The Cognitive, Attitudinal, and Behavioural Responses of the Elderly to Print DTC Prescription Drug Advertising

Joyce Sarkis

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By: Joyce Sarkis

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Signed by the final examining committee:

_____ Yaxuan Qi, Chair

_____ Jordan LeBel, Examiner

_____ Darlene Walsh, Examiner

_____ Lea Prevel Katsanis, Supervisor

Approved by _____
Chair of Department or Graduate Program Director

Harjeet Bhabra

_____
Dean of Faculty, Alan Hochstein

Date _____

ABSTRACT

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Joyce Sarkis

Pharmaceutical companies have adopted a pull marketing strategy of prescription drugs as part of their marketing mix. This approach referred to as Direct-To-Consumer Advertising (DTCA) where drugs are directly advertised to the consumer through mass media, has been the topic of an ongoing debate. While advocates of DTCA defend its educational value, opponents question its safety, especially when addressing a market segment presumed to be vulnerable (i.e., the elderly).

Based on previous research that demonstrated the dependence of advertising message persuasiveness on a number of individual factors, this thesis investigates the elderly's responses to DTCA, across variations in their prescription drug use, health status, and cognitive abilities. How do users (vs. non-users) of prescription drugs, and older consumers with high (vs. low) cognition, differ in their post-exposure attitudes towards the ad and advertised brand, in their ad recognition, and behavioural intentions?

The findings suggest that prescription drug users are more receptive of DTCA and more willing to act in response to it. However, all participants regardless of their health status were resistant to changing their doctor, if he/she refused to prescribe the advertised drug to them. Also, consumers with a high cognition level better recognized the ad's claims, engaging in a benefit/risk trade-off in their processing of the ad information. The results further suggest that sufferers who do not use a prescription drug do not differ in

their post-ad-exposure attitudes and behavioural intentions than non-sufferers. Finally, managers are advised to carefully design their ads taking into consideration the elderly's cognitive deficiencies.

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INTRODUCTION

In the past, consumers learned about a medicine only through an encounter with a medical professional. Today, they are bombarded with drug advertisements on television and radio, in newspapers and magazines, and on the Web. This study attempts to investigate consumer reactions to this type of advertising referred to as Direct-To-Consumer Advertising (DTCA), in response to the lack of consumer research on DTCA voiced by Huh, Delorme, and Reid (2004), and Sheffet and Kopp (1990).

The present study attempts to examine all three elements of the hierarchy of effects paradigm concurrently. To further explain, advertising activates three different but sequentially related effects: cognitive, affective, and behavioural (DeLorme, Huh, and Reid 2006a). Four dependent variables corresponding to the different measures of DTCA effectiveness discussed by Menon et al. (2004) were chosen to that end.

Examining the receivers' encoding of the drug-related information is crucial in assessing the effectiveness of an ad. Hence, the respondents' recognition of the ad's content is measured as an indication of its cognitive effects. In addition, consumers' attitudes towards the ad and towards the brand illustrate their emotional and evaluative responses, knowing that "feelings contribute uniquely to attitude toward the ad, beliefs about the brand's attributes, and attitude toward the brand" (Edell and Burke 1987). Finally, with consumers' cognitive and attitudinal responses subsequently determining their behaviour, the respondents' behavioural intentions are also measured.

The study was initially conceived as an experimental study, but due to unforeseen developments was recast as exploratory. The level of risk disclosure and participants'

involvement in the ad were initially projected as a message characteristic and an individual variable respectively, which interact in moderating consumers' post-ad-exposure responses.

Previous research showed that consumers' hierarchy of responses are also moderated by several individual and pre-dispositional factors, such as their prescription drug use and health status. Moreover, the receivers' cognitive abilities influence their processing and learning of the ad information. Building on these findings, an exploratory analysis suggested that consumers' prescription drug use, their health status and their cognition level were important variables.

The elderly constituted this study's target sample as they are a large and substantial market segment. Their increased consumption of prescription drugs, combined with their increased use of mass media, and uncertainty regarding DTCA, renders this research more relevant (Huh et al. 2004).

Finally, this exploration has important contributions to marketers and policy makers. Armed with its findings, they will be able to fine-tune drug advertising regulations. As Davis and Meader (2009) note in their evaluation of an ad's fair balance, policy makers should assess consumers' post-exposure reactions, in addition to analyzing the content of the ad.

LITERATURE REVIEW

The following is a review of the literature and findings that are relevant to the current study. An overview of DTCA and of the controversy around it is accompanied by an account of the FDA regulations regarding mass media drug advertising. The purposes of and effectiveness measures specific to this type of advertising are also related. Next, the issues pertaining to the differential risk perceptions formed by a DTCA audience are reviewed. In an attempt to gain better knowledge of consumers' reactions to risk information, fear appeal theories are then presented and applied to the context of risk disclosure in DTCA. Given that receiver characteristics influence the processing and attitude formation towards an ad, characteristics pertaining to the elderly population are also explored. A focus is directed at their information processing abilities, vulnerability to persuasion, and the effect of specific pre-dispositional and demographic factors. Various message characteristics and situational factors that may influence the effectiveness of an ad are also considered. Finally, the different conceptualizations of the involvement construct are introduced, in addition to its antecedents and consequences.

A. OVERVIEW OF DIRECT-TO-CONSUMER ADVERTISING

Before the advent of DTCA, physicians were the primary targets of pharmaceutical companies, and assumed the role of the gatekeeper in the manufacturer-doctor-consumer triad. Companies relied on personal selling that involves professional detailing and dispensing drug samples, alongside advertising in medical journals, and through direct mail and the Web. Conventions and Continuing Medical Education (CME)

modules, designed to offer expert advice on a drug, were common promotional strategies as well. In 1997, the FDA relaxed its regulations regarding mass media advertising, which accelerated the proliferation of DTCA. This type of advertising, which builds brand name recognition, also arose as a result of the strong competition amid prescription drugs, exacerbated by that of generic drugs, and in response to the growing consumer need for better health-education (Finlayson and Mullner 2005; Foley 2001; Holmer 1999).

1. Types of DTC Ads

There are three different types of DTC advertisements (Morgan 2007). Disease-awareness ads, as their name indicates, briefly inform consumers about a specific ailment, and invite people to subsequently discuss existing treatments with their doctors, without mentioning any drug name. Reminder advertisements include only general information about the drug (i.e. name, dosage, and price). Since they do not display any benefit information, such ads are not required to mention the drug's side effects. The most common type of direct ads is product-claim advertisements, which constitute the focus of this study. This is the only type regulated by the FDA, as it mentions the drug's brand name, accompanied by benefit and risk claims (i.e., contraindications, side effects, precautions).

In addition to stating the drug's side effects, broadcast product-claim advertisements are required to provide consumers with four additional sources of information (a toll-free number, concomitantly running brochures, a website and physician consultation), a regulation referred to briefly as *adequate provision* (Frosch and

Grande 2010; Morgan 2007; Roth 1996). The adequate provision, among many other regulations, emerged in an attempt to establish a safety of advertising drugs directly to consumers, a concern raised by many critics of DTCA.

2. Debate over DTCA

DTCA has been criticized as having interfered with the learned intermediary doctrine, where the prescribing physician was the only informed gatekeeper of prescription drug information that consumers could turn to (Parker and Pettijohn 2005). Physicians now deal with unlearned consumers rather than patients, consumers who no longer need to communicate with a doctor to learn about a drug, and who are willing to insist on a prescription, disregarding its physician-judged inappropriateness (Hollon 1999; Mehta and Purvis 2003). This change in the dynamics of the relationship between the healthcare provider, patient and manufacturer, is at the root of the debate concerning the correctness and safety of DTCA.

With consumers acting as confident specialists, DTCA revealed itself to be a double-edged sword: it averts a deficient intake of drugs while molding an overly drug-consumerist society (Donohue, Cevasco, and Rosenthal 2007). DTCA has also been blamed for generating a rise in drug costs, justified by the need to compensate for the increase in advertising expenditures (Baukus 2004; Frosch and Grande 2010; Mehta and Purvis 2003).

Proponents of DTC prescription drug advertising describe it as informative and educational (Foley 2000; Macias and Lewis 2003); raising consumers' awareness and knowledge about a drug or disease; and empowering them in independently managing

their health (Finlayson and Ross 2005; Holmer 1999; Maddox 1999). In their view, DTCA also slightly contributes to enhancing patient compliance with a prescription (Frosch and Grande 2010; Macias, Lewis, and Baek 2010). Conversely, DTCA has been condemned by its opponents as being deceptive and misleading, especially as most consumers lack the knowledge required to correct a false claim, and do not question the unreliable information presented in ads (Finlayson and Ross 2005; Mehta and Purvis 2003).

A misleading statement can be developed in many ways: through presenting unapproved/unproven claims or data from an unreliable study; through selectively stating minor side effects and ignoring major ones; and through disguising statistical results, for example (Donohue et al. 2007).

3. FDA Regulations

The FDA attempts to regulate prescription drug ads by making sure pharmaceutical companies present balanced and accurate risk and benefit information (Frosch and Grande 2010). As Macias et al. (2010) and Roth (1996) state, risk information should be clearly legible and visible in the advertising message, and should be accompanied by a 'brief summary' stating the side effects, precautions and contraindications of the drug, in consumer-friendly language.

It is important to note that balance is attained in several ways: 1) through equalizing the number of benefit and risk claims; 2) by adopting a similar physical presentation (i.e., noticeable font size and location, color, etc.); 3) by fairly reflecting the drug's pros and cons, without subtly downplaying the side effects and overemphasizing

the benefits. In this study, balance was attained by balancing the number of the drug's benefits and side effects. The above regulation applies to both print and broadcast DTCA, and its implementation is enforced by the FDA through the Center for Drug Evaluation and Research (CDER) unit that has the power to claim financial penalties from firms violating the regulation (Altizer 2009).

One objective of the present study is to contribute to the improvement of policy making concerning a direct marketing strategy, and its proper targeting of a sensitive market segment, the elderly. However, it is also important for marketers to balance the concerns about legalities with the probability of promotional success, determined by the various factors discussed below.

4. Profile of Drugs Promoted Through DTCA

According to Frosch and Grande (2010), and Kavadas (2003), the best candidates for DTCA are drugs that have a large potential market, and hence, are worth being advertised directly to consumers (e.g., lipid lowering agents). The effectiveness of DTCA also depends on the drug's side effects and on the complexity of the ailment. A lengthy ambiguous list of side effects might further decrease the comprehensiveness of any complicated ailment addressed in the ad. Therefore, DTCA is most suitable for "medications that have a brand name patent protection used to treat chronic conditions with few or mild side effects" (Polen, Khanfar, and Clauson 2009).

The success and end-result of a DTCA campaign vary depending on the stage of the drug's life cycle. With the help of a pull marketing strategy, the introduction of a new drug is accelerated, while consumer loyalty towards a mature drug is maintained before it

goes off-patent (Morris, Mazis, and Brinberg 1989; Roth 1996). In assessing the success of a pharmaceutical advertising campaign, it is important to examine specific indicators pertaining to DTCA effectiveness.

5. Mapping DTCA Effectiveness

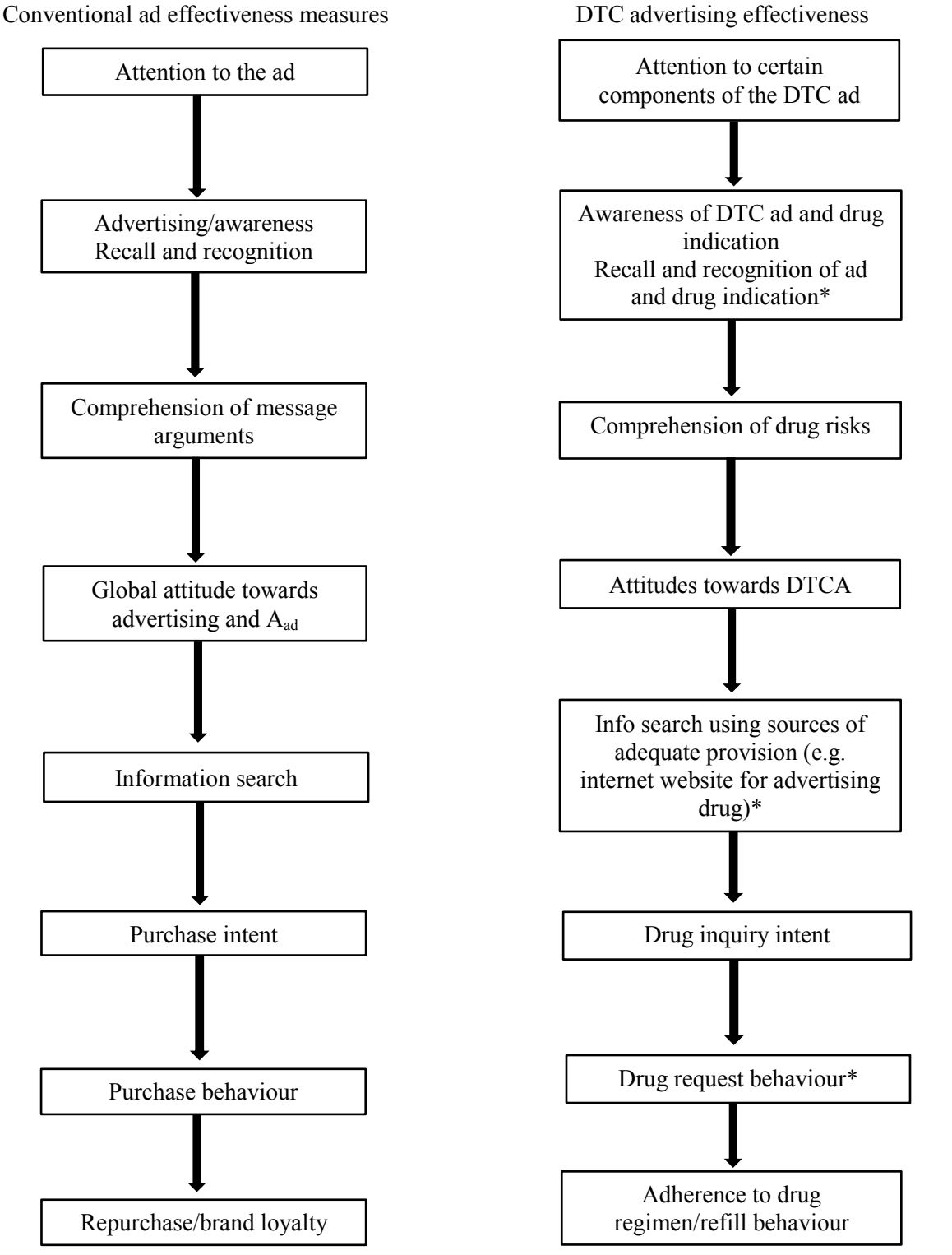
Menon et al. (2004) proposed a DTCA effectiveness model, in which they present effectiveness measures that are specific to the context of DTCA, some of which are the focus of the present study (See Figure 1). The suggested model is grounded on the hierarchy of effects paradigm, which was first proposed by Lavidge and Steiner (1961). They considered that the receiver goes through five steps of advertising information processing before purchasing, which consist of the following: awareness → knowledge → liking → preference → conviction. Therefore, when exposed to an ad, message receivers are moved through what Menon et al. (2004) label a series of psychological states, starting with "cognition, then affect and conation." Huh and Becker (2005) also highlight the importance of this paradigm and of the information processing perspective in studying the effectiveness of advertising. They refer to the above mentioned psychological states as "a number of response steps."

