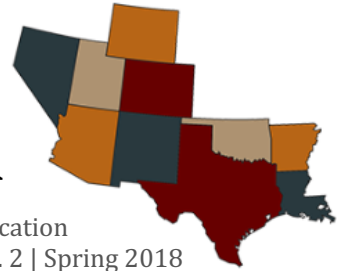


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DTCA and physician-patient interactions: The role of need-for-cognition and involvement.

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Direct-to-Consumer Advertising (DTCA) of prescription drugs leads to an increase in physician visits and patient-initiated conversations about advertised drugs, with some patients asking doctors to prescribe the advertised drugs. However, it is largely unknown what types of patients engage in such behavior. To help address this issue, this study examined the role of involvement and need-for-cognition in talking to doctors and asking them to prescribe drugs in DTCA. Need-for-cognition and involvement were assessed with standardized scales and their impact on these behaviors as well as general responses to DTCA was assessed. Using FDA guidelines, print ads for three fictitious drugs were designed with the help of a professional graphic designer. Measures taken included attitude toward the ad, brand interest, purchase intention, and participants' behavior in relation to DTCA. Findings suggest that high involvement individuals were more likely to talk to doctors and ask them to prescribe DTCA drugs. An interaction effect of need-for-cognition and involvement impacted attitude toward the ad and purchase intention. Also, brand interest influenced both talking to doctors and asking doctors to prescribe. Patients who talk to doctors about DTCA drugs were more likely to ask them to prescribe the drugs. Based on the findings, recommendations were made for DTC advertisers. The findings from this study provide a basis for further exploring DTCA induced behavior.

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Introduction

Since the Food and Drug Administration (FDA) relaxed restrictions on Direct-to-Consumer Advertising (DTCA) of prescription drugs in the 1990s, it has led to an increase in physician visits and patient-initiated conversations about advertised prescription drugs (Myers, Royne, & Deitz, 2001; Gellad & Lyles, 2007). Proponents of DTCA argue that this is beneficial while opponents argue that it has undesirable effects on physician-patient relationships. Obviously, not all patients exposed to DTCA engage in patient-initiated conversations about advertised drugs or pressure physicians to prescribe. This exploratory paper attempts to provide some initial insights into what types of patients are likely to engage in such discussions and request doctors to prescribe DTCA drugs. It is very likely that many individual differences may be at play and examining them is warranted. However, this exploratory paper, as a first step, focuses on involvement (degree of perceived relevance and personal importance) and need-for-cognition (the tendency to engage in effortful cognitive activity) (Cacioppo, Feinstein, & Jarvis, 1996; Cacioppo, Petty, & Kao, 1984). These two are examined because they are two key variables that have been widely examined in persuasion research, yet their application to the increasingly growing field of DTCA research is largely unknown. Alperstein and Peyrot (1993), for example, indicated that involvement has not received much attention in DTCA research. Findings from this exploratory study would be helpful in gaining some insights that can be built upon to develop further studies to develop a broader understanding this phenomenon and how it impacts DTCA behavior in general. A summary of the some of the effects of DTCA on physician-patient interactions are discussed in the following section.

Consumer surveys show that DTCA has educational and informative value (Aikin, Swasy, & Braman, 2004; Alperstein & Peyrot, 1993; Peyrot, Alperstein, Van Doren, & Poli, 1998). It enables patients play more active roles in their healthcare than previously – patients become more aware and have a better understanding of their conditions, ask their physicians thoughtful questions, suggest new drugs and possible treatment options that their physicians may not be aware of, thereby enabling physicians to update their knowledge of newer drugs and treatment options (Aikin, 2003; Perri III & Nelson, 1987; Menon, Deshpande, Zinkhan, & Perri, 2004; Pharmaceutical Research and Manufacturers of America Report, 2002). Therefore, both patients and physicians learn from each other. In a FDA physician survey, 88% of patients who asked their physicians about an advertised drug were likely to be suffering from the condition and remained on therapy (Aikin, 2003). It is also known that DTCA makes patients compliant with their drug regimen through reinforcing the need to take drugs properly. For example, Bradford and Kleit (2011) found that high levels of DTCA of statins for treating high cholesterol led to attainment of LDL goals.

