

Does DTCA Influence Young Adults' Perceived Importance of Sleep Disorders?

Two-Sided Message-Order Effects:

The Moderating Role of DTCA Skepticism

Consumers may want to seek what health information is available in order to make a decision. As an influential health information source, direct-to-consumer prescription drug advertising (DTCA), especially, has called for researchers' interests. In terms of DTCA expenditure, its spending reached \$4.3 billion in 2009 (Myers, Royne, & Deitz, 2011). A pharmaceutical product category is still heavily advertised (Kaiser Family Foundation, 2010). As a result, 91% of Americans reported that they were aware of prescription drug advertising (Myers et al., 2011).

In line with the rapid growth of the DTCA market, the debate about the benefits and drawbacks of DTCA has been controversial. Proponents' assertion is that DTCA raises awareness about diseases, educates consumers, improves patient-doctor communication, and thereby empowers the public's health status. In contrast, opponents argue that DTCA tends to raise unrealistic expectations about the benefits of medication and thus increases consumer demand of medicine, thereby leading to an over-medicalized society (Myers et al., 2011; Suh et al., 2011).

Despite this severe debate, public policy research on DTCA remains contested (Frosch et al., 2010). In marketing literature spanning several decades, more consumer-oriented DTCA research has been called for (Farris & Wilkie, 2005). Nevertheless, the effects of the practice on

consumer attitudes, intentions, and behaviors remain unclear (Myers et al., 2011). To what degree are responses to DTCA dependent on message structures and individual consumer traits? Answering such questions is important to the DTCA debate (Myers et al., 2011).

Current DTCA regulations require advertisers to provide trustworthy and “fair balanced information” of the benefits and risks of prescription drugs (Department of Health and Human Services [DHHS], 2010). In March 2010, the U.S. Food and Drug Administration (FDA) proposed amendments to DTCA guidelines to ensure that side effects and contraindications should be presented in a clear, conspicuous, and neutral manner (DHHS, 2010). Among other issues, the new guidelines include specific concerns directed toward modality, contrasts, presentation rates, and the order of information within DTCA regulations, the DTCA message structure factors. Researchers agree that the current requirements are too vague (Myers et al., 2011).

In line with FDA regulations, the Pharmaceutical Research and Manufacturers Association (PhRMA) also issued voluntary guidelines, effective as of January 2006, designed to enhance the educational value of DTCA and to encourage consumers to discuss treatment options with their doctors (Atkin & Beltramini, 2007). Among the key elements of these guidelines is that “*DTC television and print advertising should be designed to achieve a balanced presentation of the benefits and risks associated with the advertised prescription medicine*” (Silver, Stevens, & Loudon, 2009). In spite of these efforts, there remains a doubt over how fair and balanced message factors can be assessed to see whether they meet the FDA regulations and self-regulation guidelines.

Considering that the goal of FDA's DTCA policy is to enhance consumer welfare and quality of life, it is important that regulatory changes should be guided by more than descriptive analyses (Davis, 2007; Myers et al., 2011). The main purpose of the current study is therefore to apply theoretical perspectives to better understand consumers' perception of DTCA messages.

More specifically, the perspectives of two-sided message order effects (e.g., Haugtvedt & Wegener, 1994) and the persuasion knowledge model (PKM: Friestad & Wright, 1994) will address how consumers perceive DTC advertising and cope with the persuasive health information, while considering DTCA message structures, individual traits, and perceptual factors. However, it is important to note that the main purpose of the present study is not to say that the given assertions of either proponents or opponents of DTCA are superior to those of their counterpart.

Of many potentially important diseases, the current study focuses on sleep disorders among young adults for the reason that, although sleep disorders are one of the most heavily advertised prescription drug categories in the DTC market, it remains largely ignored by the public. For instance, according to Centers for Disease Control and Prevention (CDC), although 16 percent of Georgia's residents experience persistent sleep problems, only 10 percent report having been diagnosed with a sleep disorder (CDC, 2011). Among the younger adult population, a sleep disorder was found to be a more severe health problem. A nationally representative sample ($N = 80,121$) survey from institutions of higher education revealed that about one in three college students (25.6%) reported sleeping difficulties as a serious health impediment (American College Health Association; ACHA, 2009).

Unfortunately, although sleep disorders should be treated properly, young adults may tend to ascribe the reasons of the sleep illnesses to their lifestyles rather than to health problems. In line with this, Wright et al. (2006) argued that early diagnosis and proper treatment of clinical illnesses are critical to the well-being of adolescents and young adults. Once they occur, mental health diseases tend to persist (Park & Grow, 2008). Hence, as a health information source, examining the potential influence of sleep disorder DTCA on young adults' perceptions is promising.

Considering sleep disorders are increasingly prevalent among young adults' and that consumer socialization begins early in life (Park & Grow, 2008), the current study can contribute to illuminating how college students' perceptions of sleep disorders are influenced by the DTC sleep disorder ads.

In more detail, the first objective of this study is to examine whether the perceived importance of sleep disorders are formed by DTC advertising exposure among college students. In addition, I expect college students' estimation of perceived importance of sleep disorders will be influenced by: (1) the presentation order of the two-sided messages (drugs' benefits and risks) and (2) individual skepticism toward DTCA.

In the following section, I provide a brief review of the perceived importance of health promotion research, two-sided message order-effect, and DTCA skepticism (based on PKM perspectives). Next, I offer hypotheses support, followed by a review of study methods and a summary of results. Finally, I discuss the implications of the study's findings in terms of DTCA theory, practice, and related policy.

Theoretical Background

DTC Advertising and Perceived Importance

Consumers' perceptions of the importance of health-related issues have been reported as critical predictors of healthy behavior. For instance, in the context of physical activity during leisure, Laffrey and Isenberg (1983) examined the role of perceived importance of physical exercise in promoting healthy behaviors. In their study, the relationship between perceived importance of physical exercise for health and the amount of physical activity during leisure was positively significant (Laffrey & Isenberg, 1983). Honjo and Siegel (2003) also examined the notion of perceived importance with regard to female adolescents' smoking behavior. In their study, they found that the perceived importance of being thin was significant of smoking behavior (Honjo & Siegel, 2003). This longitudinal study confirmed that perceived importance serves as an important health behavior determinant.

More recently, with regard to the social perception of the prevalence of disease, An (2008) conducted a study using the perspective of cultivation theory. The cultivation theory suggests that the more often people watch mass media content, the more likely it is that they will come to view the real world as similar to the world portrayed in mass media (An, 2008). As a potential psychological process involved in this phenomenon, An (2008) utilized the notion of "construct accessibility." As An (2008) pointed out, this psychological process is largely based on Tversky and Kahneman's (1973) work on "availability heuristics." According to their work, consumers may use cognitive heuristics to judge the likelihood of social events (Tversky & Kahneman, 1974). The enhanced availability of an event in a consumer's memory leads to an increase in its perceived probability (Sherman, Cialdini, Schwartzman, & Reynold, 1985). Based on this logic, An (2008) argued that DTCA is one significant source of information that affects construct accessibility, thereby influencing the perception of diseases.

In a similar vein, An, Jin, and Brown (2009) conducted another study on young adults' beliefs about sleep disorders. In this study, An et al. (2009) found that high exposure to DTCA was associated with a more positive evaluation of drugs among young adults who had not had prior personal experience with sleep disorders. Based on this finding, An et al. (2009) concluded that exposure to DTCA may increase the perceived desirability of treating illnesses with drugs. Regarding this conclusion, Park and Grow (2010) also pointed out that, once formed, risk perception is a strong antecedent of consumer involvement in health behaviors. Based on this line of study, literature about the perception of illness generally observed in consumer health cognition leads to the following prediction:

H1: Perceived importance of sleep disorders will be positively increased after exposure to a DTC sleep disorder advertisement.

Two-sided Advertising Message Order Effects

Put simply, two-sided messages are persuasive attempts that include both positive and negative aspects of products or services (e.g., Crowley and Hoyer, 1994). Why are two-sided messages important in persuasion contexts? According to Eisend (2006), in some situations, product-related messages that include negative information can be more effective than those with no negative information. However, previous literature on the effects of two-sided messages versus one-sided messages (with only positive aspects) has been mixed. One reason may be the lack of a theoretical framework addressing the two-sided message effects (Crowley & Hoyer, 1994). Hence Crowley and Hoyer (1994) pointed out it needs to be addressed how and under what conditions two-sided messages are effective. In more detail, Eisend (2006) pointed out that through the knowledge on the effectiveness of two-sided advertising and influences of potential

moderating and mediating variables, marketers can optimize communication strategies aimed at consumers.

In everyday life, consumers frequently encounter two-sided messages as an important form of persuasive communication. Undoubtedly, DTCA is one of the persuasion tools utilizing two-sided messages because it presents both positive and negative aspects of prescription drugs. How would two-sided message be more effective? Two-sided ads have been reported to be more effective to the extent that the two-sided nature of the ad increases perceptions of source credibility (Pechmann, 1992). In addition, Eisend (2010) argued that two-sided messages may generate relatively high levels of attention and motivation to process because they are novel, interesting, and credible.

Cowley and Hoyer (1994), however, pointed out that because previous research has heavily compared the effects of two- versus one-sided advertising, new research needs to address the effects of two-sided message structures on key measures of communication effectiveness. To fill the gap, the current study attempts to address one important message structure factor: two-sided message presentation order.

The order effects of benefits and risks of prescription drugs have been largely ignored in prior research. The presentation order effects of positive and negative attributes of drugs may not operate in the same way. For instance, Alba, Hutchinson, and Lynch (1991) contended that an initial message appeal of positive product attributes may establish an anchor for following evaluations; thereby consumers will process further negative information in a somewhat biased manner.

Then, when are the first presented message effects stronger? Haugtvedt and Wegener (1994) argued that primacy effects (more consistent judgments with the first presented messages) occur when consumers are motivated to process the information, whereas recency effects (more consistent judgments with the last presented messages) occur when consumers are not motivated to process the information and therefore do not cognitively elaborate message processing. Further, Haugtvedt and Wegener (1994) suggested one possible way to conceptualize research on message-order effects: testing attitude strength. Attitude strength is operationalized as “the degree of attitude resistance in the face of attack” (p. 207). In line with this, Haugtvedt and Petty (1992) found that when people with a high need for cognition scrutinize message content, they counter-argue a weak attacking message to a greater extent than people low in need for cognition. Thus Haugtvedt and Petty (1992) pointed out that any variable that increases the amount of elaboration should lead to similar increases in attitude strength and thereby increase resistance to change (Haugtvedt & Petty, 1992; Petty & Cacioppo, 1986).

On the other hand, Crowley and Hoyer (1994) noted that the placement of the negative attributes may be important. This may be the case in the context of DTCA because DTC advertisements deal with sensitive health-related risk information. Interestingly, Hass and Linder (1972) found that negative information presented early in a message (not first) may be more effective for persuasion than negative information placed last.

In the context of DTCA, to the extent that the order of the presentation can affect a consumer's perceptions of drugs or illnesses, it would be especially critical to understand conditions under which primacy versus recency effects are likely to occur. Some previous studies provided empirical evidence regarding this question. Lana (1961) found primacy effects under conditions of high familiarity and recency effects under conditions of low familiarity with an

issue. Additionally, Lana (1963a) found significant primacy effects for a high-controversy issue but not for a low-controversy issue. In a similar vein, Lana (1963b) also found that people who had high interest in a topic showed significant primacy effects, whereas people with low interest showed significant recency effects. Lana's series of findings (1961, 1963) confirmed that recency effects are more likely to occur when motivation and ability to elaborate the initial message are low. In the case of recency effects, people may use more accessible resources in a memory recently presented as a basis for a final judgment (Haugtvedt & Wegener, 1994; Petty & Cacioppo, 1986).

In summary, if a condition encourages high levels of elaboration of the ad, enhanced counter-argumentation of following information leads to primacy effects. On the contrary, if a condition encourages low levels of elaboration, then recency effects appear. Applying this to the context of DTCA, the order of prescription drugs' benefit and risk information will lead to different perceptual effects, depending on motivation factors. As an elaboration condition, various manipulated and measured variables have been examined (e.g., Rucker, Petty, & Brinol, 2008). Among potential factors, in the following section, one theoretically intriguing individual trait factor is addressed based on the PKM perspectives.

