IMPACT OF COUPON PROMOTIONS IN PRINT DIRECT-TO-CONSUMER (DTC) ADVERTISING ON CONSUMERS' ATTITUDES AND BEHAVIORS: AN ELABORATION LIKELIHOOD MODEL APPROACH

by

NILESH S. BHUTADA

(Under the Direction of Matthew Perri III)

ABSTRACT

Utilization of prescription drug coupon offers in Direct-To-Consumer (DTC) advertising is a recent strategy adopted by the pharmaceutical industry. Pharmaceutical companies have started using coupon promotions in order to boost their sales and maintain their market share in a fiercely competitive market. Food and Drug Administration regulators and consumer advocate groups have raised concerns about the appropriateness of this practice. However, no prior research has evaluated the effect of coupon promotions on consumers' attitudes and behaviors.

The purpose of this study was to investigate how consumers would respond to coupon promotions in prescription drug advertising. The Elaboration Likelihood Model was used as the conceptual framework for the development of the study hypotheses. A cross-sectional, randomized post-test only research design was used for data collection. Data for 152 subjects was collected by means of self-administered surveys. After cleaning the data, 138 cases were retained for further analysis.

Advertisements for a fictitious cholesterol-lowering drug were created for the purpose of this research. Attitude towards ad, attitude towards brand, drug inquiry intentions, perceived product risk, and attitude towards coupon were used as advertising response variables in this study. The results of this study indicate that the presence of a coupon in the ad and the consumers' level of involvement have an influence on the advertising response variables. Further, consumers' level of involvement failed to moderate the relationship between sales promotion and the advertising response variables.

Consumers' exposed to prescription drug advertising with a coupon had significantly more favorable ad and brand related attitudes, and intention to inquire about the drug to their doctor. Consumers' who were highly involved in treating high cholesterol had significantly more favorable attitudes towards ad, brand, coupon, drug inquiry intentions and perceived the product to be more safe. These findings imply that coupons in prescription drug advertising have the potential to attract consumer's attention and further register the product in their mind. Therefore, marketing practitioners can make advertising of prescription drugs more influential in the cluttered market with the use of coupon promotions.

INDEX WORDS: DTC advertising, Free Trial Offers, Coupons, Involvement, Persuasion, and Elaboration Likelihood Model

IMPACT OF COUPON PROMOTIONS IN PRINT DIRECT-TO-CONSUMER (DTC) ADVERTISING ON CONSUMERS' ATTITUDES AND BEHAVIORS: AN ELABORATION LIKELIHOOD MODEL APPROACH

by

NILESH S. BHUTADA

B. Pharmacy, Shivaji University, India, 2001

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2008

IMPACT OF COUPON PROMOTIONS IN PRINT DIRECT-TO-CONSUMER (DTC) ADVERTISING ON CONSUMERS' ATTITUDES AND BEHAVIORS: AN ELABORATION LIKELIHOOD MODEL APPROACH

by

NILESH S. BHUTADA

Major Professor:	Matthew Perri III
Committee:	Christopher L. Cook T. N. Sriram

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
December 2008

DEDICATION

This dissertation is dedicated to my parents, Satyanarayan and Krishna Bhutada, my wife, Megha, as well as my family for their never-ending support, encouragement, and unconditional love. Without their continual help and the sacrifices they have made during the past several years it would have been impossible to turn my dream (PhD) into reality.

ACKNOWLEDGEMENTS

Throughout my graduate curriculum and dissertation research numerous people have provided the guidance I needed to see a light of hope in the darkness of uncertainty. I wouldn't have been at this point in my career without the help and support of these people. I would like to express my sincere gratitude to these people.

My deepest appreciation goes to my dissertation committee members (Drs. Perri, Cook & Sriram) for their tremendous encouragement, guidance and support. I would like to thank you all for sticking with me for all these years. This project would not have been possible without my committee chair Dr. Perri, as he has provided me with the guidance and support at various junctures in my doctoral research. It will not be an overstatement to say that Dr. Perri is the greatest mentor I have ever had. His personal support as a guardian in all aspects of my life has been instrumental in my success. Dr. Perri – thanks for making this dream (PhD) possible!

I express my sincere appreciation to Dr. Cook for serving as a committee member even after moving to GSK. He made this dissertation process a great learning experience by providing valuable insights during the development of conceptual framework, questionnaire and study design. Dr. Sriram, I cannot begin to explain how much I have enjoyed taking classes from you in statistics. I sincerely appreciate your advice and insights in this study.

My sincere thanks go to Dr. Tackett for all his support as graduate coordinator, who was always there to save us from trouble. Drs. Norton, Southwood, Buck & Cobb, I really enjoyed a lot working with you, thank you for allowing me work on those projects. A special thanks to Dr. Phillips for providing financial support for the completion of this study, which came at a very

crucial time. I would like to thank Dr. Huston for providing insight during the questionnaire and ad stimuli development phase. I do not have enough words to describe how thankful I am to Dr. Wurst for his support during this last phase in graduate school.

I am very grateful to Dr. Strausbaugh-Hutchinson's generosity in working late even on Friday nights and helping me in designing the ad stimuli used in this research. Many thanks to Susie from Carlene Research for her willingness to conduct the mall intercept surveys at a discounted rate. I also express my gratitude to Harold Hodgson, for allowing me to do the pretests in his pharmacy. I would like to acknowledge Roger Green and Associates, whose internship program has helped me in getting better understanding of market research and further solidify my passion for this field.

I would like to extend my special thanks to all my friends, fellow graduate students, past and present, for their encouragement, friendship and support over the past many years. Ajit and Aparna have been my friends, mentors, colleagues and emotional supporters ever since I joined UGA. I would also like to thank Ranjit and Dhanashri for listening to all of my grievances and providing words of support and encouragement. My sincere gratitude to Guruji, Sri Sri Ravi Shankar for his blessings, knowledge and being my guiding spirit. Many thanks to my friends at The Art of Living foundation for their support and help in maintaining balance in my life. I will always be grateful to Baba, for providing his words of wisdom, support and guidance. A special note of thanks to Jeff Thompson's family for their endless support and understanding during this enduring journey.

I would like to thank my family members, my Papa, Satyanarayan Bhutada, Mummy, Krishna Bhutada, Brother, Ratnesh and Sister Shradha for always making me feel very close to home even though we were separated by geographical boundaries. My family always believed in

me, provided the emotional support and encouragement I needed to overcome the challenges in graduate school and achieve my goals. Thanks to my in-laws who always heartened me up. My heartfelt thanks also go to my beloved wife, Megha, for unselfishly living this experience with me. Ever since she has embarked on the journey of life with me, she has always kept my spirits high and helped me to easily cruise through the obstacles of graduate school. Mere words cannot express how much I cherish and appreciate everything she does. Finally, and above all, I am thankful to God for always being there with me and guiding me in His own secret way.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

1.1 Introduction

In earlier times, physicians used to take sole responsibility of treatment selection of their patients. Pharmaceutical companies were completely dependent on physicians for the sales of their products and therefore physicians were the main targets of their sales promotion efforts (Palumbo and Mullins 2002). With the dawn of the consumerism era, patients started taking an active part in their healthcare decision making (Johnson and Ramaprasad 2000). They started searching for more information to evaluate the available treatment options (Jenkins, Fallowfield, and Saul 2001). Evidence shows that there is a growing trend in the healthcare environment in which patients want their preferences to be considered during the treatment selection and decision making processes.

After recognizing this radical shift in the health care environment, pharmaceutical companies started employing innovative marketing strategies like Direct-To-Consumer (DTC) advertising to boost product sales by directly marketing their products to consumers (Perri, Shinde, and Banavali 1999). Prior research suggests that consumers are quite receptive to this marketing strategy and exhibit favorable attitudes towards DTC advertising of prescription drugs (Perri and Dickson 1988; Perri and Nelson Jr 1987). However, pharmaceutical companies are facing fierce competition in the marketplace due to expiring patents, new product entry, managed care organizations and formulary restrictions. Therefore, in order to maintain their market share

and also to gain substantial share for their new entries, pharmaceutical marketers have started employing sales promotion techniques such as coupons which have been more commonly used in consumer package goods.

However, coupon promotion in the context of prescription drug advertising is different than the coupons distributed for consumer package goods. Information about the product's features, benefits, risks etc. is usually not mentioned on the coupons of these products. Also, these coupons are usually not accompanied with an advertisement about the product that highlights the features of the product being advertised. On the contrary, coupons for prescription drugs are accompanied with the print advertisement copy. DTC print ads are required to provide complete disclosure of the products risks, benefits, adverse drug reaction profile, and possible drug interactions.

1.2 Problem Statement

Utilization of prescription drug coupon offers in DTC advertising is a very recent strategy adopted by the pharmaceutical industry. Drug companies are using prescription drug coupon promotions in order to boost sales and increase market share in disease conditions in which there are numerous brand-name medications competing for the market share. Some of the heavily advertised brand-name drugs are for disease conditions such as: asthma, insomnia, allergy, heartburn, high cholesterol, diabetes, depression and erectile dysfunction. They are using both print and internet media to attract consumers attention. Discount offers, free trial offers, rebates, and a free refill after a certain period are the different types of promotions currently used by the drug manufacturers.

Pharmaceutical manufacturers argue that promotional offers like coupons, rebates and other similar promotions help to reduce prescription drug costs, generate a dialogue between patient and physician about the new product, and provides patients with an opportunity to try the new product and see if it is right for them (Rowland 2005). However, consumer advocate groups counter argue that coupons do not provide savings in the long-run and sway consumers to try risky drugs they may not need (PAL 2006).

FDA regulators have raised concerns that coupon promotions for prescription drugs might make them appear to consumers as most widely indicated, more appropriate and/or less harmful than they actually are. Critics argue that a prescription drug coupon may heighten consumers desire to take a prescription from their doctors that might not be appropriate for them. If the physician refuses to prescribe the medicine for which the patient has a coupon, the patient may become skeptical towards the doctor and may go to another doctor to get the prescription. This phenomenon has been termed as "doctor shopping" (Sheffet and Kopp 1990). Thus, opponents state that coupon promotions are undermining the doctor-patient relationship. Recently, Prescription Access Litigation Project (PAL), a labor and consumer health advocacy group has asked FDA to ban coupon promotions in DTC advertising of prescription medications (PAL 2006). Therefore, to alleviate the concerns among all the stakeholders, the Pharmaceutical Research and Manufacturers of America (PhRMA) has called for research on coupon offers in DTC prescription drug advertising.

The U.S. pharmaceutical industry is spending billions of dollars every year with the intention to influence consumers to go to their physician's office and inquire about a drug they have seen advertised. To date, most research in DTC advertising has only focused on the issue of the appropriateness of this practice. Evidence shows that these types of promotions are

stimulating dialogue between physicians and patients about the advertised drug (Lenzer 2005; Murray et al. 2003; Wilkes, Bell, and Kravitz 2000). Many researchers have argued about the educational potential of DTC advertising. Results from prior studies suggest that DTC ads do not provide risk and benefit information in fair and balanced manner (Roth 1996). Further, research suggests that important information needed by consumers to make valuable judgments about the usefulness of the drug is not provided in the majority of the DTC ads (Bell, Wilkes, and Kravitz 2000b). Moreover, concerns have been raised about the inappropriate drug use and consumers demand for new heavily advertised expensive drugs in the presence of cheaper alternatives. Therefore, the time has come for researchers to start focusing on understanding the factors that contribute to the persuasiveness of this practice and not just the appropriateness.

A huge body of research has been documented on the persuasive impact of sales promotion strategies used by marketers on consumer behavior. Taking into account the evidence provided by prior research (Bowman 1980; Leclerc and Little 1997), it can be argued that the sales promotion strategies like coupons used in DTC advertising may have a persuasive impact on consumers. However, no empirical research exists about consumers attitudes towards these coupon promotions employed by pharmaceutical companies. The effectiveness of this new sales promotion strategy on consumer's attitudes and behaviors in the framework of DTC prescription drug advertising is unknown. The proposed study attempts to fill this void in the DTC advertising literature. The **goal** of our study is to understand the overall impact of coupon promotion on consumer behavior in the prescription drug marketplace. This study attempts to answer the following **overarching research question**: Does the use of coupon promotions in DTC advertising of prescription drugs have persuasive impact on consumers' behaviors?

1.3 Research Questions

The effectiveness of coupon promotion can be evaluated using a variety of measures. One of the important managerial goals behind these types of promotions is to initiate product trial. The specific aim of our study is to evaluate the impact of coupon promotion in print DTC advertising on consumers' behavioral intentions with regard to the advertised drug. Further, we also propose to assess the effect of coupon promotion under the moderating role of consumers' involvement. Our study attempts to address the following research questions:

1. Does using a coupon with DTC prescription drug ad influence ad effectiveness outcomes to a greater extent than a DTC prescription drug ad without coupon?
2. Do consumers process information from a DTC prescription drug ad with a coupon differently different than the DTC prescription drug ad without a coupon under the influence of their level of involvement?

1.4 Impact and Significance

Even though there is a wealth of research in DTC advertising literature, none of the prior research has tapped into the domain of coupon use behavior with respect to prescription medications. Therefore, understanding and evaluating the impact of these promotional techniques remains one of the fundamental issues that needs immediate attention in DTC advertising research.

DTC advertising of prescription drugs is changing the way consumers behave and react in the healthcare environment. Opponents of DTC advertising are concerned that drug consumption stimulated entirely by ads rather than sound medical advice may lead to

inappropriate medication use among the consumers. The results of this study help in understanding the underlying mechanism of new drug inquiries, which usually lead to a prescription request, in the presence of promotional offers.

With the increased use of coupons in DTC prescription drug advertising, marketers are desperate to take competitive advantage of this new promotional tool in order to survive in the prescription drug market. Negative impact of these promotional techniques on brand image is a major concern among the marketers. This study provides marketers and brand managers with information about how this newly emerging sales promotion tool in prescription drug advertising works in the minds of consumers. Additionally, the current research also proposes to identify the utility of these promotional efforts in the area of DTC advertising. Therefore, this research makes remarkable contributions from the perspective of all the stakeholders. Further, studying the influence of these sales promotions on consumer's perceptions and reactions to the advertised brand is critical and timely.

1.5 Dissertation Chapters and Organization

The environmental changes in the pharmaceutical industry and their sales promotion strategies, summary of the purposes and significance of the current research have been detailed in this chapter. The following chapter provides a review of the relevant research literature of coupon promotion and DTC advertising. The third chapter summarizes theoretical approaches and the conceptual framework used to understand consumers' behavioral patterns. This chapter also presents hypotheses based upon the research literature. Details of the research methodology used in the current study are discussed in the fourth chapter. The next chapter presents the results of the analysis of the colleted data in relation to the hypotheses and research questions.

Discussion of the key findings, implications, conclusion, and recommendations for future research studies are provided in the sixth chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Review of Research in Coupons

Couponing has been an effective sales promotional strategy for more than a century (Blattberg and Neslin 1990). In an attempt to improve the market position of their products and services, manufacturers in the U.S. spend billions of dollars annually on coupons. When translated into actual numbers it becomes apparent that large numbers of consumers are using coupons, even though only a small fraction (6%) of the distributed coupons gets redeemed. Raphel (1995) reports that nearly 85-90% of the consumers have redeemed at least one coupon within the past year. Coupons continue to be popular among manufacturers of consumer package goods and account for more than two-thirds of all their promotional efforts.

Because of the popularity of coupons and discounts as sales promotion vehicles, marketing scholars have expressed increased interest in studying their effects on consumer responses (Bawa and Shoemaker 1987a, b, 1989; Huff and Alden 1999; Krishna and Zhang 1999; Laroche et al. 2003). Review of the literature suggests that there are two distinct streams in couponing research. The first stream of research is concerned with factors related to performance measures such as coupon redemption, incremental sales, market share and profitability. The second stream of research focuses on consumer's demographic and psychological characteristics that affect coupon use.

A large part of early coupon research has used aggregate coupon redemption rates as a measure of success of the couponing program (Reibstein and Traver 1982; Ward and Davis 1978). Many factors related to the coupon itself have been found to affect coupon redemption rates. These include: coupon's face value, media used for distribution, number of coupons distributed and the coupon's expiration date.

2.1.1 Coupons and Face Value

Past research suggests that a positive relationship exists between the monetary value of a coupon and its redemption rate. Bawa and Shoemaker (1987b) found that the redemption rate of coupons was significantly related to the coupon's face value. Higher face-value coupons were redeemed at a higher rate than lower face-value coupons. Further, the authors also suggest that coupons normally caused a momentary brand switch but did not lead to long-term changes in the purchase probability. In another study, Bawa and Shoemaker found that a brand's market share was increased by almost 50% because of direct mail coupon promotion. Further, the most dramatic increase was found among the households who received direct mail coupons of higher face value. Irons and colleagues (1983) found that promotions using higher face value coupons resulted in greater incremental sales. According to Huff and Alden (1999) price-conscious consumers have more positive attitudes towards coupons. Coupons with higher face values were associated with higher redemption rates among non-regular purchasers of the brand such as switchers and new brand users (Shoemaker and Tibrewala 1985). However, regular users found the coupon's monetary value to be less important.

2.1.2 Coupons and Distribution Media

Studies conducted to analyze the influence of media used for coupon distribution report that they have a significant influence on redemption rate, profitability and message comprehension. Since certain types of media can be used to target specific consumer segments, Neslin (1990) speculates that the medium used for coupon distribution will have an influence on the coupon redemption rates.

Direct mail coupons have substantially higher redemption rates than coupons distributed by other types of media (Blattberg and Neslin 1990, 284). The redemption rate of direct mail coupons was found to be approximately two times higher than that of free standing inserts (FSI) (Blattberg and Neslin 1990, p.284; Neslin and Clarke 1987). Ward and Davis (1978) found that on-package coupons had the lowest redemption rates and the redemption rate for in-package coupons was found to be the highest in Reibstein and Traver's study (1982). Neslin (1990) suggests that these types of promotions are more appropriate for reaching current users of the brand. FSI continue to be the most popular type of coupons distributed and accounted for approximately 87% of the total coupons distributed by manufacturers during 2006 (NCH marketing services 2007).

Apart from the presence of a coupon in the ad copy, FSI are similar to the multi-color print ads that appear in magazines. Since FSI contain coupons, they are more likely to affect brand sales than the regular print ads. Leclerc and Little (1997) found that consumers brand related attitudes, propensity to clip coupons, and the efficacy of the coupons were influenced by the executional cues present with the coupons. Effectiveness of coupons distributed by FSI is dependent on the interrelationship between the brand loyalty of consumers and the type of message. FSI with advertisement were found to be more effective for brand loyal consumers.

Consumers who were categorized as switchers were more influenced by the informational content of the FSI. The results of Lord and Putrevu's (1998) study suggests that combined use of promotional formats resulted in greater recall, use and processing of information than a single promotional format. Consumers exposed to a combined visual and verbal format had significantly greater recall than those who were exposed either to photo or to copy only types of promotion.

2.1.3 Coupons and Expiration Date

Despite the importance of expiration dates impact on coupon redemption rates and profitability, there is very little empirical research available on its effect. Inman and McAlister (1994) reported that the expiration date was a significant predictor of a coupon's redemption rate. Their findings suggest that coupon redemptions were significantly higher immediately after the coupon drops, and decreased systematically afterwards. The authors also reported an interesting finding that the coupons were redeemed at a higher rate just before their expiration date.

2.1.4 Coupons and Market Share

Neslin (1990) posits that brands with a larger market share have higher redemption rates. Consumers who were already using a brand were usually attracted to a coupon promotion for that brand. This is particularly true for high market share brands that are positioned in highly concentrated product categories. With the use of promotional vehicles, lower market share brands were found to attract larger proportions of non-users or occasional users of the brand

(Neslin and Clarke 1987) and are thus benefited from increased market share and profits (Shoemaker and Tibrewala 1985).

Sethuraman and Mittelstaedt (1992) found that sales of private label (store) brands decreased with increase in couponing activity by national brand manufacturers. However, there was no significant increase in the sales of private label brands when they were promoted with coupons. The reason national brands draw sales from private label brands is that, in the presence of coupons, their price is closer to the store brands and therefore more consumers switch to branded products.

2.1.5 Coupons and Demographics

Most of the studies in past have focused mainly on demographic variables to understand coupon use behavior. Teel and colleagues (1980) report that use of new products was markedly affected in the presence of coupons for younger, higher income and larger household consumers. These authors further report that, apart from the financial incentive offered by the deal, self-expression was also one of the motives for consumers to use coupons. Similarly, Narsaimhan (1984) report that the tendency of coupon usage was higher among families with a higher education level and no children under age of 18; however coupon use was lower among families with employed wives. According to Bawa and Shoemaker (1987a), coupon using tendency was greater among younger, higher income, highly educated, urban dwelling, housewives, and non-loyal consumers. In another study, Bawa and Shoemaker (1989) report that females, highly educated individuals, larger households and home owners were more prone to use coupons in their purchases. Mittal (1994) argues that most of these previous findings about the extent of the relationship between demographics and coupon usage behaviors are modest and somewhat

inconsistent. He further reports that effects of demographic variables on coupon usage and attitude is mediated by several psychological variables as well as perceived costs and benefits associated with responding to coupons.

2.1.6 Coupons and Redemption Rates

Earlier, coupon redemption rates were used as a measure of coupon effectiveness because of the simplicity of calculation and ease of data availability (Irons et al. 1983). Results from previous studies suggest that coupons can generate temporary incremental sales but they lack the puissance to create a significant long-term or permanent conversion to the promoted brand (Bawa and Shoemaker 1989; Neslin 1990; Srinivasan, Leone, and Muihern 1995). Irons and researchers (1983) found that with higher market penetration, low market share brands can generate more incremental sales than high market share brands. Since the incremental sales generated by coupons are from the current users and not new users, coupon promotions may not be effective in increasing market share and sales in the long run (Neslin 1990; Neslin and Shoemaker 1983). There is no conclusive evidence regarding the impact of coupon promotions on profitability. Profitability and market share of a product are dependent on incremental sales. Neslin's (1990) study found that the incremental sales generated by coupons were not significant enough to make the promotions profitable.

One of the most extensive literature reviews of direct mail coupons appear to be that of Bawa (1996). In this review Bawa indicates that even though a lot of studies have examined the use and functions of coupons, a relatively smaller set of consumer goods have been used to test the hypotheses and develop theories in this area. He further brings to attention the paucity of research in examining the impact of coupon promotion on consumer's attitudes, beliefs and

behavioral intentions. Thus, an exploration of effects of coupons in other product sectors like pharmaceuticals appears warranted. Further the unique nature of pharmaceutical marketing and advertising makes such an exploration more justifiable.

2.2 Review of Research in DTC Advertising

The pharmaceutical industry's budget for DTC advertising expenditures has shown continuous increase since 1997 when the U.S. Food and Drug Administration (FDA) relaxed its regulations for DTC advertising. With a relatively slower start of spending approximately $1 billion in 1997, DTC advertising of prescription drugs became a $4.2 billion dollar industry as of 2005. This industry has demonstrated an increase of 300% since the relaxation of FDAs restrictions. However, from 2002 to 2005 the spending has only increased at an average annual rate of 14.3% (Donohue, Cevasco, and Rosenthal 2007). Further, approximately 60% of the total DTC spending is concentrated on the top 20 heavily advertised drugs (Hollon 2005).

The reason for this increased expenditure on DTC advertising is because it yields positive returns and rewards to the industry. DTC ad campaigns have successfully generated a positive return-on-investment for the ad expenditures and have helped to increase the sales volume for the advertised drugs (Findlay 2001). Pharmaceutical companies bring in additional sales of $4.20 for every dollar they spend on advertising of prescription drugs (Hollon 2005). Apart from these monetary gains, pharmaceutical companies get additional benefits from these DTC ad campaigns. Roth (2003) reports that consumers' brand awareness has increased as a result of exposure to advertising of prescription drugs. According to another study almost all of their study participants were correctly able to recall the advertised drugs by brand name (Balazs, Yermolovich, and Zinkhan 2000). Further, results from 2002 *Prevention* survey suggest that

consumers brand name awareness levels for heavily advertised drugs such as Viagra®, Lipitor® and Celebrex® were extremely high. In 2004, approximately 28 million American patients talked with their healthcare providers for the first time about health conditions they were either concerned with or experiencing as a result of their exposure to DTC advertising (Lenzer 2005). Additionally, Zachry and colleagues (2002) report that advertising expenditures of prescription drugs were related to physician diagnosing and prescribing for heavily advertised drugs.

Researchers from a variety of fields have been attracted to DTC advertising of prescription drugs because of its potential to influence on patients' healthcare. Most of the research in the past has focused on the advantages and disadvantages of the prescription drug advertising on public health. However, there is no consensus in literature about the effects of DTC advertising on consumers and its appropriateness.

Mixed views exist in literature about the impact of prescription drug advertising on consumers. Proponents of prescription drug advertising argue that these types of promotions provide consumers with useful information which helps them to be more intelligently involved in their healthcare (Calfee 2002). Others argue that DTC advertising's main aim is to increase sales and not to educate patients (Auton 2006). However, there is lack of enough evidence to support either position.

2.2.1 DTC and Costs

DTC advertising has been criticized for adding-on to the prescription drug prices and increasing the already soaring healthcare costs (Perri et al. 1999). The general public is concerned that DTC advertising is making prescription drugs more expensive (Alperstein and Peyrot 1993; Findlay 2001; Lexchin and Mintzes 2002). Rosenthal et al. (2002) suggest that the

pharmaceutical industry's DTC advertising expenditures are concentrated on only a few products. They found that in the year 2000, 60 % of the total DTC advertising expenditure was accounted by only the top 20 heavily advertised drugs. Further, the authors conclude that in spite of the rapid increase in DTC advertising expenditures, such promotions account for only 15% of the total promotion related expenses. According to Calfee (2002), prescription drug advertising expenditures account for even smaller portion of the pharmaceutical industry's total promotional budget. He also claims that DTC advertising can potentially lower prescription drug costs by creating competition in the pharmaceutical market. Evidence provided by these studies should alleviate the concerns that DTC advertising leads to increased prescription drug prices.

2.2.2 Content Analysis of DTC Advertising

Some researchers argue that DTC advertising does not have the educational potential to provide consumers with enough information about the risks associated with the drugs. So, studies have been conducted in past to analyze the accuracy of the information provided in DTC ads.

In a content analysis of print DTC ads, Roth (1996) found that nearly 35% of the ads did not contain a fair balance of risk and benefit information in the main body of the ad and almost 15% of the ads did not mention any risks and/or side effect information in the ad copy. Further, in 88% of the ads the potential for misuse information was absent and more than half of the ads (58%) did not provide directions for proper usage.

Bell et al. (2000b) conducted a content analysis of DTC ads in order to evaluate their educational value to the consumers in their healthcare decision making process. Important information that would assist consumers in making judgments about the usefulness of the drugs

was present only in a smaller proportion of the ads. For example, information on how the drug works was present in only 36% of the ads and surprisingly only 9% of the ads reported information about the success rate of the drug. Further, only 29% of the ads mentioned presence of one or more treatment alternative. The results of this study contradict Calfee's (2002) views that DTC advertising also makes consumers' aware of some non-drug treatment options.

Bell et al. (2000a) conducted another content analysis to discover the medical conditions for which the drug was targeted, inducements and appeals that are used in DTC ads to attract consumer's attention. The results showed that 17% of the ads offered a monetary incentive to consumers for trying the advertised drug. Further, the authors raise concerns that such financial incentives may be inappropriate for the consumers who do not have the diagnosis for the advertised condition. They believe that such promotions have a potential to create tension between the physician who feels that the therapy is not right and the patient who feels denied of a good deal.

2.2.3 DTC advertising and End Users

Consumers' awareness of prescription drug advertising has increased dramatically in the past few years. In earlier years of this practice, consumers' awareness of DTC advertising was merely 12% (Perri and Nelson Jr 1987). In approximately five years, this number increased to 35% (Alperstein and Peyrot 1993). The results of a very recent study suggests that 99.2% of the survey respondents reported seeing an ad for a prescription drug (Robinson et al. 2004). Murry and colleagues (2004) report that more than 83% of the respondents said that they have seen a prescription drug ad in the last 12 months. The FDA and *Prevention* magazine have completed several telephone surveys from 1997 to 2002 using a nationally representative sample. The

results of these surveys also suggest that consumers' awareness about this type of advertising is continuously increasing. The results of the *Prevention* survey indicate a moderate increase in the level of awareness, namely 63%, 70%, 81% and 80% for years 1997 thru 2000 respectively. Further, results of the most recent FDA survey conducted in 2002 indicate that 81% of the respondents recalled seeing a DTC advertisement in the last 3 months.

One of the reasons for the increased use of DTC advertising by pharmaceutical companies could be because of its ability to entice consumers to ask for a particular prescription by brand name. The 2000 *Prevention* magazine survey reports that approximately one third of the patients who saw an ad for prescription drug talked with their physician about it and eventually asked for a prescription. Further, 75% of the respondents who asked for the product actually received a prescription for that drug. The survey also estimates that nearly 7.5 million U.S. consumers purchased prescription medications as a result of exposure to DTC advertising.

Wilkes et al. (2000) found that consumers' awareness of DTC prescription drug advertising was strongly associated with having been diagnosed with the condition treated by the advertised drug. Approximately one fifth (19%) of their survey respondents who saw the drug ad actually requested the drug from their physician. Prescription drug advertising is more likely to be valued by the consumers who have an ongoing need for healthcare (Gönül, Carter, and Wind 2000).

DTC advertising has been proven to be effective in increasing pharmaceutical sales. Several studies in the past suggest that DTC advertising has the potential to influence consumer's attitudes and behaviors. Past research indicates that consumers tend to have positive attitudes towards DTC advertising (Perri and Nelson Jr 1987; Pinto, Pinto, and Barber 1998; Williams and Hensel 1995) and further it is indicated that these positive attitudes have influenced

approximately 10 million people to request a particular advertised drug from their physician (Handlin et al. 2003). Consumers like to see both risk and benefit information in the ads (Morris et al. 1986a) and they find the information to be useful (Perri and Dickson 1988). Consumers with positive attitudes towards DTC ads are more likely to engage in search to for additional information about the disease and advertised product (Williams and Hensel 1995). Past research suggests that consumers who were exposed to DTC ads were more likely to discuss and ask their physicians about the advertised drug than those who were not exposed (Perri and Dickson 1988). Past studies have also found that consumers could possibly have inaccurate interpretations about the advertised message (Morris et al. 1986b). Therefore, results of the past studies indicate that DTC advertising can influence consumer's attitudes, beliefs and behaviors.

It is indicated that consumers' perceive these ads of prescription drugs as a valuable educational resource that helps them to get more actively involved in their healthcare. As a result, a significant proportion of consumers have indicated that they would talk with their doctor about the advertised product and ask for a prescription. Further, results also indicate that when they are prompted by DTC advertising, consumers are more likely to get their prescription filled and/or take their prescribed medicated.

2.2.4 DTC Advertising and Physicians

Historically, physicians, who are the most influential group among the healthcare practitioners, have exhibited, at best, neutral or mostly negative attitudes towards DTC advertising (Pines 1999; Wilkes et al. 2000). Physicians viewed DTC advertising as interfering with the doctor-patient relationship and believed that patients empowered with information may challenge physicians' authority in controlling prescription drug choice (Stevenson and Barry

2000). According to a study of family physicians by Lipsky and Taylor (1997), physicians felt that DTC advertising was not beneficial and that DTC ads impaired the patient-physician relationship, and even discouraged the use of alternative generic regimens. Further, nearly three quarters of physicians in the same study felt that their patients exerted pressure to prescribe a medication that they would have not prescribed otherwise. Primary care physicians feel that DTC advertising does not provide adequate information about possible contraindications, risks and benefits of drugs, and creates unreasonable expectations among consumers (Paul, Handlin, and Stanton 2002).

However, results from more recent studies have shown the emergence of more positive or mixed attitudes among physicians regarding advertising of prescription drugs. According to Gönül et al. (2000) acceptance of DTC advertising is more prevalent among physicians who see more patients, and have been in the practice for a long time, or have more exposure to pharmaceutical marketing. Robinson and colleagues (2004) found that a majority of physicians believed that exposure to DTC advertising has led patients to seek medical care. The results of another recent study seem to indicate that physicians have started acknowledging the benefits offered by DTC advertising, such as providing information to patients and increasing their level of confidence during counseling (Murray et al. 2003). Further, physicians also felt that discussing the advertised drug with the patient had more positive than negative effect on the patient-physician relationship. However, these physicians also felt that their patients were not good at assessing whether the information presented in the DTC ads was personally relevant to them or not. The results from another research suggest that physicians believed that DTC advertising confused patients about risks and benefits offered by the drug leading them to ask for

an inappropriate prescription (Weissman et al. 2004). However, most of the physicians believed that it created either little or no tension in the patient-physician relationship.

2.2.5 DTC and Persuasion

Recently, a few researchers have made an attempt to study the type of advertising appeals used in DTC prescription drug advertising. Pinto (2000) conducted a study to evaluate the use of visual and text components in DTC advertising to convey emotional appeals. The study found that to express "fear" appeals, both visual and text components were used in combination, while only visual components were used for communicating "sexual" appeals. Further, results suggest that "fear" appeal was the most commonly used appeal followed by "humor", "guilt" and "sexual" appeals. The study results also indicate that these appeals did not vary systematically with the type of medical condition.

Bell and colleagues (2000a) conducted a content analysis of print DTC ads from 1989 to 1998 in order to investigate the informational appeals used in these ads. Among the variety of advertising appeals, drugs' "effectiveness" was the most frequently used appeal, followed by "symptom control", "innovativeness" and "dosing convenience". Further, they reported that 17% of the ads offered some type of monetary incentive. They also found that significant association existed between the medical condition's severity and the type of informational appeal used. Similarly, medication effectiveness appeals were reported to be the most frequently (95%) used appeals in a recent study of DTC advertisements of cancer-related drugs (Abel, Lee, and Weeks 2007).

Woloshin et al. (2001) conducted a content analysis of prescription drug ads that appeared between July 1998 and July 1999. In their study, emotional appeal was defined as the

consumers' desire either: (1) to avoid a feared outcome or (2) to get back to normal. The researchers report that at least one of the two appeals was found in 67% of the ads, with the desire to get back to normal as the most commonly (60% of the ads) used appeal. Nearly 39% of the ads motivated consumers to consider a medical cause by using self diagnosing appeals. Finally, approximately 27% of the ads encouraged the consumers to try the medication by offering some sort of financial incentive. Shah et al. (2002) examined prescription drug ads published from 1995 to 2000 and report that persuasive techniques were utilized by almost all ads (99.5%). While symbolism was found be the most commonly used appeal, eroticism appeared to be the less frequently used persuasion appeal.

Sumpradit et al. (2004) focused on the type of motivational themes used in print and television ads for only two drug classes. The results indicate that drugs in the same product class appeared to be inconsistent in choosing either promotion-oriented or prevention-oriented appeals. Additional, individualistic appeals were more frequently used than collectivistic appeals.

Cline and Young (2004) conducted a content analysis of print DTC ads from January 1998 to December 1999 in an attempt to identify the visual characteristics of the ad that may serve as relational or identity motivational cues. They found that more than 90% of the ads depicted identity rewards with individuals portrayed appearing as healthy, active and smiling. Further, nearly 40% of the ads showed the models as beneficiaries of relational rewards who were more frequently portrayed as enjoying family and romantic situations. Similarly, Young and Cline (2005) conducted a study to identify the textual cues used in DTC ads during the same time period. Their study results revealed that nearly 17% of the ads offered financial incentives, while medication effectiveness was the most commonly used medical reward cue. At least one of

the punishment messages (threat or disclaimer) was used in about 50% of the ads. Identity motivational cue was present in more than three quarters (77.3%) of the ads with "freedom" as the most commonly used motivational cue followed by normality/commonality, positive affect and personal appeal.

It is widely acknowledged that effects of ads are not limited to the information contained in the ad alone but are also a function of different appeals used in the ads. Past research in DTC advertising literature has paid much attention on the influence of the informational content of the DTC ads than the transformational (non-informational) content on consumers' attitudes and behaviors (Sumpradit et al. 2004). Further, the studies reviewed above only provide information on different types of appeals used in the promotion of prescription medications.

Research examining the influence of persuasion appeals on consumers' attitudes and behaviors is scarce in DTC advertising literature. The few studies that have made an attempt to study the impact of persuasion effects have focused mostly on either source or channel related variables (Christensen, Ascione, and Bagozzi 1997; Menon 2004; Sewak et al. 2005). Further, all of these studies have employed a theoretical framework of the Elaboration Likelihood Model.

In order to study the impact of DTC advertising on the elderly population, Christensen et al. (1997) created ad stimuli that varied in the argument strength and the type of endorser. They further divided the subjects into groups of high and low involvement. Their study failed to find any significant interaction effects of involvement and endorser type on consumer's brand related attitudes and risk perceptions about the advertised drug. Menon (2004) conducted a study to examine the effects of celebrity endorsements in DTC advertising on consumers perceptions. His study results revealed that the endorser type did not have a significant impact on consumer's

attitude towards the ad, brand attitudes and drug inquiry intention for high or low involvement consumers.

Sewak et al. (2005) studied the effects of website design on consumer's knowledge and attitude towards the brand. These researchers found that regardless of the level of involvement, subjects who were exposed to a visually appealing and sophisticated website did not differ significantly in terms of their brand attitudes and knowledge about the product from consumers who were exposed to a plain and unsophisticated website.

Review of the content analysis of DTC ads provides enough evidence that pharmaceutical advertisers are using a variety of cues to attract consumers' attention. It is worth noting that most of these content analyses were conducted in the late 1990s when the prevalence of financial incentives was relatively low. However, in recent years there has been a tremendous increase in the use of monetary incentives in the promotion of prescription drugs. Literature provides enough evidence that peripheral cues (e.g. coupons) are more effective in attracting consumer's attention than the message content of the ad.

Coupons have proven to be effective in stimulating product trial and adoption. However, research providing support for similar evidence in DTC advertising is lacking. DTC advertising has been criticized for not providing detailed information. Review of the literature suggests that consumers usually do not read all of the information presented in the ads. They are more influenced by the potential benefits offered by the drug and exert pressure on their physicians to prescribe a drug that might not be appropriate for their condition. In such a situation, it becomes very important to understand the reasons why patients are making these requests. Even more important is to understand the factors that are driving them to make these requests. Therefore, it can be argued that the different advertising appeals used in DTC ads may act as key drivers in

consumers' drug requests. Financial incentives like coupons may be one of the factors that could be inciting consumers to request or try the medication. Since there is no immediate monetary risk associated with the buy, consumers might actually wish to try and see if the drug works for their condition.

Review of the literature suggests that past research in DTC advertising has focused mainly on the informational content of the message related attributes whereas the non-informational content of the message, like advertising cues, have received very little attention. Further, examining consumers' responses to the ad by employing a theoretical framework is relatively rare in DTC advertising research. The current review of literature indicates a dearth of empirical evidence on the impact of advertising cues on consumers' behaviors. Since DTC advertising has a significant influence on demand of prescription drugs, it becomes crucial to understand how consumers respond to these promotional messages. In particular, it becomes very necessary to evaluate the important role played by different advertising appeals in the persuasion process.

CHAPTER 3

CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.1 Coupon Promotion as a Peripheral Cue

The use of distinct and noticeable stimuli to attract audiences' attention is not a novel concept in advertising. A variety of advertising stimuli like contrast, color, position, size, novelty and endorser have been used as cues by advertisers to make their products' advertisements more distinct than their competitor (Engel, Blackwell, and Miniard 1986). These advertising stimuli that are present within the advertisement usually do not contain any information about the product. These stimuli may attract attention of the potential receiver and further motivate them to process the ad. Additionally, these stimuli can serve as peripheral cues in shaping consumers' attitudes towards the product (Miniard et al. 1991; Petty, Cacioppo, and Schumann 1983; Sanbonmatsu and Kardes 1988) and also influence their choice behavior (Miniard, Sirdeshmukh, and Innis 1992).

A considerable body of consumer research has focused on coupon promotions. Because of its significant impact on psychographic variables (Ailawadi, Neslin, and Gedenk 2001; Lichtenstein, Netemeyer, and Burton 1990; Martínez and Montaner 2006) and widespread use in advertising, promotion signals like coupons in ads can be regarded as one of the important peripheral cues. Inman and colleagues (1990) found that selection of the promoted brand was more likely in the presence of promotion signals (e.g., coupons) and therefore suggested that promotion signals can act as peripheral cues in consumers' brand selection behavior.

Ads with coupons are more likely to be noticed and recalled by consumers than the same ads without coupons (Bowman 1980). Ward and Davis (1978) suggested that ads with coupons can be effective in attracting consumers' attention and coupons can also serve as a reminder. Thus, coupons in an ad can elicit favorable responses in less involved individuals just like music, humor, color, a picture or a celebrity endorser.

3.2 Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo (1981a, 1986) has been widely utilized by researchers to study the impact of persuasive communication on consumers' attitude and behavior change in the context of advertising. The theoretical framework of ELM explains how consumers process message content and non-content cues in advertising. The model posits an elaboration likelihood continuum with central and peripheral routes of persuasion at the two ends. These central and peripheral routes to attitude formation depend on the degree of effortful information processing employed by the receiver.

According to the model, individuals who are highly involved with the message will follow the central route and more fully process the information or the issue-related arguments present in the message. Alternatively, when individuals exhibit less message involvement, they will follow the peripheral route of persuasion and pay more attention to simple inferences or peripheral cues than actual product attributes or message arguments. Thus, under high involvement situations attitude change will occur as a result of careful elaboration of the content of the persuasive message whereas peripheral cues will influence attitude formation under low involvement situations.

In the past, ELM has been adapted to analyze the impact of a variety of peripheral cues such as music (Park and Young 1986), celebrity endorsers (Petty et al. 1983; Sanbonmatsu and Kardes 1988), attractive sources (Petty and Cacioppo 1981b), humor (Zhang and Zinkhan 2006), and attractive pictures (Miniard et al. 1991), on consumers' attitudes towards the product. The consumer research literature provides ample support for ELM's contention that consumers under low involvement make use of peripheral cues to form opinions about the advertised product. However, the potential of coupons in DTC ads to operate as peripheral cues in attracting consumers' attention has not received much attention in the literature. Therefore, the current study proposes to use the ELM to understand the individual as well as joint effects of involvement and sales promotion on the study constructs.

3.3 Hypotheses

Prior work in consumer research provides ample support for persuasion effects that may arise from advertising elements that do not contain product-related information. In particular, peripheral cues like music, pictures and celebrity endorser have been shown to produce favorable attitudes (Miniard et al. 1991; Mitchell 1986; Park and Young 1986; Petty et al. 1983) and alter consumers' brand choice behavior (Gorn 1982; Miniard et al. 1992). Similarly, it has been suggested that coupons can also act as executional cues (Inman et al. 1990).

In order to understand the benefits of including coupons in the ads, Bearden et al. (1984) conducted a study to evaluate consumer's reactions to retail newspaper ads in the presence and absence of coupons. Their study failed to provide any support for the effects of the presence of coupons in the advertisement in generating positive effects on consumers' price perceptions, attitudes towards the purchase, and intentions to purchase. In a study to analyze the pre-purchase

effects of cents-off coupons, Raju and Hastak (1983) found that the presence of a coupon had no impact on consumers brand and ad related attitudes. Further, consumers likelihood of trying the product increased as the magnitude of the deal increased.

Leclerc and Little (1997) conducted a study to assess the influence of the content of print advertising on the effectiveness of coupons. They found that the presence of executional cues (e.g., attractive picture) in coupon advertising generated more positive brand attitudes, purchase intentions and clipping behavior (e.g., actual use). Hahn and colleagues (1995) reported that respondents who saw a coupon advertisement were able to recall more verbal items than those who saw an advertisement without a coupon. Their findings suggest that the coupon advertisement had a more positive influence on consumers' attitudes towards the ad and purchase. Further, consumer's response to the coupon did not have a direct impact on brand attitudes but was indirectly influenced by their attitude towards the ad.

Thus, past research in sales promotion suggest that contradictory findings exist on consumers' responses to these ad effectiveness indicators for advertisements with and without coupons. Further, the use of coupons in advertising of prescription drugs is a relatively recent phenomenon. Therefore, the ability of coupons to generate favorable responses for attitude towards the ad, brand, risk perception of the drug, and drug inquiry intention is not clear. Accordingly, we hypothesize that:

$H_0$1: There is no significant difference in attitude towards the ad between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon.

$H_0$2: There is no significant difference in attitude towards the brand between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon.

$H_0$3: There is no significant difference in drug inquiry intention between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon.

$H_0$4: There is no significant difference in perceived product risk between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon.

When consumers browse through advertisements of prescription drugs, their motivation to process the brand information is likely to depend on their level of involvement in the product category. In the marketing literature, the concept of involvement has received widespread attention for more than 30 years (Warrington and Shim 2000). Past studies in attitude-behavioral relationship (Kokkinaki and Lunt 1997) and advertising research (Andrews, Durvasula, and Akhter 1990) have suggested that involvement plays the role of a moderator variable. Thomsen et al. (1995) suggested that involvement appears to possess the main defining feature of strong attitudes that help in predicting and explaining consumer behavior.

Petty et al. (1983) found that the high involvement individuals had significantly different attitudes towards the ad than low involvement individuals. Andrews and colleagues (1992) suggested that there was a significant main effect of involvement on attitude towards ad, brand and purchase intention. Similar results were also found by Zhang and Zinkhan (2006).

Christensen and colleagues (1997) suggested that the high involvement individuals had more favorable attitudes towards ad and risk perceptions than the less involved individuals.

Sewak and colleagues (2005) found that there was no significant main effect of involvement on consumers' attitudes towards the website design. The literature indicates mixed evidence about the effect of involvement on the ad effectiveness variables, especially in the context of DTC advertising. Further, the impact of involvement in DTC advertising is not clear. Therefore, we hypothesize that:

$H_0$5: There is no significant difference in attitude towards the ad between high involvement consumers and low involvement consumers.

$H_0$6: There is no significant difference in attitude towards the brand between high involvement consumers and low involvement consumers.

$H_0$7: There is no significant difference in drug inquiry intention between high involvement consumers and low involvement consumers.

$H_0$8: There is no significant difference in perceived product risk between high involvement consumers and low involvement consumers.

$H_0$9: There is no significant difference in attitude towards coupon between high involvement consumers' and low involvement consumers' exposed to a DTC ad with a coupon.

Following the trend of research in advertising and marketing literature, the current study used involvement as a moderator variable to assess the effects of coupons on consumers'

behaviors. As noted earlier, coupons in prescription drug ads can potentially act as peripheral cues. Studies in the past provide ample evidence about the persuasive impact of various peripheral cues on consumers' responses towards the advertisement under varying levels of involvement. In particular, it is widely acknowledged that the low involvement consumers will not evaluate the pros and cons of the issue, but rather will be influenced by the peripheral cues that are not necessarily issue relevant (Gardner, Mitchell, and Russo 1985; Petty et al. 1983; Zhang and Buda 1999). For example, Andrews and colleagues (1992) used the conceptual framework of ELM to understand the impact of advertising distinctiveness as a peripheral cue on consumers reactions to the message. They found that the subjects who were less involved with the message content exhibited significantly more favorable attitudes towards the ad, brand, and purchase intention for the distinctive ad than the non-distinctive ad.

Zhang (1996) exposed subjects to ads for a fictitious brand of camera and used humor as a peripheral cue. Subjects who exhibited low need for cognition and therefore were less involved in the ads message had more favorable attitudes towards the ad, brand, and purchase intention for the humorous ad. This significant involvement with humor interaction effect of the study provides support for the contention of the ELM that low involvement subjects are mainly persuaded by peripheral cues.

Petty et al. (1983) demonstrated similar results for low involvement consumers' attitudes towards brand in the presence of a celebrity endorser. However, the authors found that there was no significant impact of the nature of the endorser on the consumers' purchase intention under low and high involvement. Miniard and co-worker's (1991) conducted two experiments in which they used pictures as peripheral cues in the ad stimuli for a cola brand. They discovered that respondents who saw the ad with an attractive picture had a more favorable attitude towards the

brand and intentions to purchase the product. Thus, the literature provides similar results for the persuasive impact of peripheral cues on consumers' ad and brand attitudes. However, the evidence suggests mixed findings regarding the impact of peripheral cues on the consumers' purchase intention/brand choice.

In the past, very few studies have applied the framework of the ELM in the area of DTC advertising to understand consumers' reactions to prescription drug ads. Among these studies, only a few looked at the impact of peripheral cues, namely endorser type and website design, on consumers' attitudes and perceptions (Christensen et al. 1997; Menon 2004; Sewak et al. 2005).

In order to study the impact of DTC advertising on the elderly population, Christensen et al. (1997) created ad stimuli that varied in the argument strength and the endorser type. They further divided the subjects into groups of high and low involvement. Their study failed to find any significant interaction effects of involvement and the endorser type on consumers' brand related attitudes and risk perceptions about the advertised drug. Menon (2004) conducted a study to examine the effects of celebrity endorsements in DTC advertising on consumers perceptions. The study results revealed that the endorser type did not have a significant impact on consumers' attitudes towards the ad, brand, and drug inquiry intention for high or low involvement consumers.

Sewak et al. (2005) studied the effects of website design on consumers' knowledge and attitude towards the brand. They found that regardless of the level of involvement, subjects who were exposed to a visually appealing and sophisticated website did not differ significantly in terms of their brand attitudes and knowledge about the product from consumer who were exposed to a plain and unsophisticated website. Thus, the results of the persuasive influence of

peripheral stimuli in DTC advertising literature are contradictory to the findings present in the traditional advertising literature.

Advertising stimuli for a prescription drug used to lower cholesterol was used in the current study. Selection of the disease state is discussed in the research methodology section.

The literature review provides mixed evidence regarding the impact of peripheral cues on various ad effectiveness variables. Therefore, we hypothesize that:

$H_0$10: Presence or absence of a coupon in the DTC ad does not significantly influence consumers' attitude towards the ad when they are either under high or low involvement with treating their cholesterol.

$H_0$11: Presence or absence of a coupon in the DTC ad does not significantly influence consumers' attitude towards the brand when they are either under high or low involvement with treating their cholesterol.

$H_0$12: Presence or absence of a coupon in the DTC ad does not significantly influence consumers' drug inquiry intention when they are either under high or low involvement with treating their cholesterol.

$H_0$13: Presence or absence of a coupon in the DTC ad does not significantly influence consumers' perceived product risk when they are either under high or low involvement with treating their cholesterol.

Testing of these hypotheses offer insight about how involvement impacts the process of advertising cues, namely coupons.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Study Measures and Operationalization

The experimental method and the operationalization of variables in this study were designed to be consistent with the persuasive advertising literature and applied to the sales promotion phenomenon in DTC advertising of prescription drugs. Seven-point, bi-polar semantic differential scales were used in the current study to capture consumers' perceptions about the construct variables. Summated index scores were computed for all the measurement scales by averaging the responses on items of the scale. These mean scores of the measurement scales were used in the data analyses. A high mean score obtained on the rating scale (scored from 1 to 7), where 1 is less favorable perception and 7 is more favorable perception, indicates favorable perceptions towards that particular construct.

4.1.1 Independent Variable

4.1.1.1 Involvement

In the current study, involvement was operationally defined as "A person's perceived relevance of the advertisement based on inherent needs, values and interests" (Zaichkowsky 1985). Involvement was measured by Zaichkowsky's (1994) revised personal involvement inventory (PII), which is a 10-item 7-point bi-polar semantic differential scale. This scale has shown excellent reliability with Cronbach's alpha > 0.90 and test-retest reliability > 0.70. An

index involvement score was generated by averaging the scores of all the ten items. On the basis of median split of the index score, respondents were placed into high and low involvement groups. This is a more natural way of grouping subjects into the two involvement groups which help to avoid the artificiality associated with forced involvement manipulations (Laczniak and Muehling 1993). This type of grouping procedure has been used in the past by Laczniak and Muehling (1993) and has resulted in satisfactory allocation of individuals into groups of high and low involvement. The instrument used to measure involvement is provided below.

Revised Personal Involvement Inventory (Zaichkowsky 1994)

Unimportant	------- : ------- : ------- : ------ : ------ : ------ : ------	Important
Boring	------- : ------- : ------- : ------ : ------ : ------ : ------	Interesting
Irrelevant	------- : ------- : ------- : ------ : ------ : ------ : ------	Relevant
Unexciting	------- : ------- : ------- : ------ : ------ : ------ : ------	Exciting
Means nothing to me	------- : ------- : ------- : ------ : ------ : ------ : ------	Means a lot to me
Unappealing	------- : ------- : ------- : ------ : ------ : ------ : ------	Appealing
Mundane	------- : ------- : ------- : ------ : ------ : ------ : ------	Fascinating
Worthless	------- : ------- : ------- : ------ : ------ : ------ : ------	Valuable
Uninvolving	------- : ------- : ------- : ------ : ------ : ------ : ------	Involving
Not needed	------- : ------- : ------- : ------ : ------ : ------ : ------	Needed

4.1.2 Dependent Variables

4.1.2.1 Attitude towards Ad

Consumers' predisposition to respond in a favorable or unfavorable manner to a DTC ad was used as the operational definition of attitude towards ad in this study (MacKenzie, Lutz, and Belch 1986). In the current study, consumers' attitude towards the ad was measured by assessing their responses on a 7-point bipolar semantic differential scale developed by MacKenzie and Lutz (1989). This scale has exhibited high internal consistency reliability (Cronbach's alpha = 0.93). The mean score of these responses was used as the measure of attitude towards the ad. The instrument is provided below.

Attitude towards Ad Scale (MacKenzie and Lutz 1989)

Bad	------- : ------- : ------- : ------ : ------ : ------ : ------	Good
Unpleasant	------- : ------- : ------- : ------ : ------ : ------ : ------	Pleasant
Unfavorable	------- : ------- : ------- : ------ : ------ : ------ : ------	Favorable

4.1.2.2 Attitude towards Brand

In the current study, attitude towards the brand was operationally defined as "consumers' predisposition to respond in a consistently favorable or unfavorable manner to a particular brand" (Muehling and Laczniak 1988). A scale developed by Muehling and Laczniak (1988) was used to measure consumers attitude towards brand construct. This scale has been successfully validated in past studies and has demonstrated excellent internal consistency (Cronbach's alpha =

0.95) (Menon 2004). The responses to this three-item scale were recorded on a seven-point, semantic differential scale. The responses of these items were averaged to obtain an index measure of the attitude towards brand. The instrument used to measure attitude towards brand is provided below.