Based on that, and given that the consumer first forms a cognitive perception of the ad-that includes awareness and knowledge of the featured brand-the authors suggest recall and recognition as key measures of the comprehensiveness of a DTC ad. In other words, the ability of a drug ad to stimulate knowledge and comprehension of its content is an indication of its effectiveness.

Other indicators or key measures, pertaining to the affective element of the hierarchy of effects, are the consumers' attitudes towards the ad and brand. These attitudinal measures refer to the evaluation a message receiver has formed vis-à-vis an advertising message and brand. MacKenzie and Lutz (1989) found that attitude towards the ad strongly influences attitude towards the brand, which in turn influences purchase intentions.

Finally, information search, drug inquiry and request behaviours are indicators of the behavioural outcomes of an ad exposure, and consequently, of the ad's ability to move consumers to act in response to it. "Information search behaviour is widely acknowledged as an integral element of the consumer decision-making model," and is extremely important in the context of DTCA, knowing that mass mediated drug ads are required to include references for additional information on the drug. Measuring drug inquiry and request behaviours is also vital, while keeping in mind that the final authority with regards to deciding on the purchase of the advertised drug lies in the hands of the prescribing physician, and not the consumer.

FIGURE 1. TRADITIONAL INDICATORS OF AD EFFECTIVENESS AND DTC AD EFFECTIVENESS



Source: Menon et al. (2004)

Note: * DTCA effectiveness measures that are relevant to the current study.

6. Comparison of Broadcast, Print and Online DTCA

This section briefly reviews the pros and cons of each medium, because "the characteristics of the media in which DTC ads are carried, influence consumer processing of the advertising messages" (Choi and Lee 2007).

While televised drug ads remind consumers of a drug, print ads fills the lack of information left behind by their counterparts. Because of their fast and instant nature, television ads do not satiate the consumers' need for detailed knowledge about the product. These "sound bites of information" are insufficient to accurately and comprehensively disclose risk information (Abernathy and Adams-Price 2006). The physical product itself (i.e., the drug) cannot be easily visually differentiated from others, in contrast to most consumer products. This absence of distinctiveness or what Liebman (2001) labels as lack of "package recall," in the midst of a clutter of ads, partially leads to lower product recognition, and drug name recall.

Print ads, however, may benefit consumers in that they are more thorough and accessible to them at their own pace and convenience. One can always go back to an ad in a magazine or newspaper and scrutinize the message content. Yet, the format of a print drug ad might hinder its clarity; the presentation of the package insert that is highly rich with technical medical information might render the ad confusing, especially for older people who are slower than the young at encoding a message content (Abernathy and Adams-Price 2006). Consequently, the ambiguity of such ads might decrease their "memorability." Hence, print ads, alongside televised ads, face the possibility of being ineffective at increasing recall, and knowledge of a drug.

Another objective of this study is to further examine the potential reasons underlying a low recognition level of print ads, despite their internally controlled pace. Marketers might be puzzled when deciding what medium to use; however, the ultimate option is a multi-media campaign, including online advertising. Drug websites are considered to be a "persuasive educational tool [that builds] credibility, image, and consumer trust," rather than a marketing tool (Maddox 1999). Consequently, they aid in closing the "expertise gap between patients and providers, [but] only to a certain extent," since older adults still prefer to engage in mutual decision making with their doctors (Xie 2009). The author's findings are supported by Maddox's (1999) study. The latter advises marketers to sustain their advertising to professionals, because some specific segments of the population (i.e., females and older people), despite them referring to DTCA for increased information about an ailment or treatment, rely on health care providers when it comes down to decision making. Hence, a synergistic DTCA campaign should be accompanied by the conventional advertising to physicians.

Regardless of the chosen advertising medium, marketers are required to communicate the drug's side effects. To better achieve that end, factors affecting consumers' responses to risk information and their acceptance of the drug should be examined first.

B. RISK INFORMATION

Informing consumers of a drug's risk is essential for the fair balance criteria and may therefore engender favourable evaluations of the ad. In contrast, encouraging processing of risk information may be counterproductive and lead to an increase in learning the drug's risks, paralleled by a decrease in acquiring its benefits (Menon et al. 2004; Morris et al. 1989).

It is crucial to understand consumers' perceptions of risk information, and capture how and why such responses are formed, in order to design more effective ads.

To begin, why is risk information in drug advertisements given special and higher attention than safety notices of consumer goods? Castagnoli (1998) clearly answers this question by pinpointing how "the consequences of misuse of prescription drugs are potentially quite serious" as they might not only affect "the quality of a patients' life, but in many instances, they affect life itself." Hence, it is no surprise that the FDA attempts to enforce the fair balance regulation in DTCA, whereas advertisers often try to dilute the side effects and contraindications of a drug.

1. Consumers' Unfamiliarity with Health Care: A Source of Fear

Consumers are actively involved in deciding for their health and well-being, as well as manufacturers are potentially liable for deceptive promotion of drugs. It is now more challenging for the latter to design ads that are informative and comprehensive and yet not threatening. This situation is aggravated by the nature of the message receivers, who are uninformed and lack the necessary knowledge to process such information objectively and holistically. This is supported by Tucker and Smith's (1987) findings that

consumers favor general rather than specific information, and by Morris et al.'s (1989) findings that consumers engage in a "trade-off" when processing information. An increased amount of risk information will generate an increase in the amount of risk information recalled, and a decrease in that of benefit information recalled.

Hence, advertisers are caught in a vicious circle, between complying with the advertising regulations and satisfying the consumers' right for truthful and ethical advertising on one hand, and not frightening them on the other hand.

Consumers' unfamiliarity with health care might distort their perceptions of risk information and interfere with an objective analysis of the drugs' side effects. There are many other factors as well that may be related to the presentation of side effects that affect their acceptance.

2. The Presentation of Side Effects

Message characteristics related to the presentation of side effects may moderate consumers' processing of the risk information in the ad and subsequently influence their acquisition of the message content, and evaluation of the ad and brand.

Specific risks, for example, are perceived to be "more interesting and adult-oriented" (Morris, Ruffner, and Klimberg 1985). However, they increase consumers' learning of risk information as they provide a context that enhances the elaboration of their meaning, hence their vivid character and arousing nature. By varying the number, structure and prominence of warning messages, Morris et al. (1989) determined the influence of such factors on consumers' awareness of benefit and risk information. Intuitively, a higher number of side effects raises consumers' concern. The perceived

severity of side effects, their order, and mode of presentation (print or oral) can also influence consumers' attitude towards the ad and brand, and the evaluation of the fair balance criteria (Davis and Meader 2009).

Determining how various disclosure approaches might moderate the processing of information is vitally important in evaluating an ad's effectiveness. Also, the assessment of consumers' responses and interpretation of the ad's content are as important as content analysis, in evaluating the ad's fair balance (Davis and Meader 2009).

This research borrows from theories of fear appeal to justify the cognitive, emotional, and behavioural responses of the elderly to risk disclosures. The following is a review of the literature on fear appeals.

3. Fear Appeals

The effectiveness of ads is partially determined by their ability to persuade the consumer to buy the product. Fear appeal theorists suggest that the communication of information regarding the advertised product should be accompanied by some form of arousing stimulus that is essential to produce a change in the consumer's purchasing behaviour (Henthorne, Latour, and Nataraajan 1993).

3.1 Definition. Fear appeal ads are defined as "a type of psychoactive ad which is capable of arousing fear in the viewer regarding the effects of the viewer's suboptimal lifestyle" (LaTour, Snipes, and Bliss 1996). In turn, a psychoactive ad is "an emotion-arousing ad which may cause recipients to feel extremely anxious, to feel hostile toward others or to feel a loss of self-esteem," (Benet, Pitts, and LaTour 1993).While fear-based

ads display the frightening consequences of refraining from using a product, DTC ads evoke the fear in taking the advertised drug due to its potential side effects.

3.2 Application to the Context of DTCA. Fear appeal ads and DTC ads are similar in the anxiety they might engender in the audience. Therefore, based on this similarity, fear appeal theories may be applied to predict and justify consumers' rejection of DTC ads.

DTC prescription drug ads are inculcated with the intention to inform the audience of the potential side effects associated with taking the drug. However, as previously mentioned, partially due to the audience being an unlearned receiver of DTCA information, risk information can be just as disturbing and as arousing as fear appeals. Another analogy can be established, this time between specific and general risk information versus a high and low level of fear stimulus in that both specific side effects and high fear appeals are perceived as irritating and are overwhelming (Keller and Block 1996; Tucker and Smith 1987). Subsequently, similarly to fear appeals, a great amount of risk disclosure may trigger consumers' defense mechanism in trying to cope with such threatening information.

These defensive responses include "avoiding the message, minimizing the severity of the threat, selectively attending the message, discounting the threat, and denying its personal relevance" (Keller and Block 1996). When a receiver of the message resorts to any of these techniques, he/she will not elaborate on the message content, thus weakening its persuasive assets and rendering the ad ineffective. The arousal of anxiety

in the recipient of the message is the element that sparks off the adoption of the above described resistance techniques (LaTour et al. 1996).

3.3 Thayer Arousal Model. Henthorne et al. (1993) further explain the process of fear awakening, drawing from the Thayer Arousal Model. This model distinguishes between weak and strong fear appeals; the former elicits energy-activating feelings of tension in the receiver. This kind of energy is positive as it induces the receiver to attend more to the message and elaborate on it.

In contrast, the latter (strong fear appeals) elicits anxiety-activating feelings of tension. The resulting anxiety arousal consumes a lot of energy from the receiver, a negative energy that is dissipated in trying to adjust to the overwhelming message. There is hope for marketers however, as there is an optimal level of arousal, that results from a threshold of fear appeal and does not threaten the message persuasiveness. However, going beyond this optimal threshold will generate negative feelings and will lead the receiver to seek refuge under the umbrella of avoidance techniques (Henthorne et al. 1993).

While it is relevant to determine the threshold level related to risk disclosure in DTCA, pharmaceutical marketers first need to recognize consumers' responses to such information. According to Morris et al. (1985), consumers label a high level of risk in DTC ads as irritating. This finding is the thread that links risk disclosures to fear appeals, as a high level of both is perceived as irritating. Hence, even though both are defined differently, they are both prone to produce anxiety in the receiver.

Therefore, in this study, participants who are exposed to a high level of risk disclosure are expected to become anxious, retain less information from the ad, exhibit a negative attitude towards the ad and brand, and refuse to behaviourally respond to the ad.

LaTour and Zahra (1989) contend that there is no universal threshold level of fear, and that "other elements of the individual's cognitive structure are at work, resulting in individual uniqueness in reactions to fear stimuli," or, to risk information. Several individual psychological differences that might moderate consumers' responses to a persuasive communication are explored next.

C. ADVERTISING TO THE ELDERLY

"[…] the effectiveness of a communication is dependent on understanding who said what to whom, how and with what effect" (Menon et al. 2004). In other words, characteristics of the source, message, channel, and of the receiver, are predictors of DTCA effectiveness. Therefore, characteristics of the elderly audience pertaining to their information processing, vulnerability to persuasion, and demographic variables are reviewed next. The effect of message characteristics on their responses to DTCA is also examined.

1. Information Processing

Research has demonstrated that older and younger consumers differ in their perceptions of threat, and in their reactions towards persuasive advertising efforts, including DTCA (Benet et al. 1993; DeLorme et al. 2006a). These differences have been attributed to variations in the psychological and cognitive characteristics of both age segments.

1.1 Processing Speed and Source Format. The elderly are slower than the young at processing information due to a declining central nervous activity (Abernathy and Adams-Price 2006; Benet et al. 1993; DeLorme et al. 2006a, 2006b; Phillips and Sternthal 1977; Roedder John and Cole 1986). Therefore, they encounter a reduction in their short term memory capacity as reflected through difficulties at learning and using new information, in both print and television formats (Cole and Houston 1987).

In contrast, Phillips and Sternthal (1977) and Roedder John and Cole (1986) indicate that when exposed to a self-paced medium such as a magazine or a newspaper, the elderly do not display a weakened ability to learn or comprehend information, since the rate at which the information is presented does not magnify their diminished processing speed. On a similar note, Benet et al. (1993) indicate that the elderly are able to encode information accurately if given time. Hence, they consider that this age segment only *appear*s to have decreased intelligence resulting from a decline in their processing efficiency (vs. ability), especially when they adopt a strenuous learning strategy. In sum, the authors reject the stereotype of the "senile senior citizen."

The literature has revealed a discrepancy in findings regarding the moderating role of the source format (print or broadcast) on the magnitude of elderly's processing deficits. In addition, it has revealed an inconsistency regarding this segment's motivation to process branded drug advertisements.

1.2 Active versus Passive Processing. Many researchers agree that younger people have a higher disposition to retain advertised drug information, than older people do (DeLorme et al. 2006a, 2006b; Foley 2001; Foley and Gross 2000). However, in the context of DTCA, older consumers are more at risk for having a health problem than younger consumers, and consequently have higher information needs. Their greater involvement results in a more active processing of health information and an increased attention to DTCA content (Huh et al. 2004). Various studies (Choi and Lee 2007; Maddox 1999; Morris et al. 1986; Perri and Nelson 1987) support this reasoning as they found that older people are more prone to pay attention to DTCA, and subsequently

behaviourally respond to it. Huh et al. (2004) argue that support for this speculation is provided by Mehta and Purvis (2003), who found higher recall levels of print advertising in older female consumers [45 years old and above], as compared to younger females [35-44 years old]. However, the authors fail to note the confounding effect of gender, with females being inherently more involved with DTCA than males.