Consumers' DTCA Skepticism

Friestad and Wright (1994) pointed out that previous persuasion theories and models have provided no explicit role of consumers' persuasion knowledge.

Especially, they noted that consumers' characteristics as moderators of persuasion effects were not examined (Friestad & Wright, 1994). Thus it is important to understand how consumers use

persuasion knowledge to refine their judgments of products and advertisements. In the current study, DTCA skepticism is operationalized as important persuasion knowledge.

Skepticism is defined as “consumers’ negatively valenced attitude toward the motives of and claims by advertisers” (Mangleburg & Bristol, 1998, p. 11). Obermiller, Spangenberg, and MacLachlan (2005) dealt with advertising skepticism within the PKM proposition (Friestad & Wright, 1994). In line with the PKM, skepticism may imply that consumers recognize advertisers’ persuasive motives and thereby perceive that advertisers’ communications may be biased (Boush, Friestad, & Rose, 1994). Skepticism is a socially learned psychological tendency that develops and changes over time (DeLorme, Huh, & Reid, 2009). Obermiller and Spangenberg (1998) contended that advertising skepticism may be a potential moderator of the persuasive effects of advertising. Based on the PKM framework, in the context of DTCA, DeLorme et al. (2009) defined DTCA skepticism as “the general tendency toward disbelief of advertising for prescription drugs” (p. 296).

Interaction with socialization agents such as parent, peers, and the mass media may help consumers acquire persuasion knowledge (Mangleburg & Bristol, 1998). Mangleburg and Bristol (1998) especially contended that the amount of teens’ media exposure may be related to the development of skeptical attitudes toward advertising because media exposure may provide people more experiences with which to judge ads. That is, the socialization process helps consumers acquire persuasion knowledge so they will be able to become adept consumers (Mangleburg & Bristol, 1998).

It is also noteworthy that empirical research has reported that consumers’ levels of persuasion knowledge are likely to be related positively to skepticism toward advertising

(Mangleburg & Bristol, 1998). For instance, Mangleburg and Bristol (1998) found that the extent of consumers' media viewing is positively related to consumers' skepticism toward advertising. In addition, in terms of the consumers' perceptions of importance of illnesses, Diehl et al. (2007) found that skeptical consumers showed low perceived importance on advertising as a source of prescription drug information.

Considering today's saturated media surroundings, young adults may become skeptical of DTC advertising. However, little is known about the current level of young adults' DTCA skepticism. In addition, based on the above theoretical logic, the proposed DTCA effects on consumers' perceived importance of sleep disorders (H1) may be significantly diminished by DTCA skepticism. Obermiller et al. (2005) found that skeptical consumers tend to rely less on advertising. Based on the preceding literature review, the following research question and hypotheses can be posited:

RQ1: What is the current level of college students' DTCA skepticism?

H2: DTCA skepticism will be negatively associated with consumers' perceived importance of sleep disorders.

In addition, as conceptualized in the preceding sections, the two-sided message-order effects may vary across different elaboration conditions (high versus low). In the current study, DTCA skepticism may serve as a potential elaboration variable. High DTCA skepticism consumers may be more elaborated to process two-sided messages, and thereby primacy effects will occur. In contrast, low DTCA skepticism consumers may be less elaborated, and this will lead to recency effects.

In more detail, in the recency effect occasion, when drugs' benefits information is placed last, the perceived importance of sleep disorders will be significantly higher than that of opposite-order two-sided messages. Under the primacy effect occasion, however, because consumers are highly elaborated, drugs' benefit information that is placed first will lead to a higher perceived importance of sleep disorders among young adults.

Intriguingly, however, DTCA skepticism will have negative associations with primacy and recency effects. The judgment scores will be decreased under higher DTCA skepticism conditions. In this situation, as Hass and Linder (1972) demonstrated, it is likely that highly skeptical consumers may process negative information placed first more negatively. This consideration leads to the following predictions about the moderating role of DTCA skepticism:

H3: The two-sided message-order effects and DTCA skepticism will have an interaction on the extent of the perceived importance of sleep disorders:

(a) such that two-sided message-order effects (primacy versus recency) will be reversed across different DTCA skepticism conditions (high versus low)

(b) such that the perceived importance of sleep disorders of recency effects (risks first/benefits last) will be more significantly dropped than primacy effects under high DTCA skepticism condition.

Potential Correlates of the Perceived Importance of Illnesses

Key control variables that may affect beliefs about illnesses were also measured. They include: gender, race, current health condition, prior knowledge about illnesses, and personal experiences with illnesses. Gender and race have been found to affect motivation and ability to

acquire health information (Huh, Delorme, & Reid, 2004). In addition, the literature presents psychological factors that contribute to the perceived importance, including current health condition, previous experiences with a disease, and subjective knowledge about a disease (Block & Keller, 1995; Weinstein, 1980; Weinstein, 1987). An et al. (2009) pointed out that researchers need to distinguish between participants who have suffered from illnesses and those who have been treated with medicines. Such different bases of experience could affect perceptions of DTC ads (An et al., 2009). The current study controls these correlates to account for their external influences.

Method

Design

To test the three hypotheses and one research question, the current study employed a 2 (two-sided message order: benefits/risks versus risks/benefits) \times 2 (DTCA skepticism: high versus low) between-subjects design. For the analyses, Paired Samples t-test, One Sample t-test, Multivariate Analysis of Covariance (MANOVA), Analysis of Covariance (ANCOVA), and Multiple Hierarchical Regression Analysis were used.

Subjects and Procedure

A total of 177 college students enrolled in communication, public relations, and advertising classes at a southern state university participated in return for course credit. The age ranged from 19 to 46 years and the average age was 20.6 ($SD = 4.68$). The majority were female (72.7%) and Caucasian/White (83.1%), followed by Africa/American (8.5%), Hispanics (1.7%), and Asian (1.7%), etc.

