in comparison to print advertisements and a study on direct-to-consumer Web sites. The present study achieves its purpose by contributing significantly to the direct-to-consumer advertising debate by indicating pharmaceutical manufacturers' considerable efforts to provide patients with timely, balanced, and accurate information. The investigation also depicts the similarities between the advertising tactics of pharmaceutical advertisers and commercial advertisers of mainstream products. Furthermore, the study exposes the shortcomings of the Web sites in presenting multiple ethnicities and especially depicting groups of actors who are all of non-white ethnicities. Patterns of relational and identity rewards were identified, including the noteworthy usage of recreational settings and healthy, active, and happy actors. Finally, this analysis of direct-to-consumer advertisements provides an intriguing foil to many of the elements identified in previous research on direct-to-consumer print advertisements.

An important finding of the present study was the Web sites' frequent usage of dominant informational frames, which previous researchers have mostly identified in print advertisements. Although the frame category of the present study primarily refers to the balance of transformational versus informational content and does not necessarily account for the quantity of the information, the initiative the companies have taken to educate patients remains noteworthy. Further, pharmaceutical manufacturers' efforts to educate consumers can potentially decrease the stigma associated with many of these conditions, notably HIV/AIDS and psychiatric-neurologic ailments. Advertisers' attempts to dissolve these negative associations are especially evident in the Web sites' overwhelming usage of gain frames, an unexpected finding of the study. Whether or not advertisers consciously seek to eradicate the stigmas attached to these conditions by educating the public, the companies' efforts to sell the products through presenting the benefits of treating the condition may ultimately be advantageous to the public.

The results of the present study contribute to framing literature by illuminating the framing practices of advertisers on the Internet. Since the Internet is a relatively new medium, a greater quantity of studies on commercial advertising practices on the Web exists than on the Internet advertising practices of pharmaceutical manufacturers. Also, since this research depicts the frames of the industry prior to Internet regulations for direct-to-

consumer advertising from the U.S. Food and Drug Administration, the present study can provide excellent comparative data for subsequent researchers once the FDA enacts these regulations.

The prominent informational element in these direct-to-consumer Web sites for prescription medications is promising, considering the U.S. Food and Drug Administration does not yet regulate direct-to-consumer advertising on the Internet. Manufacturers are basically free to structure the brands' Web sites as they choose, yet the majority voluntarily cites the negative outcomes of taking the medication and many manufacturers even explicitly claim the medications' inability to affect the users' lifespan. Perhaps the FDA's rigorous testing practices and disclosure laws have set the standard for direct-to-consumer advertisements in a variety of media, and if so, the FDA may not choose to regulate the Internet advertising of direct-to-consumer medications.

Internet advertising research, especially for direct-to-consumer advertisements for prescription medications, is still a developing field, but the present study helps to depict the extent pharmaceutical manufacturers have embraced the Internet as a promotional and/or educational tool. Based upon literature discussing the effectiveness of various types of vivid elements, including rich media like videos and animated graphics not only contributes to the patients' understanding of the risks, benefits, and effectiveness of the medication, but also helps foster the users' positive attitudes toward the brand. Data from the present study indicate that most of the manufacturers of these top-selling brands have effectively begun to harness the benefits of this interactive medium, although the causality of the usage of interactive elements and these brands' impressive sales is yet to be explored.

These companies may benefit consumers to an even greater extent by including more hyperlinks or offers of additional information to supplement the advertisements' medical reward claims or identity motivational cues. Although viewers of the advertisements anticipate the promotional nature of the claims, lending credibility to these claims may help manufacturers avoid the negative association with commercial advertisers and reinforce the gravity of the consumers' decision to take medication. Although a greater percentage of the Web sites could have effectively utilized additional informational rewards such as links to news or press releases, the manufacturers of the brands within the sample still seem to volunteer an adequate amount of data designed to educate the consumers rather than strictly promote the brands.

Although access to the information on these Web sites may benefit patients considerably, certain groups' exposure to extensive information on the condition can potentially be dangerous. For example, drug abusers could deliberately use the symptom checklists as a guide to obtain the medication from their doctors, since some of the

conditions, namely psychiatric-neurologic ailments, do not require blood tests or other laboratory procedures to diagnose the patient with the condition. Many medications used to treat psychiatric-neurologic illnesses are controlled substances and carry the potential for addiction, such as Adderall XR, an amphetamine used to treat attention deficit disorder. Hypochondriacs may also find the extensive symptom information unsettling enough to schedule an unnecessary appointment with their physicians, helping to perpetuate the cycle of higher insurance costs for the public.

The data regarding the visual cues present in these direct-to-consumer Web sites is revealing, and the researcher identified several shortcomings. While the sites used multiple actors of multiple ethnicities most often, Whites were still the most dominant single ethnic group. Possibly, the manufacturers used primarily White actors in the Internet advertisements because the majority of American Web users are Caucasian, but as the Internet becomes more widely-adopted, advertisers should attempt to depict actors of a variety of ethnicities in order to avoid alienating consumers. In addition, many of the manufacturers already acknowledge the growing Hispanic population by including Spanish versions of the downloadable questions for doctors, as well as the option to view the entire site in Spanish. Since minorities are less informed on health matters than their white counterparts, including members of these races as actors within the advertisements can make the message even more personally relevant and encourage them to be pro-active about maintaining their health.

The present study also presented interesting differences between the manufacturers' usage of the Internet versus print for direct-to-consumer advertising of prescription medications, namely within patterns of visual cues, including relational and identity rewards. For example, depictions of leisure activities were more prominent than the social settings identified in print advertisements, while even actors identified as sick within the advertisements appeared healthy and happy. These patterns indicate the manufacturers' attempts to avoid any negative associations with the brand and/or condition, despite the potential negative outcomes of taking many of the advertised medications.

Due to the range of textual, visual, and interactive elements present within the Web sites included in the present study, a "typical" direct-to-consumer Web site for a prescription medication cannot be defined. However, several elements were commonly identified on the majority of direct-to-consumer advertisements within the sample. Most included extensive information on the advertised product's side effects and offered disclaimers and legal information, and many of the sites presented a visually engaging element to stimulate the user's senses. For instance,



many of the sites relied upon Flash technology to animate the text or make it float across the screen. However, although some interactive elements are commonly present on direct-to-consumer Web sites for each of the 15 medical conditions within the present study, some Web sites utilized the interactive qualities and rich media capabilities of the Internet much more effectively than others. Finally, the direct-to-consumer Web sites typically included financial incentives, informational rewards, and various instrumental motivational cues. Of course, the pharmaceutical manufacturers are utilizing these sites as a promotional tool, but are accomplishing this goal in an information-rich and visually stimulating manner.

Undoubtedly, the wealth of space on these Web sites facilitates the potential disclosure of the medications' benefits and risks, even though the FDA currently does not regulate direct-to-consumer advertising on the Internet. This study effectively illustrates the World Wide Web's qualifications to soon become the primary medium for direct-to-consumer advertising.

## **6.1 Future Studies**

Since the present study included elements from multiple influential direct-to-consumer advertising researchers such as Young and Cline (2005), Cline and Young (2004), Macias and Lewis (2004), and Roth (2003), this data offers many possibilities for subsequent explorations. Recommendations for future research include applying this study design to a sample of direct-to-consumer Web sites larger than 100 to increase the reliability of the data. In addition, modifying the methodology of the present study from quantitative to qualitative could present the visual and textual cues of these Web sites more realistically. Additional future studies can examine the nontraditional usage of the Internet by pharmaceutical manufacturers, such as Novartis' Fluvirin campaign on YouTube (Donnelly, 1 February 2008, ¶ 1).

