

Use of Information Sources Referenced in and Attitudes about Televised DTC Prescription Drug Advertisements

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Unlike most advertising, direct-to-consumer (DTC) prescription drug advertising on television frequently contains warnings. Because of the brevity of the warning message, a follow-up source with more detailed information is given. This research examined the reported likelihood of using several follow-up sources as well as their beliefs about the completeness/accuracy and ease of access of those sources. Also examined were various other beliefs and attitudes associated with DTC prescription drug television advertising. Participants reported that they would more likely use certain follow-up sources such as the Internet more than other sources such as an advertisement in a particular magazine and believed that certain sources provide more complete/accurate and more accessible information than other sources. The results indicate that the Internet is a growing information source that people use to find out more about prescription drugs viewed in advertisements. Participants' responses indicate skepticism about the goals and content of DTC prescription drug advertising, although the responses also indicate that they believe that there are potential benefits of such advertising. Implications for research in risk communication and warnings are discussed.

INTRODUCTION

In the U.S., direct-to-consumer (DTC) prescription drug advertising is one of the few kinds of advertising that include warnings about potential risks. There has been tremendous growth of DTC advertising since the U.S. Food and Drug Administration (FDA) introduced guidelines in 1997 which made it easier for manufacturers to advertise their drugs directly to the public (Marinac, Buchinger, Sun, Wooten, & Willsie, 2004). The U.S. public sees many DTC prescription drug advertisements in broadcast (television and radio) and print (newspapers and magazines) forms, as well as on the Internet (manufacturers' website).

Because of the brevity of broadcast advertising, the U.S. Food and Drug Administration (FDA) allows drug manufacturers to give only the major risks in DTC drug advertisements. If they do not fully disclose all of a drug's risks, the ads should give "*adequate provision*" such that more complete information on side effects, contraindications, and effectiveness are made available elsewhere (Rosenthal, Berndt, Donohue, Frank, & Epstein, 2002). What constitutes adequately provided information has been a source of confusion (Rosenthal et al., 2002). The FDA requires that DTC promotions "present a fair balance between information about effectiveness and information about risk" (U.S. Food and Drug Administration, 1999, pg. 2). Thus, drug advertisements are supposed to convey a balance of both risk and benefit information so that a consumer receives an accurate, balanced understanding (Aikin, 2006; Kees, Bone, Kozup, & Ellen, 2008).

The adequate provision of information and the doctrine of fair balance are major considerations in over 30 FDA regulations concerning what constitutes misleading prescription drug advertising (Food and Drug Administration, 2000; Kees, et al., 2008). To promote acceptable adequate provision of information, guidance from the FDA suggests

that consumers must be referred to four sources referenced in the advertising broadcast where they can obtain further drug information: (1) a toll-free telephone number; (2) referral to a print ad in a running print publication or provision of enough brochures; (3) referral to health care professionals such as physicians and pharmacists; or (4) an Internet web page address (Rosenthal et al., 2002; U.S. FDA, 1999).

Although prior research suggests DTC ads can prompt people to seek information (Vigilante, Mayhorn, & Wogalter, 2007), research is less clear about what kinds of information seeking people may use as a follow-up to DTC prescription drug advertising. Research suggests that the most commonly used source of additional information about prescription drugs is the consumer's healthcare providers (Aikin, Swasy, & Braman, 2004). While referrals to a health professional and toll-free numbers are being communicated effectively in DTC advertisements, web addresses and the print references are not (Food and Drug Administration, 1999). However, since the 1999 FDA document was published, the number of people using the Internet as a source of additional information has risen from 18 percent to 38 percent (Aikin, et al., 2004) and it is undoubtedly higher today.

Other research on DTC advertising indicates that DTC ads influence interactions between doctors and their patients. For example, Findlay (2002) estimated that in 2001 between 8.5 and 12.6 million people received a prescription from a physician as a result of having seen or heard DTC drug advertising (Findlay, 2002). Thus, people appear to be engaging in information seeking after they encounter DTC advertisements—yet very little research has measured the relationship. Although people might notice and seek out information from a variety of different sources, it is unknown how participants choose which source to pursue or whether they have different beliefs regarding their accuracy and completeness, or accessibility of use.