Opponents of DTCA argue that it has negative effects on physician-patient relationships. A key concern is that it puts pressure on physicians to prescribe advertised drugs, even when patients do not need those drugs (Wilkes et al., 2000). In one study, 91% of physicians indicated that

they felt pressured to prescribe drugs requested by patients (Spurgeon, 1999, cited in Eagle & Chamberlain, 2004). In another study 87% of clinicians indicated that DTCA makes patients request inappropriate medications and 22% reported having difficulty in declining patient requests for drugs seen in DTCA (Fortuna et al., 2008) which leads to unnecessary drug prescribing. The pressure to prescribe results from the belief that if physicians refuse, patients may switch to other physicians who may be more willing to give in to patients' requests, thereby leading to inappropriate prescribing (Hollon, 1999). For example, Bell, Wilkes and Kravitz (1999) found that 15% of patients switch physicians if physicians refuse to prescribe the drugs they request. Another concern is that DTCA leads to frequent physician visits, thereby increasing physicians' workload (Cohen, 1988; Paul, Handlin, Stanton, 2002; Wilkes et al., 2000). A study by the National Institute for Healthcare Management found an 11% increase in physician visits for conditions in which DTC advertising occurs, compared to a 2% increase for conditions with no DTC advertising. It has also been argued that DTCA leads to more time spent with physicians discussing drugs seen in ads (Mouchawar et al., 2005).

Unfortunately, the dynamics involved in such DTCA behaviors are not very well understood. For example, are some types of patients more likely to engage in such conversations than others? What role, if any, do individual differences play in such interactions? These issues are largely unanswered in the literature. As DTCA is here to stay (t'Hoen, 1998), the importance of understanding these DTCA effects cannot be overemphasized. This exploratory paper examines a small part of the "puzzle" by focusing on the roles of involvement and need-for-cognition (NFC). Findings from this exploratory study would therefore be helpful in gaining initial insights that can be built upon and explored in more depth in future studies.

DTCA induced behavior

Generally, drug inquiry behavior induced by DTCA is on the rise (Gatti, 2003). 35-44% of patients talk to doctors about drugs in DTCA (Mehta & Purvis, 2003; West 1999). Eagle & Chamberlain (2004) suggested that the pressure on physicians to prescribe is perhaps a function of patient type. The type of patient likely to engage in such behavior has not received much attention in the literature as researchers have generally neglected to examine the role of individual differences in health care (Booth-Kewley & Vickers, 1994; Gallo & Matthews, 2003).

Researchers have found that patients with favorable attitudes toward DTCA are more likely to discuss drugs advertised or request those drugs from their doctors (An, 2007; Deshpande, Menon, Perri, & Zinkhan, 2004; Herzenstein, Misra, & Posavac, 2005; Lee, Salmon, & Hye-Jin, 2007; Singh & Smith, 2005). In terms of gender, females are more likely to discuss and request drugs from physicians than males. In addition, older individuals are more likely to talk to physicians about drugs (DeLorme, Huh, & Reid, 2006; Huh & Becker, 2005; Joseph et al., 2005; Mehta & Purvis, 2003). Level of education also seems to play a role. Female professionals with a higher education are more likely to discuss DTCA drugs with their doctors (Peyrot et al., 1998). In general, more educated patients are more likely to discuss and request prescription drugs than less educated patients (Elkin et al., 2007; Lee & Emmitt, 2012). The role of involvement and NFC in these behaviors is unknown. As these are very important variables in persuasion research (Cacioppo, Feinstein, & Jarvis, 1996; Cacioppo, Petty, & Kao, 1984), how they factor into persuasion involving DTCA as it relates to drug requests and physician-patient interactions is worth examining.