A more detailed examination of the relationships between the conditions and major elements of the present study, including appeals and frames, would be an excellent topic for future studies. For instance, an interesting finding of the present study involved the absence of a correlation between the condition and the dominant advertising appeal. This lack of relationship is unexpected, since medications which carry heavier risk or are more involving to the patient, such as chemotherapy treatments, seemingly would be more likely to utilize informational appeals, while medications for minor ailments like allergies could effectively employ transformational appeals. Subsequent studies could examine the potential reasons for the absence of a relationship between these two

elements. The researcher also discovered an interesting relationship between the condition and the usage of loss frames, such as the prevalence of loss frames among urological treatments. Further exploration of these elements could truly contribute to academia's understanding of the practice of direct-to-consumer advertising and supplement the findings of the present study.

Furthermore, qualitative findings of the present study are worthy of mention. For instance, while African-Americans were infrequently depicted as the single ethnic group within the complete sample of the direct-to-consumer Web sites, people of this race appeared overwhelmingly in Web sites for HIV/AIDS medications. While studies indicate that young African-Americans comprise the highest number of HIV/AIDS deaths each year (Avert, 2008, ¶ 1), some of the HIV/AIDS Web sites identified the actors in the advertisements by name, in addition to their HIV-positive status. While the Web sites for several psychiatric-neurologic treatments and a hormone therapy medication identified patients by name who were currently taking the medication, in addition to the type of disorder or disease they were suffering from, identifying people as HIV-positive—even with their first name only—seems to have more social repercussions than depicting an actor who suffers from bipolar disorder. Admittedly, this very observation may inadvertently be influenced by the stigma associated with HIV/AIDS, which involves assumptions of the afflicted person's promiscuity, sexual orientation, or morality. However, many people who are suffering from this debilitating condition became infected with HIV/AIDS through blood transfusions or long-term partners or spouses who did not know they had the disease. Yet the question of whether the pharmaceutical manufacturers are perpetuating or challenging the stigma, at least for the HIV/AIDS condition, is worthy of additional exploration.

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## APPENDIX A. STUDY INSTRUMENT

Coder: \_\_\_\_\_

### I. Manufacturer

- 1 Abbott Laboratories
- 2 Amgen
- 3 Amgen/Wyeth
- 4 Astellas Pharma U.S. Inc.
- 5 AstraZeneca
- 6 Bayer HealthCare Pharmaceuticals
- 7 Biogen Idec
- 8 Boehringer Ingelheim
- 9 Boehringer Ingelheim/Astellas
- 10 Bristol-Myers Squibb
- 11 Bristol-Myers Squibb/Merck & Co./IM Clone Systems, Inc.
- 12 Bristol-Myers Squibb/Otsuka America Pharmaceutical, Inc.
- 13 Bristol-Myers Squibb/Sanofi-Aventis
- 14 Centocor Inc.
- 15 Cephalon Inc.
- 16 Eli Lilly & Co.
- 17 Eli Lilly & Co./Abbott Laboratories
- 18 Elsay/Ortho-McNeil
- 19 Elsay/Pfizer
- 20 EMD Serono, Inc.
- 21 Endo Pharmaceuticals
- 22 Forest Pharmaceuticals, Inc.
- 23 Genentech, Inc.
- 24 Genentech/Biogen Idec
- 25 GlaxoSmithKline
- 26 King Pharmaceuticals, Inc.
- 27 McNeil PPC
- 28 MedImmune
- 29 Merck & Co.
- 30 Merck & Co./Schering-Plough
- 31 Novartis Pharmaceuticals Corporation
- 32 Ortho Biotech Products, L.P.
- 33 Ortho-McNeil-Janssen Pharmaceuticals, Inc.
- 34 Pfizer
- 35 Pfizer/Boehringer Ingelheim
- 36 Proctor & Gamble Pharmaceuticals
- 37 Proctor & Gamble Pharmaceuticals/Sanofi-Aventis
- 38 Sanofi-Aventis U.S.
- 39 Schering-Plough
- 40 Serpracor Inc.
- 41 Shire U.S. Inc.
- 42 Takeda Pharmaceuticals
- 43 TAP Pharmaceutical Products Inc.
- 44 Teva Pharmaceutical Industries Ltd.
- 45 UCB
- 46 Wyeth Pharmaceuticals Inc.

## II. Brand

1	Abilify
2	Aciphex
3	Actiq
4	Actonel
5	Actos
6	Adderall XR
7	Advair
8	Altace
9	Ambien CR
10	Aranesp
11	Aricept
12	Arimidex
13	Asacol
14	Avandia
15	Avastin
16	Avonex
17	Betaseron
18	Celebrex
19	Combivent
20	Combivir
21	Concerta
22	Copaxone
23	Coreg CR
24	Cozaar
25	Crestor
26	Cymbalta
27	Depakote ER
28	Detrol LA
29	Diovan
30	Effexor XR
31	Eloxatin
32	Enbrel
33	Epogen
34	Erbitux
35	Evista
36	Flomax
37	Flovent HFA
38	Fosamax
39	Gemzar
40	Geodon
41	Gleevec
42	Herceptin
43	Humira
44	Imitrex
45	Kaletra
46	Keppra
47	Lamictal
48	Lamisil
49	Lantus
50	Levaquin
51	Lexapro
52	Lidoderm
53	Lipitor



54	Lovenox
55	Lunesta
56	Lyrica
57	Namenda
58	Nasonex
59	Neulasta
60	Neupogen
61	Nexium
62	Niaspan
63	Norvasc
64	Plavix
65	Premarin
66	Prevacid
67	Procrit
68	Prograf
69	Protonix
70	Provigil
71	Pulmicort Respules
72	Rebif
73	Remicade
74	Risperdal
75	Rituxan
76	Seroquel
77	Singulair
78	Skelaxin
79	Spiriva Handihaler
80	Strattera
81	Sustiva
82	Synagis
83	Synthroid
84	Taxotere
85	Topamax
86	Toprol XL
87	Tricor
88	Trileptal
89	Valtrex
90	Viagra
91	Vytorin
92	Wellbutrin XL
93	Xopenex
94	Yasmin 28
95	Zelnorm
96	Zemplar
97	Zetia
98	Zocor
99	Zolof
100	Zyprexa

### III. Condition

1	Allergies
2	Cancer
3	Cardiovascular
4	Dermatologic
5	Diabetes

- 6      Gastrointestinal-nutritional
- 7      HIV/AIDS
- 8      Infectious (non-HIV)
- 9      Musculoskeletal
- 10     Obstetric-gynecologic
- 11     Psychiatric-neurological
- 12     Respiratory
- 13     Tobacco Addiction
- 14     Urologic
- 15     Undisclosed Ailment
- 16     Two or More Unrelated Ailments

#### IV. Relational Rewards

- 0      Family/More than One Generation
- 1      Romance
- 2      Work
- 3      Social
- 4      Recreational
- 5      Other Relational Reward
- 6      No Human Actor

#### V. Visual Elements

##### A. Number of Actors

- 0      No Actor Present/Actor is Not human
- 1      One Actor
- 2      Two Actors
- 3      Three Actors
- 4      Four Actors
- 5      Five Actors
- 6      Six Actors
- 7      Seven Actors
- 8      Eight Actors
- 9      Nine Actors
- 10     Ten Actors
- 11     More than Ten Actors

##### B. People

- 0      Absent
- 1      Present

##### C. Cartoons

- 0      Absent
- 1      Present

##### D. Animals

- 0      Absent
- 1      Present

##### E. Trade Characters

- 0      Absent
- 1      Present

- F. Body Parts
- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |
- G. Product
- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |
- H. Other Visual Element
- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