One of the main purposes of warnings is to provide people with information about potential hazards so that they can make informed risk-related decisions (e.g., Wogalter, 2006). Since DTC advertising is one of the few kinds of product advertisements that contain warnings, this distinct form of advertisement and its effects, such as on information seeking, could reveal advantages and limitations of this form of safety communication.

The present research examined various attitudes and beliefs regarding DTC prescription drug advertising. Participants evaluated a set of sources on (a) the likelihood of using different alternative sources of information after viewing a DTC ad on television, (b) the perceived completeness/accuracy of the information sources, and (c) the ease of accessing these sources. Participants also evaluated a list of statements associated with various beliefs and attitudes regarding prescription drug television commercials in which they rated their agreement with them.

METHOD

Participants

A total of 97 individuals (56 females, 40 males, and 1 that did not state gender) participated. Average age was 30.3 years ($SD=13.2$). Samples from two population pools were collected: 50.5% were undergraduate students from North Carolina State University ($M = 21.9$ years; $SD = 6.1$), and 49.5% were non-student adult volunteers from the central North Carolina community ($M = 38.8$ years; $SD = 13.2$).

Materials and Procedure

The questions examined in this study were part of a larger questionnaire concerning various beliefs about safety and consumer products. Participants were initially asked to estimate how many different prescription drugs they had seen advertised on TV in the past six months. This question was followed by another asking whether a TV commercial for a prescription drug ever motivated them to look for more information about the drug or about their own health. They then rated a set of statements concerning televised prescription drug advertisements. Before making those ratings, they were told to assume that they saw an advertisement on TV about a prescription drug used to treat a condition that they currently have or think they might have. Thus, through these instructions, the drug advertisement was made somewhat relevant to participants. Also, they were told that because television commercials are time limited and may contain only partial information, the ad may advise them to go to another source to get more detailed, additional information such as an Internet website, a medical or health-related reference book, etc. For some sources, examples were listed, e.g., for the item on Internet sites not affiliated with the drug's manufacturer, the site WebMD.com was given, and for the reference book, the *Physicians Desk Reference* was given.

Participants completed questions asking for evaluations on different sources of information: (a) likelihood of using, (b) how easy it would be to obtain, (c) perceived completeness and accuracy, and (d) their agreement with various statements regarding televised prescription drug commercials. Two

orders of questions were used; one was a randomized order, and the other was the reverse of the randomized order. There were two versions of the questionnaire comprising different subsections of questions. One version had questions concerning the ease of accessing the information sources ($n=47$). The other version had questions regarding the completeness/accuracy of the information sources ($n=50$). The content of the other items in the questionnaires was identical. Thus there were 4 sets of questionnaires based on order-x-version.

Likelihood of using information sources. Participants were asked to rate how likely they would be to seek additional information from a variety of listed sources. The sources listed are shown in Table 1. Participants gave ratings on a 9-point Likert-type scale with the following numerical and descriptive anchors: (0) not at all likely; (2) somewhat likely; (4) likely; (6) very likely; (8) extremely likely.

Ease of obtaining information sources. Participants rated the ease of access to each of the alternate sources of information described in the televised prescription drug advertisement listed in Table 1. For each source, participants provided a rating using a 9-point Likert-type scale with the following numerical and descriptive anchors: (0) not at all easy; (2) somewhat easy; (4) easy; (6) very easy; (8) extremely easy.

Perceived completeness/accuracy of sources. Participants were asked to judge the completeness and accuracy of each information source listed in Table 1. Participants gave ratings on a 9-point Likert-type scale: (0) not at all complete and accurate; (2) somewhat complete and accurate; (4) complete and accurate; (6) very complete and accurate; (8) extremely complete and accurate.