On the other hand, the elderly's interest in gathering health information from mass media does not replace their preferred reliance on professionals in health-care decision making. Benet et al. (1993) cite Botwinick (1978) when referring to this segment's heightened wariness and calculated steps in its decision making. "[…]The elderly are less likely to challenge medical authority or to press physicians for detailed information about medical conditions" (DeLorme et al. 2006a).Consequently, they might exert less effort at elaborating on and learning advertising content than the young, knowing in advance that they will passively comply with their physician's recommendations. As one 83-year old male participant self-reported, "I don't pay any attention to it….I got my doctor's okay and that's good enough for me" (DeLorme and Huh 2009).

The results of Foley's (2000) study also indicate that older and less educated consumers pay less attention to the information provided in DTC ads, and do not fully derive benefit from its accessibility. They nevertheless do not converse with their doctor to fill their lack of knowledge about a prescription drug, which plunges them in a "medication information gap" or what Xie (2009) calls "the expertise gap."

This study will attempt to answer the inconsistency of previous findings regarding the elderly's inclinations in health care decision making by examining the persuasiveness and moving power of DTCA.

1.3 Processing Strategies and Recognition. In the face of these mixed results regarding the older consumers' processing motivation of mass media drug advertising, two things are certain; the elderly suffer from deficiencies in their use of memory strategies, specifically encoding and retrieval strategies. The former relates to the storage and registration of information in memory while the latter relates to accessing the stored information. The elderly face limitations in semantic encoding strategies that can inhibit their recall and recognition of information when compared to the young (Roedder John and Cole 1986). In addition, they face a memory search deficit, which impedes their acquisition of new material when coupled with their failure to use efficient organizational strategies for encoding incoming information.

The cognitive difficulties faced by the elderly aggravate their susceptibility to promotional persuasive attempts, a topic that is explored next.

2. Consumer Related Vulnerability

DeLorme and Huh (2009) mention that the unique product nature of drugs is a factor that contributes to the elderly's psychological vulnerability to persuasion and to their apprehensiveness vis-à-vis DTCA, when paired with their cognitive deficits and lack of professional health knowledge. Therefore, the elderly are believed to exhibit more sensitivity to overwhelming persuasive messages than do younger adults (Balazs,

Yermolovich, and Zinkhan 2000). However, the authors later refute such claims and consider the elderly's vulnerability an exaggerated statement. In their view, the elderly actively and critically evaluate advertising messages and are not more easily persuaded by DTCA than younger consumers. The former seem aware and conscious that DTC advertisements are inculcated with the pharmaceutical companies' financial interests and an intention to persuade them to buy the product. They also are intrigued by the ads' technical and information-rich content and their exaggerated efficacy claims. And since in general, people thrive to project a positive self-image-that includes being a hard target to the media's persuasive attempts-the elderly effortlessly try to deliberately resist the influence and moving power of advertising stimuli. However, they perceive others as being less immune to these attempts in what is called a third-person effect framework or the indirect (vs. direct) effects approach (Gunther and Storey 2003).

Taken from a different perspective, Benet et al. (1993) argue that this segment's consumer-related vulnerability might not be deemed applicable to the highly educated baby boomers when they reach the age of 65, and grow into the majority of the senior market.

The present study will also attempt to fill the disparity in research, pertaining to the vulnerability to persuasion of the elderly segment. In order to meet this objective, it is essential to examine the effect of pre-dispositional and demographic factors on consumers' responses to a DTC ad.

3. Pre-dispositional and Demographic Intervening Factors

As revealed by the literature, older consumers' anxiety when dealing with drug information is justified by their lack of trust in their unprofessional health knowledge. It is also exacerbated by their ineptitude at seeking information, and their decreasing mental and processing abilities. It hence follows that the respondents' age, gender and education level, their health status/prescription drug use, and their attitude towards DTCA, are pre-dispositional and demographic factors that among others, are related to their cognitive, emotional and behavioural responses to DTCA.

3.1 Age. Benet et al. (1993), in their study, "caution against grouping all individuals over 65 into a single market segment." The authors also specify that the elderly do not encounter a reduction in their intellectual abilities until late 80s. In their view, the effect of aging on the physical and mental capabilities reveals itself as significant only on those aged 85 or more. Along the same lines, Davis and French (1989) consider that "the elderly are the most heterogeneous segment of the population, differing from one another more than any other age group."

3.2 Gender and Education. The demographic factors of gender and education were also measured, as they might determine consumers' learning behaviour regarding health information (An 2007). Zoeller (1999) reported the results of a DTC advertising audit run by Scott-Levin (a pharmaceutical consulting firm), in which a female preference for readership of print health information supplemented by a discussion with their physician was noted. Females hold a more positive attitude towards DTCA, justified

by their increased involvement in health care decision making (Huh et al. 2004). Subsequently, they are more likely to engage in drug requests and seek drug information (Huh and Becker 2005). The same behavioural outcomes apply to higher educated consumers who consider themselves as having the necessary education that enables them to independently engage in confident decision making. Williams and Hensel (1995) in turn found a negative relationship between one's education level and his/her attitude towards DTCA.

3.3 Health Status and Drug Use. Consumers' health status was also measured as it could influence their involvement level, with sufferers being more involved than non-sufferers (Kavadas 2003). Perri and Dickson (1988) found an effect of DTC ad exposure on drug inquiry behaviour, moderated by one's health condition. In addition, DeLorme and Huh (2009), and Williams and Hensel (1995) observed a negative relationship between one's health, and his/her interest in a DTC advertisement. Perceived health was also negatively related to attitude towards DTCA, in Huh et al.'s (2004) study, and to information seeking and drug inquiry behaviours, in Huh and Becker's (2005) study.

On the other hand, Mehta and Purvis (2003) found that prescription drug users, and those related to a drug user, exhibited a more favorable attitude towards DTCA. Both seemed more involved with the ad, which translates into higher readership levels, and higher recall levels of ads. They also were more inclined both to inquire about and insist on a drug in an encounter with a medical professional. However, the generalization of their findings to a male sample is questionable. In addition, Alperstein and Peyrot (1993) found that regular drug users were more likely to attend to DTC ads than non-users.

3.4 Attitude towards DTCA. Those who favorably respond to DTCA are more inclined to read drug ads, inquire about, or request an advertised drug (An 2007; Mehta and Purvis 2003). Therefore, a trusting attitude in DTCA seems positively related to advertising-based decision making. Hence, being an antecedent to their buying intentions and to shaping their attitudes towards the ad and brand, consumers' attitude towards DTCA and towards print advertising were measured as potential covariates (An 2007).

It is important to note here that the effect of the above mentioned audience characteristics on the elderly's behavioural responses depends first and foremost on their perception of DTCA as an important information source; or on the previously mentioned third-person effect (DeLorme et al. 2006b). In other words, "the impact of the ads on consumers should be moderated by the attitudes the consumers hold to DTC advertising; of particular importance is trust in DTC advertising," as stated by Huh and Becker (2005). For example, if a sufferer does not believe in the credibility of DTCA or attempts to resist its influence by projecting it on a third-person, he/she will not become involved in the persuasive message and will refute what is expected from a sufferer.

4. Message Characteristics and Situational Factors

Apart from the above mentioned receiver characteristics that might influence the effectiveness of DTCA, there are various message characteristics and situational factors that might hinder an effective communication of an advertising message. Generally speaking, older consumers regard drug advertising as useful because it expands their knowledge and decreases their uncertainty regarding a drug. However, complicated and

busy advertisements containing inconsistent and doubtful information revive consumers' initial uncertainty (DeLorme and Huh 2009). This uncertainty raises negative emotional responses, especially in those who are in short of the necessary coping skills that will help them mitigate their insecurity and indecisiveness regarding an advertised drug. These negative affective responses in turn serve as an impetus for the actions of older consumers, who will resort to uncertainty management strategies, such as seeking additional information (i.e., doctor consultation), or educating themselves on DTCA regulation (DeLorme and Huh 2009).

Furthermore, Roedder John and Cole (1986) suggest that, apart from the information format (i.e., television or print), the information quantity or overload can exacerbate the effect of the elderly's slower processing speed, and limited memory strategies. The inclusion of the traditional drug package insert in the ad, also overburdens the receiver for it involves a great amount of technical language. The same applies to complex visual images and diverting backgrounds that may impede the older adults' retrieval of the ad's copy points. In sum, when task-such as reading an advertisement-involves "deliberate, self-initiated processing, integrating context or inhibition," the receivers' processing efficiency is likely to decrease (Abernathy and Adams-Price 2006). That is why branded drug ads should be "created and developed with the information processing abilities of the elderly in mind."

The objective of the present study is to experimentally determine how different levels of risk information and ad involvement (respectively considered both a message characteristic and an individual variable), might differentially affect the respondents' learning of the ad's information and thus shape their behaviour and attitudes towards the

ad and brand. The previous analogy made between a high level of risk and fear appeal is supported by the study conducted by DeLorme and Huh (2009), in which participants expressed their need for a clear communication of drug risks yet in a "nonthreatening matter so they know how to interpret and act on the information." In their study, the respondents described high risk ads as irritating, and stimulating "anxiety, distress, fear and anger," leading them to "[…] just basically tune out."

In general, it is expected that a high level of risk disclosure will induce tension in the receiver and consequently trigger his/her defense mechanism. With regards to involvement, it is a factor that will determine to what extent the elderly receivers will be motivated to scrutinize and evaluate the ad information (Christensen, Ascione, and Bagozzi 1997). Branded drug ads were found to generate more favorable attitudes and exert more influence when the receivers were highly involved (Perri and Dickson 1988).

Consumers' advertising message involvement is further explored next.

D. ADVERTISING MESSAGE INVOLVEMENT

There appear to be no signs of a universally accepted conceptualization or measurement of the involvement construct. However, there is consent that "involvement [is] an important moderator of the amount and type of information processing elicited by a persuasive communication" (Petty, Cacioppo, and Schumann 1983). It therefore has an impact on the effectiveness of an ad.

Krugman (1965) originally conceptualized involvement as "the number of conscious bridging experiences, connections, or personal references per minute that the [receiver] makes between his own life and the stimulus," at the time of encoding. In situations where an object is judged as personally relevant, the individual will exert greater cognitive effort at learning the object-related message, and consequently make more associations with it. These associations might be revived in memory at the time of purchase. The definition used by Krugman (1965) accentuates the role of personal relevance as a fundamental characteristic of the involvement construct, a notion that was salient throughout different conceptualizations of involvement; these are reviewed next.

1. Involvement as an Elaborative Process

Greenwald and Leavitt (1984) define *audience involvement* as "the allocation of attentional capacity to a message source, as needed to analyze the message at one of a series of increasingly abstract representation levels." It follows in their opinion that involvement operates on a continuum, with an ascending order of required attention capacity for each level. The levels of the continuum range from pre-attention where the individual's responsiveness is triggered unconsciously, to focal attention, comprehension,

and elaboration. In the final stage, deliberate attention and conscious processing occur, as the receiver tries to incorporate the incoming information with his/her existing knowledge. A highly involved person will reach the final stage and voluntarily exercise an effort at generating cognitive inferences about the stimuli, developing as such an enduring emotional and behavioural response to it.

2. Involvement as a Personal/Situational Construct

In contrast to Greenwald and Leavitt (1984), Petty et al. (1983) do not adopt an elaboration process model. They rely on their Elaboration Likelihood Model of persuasion (ELM) which distinguishes between the central and peripheral processing routes and assumes a trade-off between both. Involvement is an important moderator of the route to persuasion, determining whether argument-based or peripheral-based processing will occur. To further explain, highly involved individuals will embark on the central route, and "diligently, actively and cognitively [assess] information central to the particular evaluation" (Inman, McAlister, and Hoyer 1990). On the other hand, low involved individuals will have a low *likelihood of elaboration*, and therefore process information using the peripheral route, grounded on the simple inferences or contextual cues (i.e., music, pictures, etc.) in the persuasion context, rather than on the message arguments. The change in behaviour resulting from the central route approach is due to persuasion linked to the arguments of the message and their quality, while that resulting from the peripheral route is due to the reliance on message heuristics or decision rules (Christensen et al. 1997). For example, low involved individuals will interpret a persuasive message as credible simply because an expert source (cue) is communicating

the message. It is important to note here that argument-based persuasion might lead to a behaviour change, while peripheral persuasion will only result in a volatile and fragile attitude formation.

Previous Knowledge. It is also vitally relevant to consider the intervening role of previous knowledge which has noticeably re-emerged in many studies, and is emphasized by Celsi and Olson (1988). The authors also talk about *felt involvement* to suggest the motivational and relative nature of the construct. They refer to involvement as the "consumer's overall subjective feeling of personal relevance." From their point of view, consumers develop domain knowledge, by accumulating and storing information about objects and issues that are relevant to them. Domain knowledge is activated when the stimulus is of importance to the consumer. Subsequently, the consumer is motivated to attentively consider and elaborate on the stimulus information, to form an evaluative response. On a similar note, Sujan (1985) proposed that one's familiarity with, and previous knowledge about the product class, enhance the processing of the stimulus-related information.

Although the present study's questionnaire did not include a measure of the participants' domain knowledge regarding arthritis prescription drugs, it measured their health status (i.e., whether they suffer from arthritis and use a prescription drug for it). It is reasonable to assume that such measures are suggestive of the respondents' product class knowledge, to a limited extent.

Moreover, it is noteworthy to mention Zaichkowsky (1985, 1994) who developed the Personal Involvement Inventory, a measure of the involvement construct. For the purpose of scale development, the author defined involvement in her more recent study as

"a motivational construct which partly relies on the antecedent factor of the person's values and needs."