## VI. Identity Rewards

- A. Activity Level
- |   |                                     |
|---|-------------------------------------|
| 0 | Actor is Not Human/No Actor Present |
| 1 | Passive                             |
| 2 | Active                              |
- B. Health of actor
- |   |                                     |
|---|-------------------------------------|
| 0 | Actor is Not Human/No Actor Present |
| 1 | Ill                                 |
| 2 | Healthy                             |
| 3 | Indeterminate                       |
- C. Friendliness
- |   |  |
|---|--|
| 0 | Actor is Not Human/No Actor Present                            |
| 1 | Not Smiling  |
| 2 | Smiling  |
| 3 | Indeterminate /Multiple Actors who are Smiling and Not Smiling |

## VII. Appearance of Main Actor

- A. Age
- |   |                                     |
|---|-------------------------------------|
| 0 | Actor is Not Human/No Actor Present |
| 1 | Child                               |
| 2 | Adolescent                          |
| 3 | 20-29 Years Old                     |
| 4 | 30-39 Years Old                     |
| 5 | 40-49 Years Old                     |
| 6 | 50-59 Years Old                     |
| 7 | 60+ Years Old                       |
| 8 | Indeterminate                       |
| 9 | Multiple Actors of Multiple Ages    |
- B. Gender
- |   |   |
|---|---|
| 0 | Actor is Not Human/No Actor Present             |
| 1 | Male  |
| 2 | Female  |
| 3 | Unable to Determine from Image                  |
| 4 | Male and Female/Multiple Actors of Both Genders |

C. Ethnicity

- |   |   |
|---|---|
| 0 | Main Actor is Not Human/No Main Actor   |
| 1 | White/Caucasian                         |
| 2 | Black/African-American                  |
| 3 | Hispanic                                |
| 4 | Asian                                   |
| 5 | Mix                                     |
| 6 | Indeterminate                           |
| 7 | Multiple Actors of Multiple Ethnicities |
| 8 | Other                                   |

VIII. Interactivity

A. Quizzes

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

B. Live Chat

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

C. Message Board

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

D. Videos

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

E. Audio

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

F. Text-Size Adjustments

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

G. Animated Graphics

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

H. E-mail Updates/Newsletters

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

I. Frequently-Asked Questions

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

J. Glossary

- |   |         |
|---|---------|
| 0 | Absent  |
| 1 | Present |

K. Site Map		
	0	Absent
	1	Present

L. Other		
	0	Absent
	1	Present

#### IX. Dominant Frame

- 1 Gain Frame: Social Approval
- 2 Gain Frame: Happiness
- 3 Loss Frame: Social Approval
- 4 Loss Frame: Happiness
- 5 Mix of Gain/Loss Frames
- 6 Indeterminate/No Frame

#### X. Dominant Advertising Appeal

- 1 Informational Appeal
- 2 Transformational Appeal
- 3 Mixed Appeal
- 4 Indeterminate/No Appeal

#### XI. Instrumental Motivational Cues

##### A. Inducements

- 1. Presence of Inducements
 

0	No Inducements
1	Inducements
- 2. Reminder Cards
 

0	Absent
1	Present
- 3. Free Samples
 

0	Absent
1	Present
- 4. Free Trials
 

0	Absent
1	Present
- 5. Vouchers/Coupons
 

0	Absent
1	Present

##### B. Informational Rewards

- 1. Contact Us
 

0	Absent
1	Present

2. Telephone Number
    - 0 Absent
    - 1 Present
  3. E-mail Address
    - 0 Absent
    - 1 Present
  4. Mailing Address
    - 0 Absent
    - 1 Present
  5. Patient Support Programs
    - 0 Absent
    - 1 Present
  6. Informational CDs/DVDs
    - 0 Absent
    - 1 Present
  7. Brochures/Binders
    - 0 Absent
    - 1 Present
  8. Press Releases
    - 0 Absent
    - 1 Present
  9. Third-Party Editorials/Sponsorship Web Sites/Other Web Sites
    - 0 Absent
    - 1 Present
  10. News Coverage
    - 0 Absent
    - 1 Present
  11. Other Informational Reward
    - 0 Absent
    - 1 Present
- C. Medical Rewards
1. General Effectiveness Claims
    - 0 Absent
    - 1 Present
  2. Specific Effectiveness Claims
    - 0 Absent
    - 1 Present
  3. Claims of Extending Patient's Life
    - 0 Absent
    - 1 Present

4. Claims of the Medication's Ability to Improve Particular Clinical Indicators

0 Absent  
1 Present

5. Claims of Negative Rewards

0 Absent  
1 Present

6. Comparative Claims

0 Absent  
1 Present

D. Instrumental Punishments

1. Claims of Negative Outcomes

0 Absent  
1 Present

2. Disclaimers

0 Absent  
1 Present

XII. Identity Motivational Cues

A. Claims of Enabling/Improving Patient's Lifestyle

0 Absent  
1 Present

B. Claims of Improving Patient's Overall Positive Feelings

0 Absent  
1 Present

C. Claims of Improving Patient's Outward Appearance

0 Absent  
1 Present

D. Claims of Improving Patient's Strength/Power

0 Absent  
1 Present

E. Claims of Improving Patient's Control over the Condition

0 Absent  
1 Present

F. Claims of Improving Patient's Intelligence

0 Absent  
1 Present

G. Claim of the Condition's Universality

0 Absent  
1 Present

H. Personal Appeals from Actor(s) in Advertisement

0 Absent  
1 Present

## **APPENDIX B. OPERATIONAL DEFINITIONS FOR STUDY VARIABLES**

### **B.1 Direct-to-Consumer Web sites for Prescription Medications**

The researcher consulted IMS Health's list of 200 prescription medications that earned the highest sales in 2006, the most recent data publicly available free-of-charge. The researcher chose IMS Health's list because the company's figures are widely cited within the pharmaceutical industry and are published yearly within *Med Ad News*, a leading publication within the direct-to-consumer advertising industry ("IMS to present at Morgan Stanley Global Healthcare Conference on May 1 at 3:00 P.M. ET," 28 April 2008, ¶ 1).

Like Macias and Lewis (2004, p. 47), the researcher eliminated Web sites for medications that are available over-the-counter or are generic drugs, and included only the Web sites that were "stand alone," meaning the product had an independent site instead of a page on the parent company's Web site. In addition, only each site's home page was coded. The researcher chose to branch from Macias and Lewis' (2004, p. 47) study in this instance because products' home pages are how advertisers attract viewers to explore the remainder of the sites through presenting an overview of the Web sites' content through links and other interactive material, and could therefore be compared more readily with the content analyses on print advertisements that comprise the foundation of the present study. The researcher also believed the home pages of the Web sites would represent the advertisements for these brands more closely than the entire content of each coded Web site.

### **B.2 Manufacturer**

Each manufacturer of the prescription medications within the study was alphabetized and assigned a number between 1 and 46, representing the total amount of individual pharmaceutical manufacturers within the study. One hundred total manufacturers were not represented because some manufacturers marketed more than one top-selling brand among the 100 Web sites within the study, an increasingly common occurrence as manufacturers expand their variety of products. For example, in 2004, Pfizer boasted two best-selling products within the top five best-selling prescription medications and a total of 24 products ranked within the top 500 best-selling pharmaceuticals ("PharmaLive.com special reports: Top 500 prescription drugs," 2005, p. 2). However, some medications were collaborations between two manufacturers, and each of those collaborations was treated as a



separate manufacturer. For instance, medications manufactured by Eli Lilly & Co./Abbott Laboratories were not classified within Eli Lilly & Co.'s products.