Agreement with statements concerning televised prescription drug ads. Participants were asked to rate the extent to which they agreed or disagreed with various statements concerning televised DTC prescription drug commercials. The statements are listed in Table 2. Participants gave ratings on a 9-point Likert-type scale: (0) not agree at all; (2) agree somewhat; (4) agree; (6) very much agree; (8) completely agree.

RESULTS

On average, participants estimated that they had seen 14.3 ($SD = 16.7$) different prescription drug ads on TV in the last six months. For the question asking whether a TV commercial for a prescription drug has ever motivated participants to seek more information about the drug or health, 61 participants reported yes it has, whereas 28 answered no it has not (responses from 8 participants were missing).

Likelihood of Using Information Sources

As shown in Table 1, participants were most likely to visit the website of the drug manufacturer ($M = 4.82$) or the website of an organization not affiliated with the drug manufacturer ($M = 4.68$). These sources were followed by asking a physician ($M = 4.57$), pharmacist ($M = 3.54$), or nurse ($M = 3.39$). Participants were least likely to call a toll-free number to get information faxed to them ($M = 1.38$) or to talk to a customer service representative ($M = 1.77$).

For analysis, a median split at 23 years was used to divide the sample by age into older and younger adults. A 2 (age) X 12 (sources) mixed model ANOVA was used to analyze the data. Age group was the between subjects variable and sources was the within subjects factor. The main effect of sources was significant, $F(11, 1045) = 32.33$, $MSe = 4.12$, $p < .0001$. Tukey's Honestly Significant Difference (HSD) at $p = .05$ test was 0.95. This value can be used to compare means within the Likely Use column of Table 1. Any mean difference greater than this value is statistically significant at $p < .05$. There was no significant main effect for age or interaction ($ps > .05$). A similar result was found in other analyses involving students vs. nonstudents, probably because it overlapped with the older vs. younger groups. Other analyses showed the same pattern as age with student status.

Table 1
Mean Ratings (SDs) for DTC Information Sources

Sources of DTC information	Likely Use	Complete & Accurate	Ease of Access
	Mean (SD)	Mean (SD)	Mean (SD)
1. Would go to internet website of the drug's manufacturer.	4.82 (2.8)	5.18 (2.1)	6.27 (2.3)
2. Would go to an Internet website of an organization not affiliated with the drug's manufacturer	4.68 (2.7)	4.32 (2.0)	5.60 (2.5)
3. Would ask a physician	4.57 (2.3)	6.20 (1.9)	5.00 (2.4)
4. Would ask a pharmacist	3.54 (2.3)	5.22 (2.1)	4.96 (2.2)
5. Would ask a nurse	3.39 (2.3)	4.98 (1.9)	4.69 (2.3)
6. Would make a request via email	2.73 (2.5)	3.92 (2.0)	5.13 (2.5)
7. Would do nothing even if the drug seemed relevant	2.53 (2.5)	.96 (1.3)	5.20 (3.1)
8. Would check a medical or health-related reference book	2.44 (2.5)	4.54 (2.3)	2.89 (2.6)
9. Would check a current issue of a particular magazine	2.40 (2.3)	3.60 (2.0)	2.62 (2.0)
10. Would phone toll-free to get email, brochure	2.00 (2.2)	.68 (2.2)	4.64 (2.5)
11. Would phone toll-free to manufacturer's customer service department	1.77 (2.3)	3.10 (2.1)	4.60 (2.4)
12. Would phone toll-free to get information faxed	1.38 (2.0)	2.82 (2.1)	3.62 (2.9)

Perceived Completeness/Accuracy of Sources

Means for perceived completeness of information sources are shown in Table 1. The most complete and accurate information was expected to be from a physician ($M = 6.20$) and pharmacist ($M = 5.22$), or a website from the drug's manufacturer ($M = 5.18$). However, they expected the least complete and accurate information would come from calling a toll-free number to get information faxed to them ($M = 2.82$), or by talking to a customer service representative ($M = 3.10$). Doing nothing ($M = 0.96$) was least.