The experiment was conducted in a lab equipped with tables and chairs. Prior to the experiment, the treatment booklets were randomized and distributed. Subjects were asked to complete the prior knowledge and experience measures regarding sleep disorders (e.g., overall health status, the degree of knowledge about sleep disorders, personal experiences sleep disorders, and perceived importance of sleep disorders, etc) due to their possible influences on dependent variables. Then consumer skepticism toward DTC advertising was measured.

Subsequently, subjects were presented with a sleep disorder print DTC advertisement. Message order effects were manipulated. Subjects were first exposed to a message containing either benefits or risks arguments of prescription drugs (see Appendix 2). Subjects were then presented with a second message that argued in the opposite direction of the first. After exposure to the stimulus, subjects completed dependent measures, and provided demographic information. It is important to note that different instructions for each half of the subjects were given respectively:

For the first half of the subjects:

"You are about to see an ad for a prescription drug. When you read the ad, consider that the Food and Drug Administration (FDA) requires a prescription drug ad to disclose the health risks of the drug. Please proceed to the next page."

For the remaining half of the subjects:

"You are about to see an ad for a prescription drug. After you read the ad, please proceed to the next page."

The purpose of the different instructions was to counter-balance any potential influences of prior knowledge about whether DTCA risk information is required by FDA, on the dependent variables. The experiment took approximately 20 minutes to complete the instrument. Upon completion of the instrument, subjects were thanked.

Measures

Perceived Importance of Sleep Disorders. Perceived importance of a certain disease concerns how much importance the respondent placed on the disease. Similar to, Laffrey and Isenberg's (1983) measure, perceived importance of sleep disorders was measured using a single 7-point Likert-type scale ranging from "not very important" (scaled 1) to "very important" (scaled 7).

Skepticism toward DTC advertising. Participants reported on an eight-item, seven-point (1 = strongly disagree, 7 = strongly agree) scale. Their agreement with statements reflects the perceived dependability of information from prescription drug advertising (DeLorme et al., 2009). The statements included such as "Prescription drug ads generally present a true product picture," "Prescription drug advertising is a reliable source of information," and "Most prescription drug advertising provides consumers with essential information." Responses were reverse-coded and averaged, such that a high score represents strong skepticism ($M = 5.16$, $SD = .71$, $\alpha = .87$).

Intention to seek information about sleep disorders. On a four-item, seven-point scale (1 = strongly disagree, 7 = strongly agree), participants indicated their agreement with the following four statements (Huh, DeLorme, & Reid, 2005): (a) "I would like to learn about the medical conditions and treatment options of sleep disorders"; (b) "When I come across useful information about sleep disorders, I would like to retain it"; (c) "I would like to use various

media sources to get information about the medical conditions and treatment options of sleep disorders ”; and (d) *“I would like to learn about the benefits and risks of sleep disorder prescription drugs.”* These items reflect information-seeking behaviors generally encouraged in DTC advertisements ($M = 3.89$, $SD = 1.36$, $\alpha = .90$). Cronbach’s α indices of the dependent variables with multiple items were greater than .75, which were reliable (Grewal, Gotlieb, & Marmorstein, 1994). Responses were averaged into a single index.

Counter-balancing Check. To see whether there are any confounding variations across four different experimental materials coming from consumers’ prior knowledge about marketers’ intention to disclose (versus the FDA requirements of disclosure), two potentially influential constructs (suggested by Crowley & Hoyer, 1994; Eisend, 2006) were measured on a single seven-point scale respectively : *“What do you think are the chances that the ad is required to present health risks of the drug?”* (1 = very unlikely to 7 = very likely) and *“This ad was different from other prescription drug ads because it presents the risks of the drug.”* (1 = strongly disagree to 7 = strongly agree). Also, perceived source credibility questions (Eisend, 2010) includes three items: *“I think that the sponsor of the advertisement”* (e.g., “1 = not trustworthy to 7 = trustworthy”; “1 = dishonest to 7 = honest”; “1 = not credible to 7 = credible”).

Eisend (2006) pointed out that if a marketer is required to make a negative disclosure, the company may be perceived to be less credible than a company making the disclosure voluntarily. That is, this effect depends on the fact that consumers have knowledge about a marketer's persuasion tactics that the disclosure is made involuntarily. However, the disclosure of prescription drugs have become quite common. Consumers may be aware of involuntariness when disclosures are introduced by law (Eisend, 2006). Thus, although past research of two-sided message has heavily focused on perceived novelty and credibility with regard to marketers'

spontaneity of disclosure as a persuasion mechanism (e.g., Crowley & Hoyer, 1994; Eisend, 2006), the processes are not main concerns of the current study. Nevertheless, due to the possibility that the perceived nature of the disclosure can influence perceptions of DTCA, these factors were controlled by the experimental design in the present study.

Correlates. To report current health condition, participants indicated on an four-point scale (1 = *poor*, 2 = *fair*, 3 = *good*, and 4 = *excellent*), how would they rate their overall health at the present time ($M = 3.18$, $SD = .63$) (Read, Quinn, & Hofer, 1987). To assess subjective knowledge (Weinstein, 1987) about sleep disorders, an seven-point scale was used (1 = *not at all knowledgeable*, 7 = *extremely knowledgeable*). The mean subjective knowledge was 3.60 ($SD = 1.17$). Prior importance (Laffrey & Isenberg, 2003) of sleep disorders was measured to be compared with post importance on a single seven-point Likert-type scale (1 = *not very important* to 7 = *very important*; $M = 3.54$, $SD = 1.37$). Personal experience was measured with "yes/no" response options. About 95% of participants reported not having been diagnosed with sleep disorders.

Results

Counter-balancing Check

To check any confounding variances resulting from consumers' knowledge about disclosure spontaneity on their perceptions of DTCA, subjects were asked to rate the extent to which they agreed or disagreed with three-constructs' statements using 7-point scales (perceived spontaneity of disclosure, perceived novelty of the two-sided messages, and perceived source credibility) as dependent variables. In addition to the two main independent variables, one more manipulated variable (Informing the FDA's disclosure requirements: presence versus absence)

was submitted to a $2 \times 2 \times 2$ factorial design (two-sided order; \times DTCA skepticism \times informing FDA requirements) multivariate analysis of covariance (MANCOVA).