### **B.3 Brand**

All prescription medication brands within the study were alphabetized and then assigned a number between 1 and 100, which the coders used to classify the brands that were ranked 1-100 within IMS Health's list of the top-selling prescription medications in 2006. Generic medications were eliminated from the study.

### **B.4 Condition**

Prescription medication Web sites were also coded according to the condition treated by the advertised product. Codes for the condition were drawn from Bell, Kravitz, and Wilkes' (2000) study (p. 331), a scale also employed in Cline and Young's (2004, p. 143) research. The conditions included allergies, cancer, cardiovascular, dermatologic, diabetes, gastrointestinal-nutritional, HIV/AIDS, infectious (non-HIV), musculoskeletal, obstetric-gynecologic, psychiatric-neurological, respiratory, tobacco addiction, urologic, and undisclosed. Since the sample included Web sites and not broadcast advertisements, the medical information was easily accessible with an Internet connection, and coders did not encounter difficulties in determining what condition the medication treated.

### **B.5 Relational Rewards**

First, coders categorized the settings of the advertisement according to the relational rewards presented within the direct-to-consumer Web sites (Cline & Young, 2004, p. 141). As adapted from Cline and Young (2004, p. 141), the Relational Rewards section consisted of the following items:

#### **B.5.1 Family/More than One Generation**

This category within the Relational Rewards section included family settings or members of more than one generation, such as a man and his son. Multiple generations, however, did not have to include children. For instance, a medication for menopausal symptoms may depict a middle-aged woman explaining to her thirty-year-old daughter the benefits of the advertised medication, while recommending the medication to her daughter for when she enters that stage.

### **B.5.2 Recreational**

A recreational setting included one or more actors engaging in leisure activities, such as surfing or lounging on a hammock. Coders were instructed to distinguish between leisure activities and social activities by noting the number of actors in the advertisement and which category the activity typically falls within. For example, while some Americans may play golf for networking purposes or to close a business deal, golf is traditionally considered to be a leisure activity.

### **B.5.3 Romance**

A romantic setting was recorded if the Web site included two actors who appeared affectionate towards each other. However, coders were instructed to use caution in case some Web sites may feature a man and a woman alone together but not necessarily engaged in a romantic activity. For example, a couple riding their bikes on a nature trail would qualify as a recreational setting.

### **B.5.4 Work**

A work setting was recorded if the Web site featured actors dressed in business attire who were engaging in work-related activities, such as attending meetings, sitting at a computer desk, or interacting with clients or coworkers. Coders were instructed to be cautious in separating work settings from social settings, however, by taking into account the main copy and the overall messages of these advertisements.

### **B.5.5 Social**

A social setting was categorized if the Web site depicted two more actors engaged in social activity (such as a party). However, coders were instructed to use the visual and textual cues to differentiate between the “Social” and the “Family/More than One Generation” categories within the Relational Rewards section.

#### **B.5.6 Other Relational Reward**

This category encompassed relational rewards that did not fit effectively within the categories on the above list. For instance, Web sites featuring actors who were staring into the camera, in doctors' offices, or in classroom settings were classified within this category.

#### **B.5.7 No Human Actor**

This category was added to account for the advertisements featuring cartoons, the advertised products, trade characters, animals, or other non-human subjects.

### **B.6 Visual Elements**

Coders also recorded the visual elements of the 100 direct-to-consumer Web sites for prescription medications within the study, which included relational rewards, number of actors, and the presence of people, cartoons, animals, trade characters, body parts, products, or other entities. Coders were instructed to classify visual cues that were visible within the foreground of the advertisement; however, if visual cues present in the background of the Web site were distinguishable, coders included those cues as well.

#### **B.6.1 Number of Actors**

Coders counted only humans within the total number of actors within the advertisements, and actors within the prescription medication Web sites had to be visible in the foreground of the advertisement, although they did not have to be facing the camera or the audience. If an actor was in the background of the advertisement, yet his or her appearance was clearly distinguishable, the coders included those actors when counting how many actors were present. Classifications for the number of actors within the advertisement were as follows: one, two, three, four, five, six, seven, eight, and nine. The classifications reached just nine actors because that was the highest number of actors recorded by Cline and Young (2004, p. 144). No cartoons, trade characters, animals, products, or other non-human entities were counted among the number of actors; rather, these Web sites were coded as "No Actor Present/Actor is Not Human."

### **B.6.2 People**

Coders recorded the presence or absence of human actors within the advertisement.

### **B.6.3 Cartoons**

The presence or absence of cartoons within the prescription medication Web sites was recorded as well. A variety of visual elements fit within this category: cartoons included figures that were not considered trade characters (such as Zolof's personified rock) (Pfizer, 2008i) and non-animated illustrations of how the medication works or how the medical condition affects various structures within the body.

### **B.6.4 Animals**

Animals were also classified among the visual cues within the coded prescription medication Web sites. Coders were instructed to classify elements within the animal category only if the animals were not cartoon renderings and appeared to be real (such as in the Rozerem broadcast advertisement that features a beaver speaking to the actor) (TV Week, 31 October 2007, ¶ 1).

### **B.6.5 Trade Characters**

Coders also noted the presence or absence of trade characters within these direct-to-consumer Web sites for prescription medications. Coders were instructed to differentiate between cartoons and trade characters according to the following: trade characters typically feature more personality than cartoons, appear more attached to the product, and likely have the name of the prescription brand emblazoned on or around them, such as the Nasonex bumblebee (Schering-Plough, 2008).

### **B.6.6 Body Parts**

The presence or absence of human body parts was also recorded. If the body parts were illustrations, they were classified within the "Cartoons" category. Body parts were also coded within the advertisements if the actor's head was not visible.

### **B.6.7 Products**

The advertised brands' products were also recorded among the visual cues of the prescription medication Web sites. Items classified within this category included pictures of the brands' packages or the pills themselves.

### **B.6.8 Other Visual Element**

This category encompassed any subject of these direct-to-consumer Web sites that did not fit within the preceding categories, such as the picture of the bell on the Actiq Web site (Cephalon, 2008).

## **B.7 Identity Rewards**

Like the coders of Cline and Young's (2004, p. 141) study, the present study's coders recorded the degree of identity rewards demonstrated within these direct-to-consumer advertisements, including subjects' activity level, health, and friendliness.

### **B.7.1 Activity Level**

The models within the advertisements were classified as active if they were engaging in physical, recreational, or social activities, taking the advertised medication, or looking directly into the camera. Like the coders of Cline and Young's (2004, p. 141) study, coders were instructed to code the highest level of activity for the Web sites depicting more than one person. Coders categorized actors as inactive if they did not appear to be engaged in any activity in the picture or if they were sleeping. For instance, the Web site for Effexor XR shows a woman who appears to be gazing blankly into the distance; her activity level was classified as "Passive" ("Information on Depression Symptoms and Treatment," Wyeth Pharmaceuticals, 2008). No cartoons, trade characters, animals, or products were coded as "Active" or "Passive." Instead, these subjects were coded as "Actor is Not Human/No Actor Present," a category the researcher added to this section.

### **B.7.2 Health of Actor**

Human actors were coded as ill or healthy according to whether they appeared to exhibit the symptoms of the ailment. For instance, the Web site for the prescription medication Imitrex, which treats migraines, shows a

woman clutching her head in pain, so she was classified as “Ill” (GlaxoSmithKline, 2008i). Actors were also classified as “Ill” if the Web site identified them personally as suffering from the disease, even if they did not necessarily appear to be sick. For instance, the Web site for the HIV medication Combivir featured a picture of a woman identified as “Michelle, diagnosed HIV positive” (GlaxoSmithKline, 2008b), and she was coded as “Ill.” Coders were instructed to classify the actors within the advertisement as unhealthy even if only one of the actors did not appear to be healthy or was identified as unhealthy by the text. Actors who were not human were coded within the “Actor is Not Human/No Actor Present” category.