Attitude towards Brand Scale (Muehling and Laczniak 1988)

Bad	------- : ------- : ------- : ------ : ------ : ------ : ------	Good
Unpleasant	------- : ------- : ------- : ------ : ------ : ------ : ------	Pleasant
Unfavorable	------- : ------- : ------- : ------ : ------ : ------ : ------	Favorable

4.1.2.3 Drug Inquiry Intention

Drug inquiry intention was operationally defined as the likelihood that the consumer will inquire about the advertised drug during their next physician visit (Menon 2004). To measure this construct, a four-item, seven-point bi-polar adjective semantic differential scale was used (MacKenzie et al. 1986). Past research demonstrates that the scale exhibited excellent reliability (Cronbach's alpha ranges from 0.88 to 0.95) (MacKenzie et al. 1986; Menon 2004). The average score of these items was used as an index measure of drug inquiry intention. The items used to measure drug inquiry intention are provided on the next page.

Drug Inquiry Intention Scale (MacKenzie et al. 1986)

Likely	------- : ------- : ------- : ------ : ------ : ------ : ------	Unlikely
Probable	------- : ------- : ------- : ------ : ------ : ------ : ------	Improbable
Possible	------- : ------- : ------- : ------ : ------ : ------ : ------	Impossible
Certain	------- : ------- : ------- : ------ : ------ : ------ : ------	Uncertain

4.1.2.4 Perceived Product Risk

Perceived product risk was operationally defined as "a measure of the risk or danger to which subjects believe they would be exposed through use of an advertised prescription drug" (Everett 1989). The perceived product risk scale was developed by Everett (1989). A modified version (Deshpande 2004) of the scale was used in this study. It is a five-item, seven-point bi-polar adjective semantic differential scale. This scale has shown high internal consistency reliability (Cronbach's alpha ranges from 0.91 to 0.96) (Deshpande 2004; Everett 1989). The instrument is presented on the next page.

Perceived Product Risk Scale (Everett 1989)

1) How dangerous do you think this drug is for you? Very dangerous ------- : ------- : ------- : ------ : ------ : ------ : ------ Not at all dangerous
2) How would you feel about using this drug for yourself? Very afraid ------- : ------- : ------- : ------ : ------ : ------ : ------ Not at all afraid
3) If you used this drug, how likely do you think you would be to suffer from its side effects? Possible ------- : ------- : ------- : ------ : ------ : ------ : ------ Impossible
4) How do you think the benefits of this drug are compared to the risks? Risks much greater ------- : ------- : ------- : ------ : ------ : ------ : ------ Benefits much greater
5) How risky is it for you to use this drug? Very risky ------- : ------- : ------- : ------ : ------ : ------ : ------ Not at all risky

4.1.2.5 Attitude towards Coupon

As no scale was available in the literature that measured consumers' attitudes towards the coupon specific for prescription drugs ads, a new scale was designed for the purpose of this study. Items in the new scale were adapted from the scales that were used to measure concepts similar to attitude towards coupon. These scales include attitude towards the deal and attitude towards the offer (Burton and Lichtenstein 1988; Lichtenstein and Bearden 1989). Both of these scales have exhibited excellent internal consistency reliability with Cronbach's alpha ranging from 0.86 to 0.96. Subject matter expert review was used for the selection of items. This exercise

resulted in a five-item seven-point bi-polar adjective semantic differential scale. The average score of these five items was used as an index measure of attitude towards the coupon. The instrument used to measure attitude towards the coupon is provided below.

Attitude towards Coupon Scale

Bad Offer	------- : ------- : ------- : ------ : ------ : ------ : ------	Good Offer
Favorable	------- : ------- : ------- : ------ : ------ : ------ : ------	Unfavorable
Attractive	------- : ------- : ------- : ------ : ------ : ------ : ------	Unattractive
Detrimental	------- : ------- : ------- : ------ : ------ : ------ : ------	Beneficial
Valuable	------- : ------- : ------- : ------ : ------ : ------ : ------	Worthless

4.1.2.6 Covariates/Demographics

Several other variables including demographics, health-related characteristics, past experience with DTC ads and behaviors associated with DTC exposure were also measured. Information on these variables was gathered after collecting information on the study constructs. Details regarding the exact variables used in the study are available in the questionnaires (See **Appendices A and B**). In order to maintain complete anonymity of the responses, subjects were not asked to provide any personal identification information like name, residential address, phone number, social security number, etc.

4.2 Study Methodology

4.2.1 Experimental Design

Past research in persuasive advertising related to prescription medications has primarily used content analysis methodology and focused mainly on the types of persuasive appeals and information display in DTC advertising. Thus, there is a need for experimental research to examine the impact of persuasive appeals on consumers' responses to persuasive advertising.

An experimental design was chosen for this study because it provides greater internal validity and also provides the opportunity to separate the variables to be tested from the extraneous factors that may have some influence on the results of the research. In order to maintain external validity of the study results, several measures were taken into account. First, professionally designed full-page color ads were used to so that the ads used in this study closely mirrored that of the real ads appearing in magazines. Second, subjects were recruited by mall intercept survey methodology by a professional survey research company (Carlene Research).

4.2.2 Study Design

The purpose of this study was to determine how consumers would respond to coupon promotions in prescription drug advertising. Two print advertisements for prescription cholesterol lowering drugs were designed with varying levels of sales promotion (i.e. coupon vs. no coupon ad). The study involved an experiment comprised of 2 (Involvement) x 2 (Sales Promotion) factorial, between subjects, post-test only design to examine whether coupons in prescription drug advertising generate different consumer attitudes and behaviors. Consequently, the current research was conducted in two phases: (1) pretest of the advertising stimuli and survey instrument, and (2) main phase of data collection to test the study's hypotheses.

A 2 (Involvement) x 2 (Sales Promotion) between subjects factorial design was used in this study resulting in four experimental conditions. The two conditions of sales promotion manipulation used in the study were the presence or absence of a coupon. The respondents in each group were further divided into high and low involvement groups resulting in a total of four treatment conditions.

Data collection was done in two groups. Each group was exposed to only one ad stimulus since the study was based on a between subjects design. One group received the print ad with a coupon and another group received the print ad without a coupon.

4.2.3 Selection of Disease State

Hyperlipidemia was chosen as the disease state for this study because it is a major contributor of cardiovascular diseases, which are the leading cause of death in United States (Heron and Smith 2007). Prevalence of high blood cholesterol among U.S. adults age 20 and above was approximately 73% in 2003 (CDC MMR Report). Further, cholesterol lowering drugs are among the top 20 best selling and heavily advertised prescription drugs in the market.

4.2.4 Study Population

The screening criterion used for inclusion of subjects in the study was adult subjects over the age of 35 years. This age group is known to have a higher incidence of high blood cholesterol. Moreover, people in this age group are the target population for advertising in this therapeutic category. Therefore, we would expect the respondents to find the advertising stimuli as personally relevant and have varying levels of involvement in obtaining treatment for their

condition. Such a selection criterion prevents inclusion of participants for whom the product under investigation is of no importance or relevance.

Healthcare professionals are more likely to have different attitudes towards DTC advertising compared to general consumers (Gönül et al. 2000). Therefore, healthcare professionals were excluded from the study. Further, it was not required that the subjects should to be able to speak or read English in order to participate in the study. Although our selection of subjects might limit the generalizability of the study, the study results would be expected to be more reliable and valid.

4.2.5 DTC Advertising Stimuli

Print ads are a commonly used marketing communication media for the advertising of prescription drugs. Full-page color print advertisements were used in this study. Two advertising stimuli were created: one containing a coupon for a 30-day free supply for the advertised drug and another without a coupon. Advertisements for a fictitious cholesterol-lowering drug were created for the purpose of this research.

Fictitious drug ads were preferred over using real cholesterol-lowering advertisements for several reasons. Firstly, confounding influences due to participants' past or existing attitudes towards the actual advertisement or actual brand are prevented by the use of mock ads. Secondly, mock ads would prevent any contamination effect (a threat to validity) that could potentially occur due to the on-going promotional campaigns of real brand name drugs during the study time period. Finally, when mock ads are used, the researcher has the flexibility to design or create advertisement features that are consistent with the purpose of the research.

In order to minimize any confounding effects, the size, length, and theme of the advertisements were kept constant across the two ads. The print advertisements were designed by a professional graphic designer in a full-page color format. The advertising stimuli employed in the study were constructed to look as similar as possible with the prescription drug ads for cholesterol lowering drugs currently being advertised. This was considered important in order to capture consumers' true responses towards prescription drug ads. As with real prescription drug ads, both of these advertisements contained a front side of the advertisement which was the creative execution and the body copy of the ad and the back side of the ad contained the brief summary prescribing information. The risk and benefit information presented in both the ads was adapted from the advertisements of real cholesterol-lowering prescription drugs currently being advertised. Further, this information was consistent in both the ads.

However, for the experimental treatment the ad stimulus also had a coupon attached to the front page of the main ad. The front side of the coupon displayed information on the number of free trial days for the cholesterol lowering medication and the procedure to redeem the offer. Alternatively, the back side of the coupon had information regarding patient eligibility, terms and conditions, and information specifically for the healthcare professionals. Further, the back page also had redemption instructions for the pharmacist and the expiration date of the offer. The advertising stimuli used in this study are provided in **Appendices G and H**.

4.2.6 Sample Size Estimation

In order to determine the appropriate sample size for the study and minimize the likelihood of type I and type II errors, power analysis was used as recommended by Cohen (1988). The statistical power is defined as the probability of correctly rejecting a null hypothesis

when it is false. The type I error rate is the probability of falsely rejecting a null hypothesis and the type II error rate is the probability of incorrectly failing to reject a null hypothesis. In general, the power of statistical test depends on the magnitude of the effect size (true differences in the population), significance criterion (selected type I error rate), and the sample size.

The current study used a 2 x 2 factorial design and thus resulted in four treatment cells. The following formula is suggested by Cohen (1988; pg. 396) for sample size determination of factorial designs:

$$\text{Cell sample size} = \frac{[(n' - 1)(u + 1)]}{\text{Number of cells}} + 1$$

where n' is the value obtained form the sample size table, u is the degrees of freedom for the effect being analyzed and number cells refer to the total number of cells formed by the factorial design (four for the current study). Since a 2 x 2 factorial design is used the value of "u" for main and interaction effects will be "1".

According to Cohen (1965) if the conventional significance criterion of alpha = 0.05 is used then the study should exhibit at least 80% power. Lack of sufficient power increases the possibility of making type II error. Cohen (1988) recommends the use of effect size index in terms of small, medium and large. Drawing from previous research by Hahn et al. (1995) and Leclerc and Little (1997), a medium effect size f = 0.25 was assumed in order to calculate the required sample size at a significance level of alpha = 0.05 and power of 0.80. Based on these values, n' = 64 was obtained form the sample size table supplied by Cohen (1988; Table 8.4.4, pg. 384). Entering this value in the above formula gives the desired cell sample size.

$$\text{Cell sample size} = \frac{[(64 - 1)(1 + 1)]}{4} + 1$$

$$= 32.5$$

which is approximately equal to 33. Therefore the minimum sample size required for the study was 33 x 4 = 132 subjects. However, the study collected 152 survey responses to account for potential attrition effects.

There are other methods for determining adequate sample size when Multivariate analysis of variance (MANOVA) designs are utilized. Hair and colleagues (1998) recommend using at least 20 cases per cell in order to achieve minimum levels of power. The number of subjects in each group in the current study meets the minimal sample size heuristic by Tabachnick and Fidell (2001). Tabachnick and Fidell suggest that while performing MANOVA the number of observations in each group should exceed the number of dependent variables in the analysis. Therefore, it was concluded that using 132 subjects for the current study met the required sample size criteria to achieve the desired power levels.

4.2.7 Survey Material

In order to minimize item non-response, the questionnaire was constructed to be as short as possible without compromising its content and/or readability. As suggested by Singleton and Straits (2005), the questions asked were all closed-ended questions in order to simplify the respondent's task and prevent voluntary attrition effects. The material used for the survey (ads and questionnaires) were reviewed by the faculty members and the students of the College of Pharmacy. Suggestions provided by all members were taken into account while finalizing the

material. After necessary changes were made, the survey material was reviewed and approved by the committee members.

4.2.8 Approval of Study

Prior to conducting the experiment, permission was obtained from the Institutional Review Board (IRB), Human Subjects Office at the University of Georgia, Athens, GA. The IRB operates under the authority of the DHHS Office for Human Research and Protection, under assurance number FWA FWA00003901, for the protection of human subjects who volunteer to participate in research. Application materials were submitted to the IRB as required by the University. The project was approved by the IRB on March 11, 2008 (Project number: 2008-10389-0).

4.2.9 Methods

4.2.9.1 Experimental Procedure

Self-administered surveys were conducted to examine how sales promotion in DTC advertising influences consumers' attitudes and behavioral intent and whether involvement functions as a moderator variable. Provisions were also made to administer the surveys personally to the subjects who were not able to read or speak English. The questionnaires used in the study were color-coded by the advertising stimuli type in order to simplify the task of distribution and also simplify the task of data entry. The questionnaire for coupon ad stimulus was printed on light ivory colored paper and the questionnaire for no-coupon ad stimulus was printed on dark ivory colored paper. The study questionnaires were printed double sided on a 11" by 17" card paper and bound in a booklet fashion. Title of the study was displayed on the front

page of the survey booklet along with the UGA logo. The second page of the survey booklet contained a brief explanation of the purpose of the research and a set of general instructions that the participants were supposed to follow throughout the questionnaire completion exercise.

The consent letter, approved by the IRB, was used to inform survey participants about the nature of the study (See **Appendix C**). The consent letter included the title of the study, principal and co-principal investigator's names, information about the potential risks and benefits to the participant, compensation received for the participation, and contact information of the investigator's. The consent letter also clearly mentioned that the participants had a right to withdraw without penalty at any time during the study. The consent letter was signed and co-signed by the principal and co-principal investigator. However, the participant was not required to sign the consent letter.

Following the completion of the survey questionnaire, participants were given a debriefing statement (See **Appendix D**). This form explained the participants about the type of deception that was used in the study and explained the reason why it was necessary. They were told that the purpose of the study was to determine how the promotion of prescription medications works in order to make it more appropriate for the general public. Moreover, the advertising stimuli contained information on drug indications, risks and benefits from the actual prescription drugs. The consent letter and the debriefing statement used for this study were both printed on the UGA letterhead and were signed by principal and co-principal investigator.

All of the materials used in the survey were also inserted into two different colored envelopes namely white and yellow. The survey package was an envelope consisting of four chronological documents: first was the consent letter, next was advertising stimuli, followed by the questionnaire and finally a debriefing statement. The materials for the advertising stimulus

with a coupon were placed in the white envelope and the materials for the advertising stimulus without a coupon were placed in the yellow envelope. This procedure was carried out in order to simplify the data collection process.

4.2.9.2 Data Collection Procedure

Study subjects were recruited at the Perimeter Mall in Atlanta, GA in the month of May, 2008. Data collection at the mall was undertaken by Carlene Research, an experienced and authorized mall-intercept survey research company. Further, permission was also obtained from the manager of Carlene Research to conduct the study at this location (See **Appendix E**).

Survey administrators were trained and provided specific instructions on how to proceed with data collection for this study. The instruction sheet given to the survey administrators is provided in the **Appendix F**. In order to ensure that the survey research company was conducting the study as per the instructions, the primary researcher of this study personally observed the data collection procedure for a few subjects. Furthermore, since this study was a test of psychological processes using an experimental design approach (to test theoretically derived relationships), the use of survey population from the mall should not compromise the results in any way.

The survey administration procedures ensured that observations were independent, as participants in the study were randomly assigned to one of the two treatment (advertising stimuli) groups. A fifty-fifty randomization technique was used for the assignment of the subjects to the two groups. Therefore, respondents were alternatively assigned to the white and yellow envelope groups.

Once the initial screening criteria were met, the subjects were requested to come to the survey research company's establishment. After arriving in a quiet room, participants were given a consent form to read. Participants were encouraged to read the informed consent carefully, and ask questions (if they had any) regarding their participation in the study. They were asked to continue by either deciding to participate or withdraw from the study. After respondents agreed to participate in the study, they were instructed that they were going to review an advertisement for a cholesterol-lowering drug. Next, they were given the ad stimulus to read and were allowed approximately five to seven minutes to review the ad.

After respondents finished reading the ad stimulus, the ad copy was taken back and the participants then completed an attitude questionnaire used to measure advertising effectiveness. The survey instrument assessed the subjects' attitudes towards ad and brand, drug inquiry intention and perceived product risk. Subjects who were exposed to the coupon advertising stimulus also recorded responses on their attitudes towards the coupon. A complete set of questionnaires are available in **Appendices A** and **B**. Seven-point, semantic differential scales were used to assess consumers' responses on all of the study constructs. Well established scales with good psychometric properties were used to evaluate participants' attitudes towards ad, brand and coupon, drug inquiry intention and perceived product risk. The survey instrument also collected information about the participant's age, gender, ethnicity, educational level and socio-economic status, health-related characteristics, past experience with DTC ads and behaviors associated with DTC exposure.

Once the participants started to record their responses on the questionnaire, they were observed closely to make sure that they did not refer back to the advertisement, when they already took the allotted time to read the ad. None of the respondents looked back at the

advertisements. Survey administrators were available to address any of the concerns and questions of the participants while they were completing the questionnaire. After completing the questionnaires, the participants returned the questionnaire booklet to the survey administrator. Participants were debriefed following this exercise. Finally, respondents were given a $7.00 gift-card which was good in any store at the mall and the survey administrator thanked respondents for their participation. The returned survey materials were kept back in the respective envelops. The finished survey responses were placed in a separate box from the unfinished surveys in order to avoid confusion. The entire data collection procedure took approximately 15 minutes of each participant's time.

4.3 Data Management

In preparation for hypothesis testing, data from the completed questionnaires were entered into the Microsoft Excel spreadsheet by the primary investigator. In order to ensure the accuracy of data entering and transferring process, data entered in Excel was audited prior to conducting data analysis. First, to perform data verification, 10% of the cases were randomly selected and visually inspected for data-entry errors by comparing the entered content of Microsoft Excel spreadsheet with the corresponding response on the completed questionnaire. No errors were discovered during this data check process. Following data checks, the data was exported into Statistical Package for the Social Sciences (SPSS version 12.0) for Windows XP. Additionally, frequency analyses were performed on the dataset to identify out of range or inconsistent data elements and missing data, and also check for data coding errors or keystroke errors. The results of this exercise revealed that there were no errors in data entering and transferring process. Additionally, there were no missing data points. The Linear Structural

Relations (LISREL) statistical software package was used to perform confirmatory factor analysis and the remaining data analyses was performed using SPSS 12.

4.4 Data Analysis

A 2 x 2 factorial MANOVA procedure was conducted to examine the influence of sales promotion and involvement on the dependent variables attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk. MANOVA is a statistical procedure which focuses on the pattern of mean differences on the dependent variables of the study across the categories formed by the independent variables (Spicer 2005). Estimating the main as well as joint effects of the independent variables on the dependent variables is aided by factorial MANOVA design. Further, it also reduces the error variance (Stevens 2002).

In order to conduct MANOVA, the dependent variables should be correlated with each other. Literature in persuasive communication and advertising research suggest that the dependent variables used in this study are theoretically and conceptually correlated with each other. These dependent variables are considered as different components of advertising effectiveness. Since these variables are conceptually related, statisticians suggest that correlation analysis should be performed first as an overall "screening analysis" to check for the appropriateness of using MANOVA procedure. After performing this initial screening analysis, tests were conducted to check for the assumptions of the MANOVA procedure. Following are the assumptions that are involved in the MANOVA tests (Meyers, Gamst, and Guarino 2006):

1. The observations within each sample must be random and independent of each other.
2. Samples must be drawn from the populations that are normally or approximately normally distributed.

3. MANOVA requires homoscedasticity of variance which means that the covariance's of the populations must be equal.

Further analyses were conducted when MANOVA assumptions held true. The omnibus or overall F-test of MANOVA allows the researchers to first test the overall null hypothesis that there is no difference in the means of each dependent variable for the different experimental groups formed by the categories of independent variables. If this test shows a statistically significant difference, then separate analysis of variance (ANOVA) tests are performed for each of the dependent variables to test individual hypotheses. The initial use of the MANOVA procedure is to protect against the possible inflation of type I errors (finding a significance difference when it does not exist) because of repeated ANOVA's.

Descriptive statistics were performed on the demographic variables to provide insight into the characteristics of the sample. Descriptive statistics for the independent variable and dependent variables were also executed. Further, in order to measure how consistently individuals responded to the items within a scale, internal consistency reliability (Cronbach's α) measures were also calculated for the measurement scales utilized in the study.

CHAPTER 5

RESULTS

This chapter describes the demographic characteristics of the study participants; the comparison of the treatment groups; reliability analysis of the measures; factor analysis; and the tests of the study hypotheses.

5.1 Pretest

A pretest of the survey instruments was conducted at a community pharmacy in northeast Georgia. A convenience sample of 42 adults was used to pretest the initial version of the questionnaire and the advertising stimuli. The survey instrument used for pretest was a paper and pencil based self-administered questionnaire that was personally distributed and collected by the primary researcher. Participants recorded their responses for structured, closed-ended questions consisting of rating scales intended to measure the study constructs. Participants were given a $10 gift card for their participation in the pretest.

The pretest was conducted with the intention of detecting any potential formatting, wording or readability problems and to ensure that respondents understood the instructions, questions and scales. Additionally, the intent of the pretest was also to evaluate the psychometric properties of the rating scales that were used in the survey instrument. Therefore, coefficient alpha was calculated for all the rating scales used in the study. Following Nunnally (1978), the minimum acceptable standard for demonstrating internal consistency reliability using

Cronbach's alpha was set at 0.70. The results (shown in **Table 1**) implied that all of the scales – involvement in treating high cholesterol, attitude towards ad, attitude towards brand, attitude towards coupon, drug inquiry intention and perceived product risk exhibited excellent internal consistency reliability. Furthermore, high inter-item and item-total correlation was exhibited by all items on each of the different scales. None of the scale items were deleted as a result of the pretest. The internal consistency (Cronbach's alpha) scores for all the measures ranged from 0.90 to 0.97, demonstrating an excellent level of scale reliability.

Table 1: Reliabilities of all Scales – Pretest

Scales	Reliability (Cronbach's α)
Involvement in treatment of high cholesterol	0.95
Attitude towards the ad	0.91
Attitude towards the brand	0.94
Attitude towards the coupon	0.97
Drug Inquiry Intention	0.94
Perceived product risk	0.90

No major issues emerged from the pretest of the survey instrument, ad stimuli for the prescription drug used in the study and the instructions provided to the study participants. In addition, the primary researcher individually asked all respondents if they encountered any difficulties in understanding the instructions and completing the questionnaire. On average, respondents finished the entire exercise in about 15 minutes. Overall, participants had no difficulty in understanding the instructions or completing the study questionnaire. Further, there were no indications that participants would have difficulty in answering survey questions. Since no major issues were encountered throughout this entire exercise, no significant modifications to

the study material were necessary. The final versions of the questionnaires and other survey materials are provided in **Appendices A thru D and Appendices G thru H**.

5.2 Main Study

5.2.1 Sample Characteristics

Consumers' awareness of the brand name prescription cholesterol-lowering medications such as Crestor®, Lipitor®, Zetia®, and Vytorin® are provided in **Table 2**. As a test for false responses, Lipirid® a non-existent prescription medication was included as the awareness measure to check for false responses. Lipitor® received the highest recall rating (48%), followed by Crestor® (32.9%). The false response Lipirid® received 9.2% of the awareness rating. These latter responses were deleted from the final analysis of the main study data in order to increase the validity of the study results.

Table 2: Sample Descriptives – Aided awareness of cholesterol-lowering DTC ads

DTC Advertisement	Aided Awareness (n)	Aided Awareness (%)#
Crestor	50	32.9
Lipitor	73	48.0
Lipirid*	14	9.2
Zetia	31	20.4
Vytorin	27	17.8

* Lipirid was a fictitious drug used to check false responses
# Cells may not sum up to 100% because of membership in multiple categories
Note: The results of this data are from 152 respondents

Socio-demographic information of the remaining 138 subjects is reported in **Table 3**. In the sample 16.7 % of the participants were between 35 to 45 yrs of age which represents the high risk age group.

Table 3: Sample Descriptives – Demographic Characteristics

Variable	Categories	Frequency	Percentage (%)
Gender	Male	72	52.2
	Female	66	47.8
Level of Education	Less than High School	1	0.7
	High School Grad	20	14.5
	Associates Degree	10	7.2
	Some College	25	18.1
	College Grad	57	41.3
	Grad School or Higher	25	18.1
Race	Asian	5	3.6
	Black	17	12.3
	Hispanic	6	4.3
	Caucasian	110	79.7
Age	35-45	23	16.7
	46-55	49	35.5
	56-65	44	31.9
	>65	22	15.9
Annual Household Income	<$15K	5	3.6
	$15K-$24999	3	2.2
	$25K-34999	11	8.0
	$35K-49999	29	21.0
	$50K-74999	35	25.4
	$75K-99999	21	15.2
	Greater than $100,000	33	23.9
	Refused	1	0.7

N = 138

Magazine readership is considered an important antecedent of consumer exposure and reaction to prescription drug ads. **Table 4** shows that 28.3% of the subjects reported reading consumer magazines once a month. The sample contained 21.7% of the subjects who reported reading consumer magazines at least once a week. Consumers past exposure to prescription drug ad campaigns are key drivers of their future behavioral intentions. These results show that the majority of the respondents (54.3%) had seen prescription drug ads in magazines in the past.

Table 4: Sample Descriptives – Magazine Readership and Exposure to DTC ads

Variable	Categories	Frequency (n)	Percentage (%)
Frequency of Magazine Readership	Never	22	15.9
	Once a month	39	28.3
	Once a week	30	21.7
	2-3 times a week	28	20.3
	Greater than 3 times a week	19	13.8
Seen ad for a prescription medication in magazines	Yes	75	54.3
	No	63	45.7

The results in **Table 5** provide information on the consumers' past behavior after exposure to prescription drug advertising. These results indicate that 27.5% of the consumers initiated a dialogue with their physicians regarding an advertised prescription medication, 15.9% requested a specific brand name drug, and 11.6% actually received a prescription for that medication. Data further indicate that 32.6% of the consumers were engaged in some type of information search behavior for the advertised prescription drugs. The internet was the first choice as a resource to find out more information for 22.5% of the consumers, followed by health care professionals (15.9%). Other information resources included print media resources (6.5%), toll free phone numbers (4.3%) and other resources (5.1%).

Table 5: Sample Descriptives – Past behavior after exposure to DTC ads

Behavior		Frequency (n)	Percentage (% of entire sample)
Dialog with Doctor		38	27.5
Request for Brand		22	15.9
Doctor acquiescence by the doctor		16	11.6
Past information search behavior		45	32.6
Media used for Information search*	Internet	31	22.5
	Toll free number	6	4.3
	Magazines	9	6.5
	Health care professional	22	15.9
	Other	7	5.1

* Cells may not add up to 100% because of membership in multiple categories

After a visual comparison with the 2000 U.S. Census Data (U.S. Census Bureau 2000), it was evident that the gender breakdown of the study participants was similar to the population from which the sample was drawn. The current study had slightly more Caucasian participants than the general U.S. population, accounting for 79.7% versus 75.1% in the general population. Additionally, the participants of this study achieved much higher education levels than reported in the Census Data. In general, 24.4% of the U.S. population has a bachelor's or higher college degree, compared with 59.8% of the current study population. Further, the surveyed sample had a higher annual household income than the general U.S. population. According to 2000 U.S. Census Data, only 22.5% of the U.S. population had an annual household income of $75K or higher, compared with 39.1% of the current study population. It was evident from the visual comparison of the study sample with U.S. population that the distribution of the study sample was different from the national population. Thus, it can be concluded that overall the sample population of the study was not representative of the national population. Therefore, the

demographic discrepancies between the survey respondents and the national population should be kept in mind while generalizing the study results.

5.2.2 Descriptive Statistics for the Measurement Scales

Descriptive statistics of the measurement constructs used in the study are reported in **Table 6**. Several t-tests were conducted to determine if respondents' scores were significantly different than the mid-point (4) of the scale. The results of this analysis indicated that respondents had significantly higher scores. All of these t-test results were interpreted at alpha = 0.008 (0.05/6) (See **Table 7**). On average, participants had more favorable perceptions regarding their level of involvement (reflection of the personal relevance of information in the ad) in treating their high cholesterol (Mean = 5.04, SD =1.83). The results of these t-tests indicate that overall the participants had more favorable perceptions towards the ad (Mean = 5.91, SD = 1.17), the brand (Mean = 5.84, SD = 1.30) and the coupon (Mean = 6.30, SD = 0.88). Further, participants also had more favorable perceptions regarding their intentions to inquire about the drug during their next physicians visit (Mean = 5.52, SD= 1.54). Participants also had more favorable perceptions about the risks of the advertised drug (Mean = 5.19, SD = 1.34).

A t-test was also conducted to check if the respondents assigned to the high and low involvement groups differed significantly. The results provided in **Table 8** indicate that differences did occur.

Table 6: Sample Descriptives – Study Constructs

	Involvement in treatment of high cholesterol	Attitude towards the ad	Attitude towards the brand	Drug Inquiry Intention	Perceived product risk	Attitude towards the coupon
N	138	138	138	138	138	68
Mean	5.0355	5.9058	5.8430	5.5199	5.1884	6.3029
Median	5.5500	6.3333	6.3333	6.0000	5.4000	6.6000
Std. Deviation	1.82912	1.17004	1.29582	1.54023	1.33887	.87995
Skewness	-.717	-1.131	-1.466	-1.511	-.574	-1.458
Std. Error of Skewness	.206	.206	.206	.206	.206	.291
Kurtosis	-.647	1.362	2.594	1.941	.123	1.636
Std. Error of Kurtosis	.410	.410	.410	.410	.410	.574
Minimum	1.00	1.00	1.00	1.00	1.00	3.60
Maximum	7.00	7.00	7.00	7.00	7.00	7.00

Table 7: T-tests of study constructs

Variables	t	df	Sig. (2-tailed)	Mean Difference
Involvement in treatment of high cholesterol	6.650	137	<0.001	1.03551
Attitude towards ad	19.134	137	<0.001	1.90580
Attitude towards brand	16.708	137	<0.001	1.84300
Attitude towards coupon	21.581	67	<0.001	2.30294
Drug Inquiry Intention	11.592	137	<0.001	1.51993
Perceived product risk	10.427	137	<0.001	1.18841

Table 8: T-test for difference between high involvement and low involvement groups

Group Statistics

Variable	Involvement Category HIGH vs LOW	N	Mean	Std. Deviation	Std. Error Mean
Involvement in treatment of high cholesterol	LOW Involvement	70	3.6971	1.57222	0.18792
	HIGH Involvement	68	6.4132	0.70540	0.08554

T-test

Variable		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	df	Sig. (2-tailed)
Involvement in treatment of high cholesterol	Equal variances assumed	38.159	<0.001	-13.028	136	<0.001
	Equal variances not assumed			-13.155	96.300	<0.001

5.2.3 Cross-tab Analyses

In order to ensure homogeneity of participants across treatment groups, Kerlinger (1986) suggests conducting chi-square analysis to verify the validity of the random assignment. Chi-square tests were conducted to determine if the experimental groups differed significantly from each other in terms of their socio-demographic characteristics, use of cholesterol lowering medicines and past exposure to prescription drug advertising for cholesterol-lowering medicines. The significance level for the chi-square test was set a priori at alpha = 0.05. Since multiple chi-square tests were used, Bonferroni correction was applied to this alpha (Harris 2001, pg. 13). Therefore, all of the chi-square tests were evaluated at a stringent 0.0045 significance level

(0.05/11). The results of the chi-square analyses indicated that overall there was no statistically significant difference in the demographic characteristics of the participants in regard to age, ethnic origin, annual household income and educational level between the coupon advertisement group and no-coupon advertisement group (See **Table 9**).

Table 9: Equivalence of treatment groups by demographic groups

Variable	Chi-Square/ Fisher's Exact Test	df	p-value
Gender*			0. 040
Level of Education	1.579	4	0.812
Race	1.355	2	0.508
Age category	6.218	3	0.101
Annual Household Income	2.585	2	0.275

* Fisher's Exact Test value was used for this test as it used 2 x 2 contingency tables.

Further analysis revealed that there were no significant differences between experimental groups with respect to participants who were currently taking cholesterol-lowering medications and past exposure to such promotions. The results of the self-reports of medical condition and medication usage showed that overall 42.8% of the participants have been diagnosed with high cholesterol and out of these 78.5% of the participants were currently taking a prescription medication to treat this condition. Additional chi-square analysis showed that there were no differences in participants diagnosed with high cholesterol between the coupon advertisement group and no-coupon advertisement group (See **Table 10**). Therefore, we conclude that there were no differences between the experimental groups with regards to demographics, prescription use or past ad exposure. The results of these analyses confirm that the random assignment of the treatment conditions was successful and, in fact, produced statistically equivalent experimental groups based on the demographic variables measured in the study.

Table 10: Equivalence of treatment groups by health condition and past experiences

Variable	Fisher's Exact Test/ Likelihood Ratio	df	p-value
Diagnosed with high cholesterol*			0.083
Currently taking Rx meds to treat cholesterol*			0.535
Experience of side effects or ADRs in past with Rx cholesterol-lowering medicines $	4.392	2	0.111
# of Rx medicines taken every day$	4.420	5	0.491
# of different health conditions for which Rx medicines are taken$	4.559	5	0.472
Experience of side effects or ADRs from past Rx medicines*			1.000

* Fisher's Exact Test value was used for this test as it used 2 x 2 contingency tables.
$ Likelihood Ratio Chi-Square was used as the expected count for some cells was less than 5

5.2.4 Reliability

Cronbach's alpha was calculated for each scale to evaluate the reliability of each of the constructs (See **Tables 11 – 16**). Each of these scales demonstrated excellent internal consistency reliability. The alpha resulting from analysis if item deleted data showed that deletion of any item from the scale did not result in a substantial increase in the reliability of any of the scales. The internal consistency of each multi-item scale was assessed by calculating Cronbach's alpha, and the reliability estimates for the scales ranged from 0.84 to 0.97 (See **Table 17**). This demonstrates an acceptable level of reliability for all measurement scales employed in this study (Hair et al. 1998).

Table 11: Reliability of Involvement Scale

N = 138
Number of Items = 10
Cronbach's Alpha = 0.971

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
a. Important to me – Unimportant to me*	45.1087	273.747	.872	.967
b. Boring to me – Interesting to me	44.8478	274.626	.877	.967
c. Relevant to me – Irrelevant to me*	45.2391	266.417	.879	.967
d. Exciting to me – Unexciting to me*	45.7246	268.931	.881	.967
e. Means nothing to me – Means a lot to me	45.1812	270.237	.896	.966
f. Appealing to me – Unappealing to me*	45.1739	277.400	.827	.969
g. Fascinating to me – Mundane to me*	45.6232	273.550	.838	.968
h. Worthless to me – Valuable to me	45.0652	276.835	.845	.968
i. Involving to me – Not involving to me*	45.5580	271.635	.860	.968
j. Not needed by me – Needed by me	45.6739	265.433	.861	.968

* These are reverse coded items. These were recoded prior to reliability analysis.

Table 12: Reliability of Attitude towards Ad Scale

N = 138
Number of Items = 3
Cronbach's Alpha = 0.85

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q2a. Bad – Good	11.6522	6.272	.739	.779
q2b. Pleasant – Unpleasant*	11.9928	5.307	.670	.862
q2c. Unfavorable – Favorable	11.7899	6.080	.780	.742

* These are reverse coded items. These were recoded prior to reliability analysis.

Table 13: Reliability of Attitude towards Brand Scale

N = 138
Number of Items = 3
Cronbach's Alpha = 0.899

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q3a. Good – Bad*	11.6232	7.273	.785	.869
q3b. Unpleasant – Pleasant	11.6159	7.450	.794	.863
q3c. Favorable – Unfavorable*	11.8188	6.441	.829	.833

* These are reverse coded items. These were recoded prior to reliability analysis.

Table 14: Reliability of Attitude towards Coupon Scale

N = 68
Number of Items = 5
Cronbach's Alpha = 0.886

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q4a. Bad Offer – Good Offer	24.9265	14.845	.675	.878
q4b. Favorable – Unfavorable*	25.2059	12.136	.788	.846
q4c. Attractive – Unattractive*	25.2500	12.459	.745	.856
q4d. Detrimental – Beneficial	25.3088	12.575	.702	.867
q4e. Valuable – Worthless*	25.3676	11.699	.757	.855

* These are reverse coded items. These were recoded prior to reliability analysis.

Table 15: Reliability of Drug Inquiry Intention Scale

N = 138
Number of Items = 4
Cronbach's Alpha = 0.904

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q5a. Likely – Unlikely*	16.5145	21.274	.773	.882
q5b. Improbable – Probable	16.4638	21.886	.804	.870
q5c. Possible – Impossible*	16.4565	22.323	.855	.854
q5d. Uncertain – Certain	16.8043	22.640	.720	.900

* These are reverse coded items. These were recoded prior to reliability analysis.

Table 16: Reliability of Perceived Product Risk Scale

N = 138
Number of Items = 5
Cronbach's Alpha = 0.839

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q6a. Risk perception – Dangerous	20.49	29.580	.685	.795
q6b. Risk perception - Afraid	20.40	29.176	.743	.780
q6c. Risk perception - Side effects likely	21.50	32.237	.403	.879
q6d. Risk perception - Greater risks	20.65	29.747	.669	.799
q6e. Risk perception - Very risky	20.72	28.435	.770	.772

Table 17: Reliabilities of all Scales – Main Study

Scales	Reliability (Cronbach's α)
Involvement in treatment of high cholesterol	0.97
Attitude towards ad	0.85
Attitude towards brand	0.90
Attitude towards coupon	0.87
Drug Inquiry Intention	0.90
Perceived product risk	0.84

5.2.5 Factor Analysis

Factor analysis procedures were used to evaluate the psychometric properties of the measures used in this study. Data were analyzed using Exploratory Factor Analysis (EFA) to identify the underlying dimensions of the domain of construct as measured by a particular instrument. Further, EFA was conducted to check the factor structure of the measurement constructs used in this study. EFA was performed on the data using common factor analysis

method with oblique rotation. Eigen value greater than one was used as a criterion for factor retention (this is default in SPSS).

Items of the following scales were used in the analysis: involvement in treating high cholesterol, attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk. The results of the EFA indicate a four factor structure (See **Table 18**). Items measuring attitude towards ad and attitude towards brand loaded on a single factor rather than loading on separate factors (See **Table 19**). Further, a visual examination of the scree plot indicated the presence of substantial difference between the fourth factor and the fifth factor and the distance between the two adjacent points was small after the fifth factor. Additionally, examination of the results indicated that the fifth factor accounts for 3.20 of the total variance explained. Next, there was no substantial increase in the amount of explained variance after the fifth factor. A separate EFA was performed on attitude towards coupon measure as only one group of participants was exposed to the coupon advertising stimuli. The results of this separate EFA indicated that all items loaded on a single factor resulting in a single factor structure (See **Table 20** and **Table 21**).

Past research in marketing and advertising literature suggests that attitude towards ad and attitude towards brand are very well established measures and they indeed measure two distinct constructs. These two distinct constructs essentially measure advertising effectiveness. Moreover, researchers in the past have criticized eigen value greater than 1 and the scree test criteria for factor retention because of their ambiguity and subjectivity, and have also demonstrated that they can lead to substantial overfactoring and occasional underfactoring (Fabrigar et al. 1999). Therefore, Confirmatory Factor Analysis (CFA) was performed to evaluate whether a pre-specified factor model provides a good fit to the data.

Table 18: Exploratory Factor Analysis – Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings*
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	12.156	48.625	48.625	11.902	47.607	47.607	10.486
2	3.207	12.830	61.455	2.866	11.465	59.072	3.741
3	2.067	8.270	69.725	1.796	7.185	66.257	5.818
4	1.421	5.683	75.408	1.084	4.334	70.591	8.793
5	.800	3.201	78.609				
6	.624	2.496	81.105				
7	.546	2.184	83.289				
8	.509	2.034	85.323				
9	.471	1.883	87.206				
10	.398	1.591	88.797				
11	.361	1.445	90.242				
12	.307	1.227	91.469				
13	.267	1.067	92.536				
14	.251	1.005	93.542				
15	.224	.896	94.438				
16	.207	.830	95.267				
17	.193	.770	96.038				
18	.162	.648	96.685				
19	.152	.609	97.295				
20	.142	.568	97.863				
21	.133	.531	98.395				
22	.126	.502	98.897				
23	.112	.448	99.345				
24	.091	.366	99.711				
25	.072	.289	100.000				

Extraction Method: Principal Axis Factoring.
* When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 19: Exploratory Factor Analysis – Pattern Matrix

Items	Factor			
	1	2	3	4
Involvement: Relevant to me	0.978			
Involvement: Means a lot to me	0.909			
Involvement: Exciting to me	0.904			
Involvement: Needed by me	0.871			
Involvement: Valuable to me	0.831			
Involvement: Important to me	0.825			
Involvement: Involving to me	0.806			
Involvement: Interesting to me	0.772			
Involvement: Mundane to me	0.699			
Involvement: Appealing to me	0.633			
Perceived Product Risk: Afraid		0.820		
Perceived Product Risk: Very Risky		0.751		
Perceived Product Risk: Dangerous		0.731		
Perceived Product Risk: Greater Risks		0.664		
Perceived Product Risk: Side Effects Likely		0.509		
Drug Inquiry Intention: Possible			0.853	
Drug Inquiry Intention: Probable			0.836	
Drug Inquiry Intention: Likely			0.768	
Drug Inquiry Intention: Certain			0.754	
Attitude towards brand: Pleasant				-0.842
Attitude towards brand: Favorable				-0.793
Attitude towards brand: Good				-0.783
Attitude towards ad: Good				-0.740
Attitude towards ad: Favorable				-0.692
Attitude towards ad: Pleasant				-0.675

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. Rotation converged in 5 iterations.

Table 20: Exploratory Factor Analysis – Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.475	69.508	69.508	3.102	62.043	62.043
2	.556	11.118	80.626			
3	.371	7.422	88.048			
4	.342	6.847	94.895			
5	.255	5.105	100.000			

Extraction Method: Principal Axis Factoring.

Table 21: Exploratory Factor Analysis – Factor Matrix

Items	Factor 1
Attitude towards Coupon: Favorable	0.846
Attitude towards Coupon: Valuable	0.815
Attitude towards Coupon: Attractive	0.799
Attitude towards Coupon: Beneficial	0.757
Attitude towards Coupon: Good Offer	0.716

Extraction Method: Principal Axis Factoring.
1 factor extracted. 5 iterations required.

CFA was performed on all of the six multiple-item measurement constructs used in the study to determine if six different constructs were actually being measured. Two CFAs were performed. First, CFA was performed on the items used to measure involvement, attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk. A five factor model was hypothesized for this CFA. Next, a separate CFA was conducted for attitude towards coupon measure because only one group of participants was exposed to the coupon advertising stimuli. A one factor model was hypothesized for this CFA procedure. Items were allowed to load freely (non zero loading) on their particular construct and were restricted from loading (zero loading) on other constructs.

Goodness of fit indices were calculated for both the procedures. A rule of thumb is that Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI) values greater than or equal to 0.90 are considered as indicating acceptable model fit. The smaller the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) values, the better the model fit. SRMR values lower than 0.10 and RMSEA values smaller than 0.08 suggest acceptable model fit (Lance and Vandenberg 2002). The results provided in **Table 22** indicate that all of the goodness of fit indices were within the acceptable range of the cut-off criteria indicating that the models provide good fit for the data. Additionally,

high factor loadings indicate that the items truly belong to that construct. The results provided in **Table 23** show that the items exhibited higher factor loadings (almost all above 0.65) for their respective scales, indicating that all of the scales used in the study represent unidimensional constructs.

Table 22: Goodness of Fit Statistics

For Involvement and four dependent variables (except Attitude towards coupon)

Goodness of Fit Index	Value
Chi-Square (df = 265, p-value = <0.001)	509.31
Root Mean Square Error of Approximation (RMSEA)	0.082
Normed Fit Index (NFI)	0.95
Non-Normed Fit Index (NNFI)	0.97
Comparative Fit Index (CFI)	0.97
Standardized RMR	0.055

For Attitude towards coupon

Goodness of Fit Index	Value
Chi-Square (df = 5, p-value = 0.28)	6.29
Root Mean Square Error of Approximation (RMSEA)	0.062
Normed Fit Index (NFI)	0.98
Non-Normed Fit Index (NNFI)	0.99
Comparative Fit Index (CFI)	1.00
Standardized RMR	0.034

Table 23: Confirmatory Factor Analyses

For Attitude towards coupon

Items	Attitude towards coupon
Ac: Bad Offer	0.70
Ac: Favorable*	0.86
Ac: Attractive*	0.81
Ac: Detrimental	0.74
Ac: Valuable*	0.82

* These are reverse coded items. These were recoded prior to CFA.

For Involvement and four dependent variables (except Attitude towards coupon)

Items	Involvement in treatment of high cholesterol	Attitude towards the ad (Aad)	Attitude towards the brand (Ab)	Drug Inquiry Intention (DII)	Perceived product risk (PPR)
Important*	0.89	- -	- -	- -	- -
Boring	0.89	- -	- -	- -	- -
Relevant*	0.89	- -	- -	- -	- -
Exciting*	0.89	- -	- -	- -	- -
Means nothing	0.91	- -	- -	- -	- -
Appealing*	0.84	- -	- -	- -	- -
Fascinating*	0.85	- -	- -	- -	- -
Worthless	0.86	- -	- -	- -	- -
Involving*	0.87	- -	- -	- -	- -
Not needed	0.87	- -	- -	- -	- -
Aad: Bad	- -	0.85	- -	- -	- -
Aad: Pleasant*	- -	0.75	- -	- -	- -
Aad: Unfavorable	- -	0.87	- -	- -	- -
Ab: Good*	- -	- -	0.85	- -	- -
Ab: Unpleasant	- -	- -	0.85	- -	- -
Ab: Favorable*	- -	- -	0.90	- -	- -
DII: Likely*	- -	- -	- -	0.81	- -
DII: Improbable	- -	- -	- -	0.87	- -
DII: Possible*	- -	- -	- -	0.93	- -
DII: Uncertain	- -	- -	- -	0.76	- -
PPR: Dangerous	- -	- -	- -	- -	0.80
PPR: Afraid	- -	- -	- -	- -	0.83
PPR: Side effects likely	- -	- -	- -	- -	0.42
PPR: Greater risks	- -	- -	- -	- -	0.74
PPR: Very risky	- -	- -	- -	- -	0.85

* These are reverse coded items. These were recoded prior to CFA.

Factor analysis was performed in order to identify the most appropriate model that explained the data substantially better than alternative models. The factor analyses results indicated discrepancy between the findings of EFA and CFA. Since the discrepancy existed,

model comparison exercise was performed in order to select the model that provides the best fit to the data.

The five factor model (target model) which was specified a priori based on theory was compared with a four factor model as determined by EFA. An alternative single-factor model, in which all the items were loading on a single factor, was also considered as a plausible competing model with the target model. Model AIC for the target model was smaller than the other two models (See **Table 24**). Further, results of the model comparison provided in **Table 25** indicate significant chi-square statistics. These results indicate that the four factor model and the single-factor model provide a significantly worse fit to the data than the target model. Therefore, the five factor model (target model) was preferred.

Table 24: Confirmatory Factor Analyses – Alternative Models

Model	Df	Chi-Sq.	Model AIC	NFI	NNFI	CFI	RMSEA	SRMR
1. Target Model	265	509.31	629.31	0.95	0.97	0.97	0.082	0.055
2. Four factor Model	269	540.94	652.94	0.94	0.97	0.97	0.086	0.058
3. Single-factor Model	275	1965.97	2065.97	0.86	0.87	0.88	0.21	0.140

Table 25: Model Comparisons

Models	Δ df	Δ Chi-Square	P-value
Model 1 versus Model 2	4	31.63	<0.001
Model 1 versus Model 3	10	1456.66	<0.001

Further, the model comparison between the target model and the single-factor model demonstrates the omnibus test of discriminant validity. As shown in **Table 24** and **Table 25**, model AIC and the significant Δ chi-square indicated that the single-factor model provided a significantly worse fit to the data than the target model, supporting the discriminant validity

among involvement, attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk. Further, the results of the CFA also demonstrated the evidence of convergent validity as the indicator items for a given construct loaded unambiguously on their unique factor in the target model. Therefore, each of the multi-item scales appears to accurately reflect the underlying construct they were designed to measure. This provides some evidence of construct validity.

5.2.6 MANOVA

To examine the impact of sales promotion and involvement, independently or in combination, on eliciting consumers' responses towards prescription drug advertising, a 2 x 2 factorial MANOVA was performed. This procedure tested the main and interaction effects of the sales promotion and involvement variables on the dependent variables: attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk.

5.2.6.1 Appropriateness of MANOVA

In order to conduct MANOVA, the dependent variables should be correlated with each other. Both correlation analysis and Bartlett's test of Sphericity were conducted to determine the appropriateness of the MANOVA procedure. According to Stevens (2002), at least a moderate amount of correlation (0.40 to 0.70) should be present between the dependent variables.

The results of correlation analysis indicated that statistically significant correlation was present among the dependent variables (**Table 26**). Additionally, the correlation analysis also revealed that the two independent variables were not correlated with each other ($r = 0.015$). Therefore, it was confirmed that there was no multicollinearity effect among the independent

variables. Additionally, Bartlett's test of Sphericity was conducted in order to determine if there was a moderate amount of correlation among the dependent variables. Bartlett's test of Sphericity was statistically significant ($p<0.001$), indicating that there was sufficient amount of correlation among the dependent variables (See **Table 27**). This is a necessary criterion for the appropriateness of the application of MANOVA statistics.

Table 26: Correlation statistics for the study variables

	Attitude towards the ad	Attitude towards the brand	Attitude towards the coupon	Drug Inquiry Intention	Perceived product risk	Type of Sales Promotion	Involvement
Attitude towards the ad	1	.774	.525	.466	.394	-.308	.623
Attitude towards the brand	.774	1	.473	.385	.461	-.255	.543
Attitude towards the coupon	.525	.473	1	.406	.241	-.775	.225
Drug Inquiry Intention	.466	.385	.406	1	.201	-.313	.410
Perceived product risk	.394	.461	.241	.201	1	.009	.300
Type of Sales Promotion	-.308	-.255	-.775	-.313	.009	1	.015
Involvement	.623	.543	.225	.410	.300	.015	1

Values inside the table are for the Pearson Correlation coefficient "r".

Table 27: Bartlett's Test of Sphericity

Likelihood Ratio	.000
Approx. Chi-Square	126.376
Df	9
Sig.	<0.001

5.2.6.2 Test of Assumptions

Prior to conducting MANOVA, tests were preformed to check for the assumptions of this statistical procedure. The assumptions that underlie the appropriate use of MAOVA include independence of samples, multivariate normality and equality of variance-covariance matrices across treatments.

5.2.6.2.1 Independent Random Samples

Similar to other statistical analysis, it was assumed that the subjects were randomly distributed. This means that the various observations of the sample were independent of each other. The survey administration procedures ensured that the observations were independent, as participants in the study were randomly assigned to one of the two treatment (advertising stimuli) groups. Furthermore, care was taken to have equal numbers of participants in each treatment group.

5.2.6.2.2 Multivariate Normality

As multivariate normality is difficult to test directly, it was tested indirectly by investigating univariate normality of individual measures. The normality of the study constructs was assessed by examining skewness and graphical representations of the data. The skewness test indicates how much of the distribution of the variable departs from normality and values outside of -2 to +2 range indicate a non-normal distribution. Skewness and kurtosis indices for the measures are shown in **Table 6**. All but one of the values was in the acceptable -2 to +2 range (Hutcheson & Sofroniou, 1999). Stevens (2002) suggests that the Type I error rate and

power in MANOVA analyses are not affected significantly when normality assumptions are violated, even when the distributions are noticeably skewed.

Since univariate normality is a necessary condition for multivariate normality to hold (Stevens 2002), additional tests like the Shapiro-Wilk test and Normal Probability plots (Normal Q-Q plots) were also executed to assess univariate normality. The results of the Shapiro-Wilk statistical test of normality for each variable are provided in **Table 28**. The p-values for all of the measures were significant at 0.05 alpha level; indicating that these variables deviate from normality. However, Stevens (2002) suggests that the Shapiro-Wilk test is extremely sensitive to even minor deviations from normality. A visual observation of Normal Probability plots of the constructs indicate that most of the data points were in the proximity of the diagonal lines (See **Figures 1 – 6**). Thus, it can be inferred that the measures do not significantly violate the normality assumption.

Table 28: Sample Descriptives – Tests of Normality - Shapiro-Wilk test

Scales	Shapiro-Wilk		
	Statistic	df	Sig.
Involvement in treatment of high cholesterol	0.887	138	<0.001
Attitude towards the ad	0.854	138	<0.001
Attitude towards the brand	0.829	138	<0.001
Attitude towards the coupon	0.792	68	<0.001
Drug Inquiry Intention	0.823	138	<0.001
Perceived product risk	0.945	138	<0.001

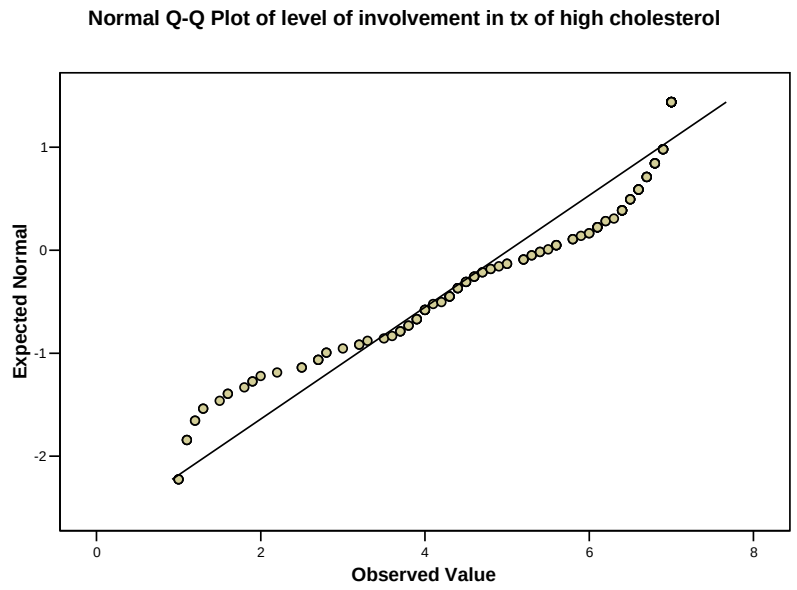

Figure 1: Normal Probability Plot – Involvement in Treatment of High Cholesterol

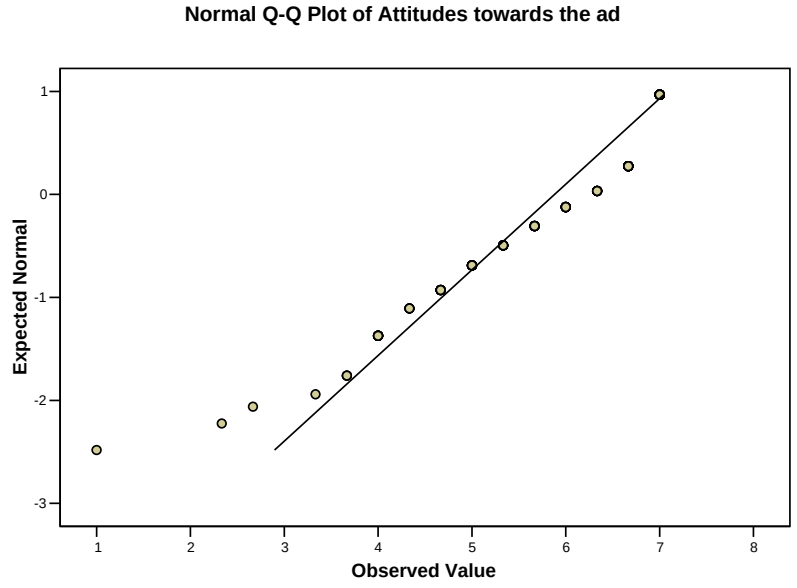

Figure 2: Normal Probability Plot – Attitude towards Advertisement

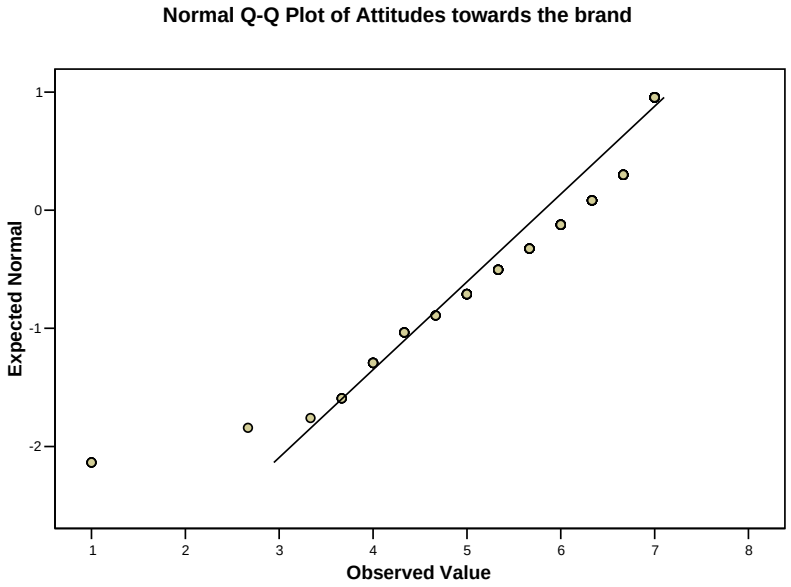

Figure 3: Normal Probability Plot – Attitude towards Brand

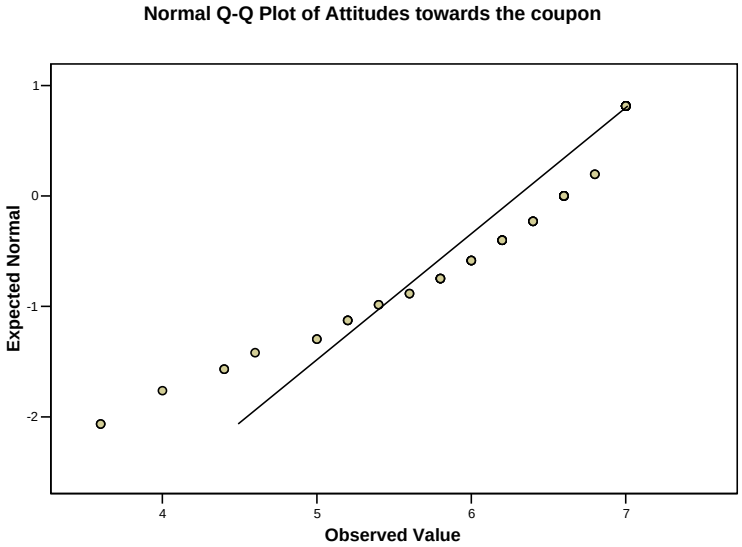

Figure 4: Normal Probability Plot – Attitude towards Coupon

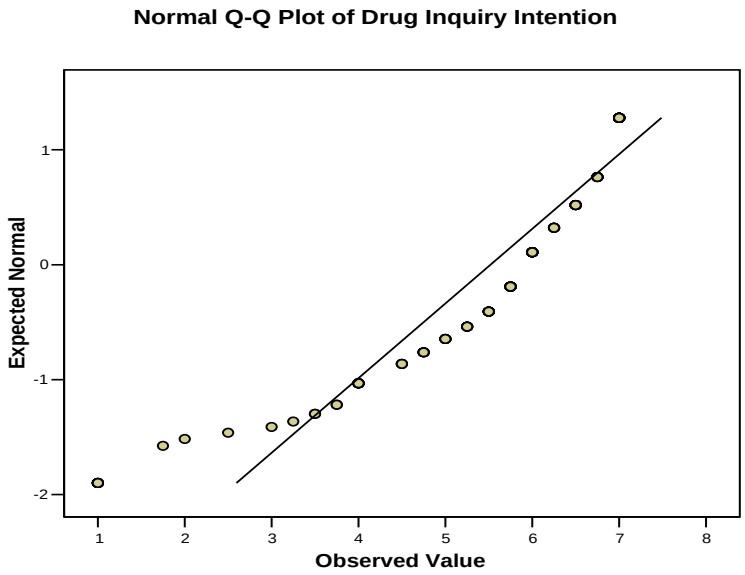

Figure 5: Normal Probability Plot – Drug Inquiry Intention

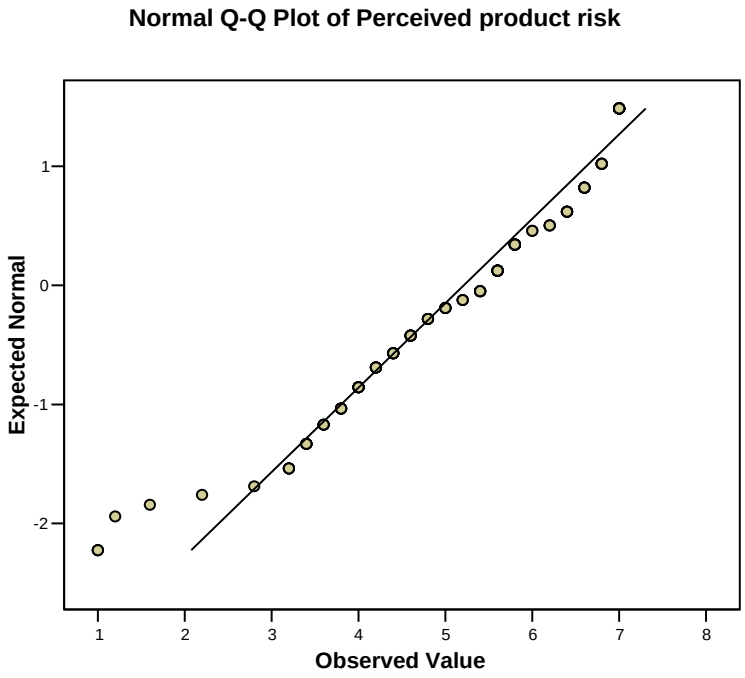

Figure 6: Normal Probability Plot – Perceived Product Risk

5.2.6.2.3 Equality of Variance-Covariance Matrix

MANOVA also requires equality of the variance-covariance matrices across the treatment groups. The Box's M test was performed to check for the homogeneity of variance-covariance matrices assumption. The result of the Box's M test ($F = 5.55$, $p < 0.001$) was significant (See **Table 29**), indicating violation of the assumption of equality of variance-covariance matrices (i.e., homoscedasticity). Stevens (2002) indicates that the Box's M test statistic is extremely sensitive to minor deviations from normality. Even though homoscedasticity is desirable, violation of this assumption does not significantly affect the study results (Hair 1998; Neter et al. 1985). Since research shows that this is not a mandatory condition for MANOVA, especially when sample sizes of treatment groups are almost equal, further investigation of this matter was not performed. Therefore, Pillai's Trace, which is a more robust multivariate test statistic, was employed for the MANOVA procedure rather than the commonly used Wilk's Lambda (Leech, Barrett, and Morgan 2005; Mertler and Vannatta 2005).

Table 29: Box's M Test of Equality of Covariance Matrices

Box's M	176.098
F	5.552
df1	30
df2	49122.594
Sig.	<0.001

The results of the above assumption tests suggest that the multivariate normality and the homoscedasticity assumptions of MANOVA tests were violated. However, literature indicates that MANOVA procedures are robust to the violations of these assumptions. Further, a more conservative test statistic (Pillai's Trace) was used to interpret the MANOVA results, which is

robust in the face of violation of MANOVA assumptions. Therefore, given all the evidence above, it was concluded that MANOVA could be performed on this data set.

5.2.6.3 MANOVA Procedure

A variety of test statistics including Pillai's Trace, Wilk's Lambda, Roy's Largest Root, and Hotelling's Trace, are available to interpret the outcome of the MANOVA test results. Pillai's Trace was selected as the F-statistic for MANOVA statistical analysis because it is the most robust test statistic against violations of any of the assumptions underlying the use of MANOVA (Mertler and Vannatta 2005).

A full factorial MANOVA was conducted with attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk as the dependent variables, and sales promotion and involvement as the independent variables. The results of the overall MANOVA statistics of the data found empirical evidence that there was a significant multivariate main effect of sales promotion and involvement on the combination of the four dependent variables. In particular, results of the overall MANOVA statistics indicated that Pillai's Trace for sales promotion ($F = 10.340$, $p < 0.001$) demonstrated a significant multivariate main effect. Similarly, the involvement variable also showed a significant main effect ($F = 35.888$, $p < 0.001$). However, there was no significant interaction effect among the sales promotion and involvement on the combination of the four dependent variables. Specifically, the interaction between sales promotion and involvement as revealed by Pillai's Trace test statistic was not significant ($F = 1.302$, $p = 0.272$) (See **Table 30**).

Table 30: MANOVA Results

Effect	Test Statistic	Value	F	Hypothesis df	Error df	Sig.
Sales Promotion	Pillai's Trace	0.250	10.936	4	131	**<0.001**
Involvement	Pillai's Trace	0.482	30.465	4	131	**<0.001**
Sales Promotion with Involvement	Pillai's Trace	0.049	1.678	4	131	0.159

Since both sales promotion and involvement were significant factors, further analyses were conducted to examine their univariate effects on the several ad effectiveness variables. Before conducting multiple univariate ANOVA's, a Bonferroni correction was made to control for inflated Type I error rate (Tabachnick and Fidell 2001). In order to make this adjustment, a more stringent significance level was set for the test of each dependent variable. Because the study used four dependent variables, each univariate ANOVA test was conducted at the significance level of 0.0125 (0.05/4).

One additional univariate ANOVA test was conducted to analyze the effect of involvement on consumers' attitudes towards coupon. Therefore, the results of the univariate ANOVA's for the involvement construct were analyzed at the significance level of 0.01 (0.05/5).

5.2.7 Tests of Hypotheses

5.2.7.1 Sales Promotion

$H_0$1: The first hypothesis stated that there is no significant difference in attitude towards the ad between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon. ANOVA results revealed that a statistically significant difference for attitude towards ad was present between consumers exposed to a coupon advertisement and consumers exposed to a no-coupon advertisement (**Table 31**). The ad with a coupon generated more positive attitudes

towards the ad, compared to the ad without a coupon ($Mean_{Coupon}$ = 6.27, SD_{Coupon} = 0.97 versus $Mean_{No\text{-}Coupon}$ = 5.5, $SD_{No\text{-}Coupon}$ = 1.24). Therefore, the null hypothesis was rejected indicating that the presence of the coupon had an effect on consumers' attitude towards the ad.

Table 31: Univariate ANOVA Results

Source	Dependent Variable	Type III Sum of Squares	Mean Square	F	P-value
Sales Promotion (Coupon vs. No-coupon Ad)*	Attitude towards the ad	18.622	18.622	26.604	**<0.001**
	Attitude towards the brand	15.758	15.758	14.490	**<0.001**
	Drug Inquiry Intention	32.863	32.863	18.692	**<0.001**
	Perceived product risk	.002	.002	.001	.970
Involvement (High vs. Low)#	Attitude towards the ad	73.365	73.365	104.815	**<0.001**
	Attitude towards the brand	68.485	68.485	62.976	**<0.001**
	Drug Inquiry Intention	55.535	55.535	31.587	**<0.001**
	Perceived product risk	22.238	22.238	13.444	**<0.001**

* Results were interpreted at a stringent alpha level of 0.0125.
# Results were interpreted at a stringent alpha level of 0.01.

$H_0$2: The second hypothesis stated that there is no significant difference in attitude towards the brand between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon. The results of ANOVA revealed that participants' attitudes towards the brand differed significantly for consumers exposed to a coupon advertisement from the consumers exposed to a no-coupon advertisement (**Table 31**). The ad with a coupon generated more positive attitudes towards brand, compared to the ad without a coupon ($Mean_{Coupon}$ = 6.18, SD_{Coupon} = 1.01 versus $Mean_{No\text{-}Coupon}$ = 5.52, $SD_{No\text{-}Coupon}$ = 1.46). Therefore, the null hypothesis was rejected indicating that the presence of the coupon had an effect on consumers' attitude towards the brand.

$H_0$3: The third hypothesis stated that there is no significant difference in drug inquiry intention between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon. Univariate ANOVA results from **Table 31** indicated that consumers who were exposed to a coupon ad had significantly more favorable perceptions to inquire about the drug during their next visit to a doctor than consumers exposed to a no-coupon ad. The ad with a coupon generated more positive drug inquiry intentions, compared to the ad without a coupon ($Mean_{Coupon}$ = 6.01, SD_{Coupon} = 1.15 versus $Mean_{No\text{-}Coupon}$ = 5.05, $SD_{No\text{-}Coupon}$ = 1.72). Therefore, the null hypothesis was rejected indicating that the presence of the coupon had an effect on consumers' drug inquiry intention.

$H_0$4: The fourth hypothesis stated that there is no significant difference in perceived product risk between consumers exposed to a DTC ad with a coupon versus a DTC ad without a coupon. ANOVA results indicated no significant difference on perceived product risk between consumers exposed to a coupon advertisement and consumers exposed to a no-coupon advertisement (See **Table 31**). Although the difference was not significant, the results showed that the ad with a coupon had generated slightly more positive product risk perceptions, compared to the ad without a coupon ($Mean_{Coupon}$ = 5.18, SD_{Coupon} = 1.44 versus $Mean_{No\text{-}Coupon}$ = 5.20, $SD_{No\text{-}Coupon}$ = 1.25). Therefore, the null hypothesis was failed to be rejected indicating that presence of the coupon did not have an effect on consumers' perceived product risk.

5.2.7.2 Involvement

$H_0$5: The fifth hypothesis stated that there is no significant difference in attitude towards the ad between high involvement consumers and low involvement consumers. The results of univariate

ANOVA indicated that participants' attitudes towards the ad differed significantly for consumers who were high in involvement from the consumers who were low in involvement (**Table 31**). Individuals who were high in involvement had generated more positive attitude towards ad, compared to the individuals who were low in involvement ($Mean_{High} = 6.64$, $SD_{High} = 0.59$ versus $Mean_{Low} = 5.19$, $SD_{Low} = 1.15$). Therefore, the null hypothesis was rejected indicating that the individuals' level of involvement had an effect on his/her attitude towards brand.

$H_0$6: The sixth hypothesis stated that there is no significant difference in attitude towards the brand between high involvement consumers and low involvement consumers. Univariate ANOVA indicated that statistically significant difference existed on the attitude toward the brand between high involvement and low involvement audience (**Table 31**). High involvement subjects had generated a more positive attitude towards the brand, compared to the low involvement subjects ($Mean_{High} = 6.55$, $SD_{High} = 0.86$ versus $Mean_{Low} = 5.15$, $SD_{Low} = 1.28$). Therefore, the null hypothesis was rejected indicating that the individuals' involvement affects his/her perception about a brand.

$H_0$7: Hypothesis seven stated that there is no significant difference in drug inquiry intention between high involvement consumers and low involvement consumers. Univariate ANOVA results in **Table 31** indicated that consumers who were more involved were more likely to inquire about the drug during their next visit to a doctor than the consumers who were less involved. High involvement consumers generated more positive drug inquiry intentions, compared to the low involvement consumers ($Mean_{High} = 6.15$, $SD_{High} = 1.05$ versus $Mean_{Low} =$

4.90, SD_{Low} = 1.68). Therefore, the null hypothesis was rejected indicating that the individuals' level of involvement affects his/her intention to engage in drug inquiry behavior.

$H_0$8: The eighth hypothesis stated that there is no significant difference in perceived product risk between high involvement consumers and low involvement consumers. Univariate ANOVA results indicated that there was a significant difference between high and low involvement consumers on their perception about the risks associated with the drug (**Table 31**). High involvement consumers had more favorable perceptions about the product's risks (i.e., perceived as more safe) than the low involvement consumers ($Mean_{High}$ = 5.65, SD_{High} = 1.30 versus $Mean_{Low}$ = 4.79, SD_{Low} = 1.25). Therefore, based on ANOVA results the null hypothesis was rejected indicating that the individuals' level of involvement affects his/her perception about the risks associated with the drug.

$H_0$9: The ninth hypothesis stated that there is no significant difference in attitude towards the coupon between high involvement consumers and low involvement consumers exposed to a DTC ad with a coupon. Univariate ANOVA results indicated that high and low involvement consumers differed significantly in their attitudes towards the coupon (**Table 32**). High involvement consumers had more favorable attitudes than the low involvement consumers ($Mean_{High}$ = 6.78, SD_{High} = 0.41 versus $Mean_{Low}$ = 5.85, SD_{Low} = 0.97). Therefore, the null hypothesis was rejected indicating that the individuals' level of involvement affects his/her attitudes towards the coupon present in the advertisement.

Table 32: ANOVA results for effect of involvement on Attitude towards the coupon

Dependent Variable: Attitudes towards the coupon

Source	Type III Sum of Squares	Df	Mean Square	F	P-value
Intercept	2710.835	1	2710.835	4812.583	<0.001
Involvement	14.703	1	14.703	26.102	**<0.001**
Error	37.177	66	.563		
Total	2753.320	68			

Note: Results were interpreted at a stringent alpha level of 0.01.

$H_0$10 – $H_0$13: Since there was no significant interaction effect between sales promotion and involvement, univariate ANOVA's were not performed for this effect. Consequently, hypotheses 10 thru 13 failed to be rejected. This indicates that involvement did not play the role of moderator variable. This means that consumer's level of involvement (high or low) in getting a treatment for high cholesterol condition did not moderate the relationships between sales promotion variable (coupon vs. no-coupon) and the outcomes measures mainly, attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk.

5.2.8 Supplementary Analyses

Tests of MANOVA assumptions conducted in the previous section indicated violation of the multivariate normality homoscedasticity assumptions. Further, the literature indicates that MANOVA procedures are extremely sensitive to the presence of outliers in the data. Literature also suggests that MANOVA procedures are fairly robust to the violation of their underlying assumptions. However, it is not clear as to what extent the violations of these assumptions are tolerated by the MANOVA procedures.

In order to address this issue, analyzing the data with statistical procedures that do not make such stringent assumptions was considered more appropriate. Therefore, two such approaches were used for analyzing the data. In the first approach, data was analyzed using separate univariate ANOVA's. In the second approach, data was analyzed using non-parametric ANOVA's, as there is no requirement of normality and homoscedasticity of the data for this procedure.

The results of these two analytical procedures indicated the exact same findings as presented in the previous section of MANOVA and ANOVA. In the first approach, separate univariate ANOVA tests were conducted on the four dependent variables mainly, attitude towards ad, attitude towards brand, drug inquiry intention, and perceived product risk, to detect if significant differences existed between the two sales promotion groups. Bonferroni correction was applied in order to control for the type I error rate. Accordingly, these tests were interpreted at a reduced alpha = 0.0125 (0.05/4). The results of these analyses revealed a significant difference on the first three outcome variables across the two sales promotion groups. However, there was no significant difference between the two groups on respondents perceived product risk (See **Table 33**). Thus, on the basis of these results, hypotheses $H_0 1 – H_0 3$ were rejected. However, the null hypothesis $H_0 4$ failed to be rejected.

Table 33: Separate Univariate ANOVAs with Sales Promotion as Independent variable

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Sales Promotion	Attitude towards ad	17.74	1	17.74	14.21	<0.001
	Attitude towards brand	14.91	1	14.91	9.42	0.003
	Drug Inquiry Intention	31.85	1	31.85	14.78	<0.001
	Perceived Product Risk	0.02	1	0.02	0.01	0.918

Further, separate univariate ANOVA's were also performed on the five dependent variables mainly, attitude towards ad, attitude towards brand, drug inquiry intention, perceived product risk and attitude towards coupon to detect if significant differences existed between the two involvement groups. ANOVA on attitude towards the coupon was only performed on the subjects who were exposed to the ad with a coupon (since the no-coupon group did not have this measure). After applying Bonferroni correction, these tests were interpreted at a stringent alpha of 0.01 (0.05/5) rather than alpha = 0.05. According to the results of these tests, it was evident that there existed significant differences on all of the five dependent variables (See **Table 34**). Thus, on the basis of these results, hypotheses $H_0$5 – $H_0$9 were rejected.

Table 34: Separate Univariate ANOVAs with Involvement as Independent variable

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Involvement	Attitude towards ad	72.69	1	72.69	86.07	<0.001
	Attitude towards brand	67.76	1	67.76	56.78	<0.001
	Drug Inquiry Intention	54.60	1	54.60	27.46	<0.001
	Perceived Product Risk	22.07	1	22.07	13.43	<0.001
	Attitude towards coupon	14.70	1	14.70	26.10	<0.001

Data presented in **Table 35**, indicate that the consumers who were exposed to the ad with a coupon had significantly more favorable ad and brand attitudes, and intentions to inquire about the advertised drug. According to the data presented in **Table 36**, high involvement individuals had significantly more positive perceptions towards the ad, brand, coupon, drug inquiry intention and perceived product risk.

Table 35: Descriptive Statistics for Sales Promotion

Dependent Variable	Type of Sales Promotion	Mean	SD
Attitude towards ad	Coupon	6.27	0.97
	No-Coupon	5.55	1.24
Attitude towards brand	Coupon	6.18	1.01
	No-Coupon	5.52	1.46
Drug Inquiry Intention	Coupon	6.01	1.15
	No-Coupon	5.05	1.72
Perceived product risk	Coupon	5.18	1.44
	No-Coupon	5.20	1.25

Table 36: Descriptive Statistics for Involvement

Dependent Variable	Involvement Category	Mean	SD
Attitude towards ad	Low Involvement	5.19	1.15
	High Involvement	6.64	0.59
Attitude towards brand	Low Involvement	5.15	1.28
	High Involvement	6.55	0.86
Drug Inquiry Intention	Low Involvement	4.90	1.69
	High Involvement	6.16	1.05
Perceived product risk	Low Involvement	4.79	1.26
	High Involvement	5.59	1.30
Attitude towards coupon	Low Involvement	5.85	0.97
	High Involvement	6.78	0.41

In the second approach, separate non-parametric univariate ANOVA's were performed on the outcome variables attitude towards ad, attitude towards brand, drug inquiry intention and perceived product risk to detect if significant differences existed between the two sales promotion groups. The results of these analyses were interpreted at a stringent alpha of 0.0125 after applying a Bonferroni correction. The results of these analyses indicated the presence of a significant difference for the first three outcome variables across the two sales promotion groups. However, there was no significant difference between the two groups on respondents perceived product risk (See **Table 37**). Thus, on the basis of these results, hypotheses $H_0 1 – H_0 3$ were rejected. However, the null hypothesis $H_0 4$ failed to be rejected.

Table 37: Kruskal-Wallis Non-Parametric ANOVAs for Sales Promotion as Independent Variable

Dependent Variable	Chi-Square	df	Asymp. Sig.
Attitude towards ad	14.08	1	<0.001
Attitude towards brand	8.75	1	0.003
Drug Inquiry Intention	13.96	1	<0.001
Perceived Product Risk	0.01	1	0.920

Next, separate non-parametric ANOVAs were also conducted on the five outcomes variables mainly, attitude towards ad, attitude towards brand, drug inquiry intention, perceived product risk and attitude towards coupon to determine if differences were present between the two involvement groups. A Bonferroni correction was applied as multiple tests were employed and the results of these tests were interpreted at a stringent alpha level of 0.01 (0.05/5). The results of these analyses provided in **Table 38** indicated the presence of a significant difference for all of the five variables across the two involvement groups. Thus, on the basis of these results, hypotheses $H_0$5 – $H_0$9 were rejected.

Table 38: Kruskal-Wallis Non-Parametric ANOVAs for Involvement as Independent Variable

Dependent Variable	Chi-Square	df	Asymp. Sig.
Attitude towards ad	62.80	1	<0.001
Attitude towards brand	55.48	1	<0.001
Drug Inquiry Intention	29.25	1	<0.001
Perceived product risk	14.22	1	<0.001
Attitude towards coupon	22.77	1	<0.001

Information on mean ranks provided in the **Table 39** indicated that respondents who were exposed to the ad with a coupon generated more favorable perceptions towards the ad, brand and drug inquiry intention. Further, data from **Table 40** suggested that high involvement individuals

had more favorable ad, brand and coupon attitudes, drug inquiry intention and perceived product risk. Since the non-parametric tests do not make stringent assumptions like parametric tests (MANOVA), the conclusions provided in the next chapter are based on the results of the non-parametric tests.

Table 39: Descriptive Statistics for Sales Promotion

Dependent Variable	Type of Sales Promotion	Mean Rank
Attitude towards ad	Coupon	82.21
	No-Coupon	57.15
Attitude towards brand	Coupon	79.53
	No-Coupon	59.76
Drug Inquiry Intention	Coupon	82.32
	No-Coupon	57.05
Perceived product risk	Coupon	69.85
	No-Coupon	69.16

Table 40: Descriptive Statistics for Involvement

Dependent Variable	Involvement Category	Mean Rank
Attitude towards ad	Low Involvement	43.41
	High Involvement	96.35
Attitude towards brand	Low Involvement	44.97
	High Involvement	94.75
Drug Inquiry Intention	Low Involvement	51.48
	High Involvement	88.05
Perceived product risk	Low Involvement	56.88
	High Involvement	82.49
Attitude towards coupon	Low Involvement	23.80
	High Involvement	45.85

CHAPTER 6

DISCUSSION AND CONCLUSIONS

Summary of the major findings of this study and discussions of the significance of the findings relative to consumers' attitude and behavioral patterns are presented in the first section of this chapter. In addition to the discussion of the study results, implications of the research findings, limitations of the research design, and directions for future research in this area are discussed in the subsequent sections.

6.1 Discussion of the Study Results

In recent years, coupon promotion has become very popular and is one of the fastest growing areas of sales promotion in DTC advertising of prescription medications. In particular, the reason for the popularity of coupon promotions is their potential to attract consumers' attention. These types of promotions are becoming fairly common for new products entering the market or for older products that are competing with others to maintain their market share. Despite its widespread use, coupon promotion has not yet received commensurate attention in the DTC advertising literature.

Drawing from the literature on persuasive communication, the current study utilized print ads for a fictitious cholesterol-lowering drug to capture consumers' responses to several ad effectiveness variables. The intention of this study was to investigate the overall persuasive impact of coupon promotions in DTC advertising and its underlying mechanism. Therefore, data

were analyzed to determine whether prescription drug ads with coupons are more effective in generating favorable audience responses towards advertising than prescription drug ads without coupons. Data were also investigated to determine if consumer's level of involvement (high vs. low) in lowering their blood cholesterol played the role of a moderator variable in examining the relationship between the sales promotion techniques and the DTC ad effectiveness measures. Thus, the study adds new information in the DTC advertising literature.

Results indicated that consumers in general had more favorable perceptions towards all of the advertising measures used in the study. Specifically, consumers had significantly favorable perceptions regarding their involvement, attitude towards ad, attitude towards brand, attitude towards coupon, drug inquiry intention and perceived product risk. These results are consistent with the findings in the literature that consumers in general have more favorable attitude towards DTC advertising of prescription drugs (Perri and Nelson Jr 1987; Pinto et al. 1998; Williams and Hensel 1995).

In order to reduce response bias and increase the validity of study results, a false response check item was included in the questionnaire. Consumers' brand name awareness of prescription cholesterol-lowering medications was used as a measure to check for false responses. Information was gathered on consumers' brand name awareness for Crestor®, Lipitor®, Zetia® and Vytorin®. A non-existent prescription medication, Lipirid®, was included among these medications as a test for false responses. The four brand name medications received high awareness ratings. However, the high awareness ratings received by the four prescription medications should be considered in light of the fact that Lipirid® has received 9.2% awareness rating. One possible explanation for this awareness rating is that the brand name Lipirid® closely

resembled the brand name drug Lipitor®. Furthermore, in the questionnaire it was the next choice after Lipitor®.

The logic behind using the false response check is to eliminate participants who provide spurious responses. When totally different names are used to account for false responses they become more obvious to the respondents. In such cases, respondents could possibly use the "odd man out" strategy in order to eliminate the false response choice. On the other hand, when the false response choice resembles closely with the true response choice, the respondents have to undergo careful consideration before making any selection. This indicates that respondents who paid close attention while answering this question have also carefully answered the remaining questions. Therefore, inclusion of such type of false response, increases the validity of the study results.

6.1.1 Coupon Promotion and DTC Ad Effectiveness

To our knowledge, this is the first study that has attempted to investigate the effect of coupon promotions on DTC advertising effectiveness. The findings tap into a new domain in pharmaceutical advertising and marketing. The results of non-parametric analyses indicate the presence of a significant difference between consumers who were exposed to the ad with a coupon and consumers who were exposed to the ad without a coupon on several ad effectiveness variables. In particular, consumers who were exposed to the ad with a coupon had more favorable attitude towards ad, attitude towards brand, and drug inquiry intention compared to the consumers who were exposed to the ad without a coupon. This indicates that coupons in prescription drug ads can be considered as effective means of changing consumers' attitudes towards the positive end, particularly with regard to attitude towards the ad and the brand.

Pharmaceutical marketing professionals are generally concerned about the negative impact of these sales promotion strategies. The results reported here should alleviate these fears of negative influences as they clearly indicate that consumers who were exposed to the ad with a coupon had more favorable perceptions about the ad and the brand image.

It is also interesting to note that the ad with a coupon had a significantly more favorable impact on higher order behavioral responses, such as drug inquiry intention. In terms of behavioral impact, this means that consumers who were exposed to the ad with a coupon were more likely to ask their doctor about the advertised medication during their next visit than the consumer who were exposed to the ad without a coupon. Thus, from a pharmaceutical marketer's perspective, coupons in DTC ads act as a motivational vehicle which stimulates the consumer to ask their doctor about the advertised medication. These results clearly underscore the important influence of coupon promotions on ad effectiveness variables.

Another interesting finding was that there was no significant difference in perceived products risk between consumers who were exposed to the ad with a coupon and those who were exposed to the ad without a coupon. The results of this study indicate that consumers like to see coupons in prescription drug ads. However, the study results also suggest that presence of a coupon in the ad does not necessarily make the drug appear safer than the drug that is advertised without a coupon. This finding should allay the fears of opponents who argue that having coupons in prescription drug ads would make the medication appear less risky. Clearly, the findings of this study also indicate that consumer's apprehension about the risks of using the product is not increased because of the presence of a coupon.

As the prescription drug market is becoming increasingly crowded within numerous disease states, coupon promotions in DTC advertising appears to be playing a key role in helping

the ads to stand out from the crowd. In spite of the concerns raised by other researchers and opponents, it can be inferred from the results that coupon promotions serve as a powerful tool in grabbing consumers' attention. Research in the past has demonstrated that increased attention leads to more extensive processing, which in turn leads to higher memory and generation of favorable attitudes (Petty and Cacioppo 1985).

A long standing controversial issue that surrounds DTC advertising is consumers' increased demand for prescription drugs. This increased demand for prescription drugs is also a growing concern among third party payers and managed care organizations. Literature shows that advertising of prescription drugs has been criticized for promoting the product as if it is the best available option for the consumer. Some stakeholders believe that advertising prescription medications with a coupon may lead the consumers to try the advertised medication. The findings reported in the current study provide support to this contention to some extent as consumers exposed to prescription drug ad with a coupon had significantly more positive perceptions about the likelihood to inquire about the drugs. Furthermore, past research suggests that new drug inquires initiated by patients usually lead to a prescription request.

The findings reported here regarding the impact of coupon promotions on the ad effectiveness measures are consistent with the findings in the literature across different product categories (Hahn et al. 1995; Leclerc and Little 1997; Ward and Davis 1978). Literature suggests that ads with coupons would typically generate more favorable audience responses towards the ads as compared to ads without coupons. Investigation of this effect in the prescription drug category is the unique aspect of this study. Thus, the findings of this study suggest that prescription drug ads with coupons provide the competitive advantage marketers want in the fiercely competitive market. Drawing from these finding, pharmaceutical marketers may want to

make use of coupons while advertising their medications to the consumers in order to increase the overall influence of their promotional campaigns.

6.1.2 Involvement and DTC Ad Effectiveness

Previous research suggests that ads will be more effective (i.e., more favorable attitude towards the ad, brand, coupon, and behavioral intentions) when the ads bear some personal relevance to the respondent (Petty, Cacioppo, and Goldman 1981; Zhang and Buda 1999). These findings demonstrated significant difference between high and low involvement consumers with regard to processing of DTC advertising. Specifically, high involvement individuals had more favorable attitude towards ad, attitude towards brand, attitude towards coupon, drug inquiry intention and perceived product risk than those who were less involved. Each of these results indicates greater ad effectiveness. These results are consistent with past consumer involvement research where individuals at higher levels of involvement are more likely to thoroughly process ad information and form more positive perceptions of the ad, resulting in higher ad effectiveness.

The format of direct-to-consumer prescription drug advertisements is being debated at the national level and some of the suggested formats include much simpler advertisements than were used in this study. For example, risk information window format (FDA 2003) and nutrition facts panel (Roberts 2003). This study used a question and answer format which is somewhat more complex than risk information window and nutrition facts panel format. Traditional formats are more complex than what was used in this study. Based on these results pharmaceutical marketers may prefer ads with greater levels of information to be processed when targeting high involvement consumers. Ads such as this will provide information that is of use to the consumer in their information processing. Furthermore, from a behavioral perspective, the significant

difference in drug inquiry intention means that high involvement consumers are more likely to ask their doctor about the advertised medicine. However, because these same individuals also had more favorable perceptions of product risk there is a danger that these consumers may be underestimating the risk information. This could explain, at least in part, why high involvement consumers are more likely to ask their doctor about the advertised medication.

6.1.3 Moderating Role of Involvement and DTC Ad Effectiveness

The results of multivariate analysis indicate that there was no significant interaction effect of sales promotion manipulation and level of involvement on any of the ad effectiveness measures. This means that there were no significant differences in perceptions and behavioral intentions between consumers who saw the ad with a coupon and consumers who saw the ad without a coupon due to their level of involvement. Thus, the basic argument proposed in this study (based on ELM) that involvement moderates the effect of coupon promotion, was not supported.

This study was undertaken to analyze the true impact of coupon promotions on consumer's attitudes and behavioral intentions. Therefore, the message argument presented in both the advertising stimuli was kept identical. Coupons of prescription drug ads usually contain all the information that was present in the advertising stimulus that was used in the current study. Therefore, reducing the content material present within the coupon of the prescription drug ad (i.e., to reflect only face value of the coupon) would have compromised the external validity of the study.

One possible explanation for the lack of moderating role of involvement is this lack of variation in the message argument. Further, based on the results it can also be concluded that

coupons, in fact, acted as central argument rather than peripheral. This is possible because the coupon itself contained information regarding redemption, eligibility, terms and condition etc. Furthermore, this is the type of information consumers need while making decisions about using the coupon for the advertised drug. Therefore, it is understandable that the consumers could have processed this information via the central route rather than the peripheral route. Another possible explanation for consumers processing of this information via the central route is the unique characteristic of this type of product category. Since prescription drugs are different than consumer packaged goods, consumers would like to process more information before making a decision. Further, researchers in the past have found that attitude changes induced through the central route of processing were relatively enduring, resistant to counterattitudinal messages and more predictive of behavior (Cialdini, Petty, and Cacioppo 1981; Petty and Cacioppo 1980).

6.2 Conclusion

The goal of this research was to develop a better understanding of the impact of coupon promotions on consumer's ad related responses. The findings reported in this study are unique in empirically revealing the influence of coupon promotions on the nature and extent of consumer's perceptions and behavioral intentions, and their information processing. Thus, the results of this study cover new ground in prescription drug advertising and marketing research literature.

The distinctive aspect of this study is that it provides pertinent and current insight into the influence of sales promotion on consumer's perceptions to all stakeholders. The results of this study provide a wealth of data that is of interest to various audiences including regulators, consumer advocate groups, pharmaceutical manufacturers and academic researchers. The results show that coupon promotions in prescription drug advertising play an integral part in formation

of favorable consumer attitudes towards the DTC ad. Considering that FDA is planning on tightening the regulatory guidelines of DTC advertising in the near future, this study provides rich data for immediate and important consideration to the regulators.

Empirical results of this experiment indicate full support for the effects of sales promotion and consumer involvement on ad effectiveness variables as demonstrated in the previous section. Sales promotion was shown to have a significant impact on consumers' responses to ad effectiveness measures. Specifically, consumers exposed to the ad with a coupon generated more favorable perceptions about the attitude towards ad, attitude towards brand and drug inquiry intention. Interestingly, there was no significant difference between consumers who were exposed to the ad with a coupon and those who were exposed to the ad without a coupon with regards to their perceived product risk. The main effect of involvement on consumers' responses to ad effectiveness measures was also supported by empirical data. In particular, high involvement consumers generated more favorable attitude towards the ad, brand, coupon, drug inquiry intention and perceived product risk compared to the ones who were less involved. Since there was no significant interaction effect between involvement and sales promotion, consumer's level of involvement did not act as a moderator variable.

The results of this study have potentially significant applied and theoretical implications. In terms of the applied aspect of the research, findings provide support for the intuitive notion that coupon promotions in prescription drug advertising can have a positive impact on consumer's attitudes and behaviors. Additionally, this research provides information on how coupon promotions can influence consumers' responses to advertising, thus, offering practical implications for marketers and brand managers in undertaking future advertising campaigns.

In addition to the study's applied implications, the influence of sales promotion and consumer involvement effects offer important conceptual consideration as well. The current study represents the first known effort to investigate the effectiveness and utility of the practice of coupon promotion in the area of prescription drug advertising. This study is different from the dominant descriptive content analysis studies of advertising appeals used in DTC advertising research. The distinct aspect of the study is that a theoretical framework was applied to examine the mechanism by which coupon promotions influence DTC ad effectiveness measures. The current study advances the DTC advertising literature by using theoretical rationale (i.e., elaboration likelihood model) to examine this persuasion technique from a consumer-attitude and behavior perspective, with the use of a product that is relevant to its target population.

This research has addressed a specific knowledge gap that existed within the persuasive communication literature in the advertising of prescription products. This study is of particular importance to those who are interested in pharmaceutical marketing communications. The results explain the importance of the sales promotion vehicles in consumer's decision making process and how to effectively evoke such decisions via use of advertising stimuli (coupons) that are not commonly used in the marketing of prescription drugs.

6.3 Practical Implications

Pharmaceutical companies usually advertise their products aggressively with an intension to register the name of their medications in the minds of the consumers. Sales promotion techniques like coupons give them the competitive advantage they need in order to achieve this objective. It can be inferred from the findings of this research that coupons in prescription drug

advertising have the potential to attract consumer's attention and further register the product in their mind.

The findings of this research have various practical implications for pharmaceutical marketing practitioners. First of all, using coupon promotions in advertising of prescription drugs will be more influential in the highly cluttered environment to win consumers higher attention and to further generate favorable ad and brand attitude and also stimulate the drug inquiry behavior.

The increased competition in many therapeutic categories in the prescription drug marketplace is due to slow market growth and the lack of significant differentiation between similar products. This pressure, in turn, is forcing marketing and brand managers to engage into using sales promotion techniques such as coupons. However, review of literature suggests that there is little knowledge regarding the dynamic effects of this promotional activity in DTC advertising of prescription drugs. The results of this study indicate that coupons have a positive influence on consumers' ad and brand attitudes. Thus, it gives assurance to these professionals that such promotions will not hamper the brand image and equity.

More than ever before, consumers are proactive and knowledgeable about issues regarding their health and well being. Findings of this research may also have implications in the area of medication compliance. It has been demonstrated that patient's non compliance with medications is associated with dissatisfaction with the prescription regimen selected by their physicians. Current study results indicate that prescription drug ads with coupon have significant influence on consumer's drug inquiry intention. Therefore it can very well be argued that consumers who engage in information search and initiate a dialogue with their physician are

more interested in their healthcare and the advertised drug itself. Thus, such an influence may result in increased medication compliance.

6.4 Limitations

The current study is unique in investigating the influence of coupon promotions on consumers ad related perceptions in the context of DTC advertising. It provides new insights into how consumers respond to coupon promotions in prescription drug advertising. However, like any other experimental research, the results of this study are subject to certain limitations. Therefore, researchers and practitioners should interpret the study results in the light of these limitations.

A cross-sectional study design was used for the data collection. Therefore, we are not assured to find the exact pattern in a longitudinal setting. Attitude formation is a constantly changing and evolving process. Consequently, a longitudinal study design would provide closer approximation to the actual behavior. Therefore, the ecological validity of this study needs to be interpreted with caution. Further, the strength of the relation between the variables should also be interpreted with caution.

The selection criteria used for the inclusion of the study participants limits the generalizability of the results of this study. The study sample comprised of more Caucasian, highly educated and higher annual household income individuals than the national and regional population. Therefore, the demographic distribution of the study sample was not representative of the general population. This can be considered as a potential bias of the sample of the study. Therefore, the results of this study cannot be readily generalized.

Caution should be exercised while generalizing the results of this study to other prescription drug advertisements or other therapeutic categories. This is because the advertisement used in this study was specific to cholesterol-lowering drug and other drug therapies may differ in their risk profiles.

In this study a forced ad exposure was used, so the possibility that the respondents could have processed the ad differently, than they would have naturally, cannot be denied. However, caution was taken towards this front and respondents were provided specific instructions to process the ad as they would normally do in their home. Only a single ad exposure was used to capture consumers' responses, and it is important to note that attitude formation might require several ad exposures.

The advertising stimuli used in this research were developed from the currently disseminated ads that were FDA approved. However, the advertising stimuli used in this study did not bear any FDA approval. In future, researchers could possibly obtain prior FDA approval in order to comply with regulatory guidelines.

6.5 Directions for Future Research

Given the dearth of research on coupon promotions in prescription drug advertising, there is much left to be examined in this area and the results of this study opens doors for numerous possibilities of investigation. Consequently, grounded research using an appropriate framework is further desired to conduct research in this growing area of sales promotion. The findings of this study make unique and valuable contribution to the existing DTC advertising literature by addressing the need for greater clarification regarding the effectiveness of external stimuli like

coupons in evoking positive behavioral intentions and attitudes among its potential consumers. The following are possible avenues for future inquiries in this area.

The current study employed print DTC ad media to understand the influence of coupons. It would be interesting to investigate whether similar results can be replicated with other media types, particularly with electronic media like television and in particular, online advertising given the increasing influence of World Wide Web. Impact of DTC advertising on medication compliance is an area that is unexplored. Further, pharmaceutical manufactures argue that DTC advertising can serve as reminders for people to take their medications. Therefore, it is imperative to investigate how these innovative sales promotion techniques employed by marketing professionals affect consumer's health related knowledge and medication compliance. Impact of DTC advertising on the medical and pharmacy professions remains unclear. Future research should explore healthcare professional's opinions regarding the impact of sales promotion strategies on their decision making and patient-healthcare professional relationship. Impact of other characteristics of coupons such as colors, font size and positioning, and picture size on consumers' ad related attitudes and behaviors should be examined. Further, it would be interesting to conduct a similar inquiry in the future with real prescription drugs that are already available in the market.

REFERENCES

Abel, G. A., S. J. Lee, and J. C. Weeks (2007), "Direct-to-Consumer Advertising in Oncology: A Content Analysis of Print Media," *Journal of Clinical Oncology*, 25 (10), 1267-71.

Ailawadi, Kusum L., Scott A. Neslin, and Karen Gedenk (2001), "Pursuing the Value-Conscious Consumer: Store Brands Versus National Brand Promotions," *Journal of Marketing*, 65 (1), 71-89.

Alperstein, Neil M. and Mark Peyrot (1993), "Consumer Awareness of Prescription Drug Advertising," *Journal of Advertising Research*, 33 (4), 50-56.

Andrews, J. Craig, Syed H. Akhter, Srinivas Durvasula, and Darrel D. Muehling (1992), "The Effects of Advertising Distinctiveness and Message Content Involvement on Cognitive and Affective Responses to Advertising," *Journal of Current Issues & Research in Advertising*, 14 (1), 45-58.

Andrews, J. Craig, Srinivas Durvasula, and Syed H. Akhter (1990), "A Framework for Conceptualizing and Measuring the Involvement Construct in Advertising Research," *Journal of Advertising*, 19 (4), 27-40.

Auton, F. (2006), "Direct-to-Consumer Advertising (Dtca) of Pharmaceuticals an Updated Review of the Literature and Debate since 2003," *Economic Affairs*, 26 (3), 24-32.

Balazs, A. L., J. Yermolovich, and G. M. Zinkhan (2000), "Direct-to-Consumer Advertising: An Ad Processing Perspective," *Marketing in a Global Economy: Proceedings of the 2000 American Marketing Association International Marketing Conference*, 478–86.

Bawa, Kapil (1996), "Influences on Consumer Response to Direct Mail Coupons: An Integrative Review," *Psychology & Marketing*, 13 (2), 129-56.

Bawa, Kapil and Robert W. Shoemaker (1987a), "The Coupon-Prone Consumer: Some Findings Based on Purchase Behavior across Product Classes," *Journal of Marketing*, 51 (4), 99-110.

--- (1987b), "The Effects of a Direct Mail Coupon on Brand Choice Behavior," *Journal of Marketing Research*, 24 (4), 370-76.

--- (1989), "Analyzing Incremental Sales from a Direct Mail Coupon Promotion," *Journal of Marketing*, 53 (3), 66-78.

Bearden, William O., Donald R. Lichtenstein, and Jesse E. Teel (1984), "Comparison Price, Coupon, and Brand Effects on Consumer Reactions to Retail Newspaper Advertisements," *Journal of Retailing*, 60 (2), 11.

Bell, R. A., R. L. Kravitz, and M. S. Wilkes (2000a), "Direct-to-Consumer Prescription Drug Advertising, 1989-1998. A Content Analysis of Conditions, Targets, Inducements, and Appeals," *The Journal Of Family Practice*, 49 (4), 329-35.

Bell, R. A., M. S. Wilkes, and R. L. Kravitz (2000b), "The Educational Value of Consumer-Targeted Prescription Drug Print Advertising," *J Fam Pract*, 49 (12), 1092-8.

Blattberg, Robert C. and Scott A. Neslin (1990), *Sales Promotion : Concepts, Methods, and Strategies*, Englewood Cliffs, N.J. : Prentice Hall.

Bowman, Russell (1980), *Coupons and Rebates: Profits on the Dotted Line*, New York: Chain Store Publishing.

Bureau, U.S. Census (2000), "Demographic Profiles," http://censtats.census.gov/data/US/01000.pdf.

Burton, Scot and Donald R. Lichtenstein (1988), "The Effect of Ad Claims and Ad Context on Attitude toward the Advertisement," *Journal of Advertising*, 17 (1), 3-11.

Calfee, John E. (2002), "Public Policy Issues in Direct-to-Consumer Advertising of Prescription Drugs," *Journal of Public Policy & Marketing*, 21 (2), 174-93.

Christensen, T. P., F. J. Ascione, and R. P. Bagozzi (1997), "Understanding How Elderly Patients Process Drug Information: A Test of a Theory of Information Processing," *Pharmaceutical Research*, 14 (11), 1589-96.

Cialdini, Robert B., Richard E. Petty, and John T. Cacioppo (1981), "Attitude and Attitude Change," *Annual Review of Psychology*, 32, 357-404.

Cline, Rebecca J. Welch and Henry N. Young (2004), "Marketing Drugs, Marketing Health Care Relationships: A Content Analysis of Visual Cues in Direct-to-Consumer Prescription Drug Advertising," *Health Communication*, 16 (2), 131-57.

Cohen, Jacob (1965), "Some Statistical Issues in Psychological Research," in *Handbook of Clinical Psychology*, ed. Benjamin B. Wolman, New York: McGraw-Hill, 95-121.

--- (1988), *Statistical Power Analysis for the Behavioral Sciences*, Hillsdale, N.J.: L. Erlbaum Associates.

Deshpande, Aparna D. (2004), "Risk Communication in Prescription Drug Advertisements: An Investigation of Consumers' Information Processing from The "Brief Summary" In Print Dtc Ads," Unpublished Doctoral Dissertation, The University of Georgia.

Donohue, Julie M., Marisa Cevasco, and Meredith B. Rosenthal (2007), "A Decade of Direct-to-Consumer Advertising of Prescription Drugs," *The New England Journal Of Medicine*, 357 (7), 673-81.

Engel, James F., Roger D. Blackwell, and Paul W. Miniard (1986), *Consumer Behavior*, Chicago: The Dryden Press.

Everett, Stephen E. (1989), "Effects of Prescription Drug Warning Messages on Perceived Risk: An Elaboration Likelihood Approach," Unpublished Doctoral Dissertation, The University of Tennessee.

Fabrigar, Leandre R., Duane T. Wegener, Robert C. MacCallum, and Erin J. Strahan (1999), "Evaluating the Use of Exploratory Factor Analysis in Psychological Research," *Psychological Methods*, 4 (3), 272-99.

FDA (2003), "Brief Summary: Disclosing Risk Information in Consumer-Directed Print Advertisements," http://www.fda.gov/cder/guidance/5669dft.pdf.

Findlay, S. D. (2001), "Direct-to-Consumer Promotion of Prescription Drugs. Economic Implications for Patients, Payers and Providers," *PharmacoEconomics*, 19 (2), 109-19.

Gardner, Meryl Paula, Andrew A. Mitchell, and J. Edward Russo (1985), "Low Involvement Strategies for Processing Advertisements," *Journal of Advertising*, 14 (2), 4-56.

Gönül, F. F., F. Carter, and J. Wind (2000), "What Kind of Patients and Physicians Value Direct-to-Consumer Advertising of Prescription Drugs," *Health Care Manag Sci*, 3 (3), 215-26.

Gorn, Gerald J. (1982), "The Effects of Music in Advertising on Choice Behavior: A Classical Conditioning Approach," *Journal of Marketing*, 46 (1), 94-101.

Hahn, Minhi, Dae Ryun Chang, Ik-Tae Kim, and Yup Kim (1995), "Consumer Response to Coupon Advertising," *International Journal of Advertising*, 14 (1), 41-53.

Hair, Joseph F., Rolph E. Anderson, Ronald L. Tatham, and William C. Black (1998), *Multivariate Data Analysis*, Upper Saddle River, N.J.: Prentice Hall.

Handlin, Amy, Joseph B. Mosca, Dana A. Forgione, and Dennis Pitta (2003), "Dtc Pharmaceutical Advertising: The Debate's Not Over," *Journal of Consumer Marketing*, 20 (3), 227-37.

Harris, Richard J. (2001), *A Primer of Multivariate Statistics*, Mahwah, N.J.: Lawrence Erlbaum Associates.

Heron, Melonie P. and Betty L. Smith (2007), "Deaths: Leading Causes for 2003," *National Vital Statistics Reports: From The Centers For Disease Control And Prevention, National Center For Health Statistics, National Vital Statistics System*, 55 (10), 1-92.

Hollon, M. F. (2005), "Direct-to-Consumer Advertising: A Haphazard Approach to Health Promotion," *The Journal Of The American Medical Association*, 293 (16), 2030-3.

Huff, Lenard C. and Dana L. Alden (1999), "An Investigation of Consumer Response to Sales Promotions in Developing Markets: A Three-Country Analysis," *Advances in Consumer Research*, 26 (1), 41-45.

Inman, Jeffrey J. and Leigh McAlister (1994), "Do Coupon Expiration Dates Affect Consumer Behavior?," *Journal of Marketing Research*, 31 (3), 423-28.

Inman, Jeffrey J., Leigh McAlister, and Wayne D. Hoyer (1990), "Promotion Signal: Proxy for a Price Cut?," *Journal of Consumer Research*, 17 (1), 74-81.

Irons, K., J. Little, and R. Klein (1983), "Determinants of Coupon Effectiveness," *Proceedings of the 1983 ORSA/TIMS Marketing Science Conference*, 157–64.

Jenkins, V., L. Fallowfield, and J. Saul (2001), "Information Needs of Patients with Cancer: Results from a Large Study in Uk Cancer Centres," *British Journal Of Cancer*, 84 (1), 48-51.

Johnson, G. L. and A. Ramaprasad (2000), "Patient-Physician Relationships in the Information Age," *Mark Health Serv*, 20 (1), 20-7.

Kerlinger, Fred N. (1986), *Foundations of Behavioral Research*, New York: Holt, Rinehart and Winston.

Kokkinaki, Flora and Peter Lunt (1997), "The Relationship between Involvement, Attitude Accessibility and Attitude-Behaviour Consistency," *British Journal of Social Psychology*, 36 (4), 497-509.

Krishna, Aradhna and Z. John Zhang (1999), "Short- or Long-Duration Coupons: The Effect of the Expiration Date on the Profitability of Coupon Promotions," *Management Science*, 45 (8), 1041-56.

Laczniak, Russell N. and Darrel D. Muehling (1993), "Toward a Better Understanding of the Role of Advertising Message Involvement in Ad Processing," *Psychology & Marketing*, 10 (4), 301-19.

Lance, Charles E. and Robert J. Vandenberg (2002), "Confirmatory Factor Analysis," in *Measuring and Analyzing Behavior in Organizations: Advances in Measurement and Data Analysis*, ed. Fritz. Drasgow and Neal. Schmitt, San Francisco: Jossey-Bass.

Laroche, Michel, Frank Pons, Nadia Zgolli, Marie-CÃ©cile Cervellon, and Chankon Kim (2003), "A Model of Consumer Response to Two Retail Sales Promotion Techniques," *Journal of Business Research*, 56 (7), 513.

Leclerc, France and John D. C. Little (1997), "Can Advertising Copy Make Fsi Coupons More Effective?," *Journal of Marketing Research*, 34 (4), 473-84.

Leech, Nancy L., Karen C. Barrett, and George A. Morgan (2005), *Spss for Intermediate Statistics: Use and Interpretation*, Mahwah, N.J.: Lawrence Erlbaum.

Lenzer, J. (2005), "Fda Investigates Direct to Consumer Adverts," *Bmj*, 331 (7525), 1102.

Lexchin, Joel and Barbara Mintzes (2002), "Direct-to-Consumer Advertising of Prescription Drugs: The Evidence Says No," *Journal of Public Policy & Marketing*, 21 (2), 194-201.

Lichtenstein, Donald R. and William O. Bearden (1989), "Contextual Influences on Perceptions of Merchant-Supplied Reference Prices," *Journal of Consumer Research*, 16 (1), 55-66.

Lichtenstein, Donald R., Richard G. Netemeyer, and Scot Burton (1990), "Distinguishing Coupon Proneness from Value Consciousness: An Acquisition-Transaction Utility Theory Perspective," *Journal of Marketing*, 54 (3), 54-67.

Lipsky, M. S. and C. A. Taylor (1997), "The Opinions and Experiences of Family Physicians Regarding Direct-to-Consumer Advertising," *The Journal Of Family Practice*, 45 (6), 495-9.

Lord, Kenneth R. and Sanjay Putrevu (1998), "Communicating in Print: A Comparison of Consumer Responses to Different Promotional Formats," *Journal of Current Issues & Research in Advertising*, 20 (2), 1.

MacKenzie, Scott B. and Richard J. Lutz (1989), "An Empirical Examination of the Structural Antecedents of Attitude toward the Ad in an Advertising Pretesting Context," *Journal of Marketing*, 53 (2), 48-65.

MacKenzie, Scott B., Richard J. Lutz, and George E. Belch (1986), "The Role of Attitude toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations," *Journal of Marketing Research*, 23 (2), 130-43.

Martínez, Eva and Teresa Montaner (2006), "The Effect of Consumer's Psychographic Variables Upon Deal-Proneness," *Journal of Retailing & Consumer Services*, 13 (3), 157-68.

Menon, Ajit M. (2004), "Big Pharma & Celebrities: The Influence of Pharmaceutical Industry Credibility and Endorser Credibility on Consumer Responses to Direct-to-Consumer Prescription Drug Advertising," Unpublished Doctoral Dissertation, The University of Georgia.

Mertler, Craig A. and Rachel A. Vannatta (2005), *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation*, Glendale, CA: Pyrczak Publishing.

Meyers, Lawrence S., Glenn. Gamst, and A. J. Guarino (2006), *Applied Multivariate Research: Design and Interpretation*, Thousand Oaks, CA: SAGE.

Miniard, Paul W., Sunil Bhatla, Kenneth R. Lord, and Peter R. Dickson (1991), "Picture-Based Persuasion Processes and the Moderating Role of Involvement," *Journal of Consumer Research*, 18 (1), 92-107.

Miniard, Paul W., Deepak Sirdeshmukh, and Daniel E. Innis (1992), "Peripheral Persuasion and Brand Choice," *Journal of Consumer Research*, 19 (2), 226-39.

Mitchell, Andrew A. (1986), "The Effect of Verbal and Visual Components of Advertisements on Brand Attitudes and Attitude toward the Advertisement," *Journal of Consumer Research*, 13 (1), 12-24.

Mittal, Banwari (1994), "An Integrated Framework for Relating Diverse Consumer Characteristics to Supermarket Coupon Redemption," *Journal of Marketing Research*, 31 (4), 533-44.

Morris, L. A., D. Brinberg, R. Klimberg, C. Rivera, and L. G. Millstein (1986a), "The Attitudes of Consumers toward Direct Advertising of Prescription Drugs," *Public Health Reports (Washington, D.C.: 1974)*, 101 (1), 82-89.

Morris, Louis A., David Brinberg, Ron Klimberg, Carole Rivera, and Lloyd G. Millstein (1986b), "Miscomprehension Rates for Prescription Drug Advertisements," *Current Issues & Research in Advertising*, 9 (1), 93.

Muehling, Darrel D. and Russell N. Laczniak (1988), "Advertising's Immediate and Delayed Influence on Brand Attitudes: Considerations across Message-Involvement Levels," *Journal of Advertising*, 17 (4), 23-34.

Murray, E., B. Lo, L. Pollack, K. Donelan, and K. Lee (2003), "Direct-to-Consumer Advertising: Physicians' Views of Its Effects on Quality of Care and the Doctor-Patient Relationship," *J Am Board Fam Pract*, 16 (6), 513-24.

--- (2004), "Direct-to-Consumer Advertising: Public Perceptions of Its Effects on Health Behaviors, Health Care, and the Doctor-Patient Relationship," *J Am Board Fam Pract*, 17 (1), 6-18.

Narasimhan, Chakravarthi (1984), "A Price Discrimination Theory of Coupons," *Marketing Science*, 3 (2), 128.

Neslin, Scott A. (1990), "A Market Response Model for Coupon Promotions," *Marketing Science*, 9 (2), 125.

Neslin, Scott A. and Darral G. Clarke (1987), "Relating the Brand Use Profile of Coupon Redeemers to Brand and Coupon Characteristics," *Journal of Advertising Research*, 27 (1), 23-32.

Neslin, Scout A. and Robert W. Shoemaker (1983), "A Model for Evaluating the Profitability of Coupon Promotions," *Marketing Science*, 2 (4), 361.

Nunnally, Jum C. (1978), *Psychometric Theory*, New York: McGraw-Hill.

PAL (2006), "Consumer Advocates Call on Fda to Ban Prescription Drug Coupons," http://www.prescriptionaccess.org/press/pressreleases?id=0033.

Palumbo, F. B. and C. D. Mullins (2002), "The Development of Direct-to-Consumer Prescription Drug Advertising Regulation," *Food Drug Law J*, 57 (3), 423-43.

Park, C. Whan and S. Mark Young (1986), "Consumer Response to Television Commercials: The Impact of Involvement and Background Music on Brand Attitude Formation," *Journal of Marketing Research (JMR)*, 23 (1), 11-24.

Paul, David P., Amy Handlin, and Angela D'Auria Stanton (2002), "Primary Care Physicians' Attitudes toward Direct-to-Consumer Advertising of Prescription Drugs: Still Crazy after All These Years," *Journal of Consumer Marketing*, 19 (7), 564-74.

Perri, M., 3rd, S. Shinde, and R. Banavali (1999), "The Past, Present, and Future of Direct-to-Consumer Prescription Drug Advertising," *Clin Ther*, 21 (10), 1798-811; discussion 97.

Perri, Matthew and W. Michael Dickson (1988), "Consumer Reaction to a Direct--to--Consumer Prescription Drug Advertising Campaign," *Journal of Health Care Marketing*, 8 (2), 66-69.

Perri, Matthew and Arthur A. Nelson Jr (1987), "An Exploratory Analysis of Consumer Recognition of Direct-to-Consumer Advertising of Prescription Medications," *Journal of Health Care Marketing*, 7 (1), 9-17.

Petty, Richard E. and John T. Cacioppo (1980), "Effects of Issue Involvement on Attitudes in an Advertising Context," in *Proceedings of the Division*, Vol. 23, ed. Gerald J. Gorn and Marvin E. Goldberg, Montreal, Canada: American Psychological Association, 75-79.

--- (1981a), *Attitudes and Persuasion--Classic and Contemporary Approaches*, Dubuque, Iowa: W.C. Brown Co. Publishers.

--- (1981b), "Issue Involvement as a Moderator of the Effects on Attitude of Advertising Content and Context," *Advances in Consumer Research*, 8 (1), 20-24.

--- (1985), "Central and Peripheral Routes to Persuasion: The Role of Message Repetition," in *Psychological Processes and Advertising Effects : Theory, Research, and Applications*,

ed. Linda F. Alwitt and Andrew A. Mitchell, Hillsdale, N.J.: Lawrence Erlbaum Associates, 91-111.

--- (1986), *Communication and Persuasion : Central and Peripheral Routes to Attitude Change*, New York: Springer-Verlag.

Petty, Richard E., John T. Cacioppo, and Rachel Goldman (1981), "Personal Involvement as a Determinant of Argument-Based Persuasion," *Journal of Personality and Social Psychology*, 41 (5), 847-55.

Petty, Richard E., John T. Cacioppo, and David Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10 (2), 135-46.

Pines, W. L. (1999), "A History and Perspective on Direct-to-Consumer Promotion," *Food Drug Law J*, 54 (4), 489-518.

Pinto, M. B. (2000), "On the Nature and Properties of Appeals Used in Direct-to-Consumer Advertising of Prescription Drugs," *Psychological Reports*, 86 (2), 597-607.

Pinto, M. B., J. K. Pinto, and J. C. Barber (1998), "The Impact of Pharmaceutical Direct Advertising: Opportunities and Obstructions," *Health Mark Q*, 15 (4), 89-101.

Raju, P. S. and Manoj Hastak (1983), "Pre-Trial Cognitive Effects of Cents-Off Coupons," *Journal of Advertising*, 12 (2), 24-33.

Raphel, Murray (1995), "Happy Birthday, Dear Coupons," *Direct Marketing*, 58 (7), 42.

Reibstein, David J. and Phillis A. Traver (1982), "Factors Affecting Coupon Redemption Rates," *Journal of Marketing*, 46 (4), 102-13.

Roberts, Michael (2003), "Alternatives to The "Brief Summary"," http://www.fda.gov/cder/ddmac/P5Roberts/index.htm.

Robinson, A. R., K. B. Hohmann, J. I. Rifkin, D. Topp, C. M. Gilroy, J. A. Pickard, and R. J. Anderson (2004), "Direct-to-Consumer Pharmaceutical Advertising: Physician and Public Opinion and Potential Effects on the Physician-Patient Relationship," *Arch Intern Med*, 164 (4), 427-32.

Rosenthal, M. B., E. R. Berndt, J. M. Donohue, R. G. Frank, and A. M. Epstein (2002), "Promotion of Prescription Drugs to Consumers," *The New England Journal Of Medicine*, 346 (7), 498-505.

Roth, Martin S. (1996), "Patterns in Direct-to-Consumer Prescription Drug Print Advertising and Their Public Policy Implications," *Journal of Public Policy & Marketing*, 15 (1), 63-75.

--- (2003), "Media and Message Effects on Dtc Prescription Drug Print Advertising Awareness," *Journal of Advertising Research*, 43 (2), 180-93.

Rowland, Christopher (2005), "Drug Firms Seek Profit in Giveaways," http://www.boston.com/business/articles/2005/01/17/drug_firms_seek_profit_in_giveaways/.

Sanbonmatsu, David M. and Frank R. Kardes (1988), "The Effects of Physiological Arousal on Information Processing and Persuasion," *Journal of Consumer Research*, 15 (3), 379-85.

Sethuraman, Raj and John Mittelstaedt (1992), "Coupons and Private Labels: A Cross-Category Analysis of Grocery Products," *Psychology & Marketing*, 9 (6), 487-500.

Sewak, Saurabh S., Noel E. Wilkin, John P. Bentley, and Mickey C. Smith (2005), "Direct-to-Consumer Advertising Via the Internet: The Role of Web Site Design," *Research In Social & Administrative Pharmacy*, 1 (2), 289-309.

Shah, M. S., E. R. Holmes, and S. P. Desselle (2002), "The Use of Persuasion in Print Dtc Advertisements of Prescription Drugs: A Content Analysis of Leading Consumer Magazines from 1995-2000," *Journal of Pharmaceutical Marketing & Management*, 15, 23-43.

Sheffet, Mary Jane and Steven W. Kopp (1990), "Advertising Prescription Drugs to the Public: Headache or Relief?," *Journal of Public Policy & Marketing*, 9 (1), 42-61.

Shoemaker, Robert W. and Vikas Tibrewala (1985), "Relating Coupon Redemption Rates to Past Purchasing of the Brand," *Journal of Advertising Research*, 25 (5), 40-47.

Singleton, Royce A. and Bruce C. Straits (2005), *Approaches to Social Research*, New York: Oxford University Press.

Spicer, John. (2005), *Making Sense of Multivariate Data Analysis*, Thousand Oaks, CA: Sage Publications.

Srinivasan, Srini S., Robert P. Leone, and Francis J. Muihern (1995), "The Advertising Exposure Effect of Free Standing Inserts," *Journal of Advertising*, 24 (1), 29.

Stevens, James (2002), *Applied Multivariate Statistics for the Social Sciences*, Mahwah, N.J.: L. Erlbaum.

Stevenson, Fiona A. and Christine A. Barry (2000), "Doctor-Patient Communication About Drugs: The Evidence for Shared Decision Making," *Social Science & Medicine*, 50 (6), 829.

Sumpradit, Nithima, Frank J. Ascione, and Richard P. Bagozzi (2004), "A Cross-Media Content Analysis of Motivational Themes in Direct-to-Consumer Prescription Drug Advertising," *Clinical Therapeutics*, 26 (1), 135-54.

Tabachnick, Barbara G. and Linda S. Fidell (2001), *Using Multivariate Statistics*, Boston, MA: Allyn and Bacon.

Teel, Jesse E., Robert H. Williams, and William O. Bearden (1980), "Correlates of Consumer Susceptibility to Coupons in New Grocery Product Introductions," *Journal of Advertising*, 9 (3), 31-46.

Thomsen, C. J., E. Borgida, and H. Lavine (1995), "The Causes and Consequences of Personal Involvement," in *Attitude Strength: Antecedents and Consequences*, ed. Richard E. Petty and Jon A. Krosnick, Hillsdale, N.J.: Lawrence Erlbaum Associates, 191-214.

Ward, Ronald W. and James E. Davis (1978), "A Pooled Cross-Section Time Series Model of Coupon Promotions," *American Journal of Agricultural Economics*, 60 (3), 393.

Warrington, Patti and Soyeon Shim (2000), "An Empirical Investigation of the Relationship between Product Involvement and Brand Commitment," *Psychology & Marketing*, 17 (9), 761-82.

Weissman, J. S., D. Blumenthal, A. J. Silk, M. Newman, K. Zapert, R. Leitman, and S. Feibelmann (2004), "Physicians Report on Patient Encounters Involving Direct-to-Consumer Advertising," *Health Aff (Millwood)*, Suppl Web Exclusives, W4-219-33.

Wilkes, M. S., R. A. Bell, and R. L. Kravitz (2000), "Direct-to-Consumer Prescription Drug Advertising: Trends, Impact, and Implications," *Health Affairs (Project Hope)*, 19 (2), 110-28.

Williams, J. R. and P. J. Hensel (1995), "Direct-to-Consumer Advertising of Prescription Drugs," *J Health Care Mark*, 15 (1), 35-41.

Woloshin, S., L. M. Schwartz, J. Tremmel, and H. G. Welch (2001), "Direct-to-Consumer Advertisements for Prescription Drugs: What Are Americans Being Sold?," *Lancet*, 358 (9288), 1141-6.

Young, Henry N. and Rebecca J. Welch Cline (2005), "Textual Cues in Direct-to-Consumer Prescription Drug Advertising: Motivators to Communicate with Physicians," *Journal of Applied Communication Research*, 33 (4), 348-69.

Zachry, Woodie M., 3rd, Marvin D. Shepherd, Melvin J. Hinich, James P. Wilson, Carolyn M. Brown, and Kenneth A. Lawson (2002), "Relationship between Direct-to-Consumer Advertising and Physician Diagnosing and Prescribing," *American Journal of Health-System Pharmacy*, 59 (1), 42-49.

Zaichkowsky, Judith L. (1985), "Measuring the Involvement Construct," *Journal of Consumer Research*, 12 (3), 341-52.

Zaichkowsky, Judith Lynne (1994), "The Personal Involvement Inventory: Reduction, Revision, and Application to Advertising," *Journal of Advertising*, 23 (4), 59.

Zhang, Yong (1996), "Responses to Humorous Advertising: The Moderating Effect of Need for Cognition," *Journal of Advertising*, 25 (1), 15-32.

Zhang, Yong and Richard Buda (1999), "Moderating Effects of Need for Cognition on Responses to Positively Versus Negatively Framed Advertising Messages," *Journal of Advertising*, 28 (2), 1-15.

Zhang, Yong and George M. Zinkhan (2006), "Responses to Humorous Ads," *Journal of Advertising*, 35 (4), 113-27.

APPENDICES

Appendix A: Survey Instrument for DTC Ad without a Coupon

A study to access consumers' perceptions about the advertising of prescription drugs

A survey conducted by:
The Department of Clinical and Administrative Pharmacy
R.C. Wilson College of Pharmacy
University of Georgia, Athens GA

Instructions:

- The questions in this survey are intended to obtain your general impression and reaction to the advertisement for the prescription medication you just saw. The entire survey will take approximately 15 minutes.
- High cholesterol is one of the most common health conditions found among adults age 35 years and above.
- Please try to answer all questions based on your impression of the advertisement and to the best of your ability. There are no right or wrong answers.
- If you have any questions the survey administrators will be more than happy to assist you.
- Please answer the questions in the following sections by placing an "X" on the top of the space that best describes how you feel. **For example, if the question is "How is the weather today?" and if you feel that the weather is extremely good, then you would place an "X" as follows:**

Good	X							Bad

Please place your "X" on the top of the spaces as shown above.

Section 1: The purpose of this section is to find out how interested you are in treating high cholesterol if you currently have the condition or think you may have it in the future. Please indicate your opinion by placing an "X" on the appropriate space below that best describes **how you feel about treating high cholesterol**.

Important to me	____	____	____	____	____	____	____	Unimportant to me
Boring to me	____	____	____	____	____	____	____	Interesting to me
Relevant to me	____	____	____	____	____	____	____	Irrelevant to me
Exciting to me	____	____	____	____	____	____	____	Unexciting to me
Means nothing to me	____	____	____	____	____	____	____	Means a lot to me
Appealing to me	____	____	____	____	____	____	____	Unappealing to me
Fascinating to me	____	____	____	____	____	____	____	Mundane to me
Worthless to me	____	____	____	____	____	____	____	Valuable to me
Involving to me	____	____	____	____	____	____	____	Not involving to me
Not needed by me	____	____	____	____	____	____	____	Needed by me

Section 2: Below you will find a list of descriptions that represent different feelings about the advertisement that you just read. Based on your overall assessment of the advertisement, please indicate your opinion by placing an "X" on the space below that best describes **how you feel about this advertisement**.

Bad	____	____	____	____	____	____	____	Good
Pleasant	____	____	____	____	____	____	____	Unpleasant
Unfavorable	____	____	____	____	____	____	____	Favorable

Section 3: Below you will find a list of descriptions that represent different feelings about the **Enzacol®** brand that you just read. Based on your assessment of the advertisement, please indicate your opinion by placing an "X" on the space below that best describes **how you feel about Enzacol® as a product.**

Good	____	____	____	____	____	____	____	Bad
Unpleasant	____	____	____	____	____	____	____	Pleasant
Favorable	____	____	____	____	____	____	____	Unfavorable

Section 4: Assume that you are currently diagnosed with high cholesterol. Based on your assessment of Enzacol®, please indicate your opinion by placing an 'X' on the space below that best describes **how likely is it that you will talk to your doctor about Enzacol® during your next visit?**

Likely	____	____	____	____	____	____	____	Unlikely
Improbable	____	____	____	____	____	____	____	Probable
Possible	____	____	____	____	____	____	____	Impossible
Uncertain	____	____	____	____	____	____	____	Certain

Section 5: Now, please think about the risks and side effects associated with taking Enzacol®. Please place an "X" on the space below that best describes **how you feel about the risks of taking this prescription medication Enzacol®**.

1) How dangerous do you think Enzacol® is for you?								
Very dangerous	____	____	____	____	____	____	____	Not at all dangerous
2) How would you feel about using Enzacol® for yourself?								
Very afraid	____	____	____	____	____	____	____	Not at all afraid
3) If you used Enzacol®, how likely do you think you would be to experience a side effect?								
Very likely	____	____	____	____	____	____	____	Not at all likely
4) How do you think the risks of using Enzacol® compared to the benefits?								
Risks greater than benefits	____	____	____	____	____	____	____	Benefits greater than risks

5) How risky is it for you to use Enzacol®?

Very risky ____ ____ ____ ____ ____ ____ ____ Not at all risky

Section 6: In this section we would like to know about your different experiences in the past.

1. In your opinion, how serious is having high cholesterol?

Very serious ____ ____ ____ ____ ____ ____ ____ Not at all serious

2. How would you rate your knowledge about cholesterol-lowering medications?

Very poor ____ ____ ____ ____ ____ ____ ____ Very Good

3. Have you been diagnosed with high cholesterol?

□ Yes □ No

(**If you ☑ Yes then go to Question # 3a, if you ☑ No then go to Question # 4**)

3a) If you ☑ yes to above question, are you currently taking any prescription medications to treat your cholesterol?

□ Yes □ No

3b) Have you experienced any side effects or adverse reactions in the past with prescription cholesterol-lowering medications?

□ Yes □ No

Now, Go to Question # 5

4. If you ☑ **No** to Question 3 above, how likely is that you are at risk of high cholesterol? Please ☑ **only one** option.

Extremely Unlikely	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely	Extremely Likely
□	□	□	□	□	□	□

5. How many different prescription medications do you take everyday?

   □ 0 □ 1 □ 2 □ 3 □ 4 □ more than 5

6. How many different health conditions do you have for which you take prescription medication (e.g. Asthma, Diabetes, Depression etc.)?

   □ 0 □ 1 □ 2 □ 3 □ 4 □ more than 5

7. Have you experienced any side effects or adverse reactions from taking <u>any prescription medications in the past</u>?

   □ Yes □ No

   7a) If you ☑ **Yes** to the question # 7 above, how serious were the side effects or adverse reactions?

Extremely serious	____	____	____	____	____	____	____	Not at all serious

Section 7: In this section we would like to know about your past experiences with advertisements of prescription medications.

1. In general, how frequently do you read magazines? Please ☑ **only one** option.

   □ Never
   □ Once a month
   □ Once a week
   □ 2-3 times a week
   □ Greater than 3 times a week

2. In the past, have you seen advertisements for prescription medications in magazines?

   □ Yes □ No

3. Which of the following prescription cholesterol-lowering medications have you seen or heard advertised in the past? Please ☑ **all that apply**.

   □ Crestor®
   □ Lipitor®
   □ Lipirid®
   □ Zetia®
   □ Vytorin®

4. In the past, have you ever talked to your doctor about a medication you had seen or heard advertised?

   □ Yes □ No

5. In the past, have you ever asked your doctor to prescribe you a medication you had seen or heard advertised?

   □ Yes □ No

   5a) If you ☑ **Yes** to the question # 5 above, did your doctor prescribe the medication you requested?

   □ Yes □ No

6. After seeing or hearing an advertisement for a prescription medication, have you ever searched for more information about that medication?

   □ Yes □ No

   6a) If you ☑ **Yes** to the question # 6 above, where have you searched for more information? Please ☑ **all that apply**.

   □ Internet websites
   □ 1-800 toll free number
   □ Magazines
   □ Physician/ Pharmacist/ other healthcare professionals
   □ Other

Section 8: Finally, we would like to ask a few questions about you. This information is for descriptive purposes only.

1. What is your gender?

   □ Male □ Female

2. What is the highest level of education you have completed? Please ☑ **only one** option.

   □ Less than high school
   □ High school graduate or equivalent (e.g. GED)
   □ Associates/Technical/Vocational degree
   □ Completed some part of college, but no degree
   □ College graduate
   □ Graduate school or higher

3. How do you describe yourself? (Please indicate mixed racial heritage by ☑ more than one option).

   □ American Indian or Alaska native
   □ Asian
   □ Black or African-American
   □ Hispanic or Latino
   □ Native Hawaiian or Other Pacific Islander
   □ White

4. Which of the following categories best describes your age?

   □ 35 - 45
   □ 46 - 55
   □ 56 – 65
   □ Above 65 years

5. What is your annual household income?

   □ Less than $15,000
   □ $15,000 to $24,999
   □ $25,000 to $34,999
   □ $35,000 to $49,999
   □ $50,000 to $74,999
   □ $75,000 to $99,999
   □ $100,000 or more

Thank you very much for your valuable time and input! Your participation is very much appreciated!

Appendix B: Survey Instrument for DTC Ad with a Coupon

A study to access consumers' perceptions about the advertising of prescription drugs

A survey conducted by:
The Department of Clinical and Administrative Pharmacy
R.C. Wilson College of Pharmacy
University of Georgia, Athens GA

Instructions:

- The questions in this survey are intended to obtain your general impression and reaction to the advertisement for the prescription medication you just saw. The entire survey will take approximately 15 minutes.
- High cholesterol is one of the most common health conditions found among adults age 35 years and above.
- Please try to answer all questions based on your impression of the advertisement and to the best of your ability. There are no right or wrong answers.
- If you have any questions the survey administrators will be more than happy to assist you.
- Please answer the questions in the following sections by placing an "X" on the top of the space that best describes how you feel. **For example, if the question is "How is the weather today?" and if you feel that the weather is extremely good, then you would place an "X" as follows:**

Good	X							Bad

Please place your "X" on the top of the spaces as shown above.

Section 1: The purpose of this section is to find out how interested you are in treating high cholesterol if you currently have the condition or think you may have it in the future. Please indicate your opinion by placing an "X" on the appropriate space below that best describes **how you feel about treating high cholesterol**.

Important to me	____	____	____	____	____	____	____	Unimportant to me
Boring to me	____	____	____	____	____	____	____	Interesting to me
Relevant to me	____	____	____	____	____	____	____	Irrelevant to me
Exciting to me	____	____	____	____	____	____	____	Unexciting to me
Means nothing to me	____	____	____	____	____	____	____	Means a lot to me
Appealing to me	____	____	____	____	____	____	____	Unappealing to me
Fascinating to me	____	____	____	____	____	____	____	Mundane to me
Worthless to me	____	____	____	____	____	____	____	Valuable to me
Involving to me	____	____	____	____	____	____	____	Not involving to me
Not needed by me	____	____	____	____	____	____	____	Needed by me

Section 2: Below you will find a list of descriptions that represent different feelings about the advertisement that you just read. Based on your overall assessment of the advertisement, please indicate your opinion by placing an "X" on the space below that best describes **how you feel about this advertisement**.

Bad	____	____	____	____	____	____	____	Good
Pleasant	____	____	____	____	____	____	____	Unpleasant
Unfavorable	____	____	____	____	____	____	____	Favorable

Section 3: Below you will find a list of descriptions that represent different feelings about the **Enzacol®** brand that you just read. Based on your assessment of the advertisement, please indicate your opinion by placing an "X" on the space below that best describes **how you feel about Enzacol® as a product.**

Good	____	____	____	____	____	____	____	Bad
Unpleasant	____	____	____	____	____	____	____	Pleasant
Favorable	____	____	____	____	____	____	____	Unfavorable

Section 4: Below you will find a list of descriptions that represent different feelings about the 30-day free trial coupon present with the advertisement of Enzacol®. Based on your assessment of the advertisement, please indicate your opinion by placing an "X" on the space below that best describes **how you feel about the 30-day free trial coupon present with the advertisement of Enzacol®**.

Bad Offer	____	____	____	____	____	____	____	Good Offer
Favorable	____	____	____	____	____	____	____	Unfavorable
Attractive	____	____	____	____	____	____	____	Unattractive
Detrimental	____	____	____	____	____	____	____	Beneficial
Valuable	____	____	____	____	____	____	____	Worthless

Section 5: Assume that you are currently diagnosed with high cholesterol. Based on your assessment of Enzacol®, please indicate your opinion by placing an 'X' on the space below that best describes **how likely is it that you will talk to your doctor about Enzacol® during your next visit?**

Likely	____	____	____	____	____	____	____	Unlikely
Improbable	____	____	____	____	____	____	____	Probable
Possible	____	____	____	____	____	____	____	Impossible
Uncertain	____	____	____	____	____	____	____	Certain

Section 6: Now, please think about the risks and side effects associated with taking Enzacol®. Please place an "X" on the space below that best describes **how you feel about the risks of taking this prescription medication Enzacol®**.

1) How dangerous do you think Enzacol® is for you?

Very dangerous ____ ____ ____ ____ ____ ____ ____ Not at all dangerous

2) How would you feel about using Enzacol® for yourself?

Very afraid ____ ____ ____ ____ ____ ____ ____ Not at all afraid

3) If you used Enzacol®, how likely do you think you would be to experience a side effect?

Very likely ____ ____ ____ ____ ____ ____ ____ Not at all likely

4) What do you think about the risks of using Enzacol® compared to the benefits?

Risks greater than benefits ____ ____ ____ ____ ____ ____ ____ Benefits greater than risks

5) How risky is it for you to use Enzacol®?

Very risky ____ ____ ____ ____ ____ ____ ____ Not at all risky

Section 7: In this section we would like to know about your different experiences in the past.

1) In your opinion, how serious is having high cholesterol?

Very serious ____ ____ ____ ____ ____ ____ ____ Not at all serious

2) How would you rate your knowledge about cholesterol-lowering medications?

Very poor ____ ____ ____ ____ ____ ____ ____ Very Good

3) Have you been diagnosed with high cholesterol?

□ Yes □ No

(**If you ☑ Yes then go to Question # 3a, if you ☑ No then go to Question # 4**)

3a) If you ☑ yes to above question, are you currently taking any prescription medications to treat your cholesterol?

□ Yes □ No

3b) Have you experienced any side effects or adverse reactions in the past with prescription cholesterol-lowering medications?

□ Yes □ No

Now, Go to Question # 5

4) If you ☑ **No** to Question 3 above, how likely is that you are at risk of high cholesterol? Please ☑ **only one** option.

Extremely Unlikely	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely	Extremely Likely
□	□	□	□	□	□	□

5) How many different prescription medications do you take everyday?

□ 0 □ 1 □ 2 □ 3 □ 4 □ more than 5

6) How many different health conditions do you have for which you take prescription medication (e.g. Asthma, Diabetes, Depression etc.)?

□ 0 □ 1 □ 2 □ 3 □ 4 □ more than 5

7) Have you experienced any side effects or adverse reactions from taking any prescription medications in the past?

□ Yes □ No

7a) If you ☑ **Yes** to the question # 7 above, how serious were the side effects or adverse reactions?

Extremely serious	____	____	____	____	____	____	____	Not at all serious

Section 8: In this section we would like to know about your past experiences with advertisements of prescription medications.

1) In general, how frequently do you read magazines? Please ☑ **only one** option.

□ Never
□ Once a month
□ Once a week
□ 2-3 times a week
□ Greater than 3 times a week

2) In the past, have you seen advertisements for prescription medications in magazines?
□ Yes □ No

3) Which of the following prescription cholesterol-lowering medications have you seen or heard advertised in the past? Please ☑ **all that apply**.

□ Crestor®
□ Lipitor®
□ Lipirid®
□ Zetia®
□ Vytorin®

4) In the past, have you ever talked to your doctor about a medication you had seen or heard advertised?

□ Yes □ No

5) In the past, have you ever asked your doctor to prescribe you a medication you had seen or heard advertised?

□ Yes □ No

5a) If you ☑ **Yes** to the question # 5 above, did your doctor prescribe the medication you requested?

□ Yes □ No

6) After seeing or hearing an advertisement for a prescription medication, have you ever searched for more information about that medication?

□ Yes □ No

6a) If you ☑ **Yes** to the question # 6 above, where have you searched for more information? Please ☑ **all that apply**.

□ Internet websites
□ 1-800 toll free number
□ Magazines
□ Physician/ Pharmacist/ other healthcare professionals
□ Other

Section 9: Finally, we would like to ask a few questions about you. This information is for descriptive purposes only.

6. What is your gender?

   □ Male □ Female

7. What is the highest level of education you have completed? Please ☑ **only one** option.

   □ Less than high school
   □ High school graduate or equivalent (e.g. GED)
   □ Associates/Technical/Vocational degree
   □ Completed some part of college, but no degree
   □ College graduate
   □ Graduate school or higher

8. How do you describe yourself? (Please indicate mixed racial heritage by ☑ more than one option).

   □ American Indian or Alaska native
   □ Asian
   □ Black or African-American
   □ Hispanic or Latino
   □ Native Hawaiian or Other Pacific Islander
   □ White

9. Which of the following categories best describes your age?

   □ 35 - 45
   □ 46 - 55
   □ 56 – 65
   □ Above 65 years

10. What is your annual household income?

    □ Less than $15,000
    □ $15,000 to $24,999
    □ $25,000 to $34,999
    □ $35,000 to $49,999
    □ $50,000 to $74,999
    □ $75,000 to $99,999
    □ $100,000 or more

Thank you very much for your valuable time and input! Your participation is very much appreciated!

Appendix C: Consent Letter

This research study titled "Consumers' perceptions about advertising of prescription drugs" is being conducted by Nilesh Bhutada, from the College of Pharmacy at the University of Georgia under the direction of Dr. Matthew Perri III, of College of Pharmacy, University of Georgia. Please understand that your participation in the study is entirely voluntary. The decision to participate in the study is entirely yours. You can refuse to participate or stop answering the questions or stop participating at any time without giving any reason, and without any penalty. There are no personal risks involved if you wish to participate in the study.

The purpose of this study is to measure consumers' attitudes and perceptions towards advertising of prescription drugs in order to determine how these ads can be made more appropriate to general public. The results of this study may possibly contribute significantly towards the making of more user-friendly prescription drug ads. This would, in turn help the general public in making more informed decisions about their healthcare.

If you volunteer to participate in this study, you will be asked to do the following things:

1) Read an advertisement for a prescription medication (as you would normally do at home) for approximately 5 to 7 minutes
2) Fill out a survey questionnaire that will measure your perceptions towards the advertisement you just saw and a few demographic characteristics which will take approximately 15 minutes

You will receive $7.00 gift as an appreciation for your participation. In order to make this study valid one; some information about the study will be withheld until the completion of the study. It will take approximately 20 to 25 minutes to complete the study. Your survey responses will be completely anonymous. The investigator will be more than happy to answer your questions regarding the research either now or during the entire course of the study. Please feel free to call 706-201-7800.

Please keep this information for your records

_____	_____	_____	_____
Signature	Date	Signature	Date

Nilesh Bhutada B.S. (Pharmacy), PhD Candidate
R.C. Wilson Pharmacy Building,
University of Georgia,
Athens, GA 30602
Phone: 706-201-7800
Email: bhutadan@rx.uga.edu

Matthew Perri III, RPh, PhD
R.C. Wilson Pharmacy Building,
University of Georgia
Athens, GA 30602
Phone: 706-542-5365
Email: mperri@rx.uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix D: Debriefing Statement

Dear Study Participant,

The advertisement for the prescription medication used in this study is not for a real prescription drug. Both advertisement and the prescription drug are fictitious. The advertisement for the drug was designed by the researchers. However, the presentation format of the advertisement was similar to the advertisements of real prescription drugs. The intention of this study was to determine how this promotion of prescription drug works in order to make it more appropriate for the general public.

Thank you once again for your valuable time and participation in the study.

_____	_____	_____	_____
Signature	Date	Signature	Date

Nilesh Bhutada B.S. (Pharmacy), PhD Candidate
R.C. Wilson Pharmacy Building,
University of Georgia,
Athens, GA 30602
Phone: 706-201-7800
Email: bhutadan@rx.uga.edu

Matthew Perri III, RPh, PhD
R.C. Wilson Pharmacy Building,
University of Georgia
Athens, GA 30602
Phone: 706-542-5365
Email: mperri@rx.uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix E: Permission Letter from Carlene Research

Car-Lene
RESEARCH, INC.

Human Subjects Office
The University of Georgia
612 Boyd GSRC,
Athens, GA 30602

Dear Members of the Committee:

This letter is to convey that I have reviewed the proposed research study entitled "A study to access consumers' perceptions about the advertising of prescription drugs" being conducted by Nilesh Bhutada, a student at The University of Georgia. I understand that Nilesh Bhutada intends to conduct research activities by hiring services of Car-Lene Research to administer surveys to the shoppers at Perimeter Mall, Atlanta GA. Car-Lene Research conducts all of the survey research at the property of Perimeter Mall. I am Field director at Car-Lene research and responsible for over viewing all the surveys conducted through Car-Lene research. I grant permission to the above investigator to conduct their study at this site during the months of April, May & June 2008. If you have any questions regarding this permission letter, please contact me at 847-940-2000 or email me at susie@carleneresearch.com.

Sincerely,

S. Friedman

Susie Friedman

CORPORATE OFFICE
430 Lake Cook Road Deerfield, Illinois 60015 Phone: 847-940-2000 Fax: 847-940-7017

Appendix F: Interviewer Training Sheet for the Main Study

Prescription Drug Advertising Interviews

The specific tasks that will be performed by the Interviewer are as follows:

1. Recruit participants
   Participants should be:
   a) Adults subjects who are 35 years and older.
   b) Subjects should not be health care professionals such as doctors, pharmacist, and nurse practitioners.
2. After an appropriate participant has been identified by the Interviewer, the Interviewer will bring that participant to their research facility and take them to a quite area inside their facility.
3. The Interviewer will then pick one of the envelopes from the two sets provided to them and take out the consent form and hand it over to the participant. The Interviewer will also verbally confirm about the participants consent to participate in the study.
4. After the participant had agreed to participate in the study the Interviewer will then take out advertisement for prescription drug from that envelope and give it to the participant.
5. Participant will be allowed up to 5 minutes to read the advertisement.
6. After the participant has finished reading the advertisement, it will be taken back from the participant by the Interviewer and placed in the same envelope from which it was taken out.
7. Next the participants will be given a questionnaire for the same to complete their responses. The questionnaire included in each envelope is a self administered paper-pencil based survey.
8. If the participant has any questions while they are filling out the survey the Interviewer will answer their questions and help them better understand if they are having difficulty with a particular section or a question.
9. After participant has completed the survey the Interviewer will place that survey back into the envelope and will then take out the debriefing statement and hand it over to the participant.
10. After participant has finished reading the debriefing statement, the Interviewer will then place it back into the envelope. Interviewer will then place this envelope in the set of completed responses.
11. Interviewer will then give an honorarium of $7.00 (provided by the Consultant) to the participant for their participant in the study.
12. Interviewer will maintain a log for the incentives distributed for the study. Interviewer will enter the following information into the log: the date, name, amount paid and signature to the survey participant.
13. Interviewer will then thank the participant for their help with the study.

Interviewer will follow the above mentioned procedure for each study participant. Further, the Interviewer will use yellow and white envelopes alternatively for the data collection. Interviewer will keep the completed set of envelopes separately from the uncompleted set. Interviewer will not use piggy back approaches to recruits participants for the study.

Appendix G: DTC Prescription Drug Ad Stimuli without a Coupon

The clock is ticking. What are you doing to keep your high cholesterol under control?

Let us work together to attain your cholesterol goal:
When it comes to getting your cholesterol under control, diet and exercise are a great place to start. If, after all your efforts to lower your cholesterol level your doctor still believes that you need to get your cholesterol level even lower, ask whether ENZACOL might help. It may be just the help you need to further lower your cholesterol level.

Lower the Bad and Increase the Good:
It is very important for people with high blood pressure and diabetes to lower their bad cholesterol. ENZACOL may make the difference you need. In fact, the 20-mg dose of ENZACOL, along with diet and exercise can significantly lower bad cholesterol and possibly reduce it down to half. Further, it significantly increases good cholesterol. However, individual results may vary.

Is ENZACOL right for you?
This is an important conversation you need to have with your doctor. Based on your particular needs, you and your doctor can work together to decide the best course of treatment. ENZACOL is one of many cholesterol-lowering treatment options that you and your doctor can consider.

To learn more about ENZACOL:

Call 800-ENZACOL or Visit ENZACOL.COM

Important safety information about ENZACOL:
ENZACOL requires a prescription from your doctor. When diet and exercise alone are not enough, ENZACOL is used along with a low fat diet and exercise to lower bad cholesterol. ENZACOL has not been determined to prevent heart disease, heart attack, or strokes. ENZACOL is not right for everyone. It is not right for people with liver problems, women who are nursing, pregnant or who may become pregnant. Your doctor will do a simple blood test before and during treatment with ENZACOL to monitor your liver function and may adjust the dose of your medication. While you are taking ENZACOL, if you experience any new muscle pain or weakness, contact your doctor immediately as this could be a sign of rare but serious muscle side effects. If goals are not reached with the 20-mg dose of ENZACOL, a 40-mg dose is also available. Remember to tell your doctor about all of the medications you are currently taking. This may help avoid serious drug interactions. Side effects occur infrequently and may include muscle ache, constipation, weakness, abdominal pain, and nausea. They are usually mild and often go away.

Please read the Important Product Information about ENZACOL on the next page and discuss it with your doctor.

Enzacol
enzastatin
Follow your heart.

Stachor Pharmaceuticals may be able to help if you are without prescription coverage and cannot afford your medication. You may even qualify for free medicines from Stachor Pharmaceuticals, Inc. Call 1-888-STACHOR. Or visit www.stachor.com.

STACHOR Pharmaceuticals, Inc.

PATIENT INFORMATION - Rx Only

Enzacol enzastatin Tablets

What is Cholesterol?
Cholesterol and triglycerides are fats that are made in your body. They are also found in foods. You need some cholesterol for good health, but too much is not good for you. Cholesterol and triglycerides can clog your blood vessels. It is especially important to lower your cholesterol if you have heart disease, smoke, have diabetes or high blood pressure, are older, or if there is a history of heart disease in your family.

Importance of lowering high cholesterol:
High cholesterol is more than just a number; it is a risk factor that should not be ignored. If your doctor has said you have high cholesterol, you may be at an increased risk for heart attack. But the good news is, you can take steps to lower your cholesterol.

With the help of your doctor and a cholesterol-lowering medicine like ENZACOL, along with diet and exercise, you could be on your way to lowering your cholesterol.

What is ENZACOL?
ENZACOL is a prescription medicine that lowers cholesterol in your blood. It lowers the LDL-C ("bad" cholesterol) and triglycerides in your blood. It can raise your HDL-C ("good" cholesterol) as well. ENZACOL is for adults and children over 10 years of age whose cholesterol is not controlled with exercise and a low-fat diet alone. ENZACOL starts to work in about 2 weeks.

Who can take ENZACOL?
- People who cannot lower their cholesterol enough with diet and exercise
- Adults and children over 10 years of age

Who should not take ENZACOL?
- Women who are pregnant, may be pregnant, or may become pregnant. ENZACOL may harm your unborn baby. If you become pregnant, stop taking ENZACOL and call your doctor right away.
- Women who are breast-feeding. ENZACOL can pass into your breast milk and may harm your baby.
- People with liver problems.
- People allergic to ENZACOL.

What should I do before I start taking ENZACOL?
Tell your doctor:
- About all medications you are currently taking, including prescription, over-the-counter medications, vitamins, and herbal supplements
- If you have muscle aches or weakness
- If you drink more than 2 alcoholic drinks a day
- If you have diabetes or kidney problems
- If you have a thyroid problem

What are some possible side effects of ENZACOL?
- **Muscle problems:** that can lead to kidney problems, including kidney failure. Your chance for muscle problems is higher if you take certain other medicines with ENZACOL.
- **Liver problem:** your doctor may do blood tests to check your liver before you start ENZACOL and while you are taking it.

Symptoms of muscle or liver problems include:
- Unexplained muscle weakness or pain, especially if you have a fever or feel very tired.
- Nausea, vomiting, or stomach pain
- Brown or dark-colored urine
- Feeling more tired than usual
- Your skin and the whites of your eyes turn yellow

If you have these symptoms, call your doctor right away.

The most common side effects of ENZACOL are:
- Headache
- Rash
- Diarrhea, gas
- Upset stomach and stomach pain
- Constipation
- Muscle and joint pain

Side effects are usually mild and tend to go away with time. Fewer than 3 people out of 100 stopped taking ENZACOL because of side effects.

How should I take ENZACOL?
Do:
- Take ENZACOL as prescribed by your doctor.
- Try to eat heart-healthy foods while you take ENZACOL
- Take ENZACOL any time of day, with or without food
- If you miss a dose take it as soon as you remember. But if it has been more than 12 hours since your missed dose, wait. Take the next dose at your regular time.

Don't:
- Change or stop your dose before talking to your doctor
- New medicines before talking to your doctor
- Give your ENZACOL to other people. It may harm them even if your problems are the same.
- Break or chew the tablet

Where can I find more information about ENZACOL?
- Ask your doctor or health care provider
- Talk to your pharmacist
- Go to www.ENZACOL.com
- Call 1-800- ENZACOL

STACHOR Pharmaceuticals, Inc.

Manufactured/marketed by
Stachor Pharmaceuticals, Inc.
New York, NY 10071 USA
ENZ 09

Appendix H: DTC Prescription Drug Ad Stimuli with a Coupon

Get a 30-day treatment of ENZACOL® for FREE*

If your doctor decides that ENZACOL is right for you, then you may be able to try it free for 30 days with this offer. Here is how:

1. ENZACOL is available by prescription only. Call or visit your doctor or health care professional to find out if ENZACOL is right for you. If it is, then ask for a 30-day treatment of ENZACOL to receive your free trial.
2. Present both your prescription for 30 ENZACOL tablets and this certificate to your pharmacist to receive your free trial of ENZACOL.

If you are interested in more information about ENZACOL plus more money-saving offers, visit www.ENZACOL.com or call 1-800-ENZACOL.

* Terms and Conditions: Limit one 30-day trial certificate per person for the duration of the program. Valid ONLY at retail pharmacies, no mail order. Please see eligibility restrictions and other terms and conditions on the back of this certificate.

RxBIN #	RxGRP #	Identification #	Suffix
600400	ENZ11100	444567333	04

This offer is good through July 31, 2008.

Enzacol
enzastatin
Follow your heart.

Cut Here

This certificate is a part of the Stachor Pharmaceuticals free First 30-Day Trial for ENZACOL® (enzastatin)

Patient Eligibility:
Offer is good for qualified customers for ENZACOL and may not be used for any other product. This offer is not valid for customers who are already using ENZACOL. This offer may not be combined with any other free trial, coupon, discount, prescription savings card, or other offer. This offer is void where prohibited by law, taxed, or restricted. No claim for payment or reimbursement may be submitted for this free trial supply to ANY third-party payer, including Medicaid, Medicare or similar federal or state programs (such as medical assistance programs), private insurance, HMO, or any other health or pharmacy benefit plan. It is illegal for any person to sell, purchase, or trade this certificate. Offer valid only for product lawfully purchased in the United States. Stachor Pharmaceuticals, Inc. reserves the right to change or discontinue this offer at any time without notice.

Terms and conditions:
Limit one 30-day free trial certificate per person for the duration of the offer. Valid ONLY at retail pharmacies; no mail order. Please see patient eligibility restrictions and other terms and conditions.

To the physician:
- To use this certificate, your patient needs one prescription for 30 tablets of ENZACOL 20mg or 40mg.
- You will need to provide a second prescription based on your recommended therapy if you want to keep your patient on ENZACOL beyond 30-day free trial period.
- This certificate is not valid for refills.

Cut Here

Enzacol enzastatin

To the pharmacist:
- This certificate must be accompanied by a valid prescription and is valid for 30 tablets of ENZACOL 20mg or 40mg. No substitutions permitted.
- Please dispense 30 tablets of ENZACOL 20mg or 40mg to the patient at no charge and transmit the claim to Express Scripts.
- This certificate is for one-time use only and is not valid for refills. For all other prescriptions, please use the patient's primary method of payment and a new Rx number.
- For audit purposes, this certificate must be attached to the original prescription and retained by you for the greater of 3 years or the usual period for which your pharmacy records are kept.
- Call the Express Scripts Help Desk at 1-866-777-7111 for assistance in filing this claim.

I certify that:
- I have received this certificate from an eligible patient and I have dispensed the ENZACOL product in accordance with this certificate.
- Other than Express Scripts, I have not received and will not accept any payment for the prescription.
- Other than to Express Scripts, I have not submitted a claim for reimbursement to any third-party payer, including Medicaid, Medicare or similar federal or state programs (such as medical assistance programs), private insurance, HMO, or any other health or pharmacy benefit plan.
- My participation in this program is consistent with all applicable laws and any contractual or other obligations that I have.

Pharmacist's signature

_____

This certificate is valid through July 31, 2008.

The clock is ticking. What are you doing to keep your high cholesterol under control?

Let us work together to attain your cholesterol goal:
When it comes to getting your cholesterol under control, diet and exercise are a great place to start. If, after all your efforts to lower your cholesterol level your doctor still believes that you need to get your cholesterol level even lower, ask whether ENZACOL might help. It may be just the help you need to further lower your cholesterol level.

Lower the Bad and Increase the Good:
It is very important for people with high blood pressure and diabetes to lower their bad cholesterol. ENZACOL may make the difference you need. In fact, the 20-mg dose of ENZACOL, along with diet and exercise can significantly lower bad cholesterol and possibly reduce it down to half. Further, it significantly increases good cholesterol. However, individual results may vary.

Is ENZACOL right for you?
This is an important conversation you need to have with your doctor. Based on your particular needs, you and your doctor can work together to decide the best course of treatment. ENZACOL is one of many cholesterol-lowering treatment options that you and your doctor can consider.

To learn more about ENZACOL:

Call 800-ENZACOL or Visit ENZACOL.COM

Important safety information about ENZACOL:
ENZACOL requires a prescription from your doctor. When diet and exercise alone are not enough, ENZACOL is used along with a low fat diet and exercise to lower bad cholesterol. ENZACOL has not been determined to prevent heart disease, heart attack, or strokes. ENZACOL is not right for everyone. It is not right for people with liver problems, women who are nursing, pregnant or who may become pregnant. Your doctor will do a simple blood test before and during treatment with ENZACOL to monitor your liver function and may adjust the dose of your medication. While you are taking ENZACOL, if you experience any new muscle pain or weakness, contact your doctor immediately as this could be a sign of rare but serious muscle side effects. If goals are not reached with the 20-mg dose of ENZACOL, a 40-mg dose is also available. Remember to tell your doctor about all of the medications you are currently taking. This may help avoid serious drug interactions. Side effects occur infrequently and may include muscle ache, constipation, weakness, abdominal pain, and nausea. They are usually mild and often go away.

Please read the Important Product Information about ENZACOL on the next page and discuss it with your doctor.

Enzacol
enzastatin
Follow your heart.

Stachor Pharmaceuticals may be able to help if you are without prescription coverage and cannot afford your medication. You may even qualify for free medicines from Stachor Pharmaceuticals, Inc. Call 1-888-STACHOR. Or visit www.stachor.com.

STACHOR Pharmaceuticals, Inc.

PATIENT INFORMATION - Rx Only

Enzacol enzastatin Tablets

What is Cholesterol?
Cholesterol and triglycerides are fats that are made in your body. They are also found in foods. You need some cholesterol for good health, but too much is not good for you. Cholesterol and triglycerides can clog your blood vessels. It is especially important to lower your cholesterol if you have heart disease, smoke, have diabetes or high blood pressure, are older, or if there is a history of heart disease in your family.

Importance of lowering high cholesterol:
High cholesterol is more than just a number; it is a risk factor that should not be ignored. If your doctor has said you have high cholesterol, you may be at an increased risk for heart attack. But the good news is, you can take steps to lower your cholesterol.

With the help of your doctor and a cholesterol-lowering medicine like ENZACOL, along with diet and exercise, you could be on your way to lowering your cholesterol.

What is ENZACOL?
ENZACOL is a prescription medicine that lowers cholesterol in your blood. It lowers the LDL-C ("bad" cholesterol) and triglycerides in your blood. It can raise your HDL-C ("good" cholesterol) as well. ENZACOL is for adults and children over 10 years of age whose cholesterol is not controlled with exercise and a low-fat diet alone. ENZACOL starts to work in about 2 weeks.

Who can take ENZACOL?
- People who cannot lower their cholesterol enough with diet and exercise
- Adults and children over 10 years of age

Who should not take ENZACOL?
- Women who are pregnant, may be pregnant, or may become pregnant. ENZACOL may harm your unborn baby. If you become pregnant, stop taking ENZACOL and call your doctor right away.
- Women who are breast-feeding. ENZACOL can pass into your breast milk and may harm your baby.
- People with liver problems.
- People allergic to ENZACOL.

What should I do before I start taking ENZACOL?
Tell your doctor:
- About all medications you are currently taking, including prescription, over-the-counter medications, vitamins, and herbal supplements
- If you have muscle aches or weakness
- If you drink more than 2 alcoholic drinks a day
- If you have diabetes or kidney problems
- If you have a thyroid problem

What are some possible side effects of ENZACOL?
- **Muscle problems:** that can lead to kidney problems, including kidney failure. Your chance for muscle problems is higher if you take certain other medicines with ENZACOL.
- **Liver problem:** your doctor may do blood tests to check your liver before you start ENZACOL and while you are taking it.

Symptoms of muscle or liver problems include:
- Unexplained muscle weakness or pain, especially if you have a fever or feel very tired.
- Nausea, vomiting, or stomach pain
- Brown or dark-colored urine
- Feeling more tired than usual
- Your skin and the whites of your eyes turn yellow

If you have these symptoms, call your doctor right away.

The most common side effects of ENZACOL are:
- Headache
- Rash
- Diarrhea, gas
- Upset stomach and stomach pain
- Constipation
- Muscle and joint pain

Side effects are usually mild and tend to go away with time. Fewer than 3 people out of 100 stopped taking ENZACOL because of side effects.

How should I take ENZACOL?
Do:
- Take ENZACOL as prescribed by your doctor.
- Try to eat heart-healthy foods while you take ENZACOL
- Take ENZACOL any time of day, with or without food
- If you miss a dose take it as soon as you remember. But if it has been more than 12 hours since your missed dose, wait. Take the next dose at your regular time.

Don't:
- Change or stop your dose before talking to your doctor
- New medicines before talking to your doctor
- Give your ENZACOL to other people. It may harm them even if your problems are the same.
- Break or chew the tablet

Where can I find more information about ENZACOL?
- Ask your doctor or health care provider
- Talk to your pharmacist
- Go to www.ENZACOL.com
- Call 1-800- ENZACOL

STACHOR Pharmaceuticals, Inc.

Manufactured/marketed by
Stachor Pharmaceuticals, Inc.
New York, NY 10071 USA
ENZ 09