Analysis using a 2 (age) X 12 (sources) mixed model ANOVA revealed a significant main effect of sources, $F(11, 528) = 37.19$, $MSe = 2.52$, $p < .0001$. Tukey's Honestly Significant Difference (HSD) at $p = .05$ test was 1.03. There was neither a significant main effect of age nor an interaction between age and information source.

Ease of Obtaining Information from Sources

Means for ease of obtaining information from the information sources are shown in Table 1. The most easy-to-access information sources were websites from the drug manufacturer's ($M = 6.27$) or from an organization not affiliated with the manufacturer ($M = 5.60$). These two options were rated higher than doing nothing ($M = 5.20$). This was followed by making a request via email ($M = 5.13$), and asking a physician ($M = 5.00$) or pharmacist (4.96). The most difficulty in accessing information from a source was associated with checking a current issue of a magazine ($M = 2.62$) or a medical reference book ($M = 2.89$).

A 2 (age) X 12 (sources) mixed model ANOVA indicated a significant main effect, $F(11, 473) = 11.14$, $MSe = 4.66$, $p < .0001$. Tukey's Honestly Significant Difference (HSD) at $p = .05$ test was 1.49. This value can be used to compare pairs of means within the Ease of Access column of Table 1. Mean differences above this HSD value are statistically significant. There was no significant main effect of age or an interaction between age and sources. Similar results were found when using students vs. nonstudents grouping factor instead of the younger vs. older categorization.

Agreement with Statements Concerning Televised Prescription Drug Advertisements

Table 2 shows the mean ratings (and standard deviations) for agreement with various statements regarding televised drug advertisements. The statements that garnered the highest levels of agreement were: (a) the main motivation for the ads is for drug companies to make more money ($M = 5.82$), the ads make the drugs seem better ($M = 5.12$) and more effective in relieving the diagnosed condition than they really do ($M = 4.98$). Participants expressed a level of annoyance in seeing so many drug ads ($M = 4.31$), and they also believed that the ads do not give adequate risk ($M = 4.83$) or benefit ($M = 4.17$) information. Lowest agreement ratings were found for beliefs about liking televised DTC ads ($M = 2.03$), that the actors seem similar to them ($M = 2.20$), with believing in all of the information in the ads ($M = 2.20$), and with the ads being true and accurate ($M = 2.30$).

On the issue of talking with one's doctor as a potential follow-up reaction from viewing a DTC ad, participants agreed that TV commercials serve the public by informing them about drugs that they might not hear about from their doctor ($M = 3.35$), that they allow them to have better discussions with their doctor ($M = 3.37$), and that ads give enough information for that discussion ($M = 3.45$). There some moderate amount of agreement to the statements (a) that they would not talk to their doctor about DTC advertised drugs because it would seem that they do not trust him/her ($M = 2.73$), and (b) that they feel embarrassed by watching some of DTC prescription drug advertisements ($M = 2.72$).

A 2 (age) X 21 (statements) mixed model ANOVA indicated a significant main effect, $F(20, 1860) = 22.41$, $MSe = 4.60$, $p < .0001$. Tukey's Honestly Significant Difference (HSD) at $p = .05$ test was 1.01. There was significant main effect of age, $F(1, 93) = 10.46$, $p < .05$ and an interaction between age and statements, $F(20, 1860) = 2.69$, $p < .05$.

Table 2
Mean Ratings (SDs) for Agreement with Statements Concerning Televised Drug Advertisements.