### **B.7.3 Friendliness of Actor**

Inspired by Cline and Young’s (2004, p. 141) research, the friendliness of the actors was operationalized according to whether the actors were or were not smiling. Friendliness was not coded for animals, cartoons, or trade characters for the same reason that their gender and ethnicity were not coded. For non-human actors, coders used the coding category “Actor is Not Human/No Actor Present.”

## **B.8 Appearance of Main Actor**

Each main actor’s appearance was also coded. Categories for Appearance of Main Actor included age, gender, and ethnicity.

### **B.8.1 Age**

If the actor on the Web site was not human or if no actor was present, coders recorded the age of that actor as “Actor is Not Human/No Actor Present.” As for the Web sites featuring humans, the researcher coded the ages of the actors more specifically than Cline and Young (2004, p. 141). The present study classified the actors’ ages according to whether they were children, adolescents, 20-29 years old, 30-39 years old, 40-49 years old, 50-59 years old, or over 60 years old.

### **B.8.2 Gender**

Each actor recorded within the 100 coded prescription medication Web sites was also classified as “Male” or “Female.” For the cartoons, animals, trade characters, or other non-human elements within the advertisements

that were not classified as male or female, the researcher included the “Actor is Not Human/No Actor Present” code within this category.

### **B.8.3 Ethnicity**

The coding categories for ethnicity included the following classifications: “White/Caucasian,” “Black/African-American,” “Hispanic,” “Asian,” “Mix,” or “Indeterminate.” The researcher added the codes “Multiple Actors of Multiple Ethnicities” and “Indeterminate” to the Ethnicity section in case the Web site utilized two or more actors of different ethnicities, providing that these actors were both featured within the main picture or another focal point of the Web site. In addition, an “Other” category was added to account for any actor who could not be classified within the other ethnicities. Ethnicity was not coded for animals, cartoons, trade characters, or other non-human subjects; these entities were classified within the category “Main Actor is Not Human/No Main Actor.”

## **B.9 Interactivity**

The Interactivity section of the instrument was adapted from Macias and Lewis’ (2004) content analysis of 90 direct-to-consumer Web sites for prescription medications (p. 47, 51). However, the researcher first had to modify these researchers’ complete list of interactive features to accommodate the present study, which only analyzed the sites’ home page and not the entire Web site. Therefore, interactive features included quizzes, live chat, message board, videos, audio, text size adjustments, animated graphics, e-mail updates/newsletters, frequently-asked questions, the site’s glossary, links to the site map, and other features. Each coder recorded the presence or absence of these items.

### **B.9.1 Quizzes**

The Quizzes category referred to links to self-administered, interactive tests on the Web sites for users to “diagnose” themselves or to assess the severity of their symptoms. Links to “Questions to Ask Your Doctor” were not included within the Quizzes category.

### **B.9.2 Live Chat**

The Live Chat category encompassed links to patient chat rooms or information on how users can attend or participate in virtual talks with nurses, doctors, company representatives, or other experts online. Podcasts and Webcasts were included within this category.

### **B.9.3 Message Board**

Message boards were operationalized as forums where users can express their concerns or comments about the advertised product, the condition, or other related subjects.

### **B.9.4 Videos**

The presence or absence of videos on the site was also recorded. For example, particular sites utilized a spokesperson or “guide” who appeared in a video which played immediately after the site fully loaded, while others provided links to patient testimonial videos, as evidenced by phrases such as “Watch Charlie’s Story.”

### **B.9.5 Audio**

The presence of audio was recorded only if the site’s home page featured a video that played immediately after the site loaded or that users could instruct to play by pressing a button. Coders were instructed not to record the presence of audio if the site’s home page featured only links to videos since coders could not be certain whether these videos utilized audio without navigating away from the home page.

### **B.9.6 Text-Size Adjustments**

The presence or absence of the option of increasing or decreasing the Web site’s font size was also recorded.

### **B.9.7 Animated Graphics**

Coders were instructed to record the presence of animated graphics if the Web site reacted to the users’ cursor. For instance, coders classified the Web sites as using animated graphics if the main picture changed when



the cursor moved over a certain part of the Web site, or if the site appeared to utilize technology enabling the manufacturer to present information to the user in increments, similar to a television commercial.

#### **B.9.8 E-mail Updates/Newsletters**

The presence or absence of e-mail updates and newsletters was also recorded. E-mail updates encompassed various types of information, from site updates to briefings on ongoing clinical studies. Newsletters encompassed mainly the electronic versions, yet if a site did not specify the type of newsletter offered, offered, coders were instructed to record its presence within this category.

#### **B.9.9 Frequently-Asked Questions**

While many Web sites offered hyperlinks specifically titled “Frequently-Asked Questions,” this item was also often called “Common Questions.” Coders were instructed not to substitute the presence of a “Questions for Your Doctor” section for the “Frequently-Asked Questions” section.

#### **B.9.10 Glossary**

Coders also recorded the presence or absence of a link to a glossary on the sites’ home pages. A link to “Common Terms” was assumed to be a glossary as well.

#### **B.9.11 Site Map**

Coders also noted the presence or absence of links to the site map. However, the researcher instructed coders not to substitute links to the site guide for links to the site map, since some Web sites featured both of these elements.

#### **B.9.12 Other Interactive Elements**

The “Other” category for the Interactivity section accounted for links to event calendars, patient stories and testimonials, downloadable cookbooks, and other items utilizing the site’s interactive features. Links to the site guide were also classified within this category. Macias and Lewis (2004) believe the usage of the “Other” category proved crucial to their study of the interactive features of direct-to-consumer pharmaceutical Web sites (p. 48), and

the present study benefitted from the flexibility of this category as well due to the variety of interactive features these manufacturers built into the advertisements.

### **B.10 Dominant Frame**

Coders also classified the type of dominant textual frames within the 100 coded direct-to-consumer prescription medication Web sites as “Gain Frame: Social Approval,” “Gain Frame: Happiness,” “Loss Frame: Social Approval,” “Loss Frame: Happiness,” “Mix of Gain/Loss Frames,” or “Indeterminate/No Frame.” The researcher added the “Indeterminate/No Frame” code to the Dominant Frame section in case none of the other available choices was appropriate for the Web site. In order to categorize a Web site according to the frame (or lack thereof), coders determined whether messages present within the text of the 100 prescription medication brands’ Web sites emphasized risks or benefits to the patient. Since many Web sites displayed both benefits (gain frames) and risks (loss frames) on the same Web page, coders were instructed to classify the sites according to which frame was more dominant on the page. In order to distinguish the dominant frame on the Web sites, coders were instructed to evaluate the prominence of the text that explained the gain or loss to consumers.

Gain frames within the text of the Web sites conveyed the benefits to patients if they choose to take the prescription medication or treat the condition. Gain frames referred to either gaining happiness or gaining social approval by choosing to treat the medical condition or take the prescription medication.

#### **B.10.1 Gain Frame: Social Approval**

Coders were instructed to utilize the “Gain Frame: Social Approval” category if the advertisement implied how treating the illness with the advertised product would benefit patients’ social lives. For example, an advertisement for a medication to treat acid reflux disease may depict the affected person’s family rejoicing since they will finally being able to enjoy a family barbeque with him.