3. Involvement as an Attention Construct

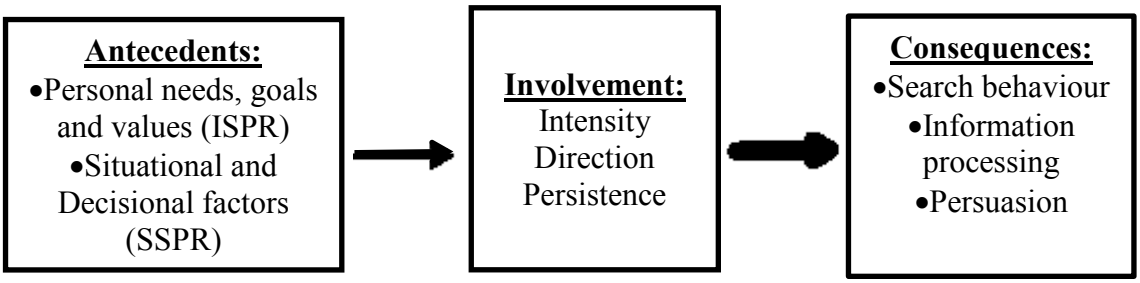
Gardner, Mitchell, and Russo (1985) also point out that the processing of an ad is influenced by our knowledge stored in memory, and define involvement as "a situation specific state variable with components, intensity and direction." Intensity refers to the level of attention allocated to the stimulus-related information, whereas direction refers to the processing strategy employed by the consumer. The authors distinguish between two types of processing strategies. An individual scoring high on his/her interest in a product will engage in a brand processing strategy, by elaborating more on the provided information, and extrapolating inferences and counterarguments about the product's performance, based on an evaluation of its attributes. The use of a non-brand processing strategy consists of the opposite, and applies to low involved individuals, who do not fully initiate their brand schema, and develop a scattered brand knowledge. Evoking a non-brand processing strategy involves focusing on the basic elements of the ad, its style and form (i.e., brand name, object, visual images, etc.), similar to Petty et al.'s (1983) peripheral processing route. The consequences tied to executing a brand processing strategy consist of faster and greater recall and recognition levels, which subsequently facilitate the retrieval of product information at the time of purchase. A peripheral processing strategy resulted in more positive attitudes towards the brand, due to a reduction in the generation of evaluative counter-arguments.

4. Involvement Framework

The literature review clearly revealed that research has been inconsistent vis-à-vis the conceptualization of involvement. These discrepancies have laid down the ground for Andrews, Durvasula, and Akhter's (1990) work. The authors consider involvement to be an "individual, internal state of arousal with intensity, direction and persistence properties." The personal relevance of the message plays an important role in determining the intensity of arousal (Park and Young 1986). The direction of involvement designates the stimulus (e.g., issue, product, advertisement) towards which the arousal is routed; in this study, involvement is directed towards the ad. Persistence refers to the durability of the involvement, which recognizes that a greater state of involvement will be more enduring and stable. Wine connoisseurs provide an example of enduringly involved individuals.

In their attempt to synthesize previous research, Andrews et al. (1990) developed a framework for the conceptualization and measurement of the involvement construct, based on the commonalities and inconsistencies found in earlier studies (See Figure 2). In their framework, they distinguish between the antecedents, consequences, and the state of involvement itself, contrary to other authors who confoundedly defined involvement in terms of its determinants, and effects.

Figure 2. Andrews, Durvasula, and Akhter's (1990) Framework for the Conceptualization and Measurement of the Involvement Construct



Source: Kavadas (2003)

For instance, while other researchers consider the personal relevance of the stimuli to be an indicator of the individual's level of involvement, the authors consider it an antecedent that will determine his/her *state* of involvement. In addition, in contrast to Greenwald and Leavitt (1984) who consider involvement in itself to be an elaboration process, Andrews et al. (1990) and Mitchell and Olson (1981) treat it as a variable influencing the type of processing. In other words, the elaboration process is perceived as a consequence rather than an indicator or integral element of the involvement state.

The antecedents and consequences of involvement are further explored next.

4.1 The Antecedents of Involvement. According to Laurent and Kapferer (1985), knowing the sources of involvement is extremely important in understanding the "consumer's subjective situation" and in recognizing how he/she should be approached in an advertising communication. The antecedents revolve around two major categories: one's personal needs, goals and values, and situational or decisional factors, which Celsi

and Olson (1988) label as intrinsic and situational sources of personal relevance (ISPR and SSPR), respectively.

ISPRs are "relatively stable, enduring structures of personally relevant knowledge derived from past experience and stored in long term memory." They are distinguished from domain knowledge (knowledge about a product class stored in memory) in that they comprise one's cultural values, the degree to which the object fulfills one's desired self-image, and personality factors such as need for cognition, among others. Celsi and Olson (1988) note that ISPRs affect consumers' motivation to be attentive to and understand the message, while domain knowledge impacts their ability to process the information. In addition, ISPRs influence involvement the most when an object is perceived as fulfilling one's desires and goals.

Situational factors on the other hand, include the perceived risk of making a purchase decision, the purchase occasion, and the use of the object, among others. Sales promotions act as situational factors or sources of felt involvement, as they temporarily trigger important goals in the consumer, such as saving money. In this particular purchase situation, a consumer's felt involvement with the product is expected to increase, but be of transitory nature, decreasing again when the consumer's goal is attained.

4.2 The Consequences of Involvement. Previous research has demonstrated that the consequences of involvement pertain to the hierarchy of effects discussed previously. "Different levels of involvement are associated with different sequences of impacts on the familiar attitude components of affect, behavior, and cognition" (Greenwald and Leavitt 1984). For instance, deeper processing of a communicated message results in

greater long-term recognition of its content. In addition, variations in involvement influence the number and type of inferences drawn, the use of deep encoding strategies and subsequently, the robustness and persistence of persuasion that is predictive of behaviour.

"In theory, involvement is considered an individual difference variable. It is a causal or motivating variable with a number of consequences on the consumer's purchase and communication behavior" (Laurent and Kapferer 1985). Therefore, the current study primarily aims at investigating the consequences of involvement by elderly consumers, with a main focus on their information processing motivation. In essence, highly involved individuals will exert a greater effort at assimilating an ad's message and encode more associations in their mind. Hence, highly involved individuals are expected to recognize more information than low involved individuals. The involvement variable is also expected to interact with the risk level of the ad, in influencing consumers' responses.

For purposes of simplicity, involvement is defined as "the motivational state of an individual induced by a particular advertising stimulus or situation" (Laczniak, Muehling, and Grossbart 1989). It is reasonable to assume that prescription drug users are engaged in an enduring involvement that "reflects a general and permanent concern with the product class," herein arthritis prescription drugs (Laurent and Kapferer 1985). In general, this source of involvement is linked to objects that are perceived by the consumer as self-defining and fulfilling of his/her core values and needs.

Also, it is possible that the effect of product class involvement might interfere with the advertising message involvement manipulation. Hence, it might be difficult to

get a person who is not interested in the product class to be highly involved in the ad, and vice versa (Laczniak et al. 1989).

In conclusion, the literature review revealed what DeLorme and Huh (2009) summarized in one study. Through conducting in-depth interviews with participants aged 65 to 83, they identified the following four sources of DTCA uncertainty:

1) DTCA content-related uncertainty which pertains to the previously discussed effect of message characteristics.
2) Consumer-related uncertainty which results from the demographic and pre-dispositional characteristics of the elderly.
3) Pharmaceutical and advertising industry-related uncertainty which relates to the elderly's attitude towards DTCA, and their limited trust in pharmaceutical companies.
4) And finally, government regulation and health-care system-related uncertainty, which results from consumers' lack of confidence in governmental or organizational regulatory actions.

These uncertainties are unveiled in the present study through an examination of the elderly's hierarchy of responses to a DTC ad. The research questions are presented next.

RESEARCH QUESTIONS

The original research questions centered around the relationship between the amount of risk information disclosed in the ad and the elderly's recognition of the ad's claims, their attitude towards the ad and brand, and their behavioural intentions ,while controlling for the role of advertising message involvement (See Appendix A for initial research questions). Therefore, the study was initially intended as a 2 (involvement: high vs. low) x 3 (risk disclosure: high vs. low vs. balanced) between-subjects factorial design, yielding a total of six experimental conditions (for a description of the involvement and risk manipulations, refer to Appendices B and C). However, as the research unfolded, an experimental design was no longer possible. Although the pretests revealed significant manipulation checks (Appendix D), the risk disclosure and involvement manipulations checks of the actual experiment were insignificant (Appendix E), rendering an experimental analysis impossible. Due to these unforeseen developments that transpired during data analysis, the literature review was revisited to look for appropriate theoretical constructs in building upon the data collected, and the data were appropriately mined based on the foundations established in the literature. The study therefore took an exploratory direction and the research questions were revised.

The literature review revealed that "involvement does not systematically lead to the expected differences in behavior. They depend on the antecedents of involvement […]" (Laurent and Kapferer 1985). In addition, past research has established that prescription drug use-which is an antecedent of involvement in the context of the present study-is a significant predictor of consumers' responses to DTCA. Moreover, it is well

acknowledged by the literature that cognition mediates the elaboration of information and thus influences information processing (Gunter 1998). High cognitive abilities for example, are expected to aid the elderly in their acquisition of the ad content.

Based on the above foundations in the literature, the study went on an exploratory path, with research questions related to the effect of cognition and prescription drug utilization, on respondents' attitude towards the ad (A_{ad}), attitude towards the brand (A_b), recognition, and behavioural intentions.

Therefore, considering the above, the following research questions are addressed:

RQ1: Does prescription drug use have a differential effect on consumers' attitude towards the ad and brand, recognition of the ad's content, and behavioural intentions?

RQ2: Does cognition level have a varying influence on consumers' processing of the message, and subsequently on their emotional, and post-exposure behavioural intentions?

In addition, suffering from arthritis does not necessarily entail using an anti-arthritic prescription drug. Therefore, the sample consisted of three groups with three different health statuses: those who suffer from arthritis and use a prescription medication as a remedy, those who suffer from arthritis and do not use a prescription medication for it, and those who do not suffer from arthritis. Moreover, previous research has determined a negative relationship between one's health status and attitude towards DTCA and behavioural intentions. Consequently, an interest in examining the differential

effect of one's health status (e.g., whether they suffer from arthritis, and if they do, whether they use a prescribed medication for it) on their responses to a DTC ad led to the following research question:

RQ3: How do arthritis sufferers who use a prescription drug (SUFF.USERS), arthritis sufferers who do not use a prescription drug (SUFF.NONUSERS), and non-sufferers of arthritis (NON-SUFFERERS), differ in their recognition, A_{ad}, A_b, and behavioural intentions?

METHODOLOGY

A. SAMPLE CHARACTERISTICS (See Table 1)

A total of 90 English-speaking elderly individuals, aged 65 or above, composed of 61 females and 29 males, participated in the study. The average age was 73, and ranged from 65 to 95 years. Approximately 54 % of the sample suffer from arthritis, and 31 % received an arthritis prescription drug at one point in their life. Approximately 49 % of the sample scored low on the Digit Symbol Substitution Test (description of instruments used is provided next).

Table 1: Descriptive Statistics of the Sample

	Females (68%)				**Males (32%)**			
	Middle Old (62%)	Seniors (28%)	Very Old (10%)	**Total**	Middle Old (62%)	Seniors (28%)	Very Old (10%)	**Total**
Sufferers (54%)	21	10	7	38	8	3	-	11
Non-sufferers (46%)	16	5	2	23	11	7	-	18
Total	37	15	9	61	19	10	-	29
Rx. Users (31%)	11	5	6	22	4	2	-	6
Non-users of Rx (69%)	26	10	3	39	15	8	-	23
High Cognition (51%)	28	2	1	31	12	3	-	15
Low Cognition (49%)	9	13	8	30	7	7	-	14

Note: Percentage figures relate to the *total* sample (e.g., 62 % of the total sample are middle old, 54% of the total sample suffer from arthritis, etc.).

The middle old are aged between 65 and 74, seniors are aged between 75 and 84, and the very old are aged 85 or above, following Lazer's (1986) segmentation.

B. QUESTIONNAIRE

Two subtests, the Vocabulary Test and the Digit Symbol Substitution Test (DGST) were taken from the Wechsler Adult Intelligence Scale (WAIS) (2008) and served as cognitive measures. The former is part of the Verbal Comprehension Index and measures crystallized intelligence (which refers to one's knowledge base, and remains stable with age). The Vocabulary Test therefore assesses the degree to which one has learned, been able to comprehend, and verbally express vocabulary. In contrast, the DGST is part of the Processing Speed Index and measures fluid intelligence, which refers to one's ability to learn new information, an ability that decreases with age. It is a test of figural relations, assessing the participants' speed of visual perception by asking them to substitute a symbol for a random succession of numbers, in a limited time.

Since reading an advertisement involves learning and utilizing new information, the DGST was considered as a more suitable indication of the respondents' cognitive abilities. Therefore, the participants' cognition was dichotomized into high and low levels using a median split of their scores on the Digit Symbol Substitution test.

The first section of the questionnaire intended to measure the involvement manipulation using Zaichkowsky's Personal Involvement Inventory (1985). Five out of 20 items were chosen based on their relevant applicability to the study (See Appendix G). A seven-point bipolar scale was used, with a score of one and seven indicating low and high involvement respectively. The involvement score for each participant consisted of the average of the five items.

Following, a risk manipulation check asked participants to assess the riskiness and safety of the drug, with a value of one indicating they perceived the drug to be more

risky/unsafe than beneficial/safe, and a value of seven indicating the opposite (See Appendix G).

1. Measurement of the Dependent Variables (See Appendix H)

Previous research has established that the elderly suffer from learning deficiencies. However, the magnitude of these deficits is moderated by the type of measurement chosen (Cole and Houston 1987; Roedder John and Cole 1986). Therefore, an optimal response format, a recognition test (vs. a recall test), was chosen as a measure of the respondents' acquisition of the ad content. In a recall format, respondents are asked to open-endedly bring to mind what they have been exposed to, while in a recognition format, they are quizzed on the advertising content they have seen. The former does not account for the retrieval deficits experienced by both the young and elderly adults, and might lead to a floor effect across conditions. It should be mentioned that "recognition tests may demonstrate a much greater registration of copy points and brand names on the part of young and elderly consumers than do recall tests" (Roedder John and Cole 1986).

The number of risk and benefit statements correctly recognized from the target ad constituted the **recognition measure**. Participants were presented with 10 statements drawn from the target ad's content, five related to the drug's selling points and five related to its risks. Respondents were asked to indicate whether the statements are true or false. A "don't know" category was added to decrease guessing.

Attitude towards the ad (A_{ad}) refers to the receivers' evaluation of the advertisement. It has a direct influence on purchase intentions, which highlights its relevance as a measure of ad effectiveness (Mitchell and Olson 1981). The A_{ad} measure

consisted of Holbrook and Batra's (1987) scale. The final A_{ad} score for each respondent was the average of four seven-point bipolar items.

Attitude towards the brand (A_b) refers to one's perceptions of the brand featured in the ad. The A_b measure consisted of Laczniak and Muehling's (1993) scale. The final A_b score for each respondent was the average of five seven-point bipolar items.

Everett's (1991) scale served as a measure of **behavioural intentions**. One question tackled consumers' willingness to read the advertisement, five questions touched on their intention to ask a doctor for additional information, and three questions examined their willingness to search for more information through other sources (e.g., 1-800 number, drug website, family or friends). A value of one meant that respondents definitely would not display the proposed behaviour, while a value of five meant they definitely would display the proposed behaviour.