Involvement

The concept of involvement can be ambiguous at times as there are various types of involvement, such as product involvement, issue involvement, and message involvement. However, involvement generally refers to the degree of perceived relevance and personal importance (Zaichkowsky, 1985). In this study, involvement is examined in terms issue involvement which has been identified as a motivation to seek information about a product and a good predictor of motivation to process product relevant information (Celsi & Olson, 1988; Gotlieb & Sarel, 1991; Petty & Cacioppo, 1979). Generally, high involvement means high personal relevance (Zaichkowsky, 1985). High involvement consumers have the motivation and ability to scrutinize message arguments and tend to acquire more information about the product (Petty, Cacioppo & Goldman, 1981; Zaichkowsky, 1985). It is expected that high involvement consumers would pay attention to the relevant drug ads, scrutinize message arguments in those ads, and acquire more information about the drug. To the extent that high involvement individuals are more likely to seek additional information about a product (Celsi & Olson, 1988; Gotlieb & Sarel, 1991; Petty & Cacioppo, 1979) it is expected that they will search for more information about advertised drugs from their healthcare providers by initiating conversations with their doctors about the drug.

It is hypothesized that:

H1a: High involvement participants are more likely to talk to doctors about advertised drugs than low involvement participants.

It is expected that as high involvement individuals acquire more information about drugs in DTC ads from their doctors, they are more likely than low involvement consumers to request doctors to prescribe them. Therefore, it is hypothesized that:

H1b: High involvement participants are more likely to ask doctors to prescribe the drugs in DTC ads than low involvement participants.

Need-for-cognition

Need-for-Cognition (NFC) refers to the tendency to enjoy effortful cognitive activity (Cacioppo, Petty, Feinstein, & Jarvis, 1996). People high in NFC have an interest in seeking more information about complex issues than do people with low NFC (Cacioppo et al., 1996). Individuals with high NFC are more interested in technical information that helps them learn about product features (Anderson & Jolson, 1980). NFC has been found to moderate the effectiveness of complex advertisements (Putrevu, Tan, & Lord, 2004). Individuals high in NFC would likely seek more information about products they are interested in, especially if they are high involving products. Prescription drugs could be classified as falling under the category of “complex issues,” as one needs a certain clinical or pharmacological background to fully comprehend the message being communicated in the ad (how the drug works, the benefits, and the often-complex side effect information).

Based on the preceding discussion, it is expected that participants who are both high in NFC and high in involvement would seek more information about drugs in DTC ads. Based on (Anderson

& Jolson, 1980) it is expected that individuals who are high in both involvement and high in NFC would be more interested in seeking more information about the drugs in DTC ads by discussing the drugs with their doctors. It is also expected that those both high in involvement and high in NFC would be more likely to ask doctors to prescribe drugs in DTC ads.

Therefore, it is hypothesized that:

H2a: Participants who are both high in NFC and high in involvement are more likely to talk to doctors about advertised drugs than those who are both low in involvement and low in NFC.

H2b: Participants who are both high in involvement and high in NFC are more likely to ask doctors to prescribe advertised drugs than participants who are both low in involvement and low in NFC.

In trying to understand how involvement and NFC impact DTCA induced behaviors, it is also important to understand how these individual differences impact ad responses in general. As discussed previously, NFC and involvement are well known to impact persuasion. The elaboration likelihood model (ELM) identifies two routes to persuasion, influenced by the level of involvement (Petty & Cacioppo, 1984)¹. Per the ELM, under conditions of high involvement, elaboration likelihood is high and consumers use the central route in attitude formation (which involves critically analyzing and scrutinizing ad message arguments). Under conditions of low involvement, elaboration likelihood is low and consumers use the peripheral route in attitude formation (which might involve relying on heuristics or peripheral cues like music, model used in ad, etc.). Prescription drugs can be classified as falling under the category of “complex issues” (high involving). Based on the ELM, consumer processing of DTC ads and attitude formation will be via the central route. Attitude formation via the central route in DTCA could be a function of the individual’s level of involvement and NFC. Therefore, the interaction of NFC and involvement is expected to influence attitude toward the ad. It is predicted that:

H2c: The interaction of NFC and involvement would impact attitude toward the ad.

In addition, it is well established in the advertising literature that involvement has a significant effect on ad responses such as attitude toward the ad, brand interest, and purchase intention (see (Laczniak, Kempf, & Muehling, 1999). That relationship is expected to be consistent in DTC advertising (and in this study) as well. Therefore, it is expected that involvement would impact attitude toward the ad, brand interest, and purchase intention.

H3a: High involvement participants are more likely to have favorable attitudes toward the ad, brand interest and purchase intention than low involvement participants.

As discussed earlier, previous studies have found that patients with favorable attitudes toward DTCA are more likely to discuss DTCA drugs with their doctors (An, 2007; Deshpande, Menon, Perri, & Zinkhan, 2004; Herzenstein, Misra, & Posavac, 2005; Lee, Salmon, & Hye-Jin, 2007; Singh & Smith, 2005). That relationship is expected to be consistent in this study as well.

H3b: Participants with favorable attitudes toward the ad are more likely to talk to doctors about the drugs in the ads and ask them to prescribe them.

Although brand interest has been widely studied in advertising, the relationship between brand interest and talking to doctors about DTCA drugs has not been examined. Brand interest is “a

¹ As the ELM is very widely known, only a rather brief review is presented here in the hypotheses development.

construct involving a motivational, action tendency.” It refers to “the base level of approachability, inquisitiveness, openness or curiosity an individual has about a brand” (Machleit & Madden, 1993, p. 73). It is therefore expected that those with favorable brand interests would be more likely talk to doctors about DTCA drugs and ask them to prescribe.

H3c. Participants with favorable brand interests are more likely to talk to doctors about DTC and ask doctors to prescribe the drugs.

Methodology

Using FDA guidelines, print ads for three fictitious drugs were designed with the help of a professional graphic designer. They were for an allergy drug, a pain drug, and a depression drug. These drug categories have been identified as among the most advertised DTC drugs (Kornfield et al, 2015), and were used in this study in an effort to ensure that they were relevant to at least some of the participants. Although the copy and visuals for each ad was different, the design template was the same for all ads. Participants were 203 students recruited from a large university in southeastern United States. They were made up of 35% male and 65% female, 85.7% Caucasian 7.9% Asian, 5.9% African American, and 0.5% Native American. The mean age was 19.7 years.

Using a between group design, participants were randomly assigned to one of the three drug conditions when they arrived at the venue for the study. Once seated, booklets that contained the ads were distributed to them with specific instructions on how to fill them out (each participant received only one booklet that contained only one ad). They were instructed to read through the booklet sequentially as they usually do in real life and fill out the questionnaire.

The first part of the booklet had a NFC scale. NFC was measured with an 18-item NFC scale used in a previous study (Cacioppo, Petty, & Kao, 1984). Cronbach's α for this study was .89. The print ad followed, with preceding instructions asking participants to read the ad as they would normally read a print ad. The subsequent pages of the booklet included measures of involvement (measured with a 10-item semantic differential scale developed by Zaichkowsky, 1994). Cronbach's alpha obtained in this study was .89. The involvement item to which participants responded followed this question “How would you rate the advertisement you just saw?”: important/unimportant, irrelevant/relevant, means a lot to me/means nothing to me, valuable/worthless, interested/ uninterested, exciting/unexciting, appealing/ unappealing, mundane/fascinating, not needed/needed, involving/not involving. This involvement measure tapped more into message involvement, which is known to have a strong relationship with product involvement (Zaichkowsky, 1994). The next set of questions measured participants’ behaviors in relation to DTC advertising with items adapted from Huh (2003). To determine how likely participants talk to doctors, the item used was: “I talk with my doctor about drugs I see in advertisements.” To determine how likely participants ask doctors to prescribe advertised drugs, the item used was "I ask my doctor to prescribe drugs I see advertised.” To determine how likely participants search for additional information, the item used was “I search for more information about drugs I see in advertisements.” Participants responded to these on a 7-point scale.

Attitude toward the ad was measured with 7-point semantic differential scales (Cronbach's $\alpha = .85$). They followed these questions "What is your overall reaction to the ad you just saw?": favorable/unfavorable, interesting/boring and "what is your overall feeling about using the drug mentioned in the ad?": favorable/unfavorable, good/bad, wise/foolish (MacKenzie, Lutz, & Belch, 1986). Brand interest was measured with a 4-item scale (Cronbach's $\alpha = .86$). The items were "I am intrigued by the drug in the ad," "I'd like to know more about the drug in the ad," "Learning more about the drug in the ad would be useless," and "I'm a little curious about the drug in the ad." (Machleit, Allen, & Madden, 1993). These were assessed on a 7-point scale (1 = not at all, 7 = very much). The purchase intention scale was adapted from a 7-point semantic differential scale used by MacKenzie et al. (1986). The items were, "what is the probability that you will ask your doctor to prescribe this medication," measured by three items, likely/unlikely, probable/improbable, and possible/impossible (Cronbach's $\alpha = .86$).

Results

Median splits were done on the involvement and NFC scales and used to divide respondents into high and low on involvement and NFC. With regard to the effect of involvement and NFC on talking to doctors about DTCA drugs, a 2-way ANOVA revealed a significant main effect for involvement [$F(1, 203) = 7.86, p = .006, \eta_p^2 = .03$] on talking to doctors. Involvement thus predicted talking to doctors about DTCA drugs. High involvement participants were more likely to talk to doctors about DTCA drugs than low involvement participants (high involvement: $M = 2.66, SD = 1.72$; low involvement: $M = 2.03, SD = 1.34$).

There was no significant main effect for NFC ($p = .729$) which suggests no clear effect of NFC on talking to doctors about DTCA drugs. There was also no interaction between involvement and NFC on talking to doctors about DTCA ($p = .92$).

With regard to the effect of involvement and NFC on asking doctors to prescribe, a 2-way ANOVA revealed a significant main effect for involvement [$F(1, 203) = 13.73, p = .000, \eta_p^2 = .65$] on asking doctors to prescribe. Involvement thus predicted asking doctors to prescribe. High involvement participants were more likely to ask doctors to prescribe DTCA drugs than low involvement participants (high involvement: $M = 2.5, SD = 1.54$; low involvement: $M = 1.77, SD = 1.11$). There was no significant main effect for NFC on asking doctors to prescribe ($p = .47$), which implies no clear effect of NFC on asking doctors to prescribe. There also appeared to be no significant interaction between involvement and NFC on asking doctor to prescribe the drug ($p = .95$).

Regarding the interaction effect of NFC and involvement on attitudes toward the ad, as expected, a 2 way ANOVA revealed an interaction effect of involvement and NFC on attitude toward the ad [$F(1, 203) = 5.74, p = .017, \eta_p^2 = .028$]. Thus the contribution of involvement to attitude toward the ad changes at different levels of NFC. The interaction explained about 3% of the variability in attitude toward the ad in the presence of the other variables. The main effect of involvement on attitude toward the ad was also significant [$F(1, 203) = 82.29, p = .000, \eta_p^2 = .29$]. Involvement predicted about 3% of the variability in attitude toward the ad. The main effect of NFC on attitude toward the ad was also significant [$F(1, 203) = 4.88, p = .028, \eta_p^2 = .024$]. NFC predicted about 3% of the variability in attitude toward the ad.

Regarding whether high involvement individuals would have more favorable attitudes toward the ad, brand interest and purchase intention than low involvement individuals, a one-way ANOVA revealed that high involvement individuals had more favorable attitude toward the ad [$F(1, 202) = 71.68, p = .000$], (high involvement: $M = 4.14, SD = 1.01$; low involvement: $M = 2.89, SD = 1.07$); brand interest [$F(1, 202) = 108.57, p = .000$], (high involvement: $M = 3.86, SD = 1.32$; low involvement: $M = 2.15, SD = 1.01$), and purchase intention [$F(1, 202) = 30.51, p = .000$], (high involvement: $M = 2.49, SD = 1.54$; low involvement: $M = 1.57, SD = .71$).

Regarding whether participants with favorable attitudes toward the ad were more likely to talk to doctors about advertised drugs and ask them to prescribe them, a median split was done on the attitude toward the ad scale to divide it into high and low attitude toward the ad. A one way ANOVA was conducted, this time with attitude toward the ad as independent variable and talking to doctor and asking doctor to prescribe as dependent variables. As expected, participants with favorable attitudes toward the ad were more likely to talk to doctors about drugs in the ads [$F(1, 202) = 10.86, p = .000$], (high attitude: $M = 2.67, SD = 1.70$; low attitude: $M = 1.95, SD = 1.3$), and ask them to prescribe [$F(1, 202) = 16.31, p = .000$], (high attitude: $M = 2.47, SD = 1.48$; low attitude: $M = 1.71, SD = 1.13$).

Regarding whether those with favorable brand interests were more likely to talk to doctors about advertised drugs and ask them to prescribe them, a median split was done on the brand interest scale to divide it into high and low brand interest. Brand interest was used as an independent variable and talking to doctors and asking doctors to prescribe as dependent variables. A one-way ANOVA revealed that those with favorable brand interests were more likely to talk to doctors about drugs [$F(1, 202) = 11.69, p = .001$], (high brand interest: $M = 2.69, SD = 1.71$; low brand interest: $M = 1.95, SD = 1.30$), and also ask them to prescribe [$F(1, 202) = 21.78, p = .000$], (high brand interest: $M = 2.53, SD = 1.48$; low brand interest: $M = 1.67, SD = 1.11$).

To further explore the data, additional analysis was conducted using Pearson Product Moment correlation to examine the nature of the relationships. Preliminary analyses were performed to ensure no violations of the assumptions of normality, linearity and homoscedasticity. The analysis revealed strong positive correlations between searching for more information and talking to doctor ($r = .699, n = 203, p = .000$), and talking to doctor and asking doctor to prescribe ($r = .696, n = 203, p = .000$). There was also a strong positive correlation between searching for more information and asking doctor to prescribe ($r = .661, n = 203, p = .000$), which suggest that those who search for information about DTCA drugs are likely the ones asking doctor to prescribe. As expected, there was a significant correlation between involvement and talking with doctor ($r = .28, n = 203, p = .000$); involvement and searching for more information ($r = .23, n = 203, p = .001$); searching for more information ($r = .326, n = 203, p = .000$) and asking doctor to prescribe ($r = .328, n = 203, p = .000$).

Discussion

This exploratory study examined participant's behavior related to direct to consumer advertising (DTCA) of prescription drugs. It examined whether involvement and NFC influence talking to doctors about drugs in DTCA and asking doctors to prescribe those drugs. Involvement had a significant influence on talking to doctors about advertised drugs and also asking doctors to

prescribe those drugs. The higher one's level of involvement the more likely one would talk to doctors and ask them to prescribe DTCA drugs. It is well established that high involvement leads to searching for more product relevant information (Celsi & Olson, 1988; Gotlieb & Sarel, 1991; Petty & Cacioppo, 1979). This information search, in the case of DTCA, involves talking to doctors which eventually leads to asking doctors to prescribe.

The trend of high involving patients talking to doctors and asking them to prescribe could be partially attributed to the FDA guidelines which require that DTCA should include a statement to "ask someone else," such as physicians for additional information about the drug. Most DTC ads, therefore, include a phrase to "ask your doctor if (name of drug) is right for you." This phrase (among other things) very likely encourages high involvement patients to at least initiate a dialog with healthcare professionals about the drugs in the ads, with some patients requesting and sometimes pressuring physicians to prescribe those drugs (Eagle & Chamberlain, 2004).

Knowing that high involvement individuals would talk to doctors and likely ask doctors to prescribe, an implication is to adequately equip doctors with appropriate knowledge about drugs that are currently running ad campaigns. As discussed earlier, some doctors may not be fully aware of newer drugs being advertised, or may only have limited knowledge on newer drugs. So DTCA induced conversations can actually be informative for doctors when patients ask them about those drugs. However, some doctors may be handicapped regarding information about particular drugs. To enable such interactions to be effective, appropriate literature and information should be provided to doctors ahead of time (even before the ad campaigns begin) to facilitate such discussions between doctors and high involvement patients. An educational component targeting doctors should be strongly pursued in such campaigns.

A possible reason why high involving patients pressure doctors to prescribe could be that they care deeply about their medical conditions and are more motivated to ask doctors about these drugs to treat their medical conditions. It can be concluded that those higher on the involvement scale may exhibit these behaviors more. For example, this behavior might be a factor of the how far their conditions have progressed or how much interested or concerned they are to take care of their medical conditions. More than likely, those who have progressed in an ailment may be the ones pressuring doctors to prescribe. Future research could investigate to see if that is in fact the case.

Findings from this study also suggest that those who have discussions about advertised drugs with their doctors are the ones more likely to ask their doctors to prescribe the drugs ($r = .69, p = .000$). The more one talks to doctors about DTCA drugs, the more likely one would ask doctors to prescribe. This is also related to the fact that the more one searches for more information about drugs and talks to doctors, the more likely one would ask doctors to prescribe ($r = .66, p = .000$). Searching for more information involves talking to doctors, as found from the strong significant correlation between searching for information and talking to doctors ($r = .699, p = .000$). It is reasonable to assume that it will not be automatic that doctors would necessarily prescribe the requested drugs. Possible intervening variables between talking to doctor and asking doctor to prescribe (such as doctor's reaction to the conversation etc.) could be examined in future studies.

Attitude toward the ad was also found to influence talking to doctors and asking them to prescribe. This finding is very relevant because patients are unable to purchase advertised drugs without a doctor's prescription, but can influence doctors to prescribe due to the influence of DTCA. Therefore, it is important for drug advertisers to evoke favorable ad attitudes as an important first step, with the goal of making patients at least initiate conversations about the drugs in the ads and hopefully influence their doctors to prescribe the drugs. DTC advertisers should therefore focus on strategies to elicit favorable ad attitude toward the ad.

The influence of brand interest in this relationship has not been examined in previous DTCA studies. In this study, brand interest influenced talking to doctors and asking them to prescribe. Those with favorable brand interest were likely to talk to doctors and ask them to prescribe. Therefore, prescription drug advertisers should pursue strategies to elicit favorable brand interest to influence their target audiences to ask doctors to prescribe the advertised drugs.

Additional insights on how involvement impact responses to ads revealed a significant difference between high and low involvement individuals on attitude toward the ad, brand interest and purchase intention. This suggests that high involvement individuals were more likely to have favorable attitude toward the ad, brand interest and purchase intention. The relevance of the ad to an individual influenced the extent to which the individual liked the ad and was intrigued about the drug, thereby influencing the desire to know more about it and consider asking the doctor to prescribe the medicine.

NFC and involvement interaction impacted attitude toward the ad, as predicted by the ELM, under conditions of high involvement (which prescription drugs fall under). As predicted by the ELM, attitude formation in DTCA would involve scrutinizing product relevant information and seeking of additional information (Petty & Cacioppo, 1984). The seeking of additional information involves talking to doctors. Again, equipping doctors with adequate information to handle such conversations would be useful.

Conclusion

In the context of this sample, this study has provided some initial insights into the fact that involvement plays a significant role in searching for more information about drugs in DTC ads, talking to doctors about those drugs, and asking doctors to prescribe them. The information search involves talking to doctors, which leads to asking doctors to prescribe the drugs. The more they talk to doctors the more likely they ask them to prescribe. Additional insights are that attitude toward the DTC ad is influenced by the interaction of involvement and NFC. Attitude toward the ad leads to talking to doctors and to asking them to prescribe. Brand interest also influences both talking to doctor and asking doctor to prescribe. This gives a clue about the need to elicit favorable attitude toward the ad and brand interest in DTCA campaigns. Therefore, techniques for designing ads to elicit favorable attitude toward the ad and brand interest should be explored and pursued. Some of the issues to possibly address include: which of the options for presenting risk and benefit information mandated by the FDA would elicit the most attitude toward the ad and brand interest? What types of designs, copy formats, level of risk information would elicit the most attitude toward the ad and brand interest?

Limitation and suggestions for future research

This study used a college student sample, some of whom may not be fully in charge of their own healthcare decisions. The mean age of participants was 19.7 years. Research shows that older individuals are more likely to talk to physicians about drugs (DeLorme, Huh, & Reid, 2006; Huh & Becker, 2005; Joseph et al., 2005; Mehta & Purvis, 2003). It would be important to examine other age groups to identify how the results of this study compare.

Apart from involvement and NFC, other individual difference variables could be explored, such as introversion and extroversion, to examine whether they play any role in asking healthcare professionals about drugs advertised. Also, additional individual differences should be examined (for example, introversion, extraversion) as well as interactions among them to identify what role, if any, they play in patients initiating discussions about advertised drugs and requesting them from doctors.

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