#### **B.10.2 Gain Frame: Happiness**

Web sites that focused on the positive outcomes of treating the disease, especially with the advertised medication, were categorized within the “Gain Frame: Happiness” code. For instance, if the home page of a prescription medication brand to treat a sexually transmitted disease showed a huge picture of a laughing couple

canoeing, in addition to a small sidebar explaining the risks of taking the medication in small print, the dominant frame was the “Gain Frame: Happiness.”

Loss frames were recorded when the risks of not taking the medication or not treating the condition were evident within the text of the Web site. In contrast to gain frames, the Web sites’ loss frames included messages that the patient may lose happiness or lose social approval by choosing either to not take the medication or to not treat the condition. An example of a loss frame is the home page of a medication to treat a sexually-transmitted disease which warns consumers that treatment is the only way to reduce their risk of transmitting the disease to others.

#### **B.10.3 Loss Frame: Social Approval**

The Web sites for prescription medications that emphasized the negative social outcomes of the ailment were categorized as “Loss Frame: Social Approval.” Also, home pages that presented the social risks to the patient if he or she does not treat the illness with the advertised medication were classified within this category.

#### **B.10.4 Loss Frame: Happiness**

The “Loss Frame: Happiness” category was recorded if the Web site illustrated the risks to the patient’s happiness if he or she did not treat the disease or use the advertised medication. Web sites advertising a medication that treats depression may utilize this type of dominant frame.

#### **B.10.5 Mix of Gain/Loss Frames**

If both gain and loss frames appeared to be equally prominent within the Web sites for these 100 prescription medications, coders classified those sites as using a “Mix of Gain/Loss Frames.”

#### **B.10.6 Indeterminate/No Frame**

For Web sites without identifiable frames or frames that were not easily distinguished, the researcher added the category “Indeterminate/No Frame.”

## **B.11 Dominant Advertising Appeal**

The appeals of the direct-to-consumer prescription medication Web sites were coded based on whether they were informative, transformative, mixed, or indeterminate. If both transformational and informational appeals were present on the home page of the Web site, coders applied the same guidelines to distinguish the dominant appeal of the page as they used to determine each page's dominant frame: by assessing the prominence of each appeal relative to the rest of the content on that particular page. For example, if a Web site featured a large picture of a man and a woman having a picnic in a meadow, even if the smaller content surrounding the picture contained risk and symptom information, the dominant appeal was coded as "Transformational."

### **B.11.1 Informational Appeal**

Informational appeals were recorded if the home page of the Web site for the prescription medication featured text (or an appeal by an actor) outlining the risks and benefits of the drug or presenting a logical argument to try the medication as treatment for the condition. Prominent symptom information and warnings about the medication were also classified within the "Informational" advertising appeals category. An example of an informational appeal is Zocor's Web site (Merck & Co., 2007), since the home page features only the downloadable product information for patients.

### **B.11.2 Transformational Appeal**

Coders classified an appeal as "Transformational" if the text of each Web site's home page elicited the emotions of the audience. An example of a transformational appeal is a Web site which features a picture of a lonely dog with no one to play with him accompanied by text asking the viewers when they will treat their allergy symptoms so their dog no longer will be neglected.

### **B.11.3 Mixed Appeal**

If the Web site used both transformational and informational advertising appeals relatively equally and neither the informational nor transformational appeal was dominant, coders classified the site as using a "Mixed" appeal.

#### **B.11.4 Indeterminate/No Appeal**

To account for Web sites that did not fit within any of the above three categories, the researcher added the category “Indeterminate/No Appeal.”

### **B.12 Inducements**

Inducements were among the instrumental motivational cues coded within the sample. The researcher compiled examples of inducements from the research of both Macias and Lewis (2004, p. 49) and Young and Cline (2005, p. 354). Coders also recorded whether the Web sites for the 100 top-selling prescription medications utilized inducements, which, according to Macias and Lewis (2004), include reminder cards, free samples, free trials, and/or vouchers/coupons (p. 49). Coders were instructed to include inducements that were evident on the front page of these coded Web sites, even if the sites only included a hyperlink for viewers to click on to reach the inducement.

#### **B.12.1 Presence of Inducements**

Coders recorded whether the Web sites contained any inducements that were not included within the Inducements category. Essentially, any material presented to consumers to encourage them to speak with their doctors, request samples or free trials, or purchase the medication was coded as an inducement.

#### **B.12.2 Reminder Cards**

Reminder cards encompassed postcards or other mailed or e-mailed documents to remind patients to refill their prescriptions. E-mail reminders were also included within this category, even if they were not necessarily identified as “cards.”

#### **B.12.3 Free Samples**

Coders also recorded the presence or absence of offers for free samples of the product. The study’s two coders distinguished between free samples and free trials according to the terminology of the offer.

#### **B.12.4 Free Trials**

The presence or absence of free trial offers on these products' Web sites was also recorded. Free trials included offers of a limited supply of the medication, such as seven days' worth, an entire month's worth, or more.

#### **B.12.5 Vouchers/Coupons**

Coders identified the sites' usage of vouchers or coupons. The researcher instructed coders to use the sites' terminology to differentiate between these types of inducements and promises of free trials or samples, which should not be classified within this category.

#### **B.13 Informational Rewards**

Informational rewards were another category within instrumental motivational cues coded within the advertisements. Drawing from Young and Cline's (2005, p. 355) and Macias and Lewis' (2004, p. 47) studies on the textual cues of direct-to-consumer advertisements, informational rewards included telephone numbers, e-mail addresses, mailing addresses, patient support groups, informational CDs or DVDs, brochures/binders, press releases, third-party editorials/sponsorship Web sites, news coverage, or other. Just as for coding the inducements, coders were instructed to include informational rewards that were evident on the front page of these coded Web sites (even if the sites only included a hyperlink for viewers to click on to reach the informational reward).

##### **B.13.1 Telephone Number**

The presence of a telephone number was recorded if the number was visible on a Web site's home page. Telephone numbers for purposes that were not directly related to the advertised brand, however, such as phone numbers for the parent company's program to help patients pay for medications, were not included within this category.

##### **B.13.2 E-mail Address**

E-mail addresses for a site's Web master or hyperlinks to "E-mail the Web master" were included within this category, as well as e-mail addresses soliciting users' questions about the advertised product.

### **B.13.3 Mailing Address**

Mailing addresses for the manufacturers or the brands were included within the Mailing Address category. Coders were instructed not to record the presence of the mailing address if the Web site merely listed the city and state in which the manufacturer copyrighted the content. To qualify, mailing addresses had to be complete.

### **B.13.4 Patient Support Programs**

Coders also recorded the presence or absence of patient support programs for these Web sites for top-selling prescription medications. The researcher trained the coders not to substitute plans for financial assistance for prescription medications for patient support programs; rather, patient support programs had to be brand-specific, such as Crestor's "Crestor 360<sup>0</sup>" support program (AstraZeneca Pharmaceuticals, 2008a).

### **B.13.5 Informational CDs/DVDs**

Coders were instructed to code the presence or absence of the site's use of informational CDs and DVDs as inducements. Sites offering to send "additional materials" to interested users were not counted within the Informational CDs/DVDs category because the manufacturer did not clearly state what type of materials were included. The exceptions were the Web sites offering to send these additional materials and accompanied the offer with a photo, illustration, or text indicating the inclusion of a CD or DVD.

### **B.13.6 Brochures/Binders**

The usage of brochures and binders was also recorded within the Informational Rewards section of the instrument. Again, coders did not record sites that offered "additional materials" unless the manufacturer or brand specified what type of materials were included, either through a photo, illustration, or within the text.