2. Covariates and Demographic Data

Attitude towards advertising in print media was measured using Shavitt, Lowrey and Haefner's (1998) scale, which consisted of 13 questions scored on a five-point bipolar scale (See Appendix J).

In measuring attitude towards DTCA, Perri and Nelson's (1987) scale was employed. Respondents had to strongly agree or strongly disagree on six items, scored on a five-point bipolar scale (See Appendix J).

Demographic data were gathered in the last section on the participants' age, gender, first language, and education level. Respondents also had to indicate whether they suffer from arthritis, whether they take an anti-arthritic prescription drug, whether

they were related to someone who suffers from this ailment, and whether they worked in the health care field (See Appendix I).

C. FORMAT OF THE ARTHRAID AD

The target ad was specifically developed for the purpose of this study. The benefit and risk information presented in the ad was drawn from real advertisements (See Figure 3 in Appendix C). However, the drug name Arthraid was fictitious in order to control for drug familiarity effect. The picture, displaying two older adults walking at the beach, was intended to communicate the effectiveness of Arthraid in soothing arthritis pain and helping the elderly gain back an energetic lifestyle. Arthritis was the chosen ailment, because it is non-emotional, and common among female and male adults. That is not to mention that anti-arthritic drugs are one of the most heavily advertised.

The ads had a similar layout and design with the body copy displayed on the bottom half of the page, under the picture. The pictures were in black and white, and the body copy had the same font size across all ads except for the drug's name in the target ad, which was somewhat larger. The booklet displayed a total of four ads, including three filler ads and one random version of the three target Arthraid ads placed the third.

D. PROCEDURE

A convenience sample (n=60) from the Concordia Longitudinal Retirement Project (within the Concordia Department of Psychology) was recruited by phone. The remaining (n= 30) was recruited from senior centers that included the Notre-Dame-de-Grace Senior Citizen Council and the Contactivity Centre. Throughout 21 sessions, up to

six participants were first told that the researcher was interested in the elderly's responses to DTC prescription drug advertising. Participants were also informed of the approximate duration of the experiment (30 minutes), and of their right to know the results of the study once data collection was completed. After signing the consent form (See Appendix F), the participants completed the cognitive measures. Next, they were given an ad booklet with the involvement manipulation on its cover page. After browsing through the ads at their own pace, participants were given instructions on how to complete the questionnaire. Then, they answered the post-exposure questionnaire without referring back to the ad booklet. Originally, random assignment to the conditions was employed. However, it is no longer possible to use the group assignments for purposes of the exploratory data analysis.

During the sessions, the researcher responded to any questions and made sure participants did not refer back to the ad booklet while answering the questionnaire. At the end, respondents were debriefed, thanked and given $15 as a compensation for their time and participation.

RESULTS

A. REVISED FRAMEWORK

As previously mentioned, the research framework had to be revised based on the foundations in the literature. The literature review revealed that one's goals, needs and values determine his/her level of involvement. Sufferers and prescription drug users, for example, were found to exhibit a higher level of ad involvement. In addition, Sujan (1985) proposed that one's familiarity with and previous knowledge about the product class affect the processing of the stimulus-related information. Therefore, the participants' use of an arthritis prescription drug and their health status were considered as potential independent variables.

Furthermore, cognition was also regarded as an independent variable, since the elderly's processing abilities are an audience characteristic that differentially affects their responses to a message or stimulus. Changes in cognition, motivation, and emotional processing also affect older adults' decision making (Xie 2009). Consequently, the present study has taken an exploratory direction in an attempt to address the following research questions:

RQ1: Does prescription drug use have a differential effect on consumers' attitude towards the ad and brand, recognition of the ad's content, and behavioural intentions?

RQ2: Does cognition level have a varying influence on consumers' processing of the ad, and subsequently on their emotional, and post-exposure behavioural intentions?

B. FINDINGS

In order to better determine the behavioural intentions of the participants, a factor analysis was conducted on the questions pertaining to behavioural intentions, using the principle component analysis as the factor extraction method and the Varimax rotation as the rotation method (See Table 2).

Table 2: The Rotated Component Matrix of "Behavioural Intentions"

Factor 1	**Factor loading**	**Cronbach Alpha**
Discuss drug's effectiveness with doctor	0.763	0.807
Ask Friends about advertised drug	0.808	
Call 1-800	0.814	
Visit drug's website	0.776	
Factor 2		
Request Arthraid	0.702	0.474 (correlation coefficient)
Change doctors	0.874	

The first factor of the behaviour measure refers to additional information seeking from other sources. This type of behaviour is important in the context of DTCA since referring consumers to other information sources is a fundamental recurrent element in prescription drug ads (Menon et al. 2004). As Huh and Becker (2005) mention, "basically, what consumers are expected to do after viewing prescription drug ads is to seek information and talk to others." Given that the correlation coefficient of "Request Arthraid" and "Change doctors if he/she refused to prescribe Arthraid to me" is low (r=0.474), and given the importance of both behaviours as an outcome of DTCA, both will be considered in data analysis, as separate behavioural measures. "Request Arthraid" independently indicates drug request intentions (a participant's willingness to ask their doctor for a prescription of the advertised drug). "Changing doctors" independently

indicates the participants' willingness to consult another physician in case the former one challenged their insistence on Arthraid.

The following data analysis examines the effect of the participants' prescription drug use and level of cognition on their recognition of the ad's claims, their A_{ad} and A_b, and their behavioural intentions (e.g., additional information search behaviour, drug request behaviour, and changing doctors). The reliability analyses revealed that the A_{ad} measure ($\alpha = 0.897$) as well as the A_b measure ($\alpha = 0.891$) are highly valid. Respondents' perceptions of the drug's riskiness were also added as a dependent variable in order to examine how they could have been influenced by the pre-dispositional and individual variables in question. A Multiple Analysis of Variance (MANOVA) was conducted.

1. **Main Effects of "Prescription Drug Use"**

The MANOVA revealed significant main effects of "prescription drug use" on the participants' A_{ad} and A_b , their information search behaviour and drug request intentions. However, the participants' prescription drug use did not determine their intentions to change doctors if he/she refused to prescribe Arthraid the advertised drug to them. Prescription drug use also had a marginally significant effect on the participants' perceptions of the drug's riskiness, while it had no significant effect on their recognition of the ad's content (See Table 3).

Table 3: MANOVA Results for the Effect of "Prescription Drug Use"

Dependent variable	Means by group for each D.V		*F*
	Users (*n*=28)	Non-users (*n*=62)	
A_{ad}	4.81	3.87	8.224*
A_b	4.9	4.17	9.107*
Risk	4.05	3.39	3.662**
Recognition	5.43	4.98	0.660
Additional information seeking	14.93	11.56	13.012*
Drug request	3.32	2.34	18.98*
Changing doctors	1.469	1.403	0.243

NOTE: All *F*-tests associated with (1, 86) *df*. Significance levels $p < .05$ (2-tail) indicated by "*" and $p < .1$ (2-tail) indicated by "**."

T-test analysis indicated that prescription drug users have a more positive A_{ad} and A_b, and lower risk perceptions, than non-users. Also, participants who have taken an arthritis prescription drug are more willing to search for additional information about Arthraid and request it than those who have not taken an arthritis prescription drug. Both prescription drug users and non-users were reluctant to changing doctors if he/she refused to prescribe the advertised drug to them (See Table 4).

Table 4: T-test Results for the Effect of "Prescription Drug Use"

Dependent variable	*t*	*p*
A_{ad}	2.787	0.007*
A_b	3.061	0.003*
Risk	1.927	0.057**
Additional information seeking	3.692	0.000*
Drug request	4.268	0.000*
Changing doctors	0.460	0.647

NOTE: All *t*-tests associated with (88) *df*. Significance levels $p < .05$ (2-tail) indicated by "*" and $p < .1$ (2-tail) indicated by "**."

2. Main effects of "Cognition"

A MANOVA revealed a significant main effect of cognition on the respondents' recognition of the ad content only. There was no significant main effect of cognition on A_{ad} , A_b , behavioural intentions, or risk perceptions. (See Table 5)

Table 5: MANOVA Results for the Effect of "Cognition"

Dependent variable	Means by group for each D.V		*F*
	High Cognition(*n*=46)	Low Cognition(*n*=44)	
A_{ad}	3.92	4.43	2.942
A_b	4.38	4.43	0.028
Risk	3.59	3.61	0.036
Recognition	5.83	4.39	8.419*
Additional information seeking	13.8	12.62	1.668
Drug request	2.66	3.02	2.381
Changing doctors	1.377	1.495	0.772

NOTE: All *F*-tests associated with (1, 86) *df*. Significance levels $p < .05$ (2-tail) indicated by "*."

A t-test analysis indicated that participants with a higher cognition level recognized more of the ad's content than those with a lower cognition level. There are three memory components salient throughout the recognition measure: memory of the drug's side effects and precautions; its purpose and benefits; and of the general indications for its use and administration. Multiple t-tests were conducted to investigate the differences in the recognition of each of these three memory components across varying levels of cognition. Interestingly, the results showed that higher cognition levels resulted in a higher recognition of the drug's purpose and benefits, and directions for use. However, there was no significant difference in the recognition of the drug's side effects and precautions, across both levels of cognition (See Table 6).

Table 6: T-Test Results for the Effect of "Cognition"

Dependent variable	***t***	***p***
Overall Recognition	3.222	0.002*
Recognition of the drug's benefits/purpose	2.706	0.008*
Recognition of the drug's directions for use	2.779	0.007*
Recognition of the drug's side effects	1.242	0.218

NOTE: All *t*-tests associated with (88) *df*. Significance levels $p < .05$ (2-tail) indicated by "*."

3. Interaction Effects

No significant interaction effects were found (See Table 7 for a description of the means and standard deviations by group for each dependent variable).

Table 7*:* Interaction Effects

Dependent variable	Prescription drug use	Cognition level	
		High	Low
A_{ad} (F=0.087) (p=0.769)	Rx.Users	M = 4.5 SD = 1.77	M = 5.17 SD = 1.63
	Non-users	M = 3.63 SD = 1.46	M = 4.11 SD = 1.23
A_b (F=0.12) (p=0.73)	Rx.Users	M = 4.92 SD = 1.43	M = 4.88 SD = 1.46
	Non-users	M = 4.12 SD = 0.8	M = 4.24 SD = 0.84
Recognition (F=0.006) (p=0.937)	Rx.Users	M = 6.07 SD = 1.98	M = 4.69 SD = 2.72
	Non-users	M = 5.71 SD = 2.21	M = 4.26 SD = 1.84
Additional information seeking (F=0.581) (p=0.448)	Rx.Users	M = 15.8 SD = 1.035	M = 13.92 SD = 1.11
	Non-users	M = 11.8 SD = 0.72	M = 11.32 SD = 0.72
Drug request (F=0.709) (p=0.402)	Rx.Users	M = 3.07 SD = 0.26	M = 3.61 SD = 0.28
	Non-users	M = 2.26 SD = 0.181	M = 2.42 SD = 0.181

NOTE: All F-tests associated with (1, 86) df, and relate to the interaction effect between "Prescription Drug Use" and "Cognition Level." None of the interactions are significant at α =.95.

4. Covariance Analysis

Given that cognition declines with age, a Multiple Analysis of Covariance (MANCOVA) was run, with age as a covariate, and both "Prescription Drug Use" and "Cognition" as the two independent variables. The significant effect of cognition on recognition no longer held true when age was controlled for, ($F(1, 85) = 2.797$, $p > .05$).

Therefore, the sample was segmented into three age categories following the age segmentation proposed by Lazer (1986), grouping together those aged between 65 and 74 as the middle old, between 75 and 84 as the seniors group, and those 85 or more as the very old group.

An ANOVA showed a significant difference across these age groups, in their overall recognition of the ad's content. As shown in table 8, the standard deviation of the very old participants' overall recognition is higher than the standard deviations of the middle old and seniors' overall recognition, which indicates a higher variation in the very old participants' recognition. However, taking into consideration the unequal cell sizes, it is reasonable to expect the standard deviation of the very old participants' overall recognition to decrease, as the cell size is increased, which should improve the validity of the results found. Furthermore, there was no significant difference across age groups, in the participants' recognition of the drug's benefits, directions for use, and side effects ($p > .05$) (See Table 8 for a description of the means and standard deviations by age group for the overall recognition and for each the three elements of recognition).

Table 8: ANOVA results for "Recognition" across Age Groups

Dependent variable	Means and SD of recognition across age groups			*F*
	Middle Old (*n*=56)	Seniors(*n*=25)	Very old (*n*=9)	
Overall recognition	M = 5.41 SD = 2.096	M = 5.08 SD = 2.06	M = 3.44 SD = 2.92	3.175*
Recognition of the drug's benefits/purpose	M = 0.67 SD = 0.26	M = 0.61 SD = 0.38	M = 0.44 SD = 0.47	1.887
Recognition of the drug's directions for use	M = 0.59 SD = 0.32	M = 0.55 SD = 0.37	M = 0.33 SD = 0.40	2.246
Recognition of the drug's side effects	M = 0.41 SD = 0.3	M = 0.4 SD = 0.3	M = 0.28 SD = 0.29	0.744

NOTE: All *F*-tests associated with (2, 87) *df*. Significance levels $p < .05$ (2-tail) indicated by "*."

A Tukey post-hoc test revealed the following comparisons: A significant difference was observed in the overall recognition level of the middle old and very old respondents ($p < .05$). The difference in the overall recognition level of the senior and very old respondents was marginally significant ($p < .1$). There was no significant difference in the overall recognition level of the middle old and senior respondents ($p > .05$).

In general, the recognition of the drug's side effects and precautions was lower ($M_{side.effects} = 0.39$) than that of its benefits ($M_{benefits} = 0.63$) and administration instructions ($M_{indications} = 0.55$). These results support the notion of the risk/benefit "trade-off" consumers engage in when processing DTCA information (Morris et al. 1989).

5. The Effect of "Health Status"

In order for someone to have taken a prescription medication, he or she must have suffered first from the ailment. In contrast, sufferers can be divided into two groups, those who use a prescription drug, and those who turn into other remedies (i.e. generic drugs, physical activity, natural remedies, etc.). An interest in further investigating the differences between these two groups and the group of non-sufferers led to the following research question:

RQ3: How do arthritis sufferers who use a prescription drug (SUFF.USERS), arthritis sufferers who do not use a prescription drug (SUFF.NONUSERS), and non-sufferers of arthritis (NON-SUFFERERS), differ in their recognition, A_{ad}, A_b, and behavioural intentions?

