

# Beliefs and Potential Use of Prescription Drug Information Sources

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## Abstract

In recent years consumers are taking more interest in their health care, including having interest in the prescription drugs they take. This research examined people's beliefs and perceptions about using nine sources of prescription drug information. The sources investigated were: (a) physician, (b) pharmacist, (c) family or friend, (d) manufacturer's web site, (e) second-party web sites, (f) medical reference book, (g) manufacturer's consumer phone number, (h) print ads, and (i) television ads. Two hundred thirteen persons were asked to make ratings of these sources according to (1) the likelihood that they would use each source, (2) perceived ease of use to obtain information from each source, and (3) how complete the information would be in providing prescription drug information. The results indicate that the pharmacist and physician sources were in general given significantly higher ratings across all of three dimensions than all the other sources. The two next highly rated sources were family or friend and manufacturer's web site. Television and print ads were rated the lowest among all of the sources. Implications of these results are discussed with emphasis on the Internet as a growing source of prescription drug information.

## Introduction

In the past, prescription drug manufacturers directed all their marketing to the medical professionals, not to the end user: the patient. However, in recent years adults have taken a more active role in their health care and correspondingly pharmaceutical manufacturers have begun to increasingly market their products directly to them (Wilkes, 2000). For example, the pharmaceutical manufacturers are using direct-to-consumer (DTC) prescription drug advertising to market prescription medications. Research by the Center for Drug Evaluation and Research (CDER) of the U.S. Food and Drug Administration (FDA) indicated that half of those surveyed had looked for additional product information after having been exposed to some form of DTC advertisement (CDER, 2000).

Potential sources of prescription drug information are diverse. The sources can include physicians, pharmacists, friends or family members, manufacturer's web sites, second-party web sites (e.g., WebMd and PlanetRx), television ads, print ads, and manufacturer's consumer phone number.

These potential sources can vary in their likelihood of use for consumers, in their usability, and their completeness. In other words, some sources may be more likely to be used than other sources, perceived as useful, and be more or less informative.

According to the CDER (2000), 18% of those individuals who reported having used the World Wide Web (WWW) used it to search further information on prescription drugs. Thus the WWW offers a fairly new means to gain information in addition to or instead of traditional sources like a physician or pharmacist. There are two basic types of web sites with substantial prescription drug information: manufacturer's web sites and other second-party sites. Second-party drug web sites are maintained by organizations that do not manufacture drugs and usually maintain content that cuts across different drug manufacturers. The information on second-party web sites may be perceived as more credible than the information in manufacturer's websites because second-party sites may be viewed to be more objective than manufacturer's sites and due to the fact they usually do not profit from drugs sales. Credibility of the

information and accessibility are common issues with the Internet and can become even more relevant and important because the information concerns prescription drug information. Thus while the WWW does offer some advantages to people seeking information (e.g., multiple sources of diverse information), it also has some disadvantages (questionable content). The potential for users to gain information about benefits and risks associated with prescription drug information has created an interest within the FDA on how the WWW is used in gaining information about prescription drugs. The present research examines people's perceptions and beliefs of likelihood of use, perceived usability and completeness for several potential sources of information.

The sources of information used in the present study were similar to those cited in a recent FDA survey examining the effects of DTC advertising on patient information-seeking behavior (CDER, 2000). The present research sought to determine the (a) relative likelihood of use, (b) perceived ease of use and (c) perceived completeness of the information provided by each of the nine potential sources of prescription drug information. An additional focus of the study was to examine the extent to which manufacturers' web sites are preferred in comparison to second-party web sites, and compared with other common sources of prescription drug information.