### **B.13.7 Press Releases**

Coders also recorded the sites' inclusion of press releases. Press releases may focus on the brand, the manufacturer, the condition, relevant clinical studies, or other subjects relevant to users. The press releases could be hyperlinks or even displayed on the home page.

### **B.13.8 Third Party Editorials/Sponsorship Web Sites/Other Web Sites**

An additional coding category within the Informational Rewards section of the instrument encompassed the presence or absence of third party editorials, sponsorship Web sites, or other Web sites. Third party editorials were defined as hyperlinks to another sites not affiliated with the parent company or the advertised brand, while sponsorship Web sites included links advertising the brand's partnerships and affiliations. Other Web sites could be link to third-party sites or non-promotional sites.

### **B.13.9 News Coverage**

The presence or absence of news coverage was also recorded for the present study. News coverage may include clinical trials, new findings, information about the company, or other items relevant to the sites' users.

### **B.13.10 Other Informational Reward**

The "Other" category encompassed any informational rewards that did not easily fit within the above categories, such as "additional materials" that were not specifically named by the manufacturers.

## **B.14 Medical Rewards**

Medical rewards were the third type of instrumental motivational cue identified within the direct-to-consumer advertisements. Coders were instructed to classify the following textual cues as medical rewards (Young & Cline, 2005, p. 356) general effectiveness claims, specific effectiveness claims, claims of the medications' ability to extend patients' lives, claims of the medications' ability to improve particular "clinical indicators," claims of negative rewards, and comparative claims.

### **B.14.1 General Effectiveness Claims**

Coders recorded the presence or absence of general effectiveness claims within the Medical Rewards section of the instrument. General effectiveness claims were typically included within the sites' tag lines or main copy, but could also be identified within the sites' fine print.



#### **B.14.2 Specific Effectiveness Claims**

Coders also categorized the Web sites' use of specific effectiveness claims. Specific effectiveness claims typically were included within the manufacturers' description of the medications' use as approved by the U.S. Food and Drug Administration, and provided more detail than general effectiveness claims. Specific effectiveness claims were closely linked to claims of the medications' ability to improve "clinical indicators."

#### **B.14.3 Claims of Extending Patient's Life**

Claims of extending patients' lives were also included within the Medical Rewards section of the instrument. Coders were instructed to carefully read the sites' fine print to determine the presence of these claims, since some Web sites' main copy may have implied the medications' ability to extend the patients' lives but explicitly stated the drugs' inability to do so within the fine print.

#### **B.14.4 Claims of the Medication's Ability to Improve Particular Clinical Indicators**

In addition, coders recorded any claims of the medications' success at improving any clinical indicators of the disease treated by the advertised medication. An example of this type of medical reward would be an HIV/AIDS medication that can increase white blood cell count by 10 percent after six months. Coders carefully separated these claims from specific effectiveness claims, but typically both types of claims were present together, often in the same sentence.

#### **B.14.5 Claims of Negative Rewards**

Negative rewards were typically included within the products' description, since most of these medications were designed to decrease the pain, discomfort, or life-threatening aspects of the conditions.

#### **B.14.6 Comparative Claims**

Coders also evaluated the presence or absence of comparative claims within the home pages of these direct-to-consumer Web sites. Comparative claims could include the results of clinical trials testing the advertised

medication versus a placebo, other prescription brands, or even various potencies of the same drug. Comparative claims were coded regardless of whether the messages were positive or negative.

### **B.15 Instrumental Punishments**

Instrumental punishments comprised the final type of instrumental motivational cues within the direct-to-consumer advertisements. The researcher also drew from Young and Cline's (2005) study on the textual cues in direct-to-consumer advertisements to construct the instrumental punishments category (p. 356-357). Coders were instructed to classify claims of negative outcomes and disclaimers within this group.

#### **B.15.1 Claims of Negative Outcomes**

Since many of these medications, especially medicines treating chronic, life-threatening conditions, are potent and therefore potentially dangerous, coders recorded the presence or absence of claims of negative outcomes within the advertisements.

#### **B.15.2 Disclaimers**

Coders also evaluated the presence or absence of disclaimers. The researcher instructed coders to exercise caution when identifying disclaimers since not all were blatantly labeled "Disclaimer."

### **B.16 Identity Motivational Cues**

The identity motivational cues that coders were instructed to classify the presence or absence of included claims of enabling/improving patients' lifestyles, claims of improving patients' overall positive feelings, claims of improving patients' outward appearance, claims of improving patients' strength/power, claims of improving patients' control over the condition, claims of improving patients' intelligence, claims of the condition's universality, and claims ("personal appeals") from the actor(s) in the advertisement (Young & Cline, 2005, p. 357).

#### **B.16.1 Claims of Enabling/Improving Patient's Lifestyle**

Coders recorded the presence or absence of the medications' claims of improving patients' lifestyles by evaluating the main copy in addition to the subject and other visual cues.

### **B.16.2 Claims of Improving Patient's Overall Positive Feelings**

These claims were also identified within the 100 direct-to-consumer advertisements for prescription medications. Claims of improving patients' overall positive feelings could refer to the medications' abilities to literally improve positive feelings by treating depression or anxiety, but also could be implied by the advertisements' message of removing the negative effects of the illness and allowing users to fully embrace and enjoy their lives.

### **B.16.3 Claims of Improving Patient's Outward Appearance**

Coders also recorded the medications' claims of improving patients' outward appearance. These claims may refer to literal improvement, such as dermatologic medications' ability to ameliorate acne, or to the noticeable increase in confidence gained by treating the condition, which in turn makes the patients more attractive to others.

### **B.16.4 Claims of Improving Patient's Strength/Power**

Claims of improving patients' strength and power were also identified within the direct-to-consumer advertisements. Like the claims of improving patients' outward appearance, advertisements in this category may refer to literal increases of strength and power, such as an advertisement for a Multiple Sclerosis treatment that provides patients with the strength necessary to perform everyday tasks, or to figurative strength and power, such as equipping patients with the determination and drive to overcome the disease.

### **B.16.5 Claims of Improving Patient's Control Over the Condition**

These claims were also recorded within the sample of Web sites for prescription medications. Just as the claims of improving patients' outward appearance or strength and power, improving patients' control over the situation could refer to literal control, such as an STD treatment which prevents outbreaks of the disease, or to figurative control, such as the medications' ability to help patients accept that living with the disease does not necessarily have to take over their lives.

#### **B.16.6 Claims of Improving Patient's Intelligence**

These claims could be literal, since medications such as Adderall XR, a treatment for Attention Deficit Disorder, may literally improve patients' memory, comprehension, and other learning capabilities (Shire U.S., 2008). In other cases, these claims could be figurative, such as within advertisements implying that patients who treat a condition with the advertised medication are being "smart" about their treatment.

#### **B.16.7 Claims of the Condition's Universality**

Coders also explored claims of the conditions' universality within these 100 direct-to-consumer advertisements. The researcher instructed the two coders to include claims involving the number of people a disease has affected as well as claims about the widespread usage of the advertised medication as treatment.

#### **B.16.8 Personal Appeals From the Actor(s) in Advertisement**

The presence or absence of personal appeals from the actors within the advertisements was also recorded. Actors did not necessarily have to speak themselves in order to be qualified within this category; coders were instructed to include advertisements featuring names and direct quotes from the medicines' users, in addition to any links to testimonials that were visible on the sites' home pages.

# APPENDIX C. INTERCODER RELIABILITY SCORES FOR PILOT STUDY, BY VARIABLE

Variable	Intercoder Reliability Score (2 coders)
1. Manufacturer	100%
2. Brand	100%
3. Condition	90%
4. Relational Rewards	80%
5. Visual Elements: Number of Actors	100%
6. Visual Elements: People	100%
7. Visual Elements: Cartoons	90%
8. Visual Elements: Animals	100%
9. Visual Elements: Trade Characters	90%
10. Visual Elements: Body Parts	100%
11. Visual Elements: Product	100%
12. Visual Elements: Other Visual Element	80%
13. Identity Rewards: Activity Level	90%
14. Identity Rewards: Health of Actor	90%
15. Identity Rewards: Friendliness	100%
16. Appearance of Main Actor: Age	90%
17. Appearance of Main Actor: Gender	100%
18. Appearance of Main Actor: Ethnicity	80%
19. Interactivity: Quizzes	100%
20. Interactivity: Live chat	100%
21. Interactivity: Message Board	100%
22. Interactivity: Videos	80%
23. Interactivity: Audio	80%
24. Interactivity: Text-Size Adjustments	100%
25. Interactivity: Animated Graphics	90%

Appendix C, continued.

26. Interactivity: E-mail Updates/Newsletters	100%
27. Interactivity: Frequently-Asked Questions	90%
28. Interactivity: Glossary	100%
29. Interactivity: Site Map	100%
30. Interactivity: Other Interactive Element	80%
31. Dominant Frame	90%
32. Dominant Advertising Appeal	80%
33. Instrumental Motivational Cues: Inducements	80%
34. Instrumental Motivational Cues: Reminder Cards	100%
35. Instrumental Motivational Cues: Free Samples	100%
36. Instrumental Motivational Cues: Free Trials	100%
37. Instrumental Motivational Cues: Vouchers/Coupons	100%
38. Informational Rewards: Contact Us	100%
39. Informational Rewards: Telephone Number	100%
40. Informational Rewards: E-mail Address	100%
41. Informational Rewards: Mailing Address	100%
42. Informational Rewards: Patient Support Programs	90%
43. Informational Rewards: Informational CDs/DVDs	90%
44. Informational Rewards: Brochures/Binders	100%
45. Informational Rewards: Press Releases	100%
46. Informational Rewards: Third-Party Editorials/ Sponsorship Web Sites/Other Web Sites	80%
47. Informational Rewards: News Coverage	100%
48. Informational Rewards: Other Informational Reward	90%
49. Medical Rewards: General Effectiveness Claims	100%
50. Medical Rewards: Specific Effectiveness Claims	90%
51. Medical Rewards: Claims of Extending Patient's Life	90%

Appendix C, continued.

52. Medical Rewards: Claims of Medication's Ability to Improve Particular Clinical Indicators	90%
53. Medical Rewards: Claims of Negative Rewards	100%
54. Medical Rewards: Comparative Claims	90%
55. Instrumental Punishments: Claims of Negative Outcomes	100%
56. Instrumental Punishments: Disclaimers	90%
57. Identity Motivational Cues: Claims of Enabling/Improving Patient's Lifestyle	90%
58. Identity Motivational Cues: Claims of Improving Patient's Overall Positive Feelings	100%
59. Identity Motivational Cues: Claims of Improving Patient's Outward Appearance	100%
60. Identity Motivational Cues: Claims of Improving Patient's Strength/Power	80%
61. Identity Motivational Cues: Claims of Improving Patient's Control over the Condition	80%
62. Identity Motivational Cues: Claims of Improving Patient's Intelligence	100%
63. Identity Motivational Cues: Claims of the Condition's Universality	100%
64. Identity Motivational Cues: Personal Appeals from Actor(s) in Advertisement	100%

**Average Intercooder Reliability for Pilot Study: 93.75%**

# APPENDIX D. BRANDS INCLUDED IN SAMPLE, BY MANUFACTURER

Brand(s)	Manufacturer
Advair, Avandia, Combivir, Coreg CR, Flovent HFA, Imitrex, Lamictal, Valtrex, Wellbutrin XL	GlaxoSmithKline
Celebrex, Detrol LA, Geodon, Lipitor, Lyrica, Norvasc, Viagra, Zoloft	Pfizer
Arimidex, Crestor, Nexium, Pulmicort Respules, Seroquel, Toprol XL	AstraZeneca
Depakote ER, Humira, Kaletra, Niaspan, Tricor, Zemplar	Abbott Laboratories
Diovan, Gleevec, Lamisil, Trileptal, Zelnorm	Novartis Pharmaceuticals
Ambien CR, Eloxatin, Lantus, Lovenox, Taxotere	Sanofi-Aventis U.S.
Aranesp, Epogen, Neulasta, Neupogen	Amgen
Evista, Gemzar, Strattera, Zyprexa	Eli Lilly & Co.
Cozaar, Fosamax, Singulair, Zocor	Merck & Co.
Levaquin, Risperdal, Topamax	Ortho-McNeil-Janssen Pharmaceuticals
Effexor XR, Premarin, Protonix	Wyeth Pharmaceuticals, Inc.
Betaseron, Yasmin 28	Bayer Health Care Pharmaceuticals
Actiq, Provigil	Cephalon
Lexapro, Namenda	Forest Pharmaceuticals
Avastin, Herceptin	Genentech
Altace, Skelaxin	King Pharmaceuticals
Vytorin, Zetia	Merck & Co./Schering-Plough
Lunesta, Xopenex	Serpracor Inc.
Enbrel	Amgen/Wyeth
Prograf	Astellas Pharma U.S. Inc.
Avonex	Biogen Idec
Combivent	Boehringer Ingelheim
Flomax	Boehringer Ingelheim/Astellas
Sustiva	Bristol-Myers Squibb
Erbitux	Bristol-Myers Squibb/Merck & Co./IM Clone Systems



Appendix D, continued.

Abilify	Bristol-Myers Squibb/Ostuka America Pharmaceutical
Plavix	Bristol-Myers Squibb/Sanofi-Aventis
Remicade	Centocor, Inc.
Cymbalta	Eli Lilly & Co./Abbott Laboratories
Aciphex	Elsai/Ortho-McNeil
Aricept	Elsai/ Pfizer
Rebif	EMD Serono, Inc.
Lidoderm	Endo Pharmaceuticals
Rituxan	Genentech/Biogen Idec
Concerta	McNeil PPC
Synagis	MedImmune
Procrit	Ortho-Biotech Products, L.P.
Spiriva Handihaler	Pfizer/Boehringer Ingelheim
Asacol	Proctor & Gamble Pharmaceuticals
Actonel	Proctor & Gamble Pharmaceuticals/Sanofi-Aventis
Nasonex	Schering-Plough
Adderall XR	Shire U.S. Inc.
Actos	Takeda Pharmaceuticals
Prevacid	TAP Pharmaceutical Products
Copaxone	Teva Pharmaceutical Industries
Keppra	UCB

## **VITA**

Brooke Alayne Harrington is from Lafayette, Louisiana, and received her Bachelor of Mass Communication Degree in advertising in 2003 with a double minor in English and psychology from Louisiana State University's Manship School of Mass Communication in Baton Rouge, Louisiana. She worked as an account executive at Tiger Billboards, L.L.C., and Guaranty Broadcasting Company before choosing to enroll in Louisiana State University's Manship School of Mass Communication to further her career and enrich her understanding of the advertising field.

Ms. Harrington's research interests include direct-to-consumer advertising of prescription medications, as well as the message strategies and tactics of both commercial and public service advertising. The topic and research design of her master's thesis developed from her intense interest in how direct-to-consumer advertising contributes to consumers' comprehension of risks and benefits of the promoted medications.

Upon receiving her Master of Mass Communication Degree from Louisiana State University in August 2008, Ms. Harrington plans to work as an account planner at a large advertising agency in Dallas, Texas.