An ANOVA was conducted with the participants' health status (e.g., whether they suffer from arthritis and whether they take an anti-arthritic prescription drug if they do suffer from it) as the independent variable. The analysis revealed significant main effects of the participants' health status on their A_{ad}, A_b, additional information search behaviour and drug request behaviours. There was a marginally significant effect of the participants' health status on their recognition of the drug's benefits. However, there was no significant effect of health status on the participants' overall recognition, recognition of the drug's directions for use and side effects. In other words, all three groups (SUFF.USERS, SUFF.NONUSERS, and NON.SUFFERERS) equally recognized the ad's claims, specifically those pertaining to the drug's directions for use and side effects.

In addition, the participants' health status did not influence their intention to change doctors if he/she refused to prescribe Arthraid the advertised drug to them (See Table 9).

Table 9: ANOVA Results for the Effect of "Health Status"

Dependent measure	Means by group for each D.V			*F*
	Suff.Users ***(n=28)***	**Suff.Nonusers** ***(n=21)***	**Non-Sufferers** ***(n=41)***	
Overall recognition	5.43	5.19	4.88	0.515
Recognition of the drug's benefits	0.73	0.54	0.6	2.597**
Recognition of the drug's directions for use	0.54	0.55	0.57	0.074
Recognition of the drug's side effects	0.4	0.47	0.34	1.486
A_{ad}	4.81	3.86	3.88	3.843*
A_b	4.9	3.94	4.3	5.536*
Additional information seeking	14.93	12.3	11.2	7.335*
Request Arthraid	3.32	2.57	2.22	10.027*
Changing doctors	1.46	1.52	1.34	0.789

NOTE: All *F*-tests associated with (2,87) *df*. Significance levels $p < .05$ (2-tail) indicated by "*" and $p < .1$ (2-tail) indicated by "**."

A Tukey post-hoc test revealed the following comparisons among the sufferers who do use a prescription drug and those who do not, and the non-sufferers of arthritis:

- Sufferers who use a prescription drug recognized more of the drug's benefits than sufferers who do not use a prescription drug ($p < .1$).

- Sufferers who use a prescription drug had more positive A_{ad} than both sufferers who do not use a prescription drug ($p < .1$) and non-sufferers ($p < .05$).
- Sufferers who use a prescription drug had more positive A_b than both sufferers who do not use a prescription drug and non-sufferers ($p < .05$).
- Sufferers who use a prescription drug were more willing to search for additional information on the advertised drug than both sufferers who do not use a prescription drug ($p < .1$) and non-sufferers ($p < .05$).
- Sufferers who use a prescription drug were more willing to request the advertised drug than both sufferers who do not use a prescription drug and non-sufferers ($p < .05$).
- There was no difference in the recognition of the drug's benefits of the non-sufferers on one hand, and both sufferers who use a prescription drug and sufferers who do not use one on the other hand ($p > .05$).
- There was no difference in the A_{ad}, A_b, additional information seeking and drug request behaviours, of the non-sufferers and sufferers who do not use a prescription drug ($p > .05$).

In conclusion, the significant findings are summarized as follows:

- Sufferers who use a prescription medication have a more favourable A_{ad} and A_b than sufferers who do not use a prescription medication and non-sufferers.
- Sufferers who use a prescription medication are more willing to act in response to a DTC ad through additional information search behaviour and specific drug requests, compared to sufferers who do not use a prescription medication and non-sufferers.
- The recognition of the drug's benefits was higher for sufferers who use a prescription drug than for sufferers who do not use one.
- Participants exhibited higher recognition only of the drug's purpose, benefits, and directions for use, at higher cognition levels.
- The middle old (aged between 65 and 74) had higher overall recognition of the ad's claims than the very old (aged 85 or above).

DISCUSSION

The exploratory study attempted to investigate the differences in the hierarchy of responses to a DTC ad, between elderly sufferers of arthritis who use a prescription drug, sufferers who do not use a prescription drug and non-sufferers. In addition, the effect of the elderly's cognition on their acquisition of the ad information was examined. The following is a discussion of the study's results. Theoretical, managerial, and policy implications are also presented next, followed by an overview of the study's limitations and propositions for future research.

A. HEALTH STATUS AND PRESCRIPTION DRUG USE

This section discusses the effect of the participants' health status and prescription drug use on their recognition, attitudes towards the ad and brand, behavioural intentions and risk perceptions.

1. Effect on recognition of the ad's claims

The participants' health status and prescription drug use did not influence their overall recognition of the ad's claims, and specifically their recognition of the drug's directions for use and side effects. These findings parallel the results of Perri and Nelson (1987) who found that prescription drug usage was not a significant predictor of content recognition. Nevertheless, the assumed familiarity and involvement (with the product class) of sufferers who use a prescription drug are reasonable explanations to their higher recognition of the drug's benefits compared to sufferers who do not use a prescription

medication. Analogous results were to be expected when comparing the users to non-sufferers. Interestingly however, sufferers who use a prescription drug had similar recognition of the drug's benefits to non-sufferers. The unequal cell sizes between these two groups and small sample size can serve as reasonable explanations for such counterintuitive results.

2. Effect on attitudes and behavioural intentions

The results of this study give voice to Mehta and Purvis' (2003) proposition that "consumers' past and current use of prescription drugs might affect their attitudinal, behavioural responses to DTC advertising." The results also extend their finding that prescription drug users are more inclined to inquire about a drug, and support Huh and Becker's (2005) findings that prescription drug usage is a significant predictor of additional information search, and drug inquiry behaviours. Sufferers who use a prescription drug were found to have a more favourable attitude towards the ad and brand, and higher intentions to seek additional information about the drug and request it, than both sufferers who do not take a prescription medication and non-sufferers of arthritis. These findings parallel the results of DeLorme and Huh (2009) and Williams and Hensel (1995) who determined a negative relationship between one's health status and their motivation to attend to a DTC ad. The results also support Huh and Becker's (2005) study, in which they found that healthier individuals are less inclined to search for additional information on the advertised drug and inquire about it.

Interestingly, both sufferers who do not use a prescription drug and non-sufferers were less receptive of the DTC ad, and were reluctant to behaviourally respond to it

through additional information seeking and drug request behaviours. This finding is suggestive of these two groups' lack of involvement with the product class. Also, as revealed by the literature, the influence of DTCA is contingent first and foremost on consumer's perception of DTCA and pharmaceutical manufacturers as reliable and trustworthy (Huh and Becker 2005). Consequently, the revelations of the present study also suggest that sufferers who do not use an anti-arthritic drug resisted the influence of the target ad as a result of their lack of trust in pharmaceutical advertising.

The preference of the sufferers who do not use a prescription drug for other types of arthritis remedies, such as generic drugs, physical activity and natural remedies among others, could also justify their resistance to persuasion. Those who have been satisfied with their use of a generic drug might be disinclined to consider a more expensive and equally effective prescription drug. Those who have resorted to natural remedies or physical activity might be unenthusiastic about a chemical remedy. These propositions are drawn from the researcher's interactions with the participants during data collection. While some expressed their strong stance against pharmaceutical companies and their distrust of such firms, others conveyed their content with physical exercise as an arthritis remedy. Both agreed that medical treatments are being over utilized and gave voice to what Smith et al. (2002) define as the "medicalization of human problems," where any discomfort or disease, no matter its severity, must be medically treated. Sufferers who expressed such opinions believed that the best anti-arthritic medicine is a change in lifestyle, starting from one's diet, activity, etc. All of the above resonates with the proposition that the elderly are not as presumed, an easy target of DTCA persuasion. Therefore, the findings of the present study support DeLorme and Huh's (2009)

refutation of the elderly's vulnerability to persuasion and support their view of the elderly as active critical thinkers who question the credibility of pharmaceutical firms.

In addition, DTCA of prescription drugs may influence prescription drug users specifically rather than sufferers who do not use a prescribed medication. The latter cannot be assumed to be necessarily involved with the ad. Menon et al. (2004) suggest that "the future of DTC communication lies in segmenting the consumer market and promoting directly to a specific and defined target population." The present study revealed that prescription drug users, who were more receptive of the advertising message, are the most lucrative target market, compared to sufferers who do not use a prescription drug. A prescription drug user has a conviction that a prescription medication is the best option, and a DTC ad could remind him or her to request a refill of the drug. Refill behaviour and adherence to the drug regimen are proposed by Menon et al. (2004) as long-term post exposure measures that highlight the effectiveness of a mass mediated advertising campaign. Nevertheless, pharmaceutical marketers can attempt to convert non-users to become users of anti-arthritic prescription drugs, by presenting what the drug brand has to offer above and beyond the competition.

Finally, all participants regardless of their health status were unwilling to change doctors, if he or she refused to prescribe Arthraid to them. Such a finding further suggests that the elderly prefer to rely on their doctor in health care decision making and have more trust in his/her opinion, thus supporting the work of DeLorme et al. (2006a) and of Gönül, Carter and Wind (2000).

3. Effect on risk perceptions

Knowing that being a prescription drug user is an antecedent for high felt involvement, it is reasonable to postulate and say that prescription drug users were more involved than non-users. However, product class involvement might be a more accurate representation of the drug users' motivation, than advertising message involvement. In other words, their involvement may have been directed towards the product or drug rather than towards the ad itself.

Moreover, familiarity and enduring motivation were found to be significant precursors of consumers' motivation to analyze and learn health-related information (Moorman 1990). Therefore, although consumers' domain knowledge about arthritis prescription drugs was not measured, it could rationally be assumed that they are familiar with the product class, and that their familiarity with arthritis prescription drugs impacted their processing of the ad's content. More specifically, their use of a prescription medication could have positively moderated their motivation to attend to the message, deemed personally relevant. This is justified by the marginal effect found on risk perceptions; those who have taken a prescription drug had lower perceptions of risk. Their familiarity with the product class could have alleviated their views of Arthraid as an unsafe drug.

B. COGNITION

The study revealed only a positive relationship between the participants' cognition and their recognition of the ad's content. However, a high cognition level enhanced the participants' learning of the drug's benefits and directions for use only. No

difference was observed in learning the drug's side effects across both levels of cognition.

Moreover, recognition of the drug's side effects and precautions was lower in general, than that of its benefits and administration instructions. Hence, the participants, regardless of their health status and cognitive abilities, appeared to ignore the information on Arthraid's side effects and precautions, supporting the description of such information as irritating and distressing. As Morris et al. (1989) noted, consumers engage in a trade-off when processing risk and benefit information, in both directions. "Accurate processing of risk information leads to an inaccurate perception of drug benefits. Conversely, when consumers are able to effectively process the benefit information, they may not know too much about the risks of the drug" (Menon et al. 2004).

However, given that cognition declines with age, the latter was found to have a stronger influence on the respondents' acquisition of the ad's content. The very old (aged 85 or above) had the lowest level of recognition, and hence the most difficulty at remembering the information presented in the ad. The middle old (aged between 65 and 74) were able to learn information about the drug as much as the seniors (aged between 75 and 84) did. However, both younger groups and more noticeably the middle old were able to retain more information than the very old. The results support the Benet et al. (1993) proposition that the effect of aging on the elderly's mental abilities is only significant starting the age of 85.

Interestingly, the middle old, seniors and very old similarly recognized the drug's benefits, directions for use and side effects. Therefore, age did not determine *what* product claims the elderly better recognized, however, it did influence their overall

recognition. Cognition seems to be a more powerful determinant of *what* product claims the elderly recognize, with higher cognition resulting in higher recognition of the drug's benefits and directions for use.

It is important to note that overall, the respondents' recognition level of the ad content was low, with an average of five statements correctly recognized out of 10. In other words, the elderly were able to retrieve only half of the informational points they read in the Arthraid ad. These results are highly suggestive of this age segment's difficulty at learning and using new information, even from print advertising, and support the findings of Cole and Houston (1987) that the elderly consumers face encoding deficiencies when processing ad information in either print or televised format. Abernathy and Adams-Price (2006) give a reasonable explanation to these counterintuitive findings; although one would expect a self-paced ad to accommodate for the elderly's memory deficiencies, print ads are hard to remember, for they are information-rich, ambiguous, and void of any auditory component.

C. THEORETICAL IMPLICATIONS AND CONTRIBUTIONS

This section condenses the theoretical implications and contributions of the current study, drawn from the discussion of the results. First, one's familiarity with the ad stimulus or object and his/her intrinsic sources of personal relevance (ISPR) discussed in the literature are determinants of his/her motivation to attend to the ad's message (Celsi and Olson 1988; Sujan 1985). In the context of the current study, the prescription drug users' acquaintance with anti-arthritic drugs, and their personal need for such a remedy, contributed to their information processing motivation and involvement with the ad.

Second, given that sufferers who do not use a prescription drug were less receptive of the DTC ad compared to sufferers who use a prescription drug, the results support Huh et al.'s (2004) view of the elderly as active receivers of DTCA information. Concomitantly, given that sufferers who do not use a prescription drug had similar responses to the DTC ad as the non-sufferers, the findings of this study support DeLorme et al.'s (2006a) view of the elderly as passive receivers of advertising information since they primarily trust their physician (vs. DTCA).

Third, the elderly actively participate in their health care decision making and are not as presumed - a vulnerable target of persuasion, a finding that supports DeLorme and Huh's (2009) refutation of the elderly's susceptibility to DTCA influence. The present study revealed that even sufferers who are not using a prescription medication exhibit resistance to DTCA despite them suffering from the ailment and needing a remedy. The results also suggested that the elderly ultimately trust their health care provider more than mass media advertising. Therefore, it can be rationally assumed that the elderly are protected against deceptive pharmaceutical advertising practices.

Fourth, the decline in the elderly's mental abilities is most prominent in their late 80s. The present study found that the elderly's learning decrement mainly increased at the age of 85, supporting the results of Benet et al. (1993). In general however, knowledge of the advertising claims was low, which is highly suggestive of learning deficiencies in the elderly, even when information is communicated in an internally-paced format (Abernathy and Adams-Price 2006; Cole and Houston 1987). Therefore, the results do not support the findings of Phillips and Sternthal (1977) and Roedder John and Cole

(1986) that the elderly do not encounter learning difficulties when exposed to print advertising.