Statement	Mean (SD)
1. I believe that the main motivation of TV commercials for prescription drugs is for drug companies to make more money.*	5.82 (2.4)
2. TV commercials make prescription drugs seem better than they really are.	5.12 (2.3)
3. Prescription drug TV commercials make the drug appear to be more effective in relieving the diagnosed condition than it really is.	4.98 (1.8)
4. TV commercials for prescription drugs do not give enough information about the possible risks and/or negative effects of using the drug.	4.83 (2.4)
5. I am annoyed by seeing so many prescription drug commercials.	4.31 (2.7)
6. TV commercials for prescription drugs do not give enough information about the possible benefits and/or positive effects of using the drug.	4.17 (2.6)
7. TV commercials for prescription drugs inform me of new drugs.	3.91 (2.5)
8. If the characters in the prescription drug TV commercials seem similar to me and my life circumstances, then I find the commercial more credible and believable.	3.76 (2.4)
9. TV commercials for prescription drugs give enough information for me to decide whether to discuss the drug with a doctor.	3.45 (2.2)
10. TV commercials for prescription drugs make it seem like a doctor is not needed as much to decide whether a drug is right for me.	3.34 (2.5)
11. TV commercials for prescription drugs allow me to have better discussions with my doctor about my health.	3.37 (2.2)
12. I believe that TV commercials for prescription drugs serve the public by informing them about drugs that they might not otherwise get from their doctor.*	3.35 (2.2)
13. The U.S. Food and Drug Administration (FDA) approves all prescription drug TV commercials before they can be shown to the public.*	3.24 (2.6)
14. I probably would not talk with my doctor about a TV commercial for a prescription drug, because it would seem like my doctor may not think I trust my doctor to know the best medicine to prescribe to me.*	2.73 (2.4)
15. I feel embarrassed when watching some prescription drug TV commercials.	2.72 (2.8)
16. Only the safest prescription drugs are allowed to be advertised to the public in TV commercials/ advertisements.	2.68 (2.5)
17. TV commercials for prescription drugs help me to make better decisions about my health.*	2.67 (2.2)
18. All of the information provided in prescription drug TV commercials is true and accurate.*	2.30 (2.0)
19. I believe in all of the information provided in prescription drug TV commercials.*	2.20 (2.0)
20. I think the actors in the prescription drug TV commercials seem similar to me and my life circumstances.*	2.20 (2.0)
21. I like seeing TV commercials for prescription drugs.	2.03 (2.1)

Note. Asterisks (*) next to statements denote items that showed significant age group differences which are detailed in Table 3.

Statements which showed significant differences for age group are shown in Table 3. These same statements are also shown in Table 2. As Table 3 illustrates, in general, younger adults showed higher agreement on the statements than older adults significantly except one item, 'motivation of TV commercial is to make more money.' The older group appears to have a more skeptical attitude about prescription drugs than younger adults.

Table 3
Mean Agreement Ratings (SDs) for Statements showing Significant Differences between Age Groups

Statement Content	Age Group	
	Younger M (SD)	Older M (SD)
1. Motivation of TV commercials is to make more money.*	5.09 (2.5)	6.47 (2.2)
12. TV commercials serve the public by informing them about drugs they would not know.*	3.98 (1.9)	2.80 (2.3)
13. FDA approves all TV commercials.*	3.87 (2.4)	2.69 (2.7)
14. I don't want to ask the doctor because it would question the best medicine to prescribe.*	3.58 (2.4)	1.98 (2.1)
17. TV commercials for prescription drugs help better decisions about my health.*	3.16 (2.2)	2.24 (2.2)
18. All of the information in prescription drug commercials is true and accurate.*	3.16 (2.1)	1.55 (1.7)
19. I believe in all of the information provided in prescription drug TV commercials.*	3.07 (2.1)	1.43 (1.7)
20. Actors in the TV drug commercials seem similar to me and my life.*	2.82 (1.7)	1.65 (2.2)

DISCUSSION

These results describe some specific aspects of how DTC prescription drug advertisements may affect or relate to some consumers. In the present study, participants made judgments regarding their likelihood of using follow-up sources of information as referenced in DTC advertisements of prescription drugs. In addition, participants gave ratings of the information sources on ease of obtaining information and their completeness and accuracy. Participants also rated their agreement to various statements concerning televised prescription drug advertisements.

Of the sources given, participants reported that they would most likely use websites from a manufacturer or from an organization not directly tied to the manufacturer as follow-up sources of information from viewing DTC advertising. They reported that they would not likely make a toll-free phone call or check a current issue of a magazine or a medical reference book. The most accurate and complete information was expected from a physician, followed by a pharmacist or a website from the drug's manufacturer. They believed that the least accurate and complete information would come from calling a toll-free telephone number, having it faxed to them or by simply doing nothing. These results show some consistency with other research. A study by Choi and Lee (2007) on the use of various health-related information sources indicated that consumers frequently turned to the Internet regarding prescription drugs at a level only slightly less frequently than to physicians and pharmacists. Other research shows that consumers prefer to obtain information from a drug manufacturer's web site rather than from other mentioned sources (Sheehan, 2007).

The results revealed an interesting pattern of beliefs between accessibility and completeness/accuracy. Although participants were more likely to use a manufacturer's website because it was easier to access, they believed that the most accurate/complete information comes from health care professionals.

Participants expressed a variety of negative opinions about DTC advertising on television. The highest level agreement with any statement is that the main motivation of

TV commercials about prescription drugs is for drug companies to make more money. This is, of course, true as most drug companies are for-profit entities. Older adults gave significantly higher ratings of agreement to this statement than younger adults. Perhaps this significantly more skeptical attitude possessed by older adults about prescription drugs could be due to their greater experience taking pharmaceutical products over the course of a lifetime. To older adults, the financial expense and realization that some drugs do not work for everyone might have acted to bias their response to this particular item. Agreement was also strongly expressed with statements suggesting that the commercials oversell the product, as seen in agreement to the statements "TV commercials make prescription drugs seem better than they really are" and "prescription drug TV commercials make the drug appear to be more effective in relieving the diagnosed condition than it really is." This suggests that at least some people are aware that drug companies have motivations other than being an altruistic provider of healthcare products. The participants appear to be skeptical; they believe that DTC prescription drug ads can mislead people into believing that the advertised drugs are better and more effective than they really are. It is interesting that on the one hand, people are skeptical about the motivation and marketing of DTC drug manufacturers, but on the other hand they tend to turn to the manufacturer's website for information. The reason is probably related to effort. Health care professionals are rated as being the most accurate and complete information source yet they are less accessible compared to websites. It takes extra effort to get drug information from a healthcare professional, often requiring an appointment. Concurrent with consumers' increasing use of the Internet to search for product information, pharmaceutical companies are increasingly using the Internet to reach consumers (Huh, DeLorme, & Reid, 2005). One survey study reported that 64% of people with in-home Internet access had searched for information on health-related topics (Huh, et al., 2005). The Internet provides several benefits in that: (a) it empowers consumers to improve their understanding of health-related subjects and to actively participate in health care concerns, and (b) it delivers a large amount of information on demand and in some-level of privacy (Huh, et al., 2005).

Due to a lack of specific regulations on content, the quality of information that the public is drawing from DTC drug advertisements may be somewhat unbalanced. The content of some advertisements is confusing, difficult to understand, and side effect information insufficient (Kalsher & Wogalter, 2006). The benefits tend to be more salient than risks (Hicks et al., 2005; Vigilante & Wogalter, 2005).

Given the negative potential public health consequences of misleading DTC advertising, the FDA launched a web site entitled *Be Smart About Prescription Drug Advertising—A guide for Consumers* (U. S. FDA, 2010). The site not only offers basic information regarding drug ads, but also offers example ads for fictitious drugs to illustrate the different requirements for different types of ads in both a visual and written manner. It also has a list of questions to ask their doctor after seeing a potentially relevant prescription drug ad to aid in discussion.

To improve communication of risks in DTC prescription drug advertising, cognitive design principles can be applied to improve the likelihood that people acquire accurate knowledge regarding risks and benefits (Wogalter, Mills, Paine, & Smith-Jackson, 1999). Safe use of prescription drugs requires more than the ubiquitous and general instruction "Use as directed" (Morris, 2006). Design and evaluations of warnings in DTC advertising can use basic principles of usability engineering and user-centered design (Wogalter, Conzola, & Vigilante, 2006). The methodological and theoretical tools necessary to contribute to efforts in promoting prescription drug safety.

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