Place Table 1 about to Here

The MANCOVA results showed no significant two-way or three-way interactions between order effects, DTCA skepticism, and consumers' knowledge of marketers' spontaneity of disclosure. (see Table 1). These indicated that there were no confounding effects resulting from consumers' knowledge about marketers' voluntariness, with the effects of two independent variables (order effects and DTCA skepticism) on the dependent variable (perceived importance of sleep disorders).

Analysis

H1: Increase of the Extent of Perceived Importance after Exposure to a DTC Advertisement

The Paired Samples t-test results in Table 2 indicate a significant effect of a DTC sleep disorder advertisement on consumers' perceived importance of sleep disorders. As hypothesized post perceived importance was statistically significantly increased from prior perceived importance ($M_s = 3.54$ and 3.79). This result demonstrated that DTC sleep disorder advertising may influence consumers' perceptions of importance of an illness in a positive way. Thus, hypothesis 1 was supported (see Table 2).

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RQ1: The Current Level of College Students' DTCA Skepticism

To explore the current level of college students' DTCA skepticism, descriptive statistic analysis was conducted and the reported DTCA skepticism was found to be relatively high. Although Diehl et al (2007, 2008) and DeLorme et al. (2009) predicted and found neutrality of DTCA skepticism, falling around the neutral point of the skepticism measure (SKEP), there has been little research on young adult population to date. To fill the knowledge gap, the current study provides useful information regarding the current consumer DTCA skepticism level among young adults. Following DeLorme et al.'s (2009) procedure, RQ1 was answered by both descriptive statistics and a one sample t-test.

First, descriptive statistics were obtained for the eight individual items which measured DTCA skepticism (all the scores were reverse-coded for consistency with DeLorme et al. (2009)). As shown in Table 3, the scores ranged from 5.35 for "*Prescription drug ads generally present a true product picture*" to 4.60 for "*Prescription drug advertising is informative,*" on a 7-point scale (see Table 3). The results showed the majority of participants falling above the neutral point (4) of the DTCA skepticism scale in general.

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A summated DTCA skepticism score was computed by averaging the eight scores (Cronbach's alpha = .87) and the mean value of the summated score was 5.16 (SD = .71). The mean value of DTCA skepticism (M = 5.16, SD = .71) was higher than its median value (Median = 5.13). To test whether or not this mean score was significantly different from the neutral point, a one sample t-test was conducted with the mid-point as a test value (DeLorme et al., 2009). The

results indicated a significant difference ($t = 21.47, df = 172, p = .000$), which means that statistically the consumers expressed a higher stance on DTCA skepticism. Therefore, the answer of RQ1 is that young adult consumers are highly skeptical of DTCA in general.

H2: DTCA skepticism will be negatively associated with consumers' perceived importance of sleep disorders

To test the negative association of DTCA skepticism with consumers' perception of importance of sleep disorders, a hierarchical multiple regression was built to test the contribution of control and independent variables to the extent of perceived importance. In the first block, gender, age, and race were entered as general demographic control variables. The second block included the correlates of perceived importance of sleep disorders identified in the literature, including overall health status, prior knowledge about sleep disorders, and personal experience with sleep disorders. In the third block, two-sided message order, skepticism toward DTC advertising, and the order effects \times skepticism interaction were entered. List-wise deletions accounted for missing values.

Table 4 summarizes the results of the hierarchical multiple regression on the extent of perceived importance of sleep disorders. All statistics in the table represent the full regression model.

Place Table 4 about to Here

The results of the regression indicated that DTCA skepticism tended to reduce the level of perceived importance of sleep disorders, as a higher level of DTCA skepticism was associated with a lower degree of perceived importance ($\beta = -1.044, p < .01$). This finding suggested that even after the

influences of order effects and other correlates were accounted for, DTCA skepticism might still reduce the perceived importance, and thus H2 was supported. With regard to contributions of correlates, Table 4 reveals one significant correlate of the perceived importance of sleep disorders. Prior knowledge was associated with stronger perceived importance of sleep disorders ($\beta = .344, p < .01$).

H3a and H3b: The Interaction Between Two-sided Message Order and DTCA Skepticism on Perceived Importance

H3 predicted that the association between order effects and the extent of perceived importance would be moderated by skepticism toward DTC advertising. As Table 4 shows, order effects and DTC skepticism had a significant interaction on the extent of perceived importance ($\beta = .957, p < .05$). The positive association indicated that recency (versus primacy) effects' contribution to perceived importance turned negative as participants' skepticism toward DTC advertising grew stronger. This pattern of interaction supported H3. To further explore the pattern of interaction, analysis of covariance (ANCOVA) was conducted (see Table 5).

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Univariate results indicate the interaction between order effects and DTCA skepticism on perceived importance. To pinpoint the interaction effects, I conducted follow-up orthogonal contrast analyses within each levels of DTCA skepticism. High DTCA skepticism consumers reported significantly higher perceived importance of sleep disorders consistent with primacy effects ($t = 2.001, df = 172, p < .05$). In contrast, low DTCA skepticism consumers showed higher perceived importance of sleep disorders consistent with recency effects, but it was not significant ($t = -1.132, df = 172, p > .05$). That is, under the high DTCA skepticism condition, consumers evaluated a sleep disorder DTC advertisement more favorably when benefit information was presented first. On the contrary, low DTCA

skepticism consumers assessed a sleep disorder DTC advertisement more favorably when benefit information was presented last. The results are presented graphically (see Figure 1).

Place Figure 1 about to Here

Further, as shown in the Figure 1, it is critical to note that the extent of perceived importance of sleep disorders for both primacy and recency effects were decreased under the high DTCA skepticism condition. However, recency effects were more rapidly dropped. Thus, another set of orthogonal contrast tests were conducted to pinpoint the interaction patterns. Although the primacy effect scores were not significantly dropped from under low DTCA skepticism condition to under high DTCA skepticism condition ($t = -1.153$, $df = 172$, $p > .05$), the recency effect scores were significantly dropped from under low DTCA skepticism condition to under high DTCA skepticism condition ($t = -4.057$, $df = 172$, $p = .000$). These results clearly support the interaction effects between order effects and DTCA skepticism and therefore H3a and H3b were supported. Moreover, these results also additionally supported H1 that DTCA skepticism contributes to significantly reduce perceived importance of advertised illnesses.

Discussion

Although shaping perceptions of the importance of illnesses is likely affected by multiple sources of influences, the current study focused on the role of DTCA. Overall, DTCA was found to influence the perceived importance of illnesses. After exposure to a DTC sleep disorder advertisement, young adults' perceived importance was significantly increased.

However, the study revealed young adults were skeptically biased in evaluating DTCA and thereby influencing perceptions of a certain DTC advertisement (e.g., a sleep disorder DTC advertisement). Skepticism acted to reduce the extent of the perceived importance of illnesses, and the

reduction became larger when consumers were more skeptical of DTCA, especially, when negative information was placed first. In addition, the study revealed that DTCA skepticism can serve as a cognitive elaboration factor affecting two-sided message-order effects. When skepticism was high, consumers showed primacy effects, while recency effects appeared in the low-skepticism condition.

Theoretical and Practical Implications

The current study contributes to the theory of DTC advertising. Although DTCA skepticism has been reported in social psychology and is known to influence media effects, DTC literature has largely ignored the construct. The current study revealed the interactive role of DTCA skepticism in moderating the effects of two-sided message order on the magnitude of the perceived importance of illnesses, as a finding that has not been reported in either the DTC or the skepticism literature. The order effect \times DTCA skepticism interaction remained even after a wide range of correlates of the perceived importance of illnesses were controlled, indicating strong statistical conclusion validity.

The current study also contributes to the practice of DTC advertising, especially regarding the market expansion of a drug category. As DTC literature has demonstrated (e.g., Donohue and Berndt, 2004), DTCA increased illness diagnoses and requests for medicine treatment imply DTCA's contribution to the expansion of the prescription drug market. Considering the expansion of a drug category is a critical marketing objective for under-treated diseases such as sleep disorders; hence it is important to examine how DTC advertisers can utilize DTCA more effectively to achieve their goal.

The present study revealed that exposure to DTCA could enhance the extent of perceived importance of illnesses. How can health promotion practitioners more effectively improve consumers' perceived importance? Findings regarding the interaction between order effects and DTCA skepticism provide an interesting set of insights. I found that when DTCA skepticism was high, the effect of primacy in marketing was significant. This implies that when marketers want to emphasize ideas, it may be more effective to place the messages first. The study's findings showed that young adult consumers might be

skeptical toward DTC advertising. Keeping in mind these findings, pharmaceutical marketers may be able to utilize this information when designing their DTC campaigns.

This is not limited to one advertising message strategy. When planning media campaigns, Brunel and Nelson (2003) pointed out that advertisers are able to determine advertising placement. Today, advertisers can request advertising placement and time (Brunel & Nelson, 2003). Previous persuasion theories have demonstrated that it is possible to foster consumer resistance when receipt of a message invokes the central route of information processing (Yalch & Elmore-Yalch, 1984). According to Yalch and Elmore-Yalch (1984), when a message invokes the central route via a high elaboration condition, consumers' cognitive resources are no longer available to evaluate subsequent persuasive messages or can become resistant to the messages that follow (Haugtvedt & Wegener, 1994).

With regard to this, Zhang and Buda (1999) pointed out that highly cognitive individuals might be more skeptical and tend to generate more negative thoughts than less highly cognitive individuals. Based on this logic, Yalch and Elmore-Yalch (1984) noted that college students might be more engaged in central processing. Thus, college students may be more likely to generate negative thoughts. Also, as mentioned, today's media-saturated world may cause young adults to become increasingly skeptical toward media content. This was conceptualized in the PKM (Friestad & Wright, 1994). If main target consumers are younger adults, advertisers should more carefully consider the current study's findings. Further, it should be noted that when negative information was presented first, highly skeptical consumers reported significantly lower perceived importance. This may imply that highly skeptical consumers are more likely to resist against persuasive attempts, when they encounter negative information first. Consumers' skeptical tendency should be understood and recognized by marketers in organized efforts.

In addition, findings of one correlate variable (prior knowledge about sleep disorders) provide useful insights. The current study found that prior knowledge about sleep disorders contributes to enhancing perceived importance of sleep disorders. This implies an important goal for health promotion

practitioners. Educating the public regarding a certain social disease will improve perceptions of illness importance and thereby increase the possibility that consumers may better cope with their own health problems. This could be achieved by identifying the way consumers are effectively educated about socially prevalent diseases that could potentially put them at risk.

In order to enhance the perceived importance of socially important health issues, I suggest DTC advertisers utilize the current study's findings, order effects and DTCA skepticism interaction. As has been demonstrated, the current study adds more knowledge about message processing elaboration conditions for DTCA skepticism. In addition, the present study explores the current levels of young adults' DTCA skepticism. Taken together, it is evident that DTC advertisers and health promotion practitioners utilize primacy effect strategies when consumers are highly skeptical. However, little is known about the product categories toward which consumers are more skeptical. Future research can identify the potential profiles of product categories.

Although the current study revealed the negative influence of DTCA skepticism on the perceived importance of illnesses, this does not necessarily position DTCA skepticism as an undesirable tendency. As conceptualized in the PKM, consumers socialize themselves from various interactions with persuasive agents. DTCA skepticism can be considered one type of coping strategy to handle persuasive attempts. Boush, Friestad, and Rose (1994) noted that an average child between the age of two and 11 is exposed to approximately 40,000 commercials per year. Over time, these persuasion clusters may make consumers more alert.

Consumers should refine and adjust their persuasion knowledge to cope with their surroundings and to be better consumers. Boush et al. (1994) called this epistemic doubt. This view implies that adolescents become skeptical as their own beliefs change and they come to realize that truth may be relative even from factual knowledge. Through this socialization process, consumers are better able to

differentiate product attribute information in advertisements and more critically perceive the world. Thus public educators need to teach persuasion knowledge in a sound way.

Regulatory Implications

Message-order strategy may be attractive because it can be manipulated in applied settings. Based on the information about young adults' DTCA skepticism, it may be easier to plan more effective media plans and design viable message strategies. How can this issue be related to regulatory implications? According to the Code of Federal Regulations (21 CFR Part 202.1), advertisements must meet certain rules in order not to be judged as misleading. In addition, Calfee (2002) pointed out that the FDA's concept of misleading is parallel to the FTC's policy of deceptive acts or practices.

However, DTCA regulation is elusive because regulators cannot be sure which claims will turn out deceptive and which will prove truthful. Regulators may want to encourage conveying more complete information to consumers. The current study's findings may provide implications to both DTC regulators and advertisers. For instance, Beltramini (2006) proposed that a balanced presentation of benefits and risks would reduce consumer skepticism toward DTC ads. In the contexts of DTCA, two-sided messages are required. However, based on the current study's findings, if more benefit information is placed first and less information is placed last, this would violate fair balance guidelines. As mentioned earlier, there may be many potentially influential message structure factors in DTC advertisements.

In an applied situation, it would be more realistic to expect that advertisers will utilize more than one message factor to persuade consumers. However, if those combined factors are used in an imbalanced manner, they should be regulated. Order effects can be one of the factors, especially regarding primacy and recency effects; for example, if DTC advertisers attempt to intentionally avoid a fair and balanced information presentation format, it could be viewed as a deceptive marketing tactic.

Although the pharmaceutical industry voluntarily made DTCA guidelines (e.g., PhARMa) and the FDA added new amendments of DTCA regulations, there remains one more task to initiate. Lee (2009) showed that patients who read small print information in DTC ads are more likely to bring drug ads to their doctors. This may imply that more critical consumers may pay more attention to DTCA information and may tend to discuss advertised drugs more often with their doctors in order to better cope with their own health problems. Thus consumers themselves should be critical in evaluating DTCA messages. Together, DTC practitioners are encouraged to identify various means of improving credibility and reducing skepticism in ethical ways. Sheehan (2003) found that from 1997 to 2002, the FDA cited approximately 10 percent of DTC advertisers each year for a lack of risk or other important information, overstated benefit claims, deceptive or misleading information. In this sense, the public may become even more skeptical. Therefore DTC marketers should make organized efforts to comply more thoroughly with the FDA guidelines, and as a result, public trust can be established.

Limitations and Suggestions for Future Research

DTCA expenditure has rapidly increased. Because of DTCA's industrial importance and educational function, its growth will undoubtedly continue. A better message design for DTCA may in many ways be closely related to pharmaceutical companies' return on investment (ROI). DTCA message strategy research may have practical importance in that meaning as well as in policy implications.

However, as in other studies, the current study also has limitations in affording conclusive evidence. First, the current study focused on a certain health condition to manipulate DTCA experimental materials. Other health disease conditions need to be examined to generalize the current study's findings. Second, the college sample may not be representative of the whole young adult population. In the future research, a more representative sample needs to be

examined regarding the current study's issues. However, in terms of homogeneous characteristics of college students, the current study may be able to provide a better construct validity between hypothesized relationships of variables (Calder, Philips, & Tybout, 1981; Boush et al., 1994), and there is nothing about this particular sample to invalidate those relationships.

There are also methodological limitations. The current study measures some constructs using one single item. With regard to reliability, multi-item measures may be able to provide more viable results. However, there are not well-validated measures regarding perceived importance, severity, and susceptibility to date. Future research can develop and validate more sound measures regarding consumers' perceptions of DTCA evaluation. Additionally, the current study utilized an experimental approach to enhance internal validity of causal effects of two-sided message order and the moderating role of DTCA skepticism on consumers' perceptions. Thus, the reduction of realism and other possible extraneous variables should be kept in mind when interpreting the findings.

To explain the effects of the two-sided message more thoroughly, message structure characteristics have to be considered. Also, there may be various potential individual trait factors that affect the DTCA effects. It is important to note that for practical and theoretical reasons, the influence of various individual persuasion factors should be systematically explored in future research. Also, with regard to outcome indices, other behavioral intention measures, such as intentions to seek health information, asking for prescriptions, and visiting physicians can be examined in addition to perceptual outcome variables used in the current study.

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Appendix A.

Table 1

MANCOVA Results For The Dependent Variables

Independent variable	MANOVA				
	Wilks's λ	F	Hypothesis df	Error df	P
Order Effects*Skept	.993	.390	3	158	.760
Order Effects*Spontaneity	.973	1.486	3	158	.220
Skept*Spntaneity	.988	.631	3	158	.596
Order Effects*Skept*Spontaneity	.991	.501	3	158	.682

Note: Skept = DTCA Skepticism, Spontaneity = Consumers' Knowledge about Marketers' voluntary disclosure of drugs' risk information

Table 2

Paired Samples Improvement: Prior Perceived Importance to Post Perceived Importance

Measure	Mean	SD	SE	t	df	P
Prior Importance-						
Post Importance	-.249	.87042	.0662	-3.756***	172	.000

Note: ***p<.001, SD = Standard Deviation, SE = Standard Error Mean

Table 3

DTCA Skepticism

	% above neutral point (4)	Mean	SD
<i>We can depend on getting the truth in most prescription drug advertising.</i>	96.5	5.31	1.07
<i>Prescription drug advertising's aim is to inform the consumer.</i>	92.5	4.97	1.15
<i>Prescription drug advertising is informative.</i>	94.2	4.60	.92
<i>Prescription drug advertising is a reliable source of information.</i>	97.7	5.23	.94
<i>Prescription drug advertising is truth well told.</i>	99.4	5.58	.84
<i>I am accurately informed by most prescription drug ads.</i>	97.1	5.29	.84
<i>Most prescription drug advertising provides consumers with essential information.</i>	97.7	4.98	1.00
<i>Prescription drug ads generally present a true product picture.</i>	99.4	5.35	.89

Note. Mean ratings are based on a seven-point scale (7 = strongly agree and 1 = strongly disagree), all items reverse coded. Higher values indicate higher skepticism.