D. MANAGERIAL IMPLICATIONS

Findings from this exploration suggest important implications for managers of pharmaceutical companies and advertisers. First, it is imperative that they pretest their ads and investigate the audience's reactions to them, taking into consideration the variations in responses that are due to individual and pre-dispositional variables. The ad's effectiveness lies not only in its ability to move the prescription drug users to act, but also in its ability to persuade the sufferers that do not use a prescription drug, and to move them to behaviourally respond to ads. Therefore, although it is difficult, brand differentiation is extremely important, especially in late stages of a drug's life cycle.

Furthermore, advertisers could increase the attention and processing motivation of non-sufferers by cautioning them that they could develop the featured ailment at some point in the future, which should draw their attention to the ad (Menon et al. 2004).

Moreover, advertisers should keep in mind the elderly's cognitive and physical deficiencies, and develop their advertisements accordingly. Abernathy and Adams-Price (2006) for example, advance the use of an FAQ format instead of the traditional drug insert, as a simpler, more reader-friendly and less technical way of presenting the drug's selling points and side effects to an elderly segment. Marketers should also be careful when targeting consumers aged 85 or older, given that starting this age their learning decrement increases.

Advertisers should also refrain from overloading their advertisements with information. They should decrease the amount of product attributes mentioned, and keep the visual elements of the ad (images, etc.) simple, thus adapting their ads to the learning difficulties of the elderly and to their physical deficiencies (i.e., poorer vision), (Abernathy and Adams-Price 2006). The body copy and pictures should also be consistent, as their synergistic combination can enhance the memorability of ads (Macias and Lewis 2003).

In addition, DTCA of prescription drugs is best at accelerating the introduction of and building primary demand for a new or improved drug, and for maintaining consumers' loyalty and brand awareness towards a mature drug, before it loses its patent protection. Roth (2003) found that awareness of a drug brand was increased as a result of a DTC ad exposure. Sheffet and Kopp (1990) also believe that firms are capable of increasing the total market size of their drug in its early stages of a product life cycle, by informing consumers of this new available treatment through advertising. The authors also advise marketers to emphasize the benefits of the drug brand over its competitors, when the drug reaches its mature stage. Baukus (2004) also believe that creating strong brand name recognition for prescription drugs is extremely important in competing generic brands and differentiating the prescription medication as a better and safer alternative, and consequently maintaining market share.

Finally, pharmaceutical companies are encouraged to maintain their advertising to professional health care providers alongside DTCA, given that the elderly still prefer to rely on their physician's opinion in health care decision making (Maddox 1999; Xie

2009). Pharmaceutical companies should also position themselves as honest and reliable sources in their DTCA campaign, in an attempt to increase consumers' trust in them.

E. PUBLIC POLICY IMPLICATIONS

It is imperative for policy makers to realize that DTCA is limited in its power to move consumers, especially if they resort to other remedies than brand name prescription drugs. In general, the elderly are unwilling to insist on a drug and contest their doctor's opinion. Their reliance primarily on a professional medical source for health care decisions assists them from being inappropriately influenced by a DTC ad. As Huh and Becker (2005) stated, "[…] contrary to what many opponents fear, when exposed to DTC ads, consumers do not blindly rush to their doctors to get a prescription for the advertised drug but try to find more information from other sources." Hence, the notion that DTCA has led consumers to behave as unlearned professionals was not supported in this study in the context of an elderly sample.

F. STUDY LIMITATIONS

The study's methodological shortcomings involve a lack of external validity, due to survey respondent bias and sample representativeness of the general population. As a consequence, the findings must be carefully generalized to other populations. That is not to mention that the study used a convenience sample of a small size (n=90) and skewed towards being a female sample (although females are overrepresented in this age category, comprising 55.6 % of those age 65 or older, according to Statistics Canada 2011).

Moreover, although there was an attempt to create a natural research setting, the study imperatively lacked mundane realism. As Celsi and Olson (1988) put it, "the advertisements were presented within an artificial context void of the editorial and story content of a real magazine." That is not to mention that the advertisements designed for the purpose of this research, were not as creatively aesthetic and appealing as professional advertisements.

In addition, the cognitive measures used in this study were subtests drawn from the WAIS, which is a more comprehensive and extensive clinical instrument for the measurement of adult intelligence, consisting of ten core subtests. However, due to restrictions in the execution of the present study, administering the whole test was not feasible. Finally, the recognition measure should be complemented by an unaided free recall measure, or an aided recall test.

G. AVENUES FOR FUTURE RESEARCH

Based on the study's limitations, avenues for future research are proposed. Even though it is difficult to execute and time consuming, future researchers are advised to use a random sample, to ensure a representative sample of the population. They are also advised to include a recall measure of the ad's content, in addition to a recognition measure. Long term post-exposure effects ought to be considered. Researchers could include a distraction task between the ad exposure and the measurement of responses, to examine their durability. Also, the study's external validity could be enhanced by testing the effectiveness of repeated ads, since consumers are exposed to the same ad repeatedly,

in reality. Evidently, this type of research is more time-consuming, complicated, and sensitive to hypothesis guessing and respondent withdrawal.

Longitudinal research could be undertaken in a comparative context across different age segments. A comparative study might also revolve around different advertising mediums to compare consumers' responses across broadcast, print and online DTCA. Researchers may also use different ailments rather than just one.

In addition, researchers could make this study's procedure more realistic by embedding the stimulus ad in an editorial content, in order "[to allow] other stimuli (ads and articles) to compete for subjects' attention" (Laczniak et al. 1989). The authors also suggest randomly distributing factors such as product class involvement across experimental conditions. Knowing that product class involvement might interfere with advertising message involvement (AMI), and that the effect of one should be distinguished from the other, Kavadas (2003) proposed to screen prescription drug users versus non-users beforehand, and then prime them each with high and low involvement manipulations. Laczniak and Muehling (1993) on the other hand suggested allocating participants into involvement groups based on the median split of their index involvement scores, as a more natural grouping way that bypasses the artificiality of imposed involvement manipulations.

Moreover, it is important that future researchers conduct in-depth interviews with focus groups of elderly consumers, to ask them about their DTCA related experiences, feelings, reactions, and opinions, so as to give voice to the survey results. The following speculation is proposed: one of the reasons underlying the non-users' resistance to the ad's persuasive attempts is their aspiration to project a positive self-image, where they

deliberately try to be more immune to media persuasiveness, and perceive others as more susceptible to it. Researchers could better examine the possibility of perceived third-person ad effects as determinants of consumers' reactions to the ad, in an extensive interviewing process (DeLorme et al. 2006).

Future research should also include a measure of the participants' familiarity with the drug which might justify their responses. In the context of the present research, participants who are familiar with the product class might have had an unfavourable reaction towards the ad if he or she thought Arthraid has no added value.

In addition, other researchers could investigate the influence of the respondents' "experience, media use, media literacy, relationship with physicians, and access to other information sources" on their perceptions of a DTC ad (DeLorme and Huh 2009). "Trust in media is essential for any DTC ad to have a persuasive effect on the consumer" (Menon et al. 2004). A measure of the respondents' trust in DTCA, distinguished from a measure of their attitude towards DTCA, should also be included in future research. As previously mentioned, a lack of confidence in DTCA and pharmaceutical companies might justify the elderly's resistance to the influence of this type of advertising, even among sufferers. Gönül et al. (2000) and Menon et al. (2002) found a negative relationship between one's trust in their doctor or pharmacist, and his/her attitude towards DTCA. Researchers could use Choi and Lee's (2007) scale to determine the credibility views of the participants, vis-à-vis DTC advertising in different media (i.e., television, magazine, newspaper, radio, and the Web). Respondents were asked to rate these mediums on a thirteen-item, seven-point semantic differential scale, with endpoints accurate/inaccurate, trustworthy/untrustworthy, and profound/superficial.

Furthermore, researchers could examine how personality traits of vulnerable segments of the elderly population, such as "those who have a trusting personality" and "are seriously ill and desperate for a cure," might affect their processing and evaluation of DTC ads (DeLorme and Huh 2009). Baukus (2004) states that pictures, and not only advertising copy, can convey "unrealistic expectations" that are exaggerated by a recipient who is in desperate hope for a cure.

Finally, the elderly's need for cognition (NFC) might also be a possible variable influencing their motivation to process and evaluate DTC ads. A higher NFC about the drug was found to increase drug inquiry behaviour (Perri and Dickson 1988).

CONCLUSION

The findings of this study suggest that elderly prescription drug users evaluate a mass advertised prescription drug ad and the featured brand more favorably than non-users. Subsequently, they are more willing to act in response to an ad exposure through additional information seeking behaviour and specific drug requests. Interestingly, sufferers who do not use a prescription medication were similar in their responses to non-sufferers. Both groups were less receptive of the DTC ad and negatively responded to it, compared to sufferers who use a prescription medication. These results lead to the conclusion that prescription drug use is a stronger determinant of DTCA persuasiveness and of its behavioural outcomes than is the mere role of being a sufferer. Hence, a distinction should be made between targeting sufferers of an ailment and targeting prescription drug users. The latter are expected to find more personal relevance in mass mediated prescription drug ads and subsequently, react more favorably to them. All participants however, regardless of their health status were unwilling to change doctors if he/she refused to prescribe the advertised drug to them, which is suggestive of the elderly's preferred reliance on their physician's opinion.

Moreover, elderly respondents with higher cognition had better recognition of the ad content, specifically of the drug's benefits and directions for use than did those with lower cognition. However, average recognition was generally low, and the effect of the participants' cognitive abilities on recognition no longer held true when age was considered. Further analysis showed that age differences are attributed to the elderly's learning deficiencies which start at the age of 85. These results are highly suggestive of

the need for advertisers to tailor their ads in accordance with the elderly's cognitive needs.

In conclusion, this study advises managers and advertisers to simplify the technical language and information, design and visual presentation of a DTC ad, especially when targeting an older segment. Moreover, this unique form of advertising is effective at introducing a new drug brand and at maintaining recognition of a mature drug, among prescription drug users. Brand differentiation is encouraged to capture the attention of sufferers who are not using a prescription medication. Brand managers are also encouraged to build trust with the audience, and convey a responsible and reliable image, through their DTCA campaign.

Finally, policy makers are informed that the elderly are not as vulnerable as presumed and they are not passive recipients. Their defiance of DTCA persuasiveness through an unwavering reliance on the advice of professionals keeps them immune from deceptive DTCA.

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APPENDICES

APPENDIX A: Research Questions of the Experimental Study

The original experimental study attempted to manipulate the amount of risk disclosure in the target ad and the involvement of the participants in the advertising message. Drawing from theories of fear appeal, the latter induce anxiety and tension and trigger the recipient's defense mechanism, if the level of fear is above the optimal level. Higher involved consumers are expected to become less involved with the ad, at higher levels of risk disclosure, in an attempt to cope with the incoming information. Subsequently, having paid less attention to the ad, and having lost their motivation to process the ad, highly involved consumers will recognize fewer advertisements claims at higher levels of risk disclosure, compared to lower levels (Keller and Block 1996).

Furthermore, highly involved participants will recognize fewer claims than low involved participants, who are expected to be less defensive and retain their receptiveness of ad messages.

In addition, Burton and Lichtenstein (1988) found a positive relationship between attitude towards the ad, and attitude towards the brand, where the former influences the other. Based on the premise of a threshold level of fear appeal, the relationship between consumers' attitudes towards the ad and brand, and the level of risk disclosure, will consist of an inverted U-shape, regardless of involvement levels. To further elaborate, consumers' evaluation of the ad and brand will be negative at both low and high levels of risk disclosure. Their attitude formation will reach its peak at balanced levels of risk and

benefit information. These expectations are based on the premise that a high risk ad will induce tension in the receiver, and that a low risk ad will be perceived as uninformative and unbalanced. Finally, consumers' behavioural intentions will be formed based on their evaluation of, and attitude formation towards the ad and brand. A positive evaluation will lead to favourable behavioural outcomes, and vice versa.

APPENDIX B: Involvement Manipulation

Highly involved participants were asked to imagine that a relative suffering from arthritis had asked them to look for information concerning arthritis remedies, following Laczniak and Muehling's (1993) proposition that a high involvement manipulation involves "creating a situation in which subjects are asked to role-play so as to encourage processing the stimulus as though it were personally relevant to them." Participants in the low involvement condition were asked to browse through the ads as if they were flipping through a magazine at home. Less attention and lower feelings of personal relevance were expected as an outcome of these instructions.

High involvement:

In this study we are interested in your perception of advertisements for prescription drugs. This type of research is important towards understanding what should be permitted in advertising of medications. Your opinion is essential in the development of this type of advertising which inevitably affects the type and quality of healthcare information available to you and your loved ones.

Instructions:

Imagine that a close family member has just told you that they appear to be suffering from arthritis. They are extremely uncomfortable, and are experiencing a series of severely unpleasant symptoms. You are sorry to see a close relative suffer in such a way and this person has asked you to look for information on possible treatments for arthritis before they consult their physician.

Please read each ad carefully looking for information that may help your relative. Once you have done so, please complete the questionnaire without referring to the ad booklet.

Low Involvement:

In this study we are interested in your perception of advertisements for prescription drugs. This type of research is important towards understanding what should be permitted in advertising of medications. Your opinion is essential in the development of this type of advertising which inevitably affects the type and quality of healthcare information available to you and your loved ones.

Instructions:

In this booklet, there are four prescription drug ads. We would like you to look at each ad as if you were seeing it in a magazine at home. Though the present situation is different from being at home, please keep these instructions in mind as you browse through the ad booklet.

Once you have read all ads, please complete the questionnaire without referring back to the ads.

APPENDIX C: Risk Manipulation (See Figure 3)

The risk disclosure manipulation varied the amount of risk information but held fixed the amount of benefit information presented in the ad. The low risk, balanced, and high risk ads had two, five, and eight risk indications, against five promotional points. Therefore, the balanced ad or control condition, featured five benefits and five side effects/precautions, presented in an equally detailed manner. The control ad was a starting point, for the development of the low and high risk ads. The three statements added to the high risk condition supplement those included in the control condition, but were characterized by a heightened severity of side effects, as they referred to fatal stroke, ulcers, and stomach bleeding. Hence, the ads contained specific risk information, knowing that consumers have a preference for specific and detailed presentation of side effects, and perceive such communication to be more informative than general information (Morris et al. 1985).