## Method

*Participants.* A total of 213 from the Raleigh, North Carolina area participated. The sample was composed of 120 males and 93 females ( $M = 24.51$  years,  $SD = 8.97$ ) with 151 students (94 males 58 females with  $M = 20.95$  years,  $SD = 2.75$ . and 62 non-students (27 males 35 females with  $M = 33.48$  years,  $SD = 12.2$ )

*Materials and Procedure.* Participants completed a multi-page survey that addressed a variety of topics including demographics, automotive safety and familiarity with various products. The present research examined the responses to questions concerning the perceptions and beliefs about nine sources of prescription drugs information. The participants were first asked if they had ever been

prescribed a drug, and if so to estimate what percentage of the labeling information did they read (0 – 100%). Then each of the nine sources of information were rated according to three dimensions measured using a scale ranging from 0 to 100 with five named anchors. The three rated dimensions included: Participants rated the sources according to (1) likelihood of use for each source of information, (2) perceived ease of use for each information source, (3) perceived completeness for each source.

The likelihood rating was measured by asking the participants to rate how likely they would use each source to get more information about a prescribed drug. The likelihood rating scale used five named anchors ranging from extremely unlikely (0), very unlikely (30), likely (50), very likely (70), to extremely likely (100). The ease of use rating was measured by asking the participants to rate how easily they believed it would be to obtain risk information for a prescription drug from each source. The ease of use rating scale used five named anchors ranging from not at all easy (0), not very easy (30), easy (50), very easy (70), to extremely easy (100). The completeness rating was measured by asking the participants to rate how complete they believed the risk information would be for each source of information. The completeness rating scale used five named anchors ranging from no information (0), not very complete (30), half complete (50), very complete (70), to totally complete (100).

## Results

Table 1 presents the means and standard deviations for each source of information for each dimension that was rated. A 3 X 9 repeated measures analysis of variance (ANOVA) showed a significant main effect for dimensions,  $F(2, 212) = 72.83$ ,  $p < .0001$ , and sources of information,  $F(8, 212) = 176.31$ ,  $p < .0001$ . A significant interaction was also found,  $F(16, 212) = 24.43$ ,  $p < .0001$ . To further breakdown these significant effects a series of one-way ANOVAs and post hoc comparisons were performed on likelihood of use, ease of use, and completeness dimensions separately.

Table 1. Mean Ratings and Standard Deviations for Prescription Drug Information Sources

Source of Prescription Drug Information	Perceived Likelihood of Use		Perceived Ease of Use		Perceived Completeness	
	Mean	SD	Mean	SD	Mean	SD
Doctor	74.5	26.6	76.1	24.1	80.4	19.4
Pharmacist	71.4	27.7	81.3	21.4	83.7	18.6
Friend or Family	53.3	28.0	54.1	28.8	43.2	24.6
Manufacturer's web site	46.9	29.9	63.6	27.6	66.1	25.5
Medical reference book	45.7	30.9	60.5	28.5	73.5	24.2
Manufacturer's phone number	39.1	29.6	51.7	28.7	58.6	26.6
Second-party prescrip. drug web sites	38.8	28.8	53.9	26.6	51.4	24.2
Print advertisements	29.0	24.7	38.4	27.3	36.3	25.5
Television	27.8	26.1	34.7	29.6	30.5	23.0

#### Likelihood of use

An ANOVA on likelihood of use showed a significant main effect,  $F(8, 212)=105.09, p<.0001$ . Pairwise comparisons using Tukey's Honestly Significantly Difference (HSD) test showed that pharmacist and physician received significantly higher ratings than all the other sources of information. Friend or Family was the third highest and was significantly higher than all remaining sources except for the fourth highest rated source, manufacturer's websites. Manufacturer's websites was significantly higher than all remaining sources except for medical reference book. Medical reference book, manufacturer's toll free number, and second-party sites web sites were all significantly higher rated than television and print ads, which were given the lowest ratings.

#### Ease of use

An ANOVA on ease of use had a significant effect,  $F(8, 212) = 91.62, p < .0001$ . The pattern of means were similar to likelihood of use except friend and family was lower and was only rated significantly higher than television and print ads which were rated the lowest.

#### Completeness

An ANOVA on completeness had a significant main effect,  $F(8, 212) = 174.19, p < .0001$ . The completeness means had the same general pattern as the other two dimensions described above.

#### Demographic Variables

Three-factor mixed model ANOVAs were performed adding the factors of gender and student vs. non-student to the two-factor ANOVA models (dimension X source) described above.

**Gender.** A three-factor mixed model ANOVA that included gender as one of the factors showed no significant main effect of but yielded a significant interaction of gender X source of information,  $F(8, 212) = 3.23, p < .01$ . The pattern of means scores was similar for males and females except, that females rated pharmacist significantly higher than males ( $p<.05$ ) and males rated television significantly higher than females. No other interaction was found.

**Student vs. Non-student.** A three-factor mixed model ANOVA that included student vs. non-student as one of the factors showed no main effect

of student status but it did show a significant 3-factor interaction with dimension and source of information,  $F(16, 212) = 3.47, p < .0001$ . Two-factor mixed model ANOVAs involving student vs. non-student and source of information were performed. For likelihood of use, there was a significant interaction of student vs. non-student and source of information,  $F(8, 212) = 2.68, p < .01$ . For ease of use, there was also a significant interaction of student vs. non-student and source of information  $F(8, 212) = 2.50, p < .01$ , respectively. Post-hoc tests showed students rated friend or family significantly higher on likelihood of use than non-students. Students also rated TV, friend or family, and print ads significantly higher in perceived ease of use than did non-students.

### Discussion

This study examines of consumer's reported likelihood of use, perceived ease of use and perceived completeness of potential sources of prescription drug information. All three dimensions had similar patterns of ratings. The overall results show that a pharmacist and a physician are the two highest preferred sources of prescription drug information. This is not unexpected given the fact that they are the two main points of contact with prescription drugs. The next most preferred five sources were friend and family, manufacturer's websites, second-party web sites, medical reference book, and manufacturer's consumer phone number. All five sources were rated similarly with no particular one being consistently higher than another along all three dimensions, except for a clear preference of manufacturer's web sites over second-party web sites. Another interesting result is that the major sources of DTC prescription advertisements, i.e. television and print ads, were consistently rated as the two lowest compared to the other sources across all three dimensions.

Overall, the pattern of means was similar across all the dimensions, except a few notable differences. Some of the differences shown in the dimension X source interaction could be due to perceived differences in rated dimension inherent in each source. One example of this is the manufacturer's web site being rated easier to use than a medical reference book, but in contrast, the medical

reference book was rated more complete compared to manufacturer's web sites. Some gender differences were found but the differences could be due to differences in the amount of interaction with the source. The student vs. non-student variable produced some interesting findings with students rating the friends or family source higher than non-students on likelihood of use and ease of use. Students may have greater tendency to ask friends and family for information.

The preference for manufacturer's web sites over second-party websites was an interesting finding. It might have been expected that second-party web sites would be preferred because of their potential credibility and independence. This was not found, however. Manufacturer's web sites were rated higher and were the third highest overall on ease of use and fourth highest on ease of use and completeness. Only pharmacist and physician were rated consistently higher. The results show the substantial potential for information seeking using manufacturer's websites. Thus, it appears that Internet users interested in finding information about prescription drugs will more likely examine a manufacturer's web compared to second-party web sites.

Research has shown that manufacturer's web sites tend to present risk information deeper in the web sites hierarchy than the benefits (Hicks, Vigilante, & Wogalter, 2001). Research has also demonstrated that in manufacturer's web sites, risk information tend to be placed deeper in hierarchical structure and as a consequence making it less likely that the risk information will be found (Vigilante & Wogalter, 2001). These earlier findings together with the present results indicate the potential impact of manufacturers' web sites on consumers seeking and finding additional information.

This also indicates the importance and need for accessible, accurate, and complete risk information on prescription drugs in manufacturers' web sites, particularly when this source will be affecting the quality of people's decisions. Further research on this and related topics are sorely needed. For example, there is a need to determine what kinds of expectations consumers have when using manufacturers' web sites and how best to optimize the presentation of risk information relative to benefit information within these web sites.

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