Table 4

Hierarchical Regression on Perceived Importance

Predictors	Statistics		
	β	Block ΔR^2	Block ΔF
Step 1		.017	.986
Gender	-.12		
Age	.024		
Race	-.028		
Step 2		0.114	7.284***
Overall Health	-.235		
Prior Knowledge	.344***		
Personal Experience	.423		
Step 3		.058	3.862*
Order Effects	-.396		
DTC skepticism	-1.044**		
Order Effects \times DTC skepticism	.957*		

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$, Adjusted $R^2 = .144$

Table 5

ANCOVA Results for the Dependent Variables

Independent Variable	Perceived Importance		
	df	F	p
Order Effects	1	.168	.682
DTCA Skepticism	1	7.408**	.007
Order Effects \times DTCA Skepticism	1	5.571*	.019

Note: * $p < .05$, ** $p < .01$

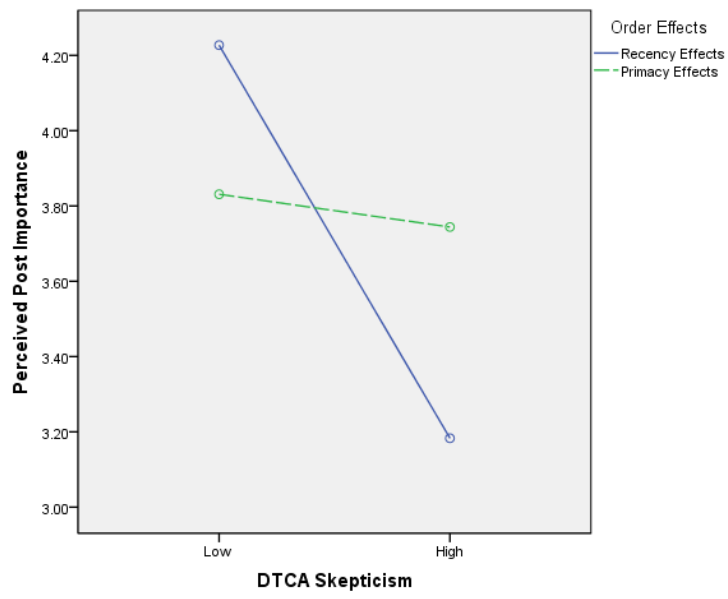


Figure 1. Interaction Effects Between Two-sided Order \times DTCA Skepticism

Appendix B.

Thank you for your participation. This study is designed to explore college students' thoughts/feelings about health issues.

There are no anticipated risks for study participants. The participation is voluntary. If you do not wish to answer a question, you may skip it. Also, if you wish to quit the project at any time, you can simply close the survey.

If you have questions about the study or the procedures, you may contact the primary investigator, Ilwoo Ju, Office 401 at Communications Building, Knoxville, TN 37996, by phone at (865) 318-4004, or by e-mail at iju@utk.edu. If you have questions about your rights as a participant, contact Brenda Lawson, in the Office of Research at (865) 974-7697 or at blawson@utk.edu.

The information you provide will be confidential. You will not be identified individually at any stage of the study. You must be age 18 or older to participate.

If you are age 18 or older, please check here.

By checking the box and completing the survey, you provide your informed consent to participate.

Instruction: The primary focus of this survey is on your thoughts and feelings about sleep disorders in general.

Q1) How would you rate your overall health at the present time?

poor	fair	good	excellent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2) How knowledgeable would you say you are about sleep disorders?

1	2	3	4	5	6	7
Not at all knowledgeable			Moderately knowledgeable			Extremely knowledgeable

Q3) How important are sleep disorders to you?

1	2	3	4	5	6	7
Not very important			Moderately important			Very important

Q4) Have you ever been diagnosed with sleep disorders?

Yes _____ No _____ Don't Know _____

Q5) The following questions will ask about your ideas about prescription drug advertising.

(Note: Prescription drug is a drug you can only get with a doctor's prescription from a pharmacist.)

	Strongly Disagree		Neither disagree nor agree		Strongly agree
We can depend on getting the truth in most prescription drug advertising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drug advertising's aim is to inform the consumer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drug advertising is informative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drug advertising is a reliable source of information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drug advertising is truth well told.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am accurately informed by most prescription drug ads.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most prescription drug advertising provides consumers with essential information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drug ads generally present a true product picture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attention!

You are about to see an ad for a prescription drug. When you read the ad, consider that **"the Food and Drug Administration (FDA) requires a prescription drug ad to disclose the health risks of the drug."**

Please proceed to the next page.

There's more than one reason to try **SLEEPEZ CR**

One study from 20,121 young adults reports that:

- 25 % ($N = 5,030$) have problems falling asleep
- 31 % ($N = 6,237$) cannot sleep through the night, and
- 35 % ($N = 7,042$) wake up in the morning feeling unrefreshed.

With SLEEPEZ CR, getting to sleep fast (95% of our customers) and staying asleep (90% of our customers) helps you wake up and get ready for the day. Ask your doctor about prescription SLEEPEZ CR. Or call 1-800-706-5402. Visit www.SLEEPEZCR.com for more information.



Important Safety Information

SLEEPEZ CR is indicated for the short-term treatment of Insomnia.

When you first start taking SLEEPEZ CR, use caution in the morning when engaging in activities requiring complete alertness until you know how you will react to this medication. In most instances, memory problems can be avoided if you take SLEEPEZ CR only when you are able to get a full night sleep (7 to 8 hours) before you need to be active again. As with any sleep medication, do not use alcohol while you are taking SLEEPEZ CR.

Like most sleep medicines, it has some risk of dependency.

There is a low occurrence of side effects associated with the short-term use of SLEEPEZ CR. The most commonly observed side effects in controlled clinical trials were drowsiness (2%), dizziness (1%), and diarrhea (1%).



Demographic Information

Q11) Please, check your gender. Female_____ Male_____

Q12) How old are you? _____ years old

Q13) What is your ethnic background?

White, not Hispanic _____ Hispanic, of any race _____ Black, not Hispanic _____

Asian or Pacific Islander _____ American Indian, Eskimo, or Aleut _____

Other _____ Prefer not to answer _____

Q14) What is your academic major? _____

**Thank you so much for your
participation!**