Figure 3: Description of Risk Manipulation

Benefit statements	Risk manipulations
-Need for only one 180-mg Arthraid per day. -Up to 24h relief from arthritis related pain, inflammation, and stiffness. - Arthraid helps improve your daily physical activity. -Arthraid can be taken with or without food. -The incidence of severe stomach problems such as ulcers is less than that seen in other NSAIDs.	*Low risk ad* -Side effects such as fluid retention -Several days for side effects to disappear
	Control (Balanced ad) Side effects such as: -Chest pains -Fluid retention -Skin reaction -Adverse reactions with some other drugs -Heart attack if prolonged use
	High risk ad Side effects such as: -Chest pains -Fluid retention -Skin reaction -Adverse reactions with some other drugs -Heart attack if prolonged use -Fatal stroke if prolonged use -Ulcers -Stomach bleeding

APPENDIX D: Pretests

A first pretest was undertaken with 18 individuals to evaluate the likeability of six mock prescription drug ads. The fictitious drugs featured in the filler and target ads, echoed the benefits and risks of actual drugs that treat similar conditions. Fictitious (vs. real) drug names were used, to control for the familiarity effect. The ads that elicited the most positive attitudes were chosen.

A second pretest was conducted, carried out as the actual experiment. The sample consisted of 18 individuals, aged above 65. This final pretest included a manipulation check of the independent variables, risk disclosure and advertising message involvement. It is important to note here that the Zaichkowsky (1985) involvement scale was adjusted to account for reverse coding. A one-way analysis of variance (ANOVA) and a t-test were performed in order to measure if the risk and involvement manipulations, respectively, were successful. Both analyses generated significant results. For the risk manipulation, the ANOVA yielded an $F(2, 15) = 16.167$, $p < .05$. For the involvement manipulation, the t-test resulted in $t(16) = 3.896$, $p < .05$.

APPENDIX E: Manipulation Checks of the Actual Experiment

A one-way analysis of variance (ANOVA) served as a manipulation check for the risk variable. The results yielded an $F(2, 87) = 6.707$, $p < .05$. However, the post-hoc tests revealed that only a difference between the low and high risk ads was significant ($p<0.05$), rendering the risk manipulation only partially significant.

A t-test conducted as an involvement manipulation check yielded $t(88) = -0.524$, $p > .05$. Therefore, the involvement manipulation was insignificant.

It is reasonable to assume that the risk manipulation was unsuccessful, as a result of the elderly's processing deficiencies. Based on an observation of the descriptive statistics, the participants only recognized half of the advertisement claims which translates into a difficulty at learning new content. Therefore, it can be postulated that the elderly were unable to recognize significant differences in risk disclosure, and could not appropriately evaluate the ads' risk level for a time after exposure, due to limitations in learning and remembering new content.

The following are potential justifications for the unsuccessful involvement manipulation; the participants are healthy, they do not get exposed to ads frequently, or they prefer to rely on other sources of information (DeLorme and Huh 2009). All three characteristics lead to a lack of motivation to attend to a pharmaceutical ad.

The heterogeneity of the sample is also strongly believed to be one of the main reasons underlying the insignificant manipulation checks. As Davis and French (1989) noted, the elderly segment is the most heterogeneous of all, with regards to its cognitive and physical abilities, and psychological characteristics. Phillips and Sternthal (1977)

also stated that physical, psychological, and social factors, contribute to the multidimensionality of this age group. Variations due to age are not the only element that accounts for the heterogeneity of the sample. The fact that it is a convenience sample (vs. a random sample) further augments that reality.

In investigating the reasons underlying the insignificant manipulations checks, a re-examination of the questionnaire revealed that the *post-exposure* measure of involvement that was intended as a manipulation check, did not serve as one. One of the defensive strategies employed by the message receiver when exposed to a fear appeal ad, or in the context of the present study, a high risk ad, involves denying the personal relevance of the message. Hence, there is a high possibility that the involvement manipulation was successful, but the varying levels of risk moderated the participants' level of post-exposure involvement. One of the potential shortcomings of the original design was the omission of a *pre-exposure* measure of involvement that may have served as a better manipulation check. The Zaichkowsky (1985) scale used in this study could serve as the pre-exposure measure. The items used by Celsi and Olson (1988), and the message attention manipulation check employed by Laczniak et al. (1989) are proposed as better post-exposure measures (See Table 10). These measures touch more deeply on the respondents' felt involvement and on their processing motivation during exposure.

Finally, a different and enhanced high involvement manipulation could be recommended. The instructions could tell the reader that he or she could be at risk of developing the target ailment in the future (Menon et al. 2004). An increase in the motivation to process the ad is expected, generating a high advertising message involvement.

Table 10: Proposed Post-Exposure Involvement Manipulation Checks

Study	Emphasis	Manipulation check	Scale
Celsi and Olson (1988)	Felt involvement, advertising message and product class	•The message in the ad was important to me. •The ad didn't have anything to do with me or my needs.	Seven-point bipolar items with endpoints "strongly agree" (1) and "strongly disagree" (7) for the first item, and the opposite for the second item. The average of the items constitutes an index of overall involvement.
Laczniak et al. (1989)	Advertising message	•How much attention did you pay to the written message in the ad? •How much did you notice the written message in the ad? •How much did you concentrate on the written message in the ad? • How involved were you with the written message in the ad? • How much thought did you put into evaluating the written message in the ad?	Seven-point scale with endpoints "None" (1) and "Very Much" (7). The sum of the scores on the five items results in an index of message attention. Cronbach alpha = 0.952

APPENDIX F: Consent Form

CONSENT TO PARTICIPATE IN:
"Research on Pharmaceutical Advertising to Older Consumers"

This is to state that I agree to participate in a program of research being conducted by Joyce Sarkis, of the Department of Marketing of Concordia University.

A.PURPOSE
I have been informed that the purpose of the research is to examine my responses to various drug advertisements.

B.PROCEDURE
The experiment will be conducted at Concordia University. I will browse through a booklet containing ads, at my own pace and then be required to complete a questionnaire, which should take approximately 30 minutes. I will be given the option to know the results of the study once it is completed. All data and results arising from this study will be presented in aggregate format only, which means that my responses cannot be tracked back to me. I am also aware that I will be compensated $15 for my time and participation in this study. I am also aware that if at any time I feel uncomfortable during the study, I have the right to withdraw simply by raising my hand.

C.RISKS AND BENEFITS
I am aware that there are virtually no threats or risks involved in completing this study. This study will benefit researchers to understand my reactions to Direct-to-Consumer drug ads. It will also benefit policy makers to establish better drug advertising regulations.

D.CONDITIONS OF PARTICIPATION
• I understand that I am free to withdraw my consent and discontinue my participation at any time without negative consequences.
• I understand that my participation in this study is CONFIDENTIAL.
• I understand that the data from this study may be published.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print) _____

SIGNATURE _____

APPENDIX G: Manipulation Checks of the Independent Variables

Zaichkowsky (1985) involvement measure:

Please complete the following questions related to the Arthraid anti-arthritic drug ad.

Make sure you check every single scale; do not omit any.

To me the **advertisement** for **Arthraid** is:

Important ___ : ___ : ___ : ___ : ___ : ___ : ___ Unimportant

Of no concern to me ___ : ___ : ___ : ___ : ___ : ___ : ___ Of concern to me

Does not matter to me ___ : ___ : ___ : ___ : ___ : ___ : ___ Matters to me

Boring ___ : ___ : ___ : ___ : ___ : ___ : ___ Interesting

Relevant ___ : ___ : ___ : ___ : ___ : ___ : ___ Irrelevant

Risk measure:

The Arthraid ad included information of the possible risks involved in taking the medication as well as the potential benefits. In comparing the riskiness of the drug to its benefits, overall, would you say **the drug** in this ad is:

1	2	3	4	5	6	7
Extremely **risky**	Moderately **risky**	Slightly **risky**	Balanced	Slightly **beneficial**	Moderately **beneficial**	Extremely **beneficial**

In comparing the safety of this drug to its lack of safety, would you say **the drug** in this ad is:

1	2	3	4	5	6	7
Extremely **unsafe**	Moderately **unsafe**	Slightly **unsafe**	Balanced	Slightly **safe**	Moderately **safe**	Extremely **safe**

APPENDIX H: Dependent Measures

***Recognition measure*:**

Please indicate if you do recall seeing the following statements in the **Arthraid drug ad**.

1) This drug relieves stiffness.

☐ Yes ☐ No ☐ Don't Know

2) This drug relieves arthritis pain for up to 24 hours.

☐ Yes ☐ No ☐ Don't Know

3) This drug relieves inflammation.

☐ Yes ☐ No ☐ Don't Know

4) This drug might cause adverse effects such as nausea.

☐ Yes ☐ No ☐ Don't Know

5) Tablets must be taken once weekly.

☐ Yes ☐ No ☐ Don't Know

6) Arthraid can only be taken with food.

☐ Yes ☐ No ☐ Don't Know

7) Arthraid is available by prescription only.

☐ Yes ☐ No ☐ Don't Know

8) This drug might cause side effects such as fluid retention.

☐ Yes ☐ No ☐ Don't Know

9) This drug might cause side effects such as headaches.

☐ Yes ☐ No ☐ Don't Know

10) Prolonged use of this drug may cause liver disease.

☐ Yes ☐ No ☐ Don't Know

The Attitude towards the Ad measure (Holbrook and Batra 1987)

The purpose of this section is to measure your overall **attitude towards the drug ad Arthraid**. Please respond to each of the six scales, never putting more than one check mark for each scale.

I dislike the ad ___ : ___ : ___ : ___ : ___ : ___ : ___ I like the ad

I react favorably to the ad ___ : ___ : ___ : ___ : ___ : ___ : ___ I react unfavorably to the ad

I feel positive towards the ad ___ : ___ : ___ : ___ : ___ : ___ : ___ I feel negative towards the ad

The ad is bad ___ : ___ : ___ : ___ : ___ : ___ : ___ The ad is good

The Attitude towards the Brand measure (Laczniak and Muehling 1993):

The purpose of this section is to measure your **attitude towards the advertised product** Arthraid. Based on the information given in the ad, do you believe this prescription drug is:

Very bad ___ : ___ : ___ : ___ : ___ : ___ : ___ Very good

Valuable ___ : ___ : ___ : ___ : ___ : ___ : ___ Worthless

Very favorable ___ : ___ : ___ : ___ : ___ : ___ : ___ Very unfavorable

Of low quality ___ : ___ : ___ : ___ : ___ : ___ : ___ Of high quality

I very much dislike the drug ___ : ___ : ___ : ___ : ___ : ___ : ___ I very much like the drug

Behavioural intentions measure (Everett 1991):

Please respond to each of the following questions by circling one of the numbers that best corresponds to your answer.

If you were to see the ad for Arthraid, the arthritis medication, in a magazine:

1) Would you read the ad carefully?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

2) Would you tell your doctor you had seen the ad?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

3) Would you discuss Arthraid's effectiveness with your doctor?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

4) Would you ask your doctor to prescribe *any* brand of arthritis remedy to you?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

5) Would you ask your doctor to prescribe Arthraid to you?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

6) Would you change doctors if your doctor refused to prescribe it to you?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

7) Would you ask your friends or family if they have been prescribed this drug?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

8) Would you call the drug's 1-800 number?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

9) Would you visit the drug's website?

1	2	3	4	5
I definitely would not	I probably would not	Might or might not	I probably would	I definitely would

APPENDIX I: Demographic Variables

Please respond to the following questions pertaining to demographic variables:

☐Female ☐Male

Age_____

First Language: ☐English ☐French Other language_____

-Have you worked/Are you working in the healthcare industry? ☐Yes ☐No

-Do you or have you ever suffered from arthritis? ☐Yes ☐No

-Does anyone in your family suffer from arthritis? ☐Yes ☐No

-Have you ever received prescribed medication for arthritis? ☐Yes ☐No

-If yes, are you taking any now? ☐Yes ☐No

-Please indicate your level of education:

☐ Less than High School

☐ High School Diploma

☐ Some university

☐ University Degree (Bachelors)

☐ Education beyond university degree (Masters Degree or higher)

APPENDIX J: Additional Measures

Attitude towards print advertising (Shavitt, Lowrey and Haefner 1998):

Please respond to each of the following questions, by circling one of the numbers that best corresponds to your answer. All questions pertain to **ADVERTISING IN PRINT MEDIA.**

1) In general, do you like or dislike advertising in print media?

1	2	3	4	5
Strongly dislike	Dislike	Neither like nor dislike	Like	Strongly like

2) I like to look at most advertising I am exposed to.

1	2	3	4	5
Strongly dislike	Dislike	Neither like nor dislike	Like	Strongly like

3) Most advertising insults my intelligence.

1	2	3	4	5
Strongly agree	Disagree	Neither agree nor disagree	Agree	Strongly agree

4) How often do you feel offended by advertisements?

1	2	3	4	5
Always	Frequently	Sometimes	Rarely	Never

5) How often have you felt misled by advertisements?

1	2	3	4	5
Always	Frequently	Sometimes	Rarely	Never

6) Most advertising is informative.

1	2	3	4	5
Strongly agree	Disagree	Neither agree nor disagree	Agree	Strongly agree

7) In general, I feel that I can trust advertising.

1	2	3	4	5
Strongly agree	Disagree	Neither agree nor disagree	Agree	Strongly agree

8) How often do you use information from advertising to help make your purchase decisions?

1	2	3	4	5
Always	Frequently	Sometimes	Rarely	Never

9) In general, how confident are you in using information you see in an ad, to make a purchase decision?

1	2	3	4	5
Not at all confident	Slightly confident	Somewhat confident	Moderately confident	Extremely confident

10) How comfortable are you in seeking additional information on an item directly through an address or phone number in an advertisement, for example, by using a 1-800 number?

1	2	3	4	5
Not at all comfortable	Slightly comfortable	Somewhat comfortable	Moderately comfortable	Extremely comfortable

11) What is your assessment of the amount of regulation that the government currently places on advertising?

1	2	3	4	5
Way too much	Too much	About right	Too little	Way too little

12) Advertising regulation should be done by the advertising industry through its member associations rather than by the government.

1	2	3	4	5
Strongly agree	Disagree	Neither agree nor disagree	Agree	Strongly agree

13) I think the government should put less effort into regulating the content of the advertising I see.

1	2	3	4	5
Strongly agree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Attitude towards DTCA (Perri and Nelson 1987)

Please respond to each of the following questions by circling one of the numbers that best corresponds to your answer. Choose only one response for each question.

1) **Prescription drug information should come only from your doctor or pharmacist.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

2) **Prescription medicines for serious medical problems should not be advertised to consumers.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

3) **I think advertisements for prescription drugs provide me with information I have a right to know.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

4) **Prescription drug advertisements could protect consumers from doctors and pharmacists who are not well informed.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

5) **Prescription advertising gives me information that I think my doctor or pharmacist probably would not tell me.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

6) **Consumers want to know more about the medicines they are taking.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree