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Direct-to-Consumer Advertising of Drugs and Patients' Health Care Seeking Behaviors

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Abstract

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BS, Bowie State University

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Known as direct-to-consumer advertising (DTCA), pharmaceutical companies in the United States are permitted to advertise prescription drugs directly to consumers. The purpose of this quantitative study was to determine if an association exists between DTCA and health care-seeking behaviors. The theoretical framework for this study involved social learning theory, information integration theory, and prospect theory. The research questions identified if exposure to DTCA (a) is associated with physician office visits, (b) influences a patient/physician conversation regarding a prescription, (c) influences requesting a prescription, and (d) has an impact on patients' ratings of the overall interaction with the physician. Data were derived from an online survey adapted from the U.S. Food and Drug Administration. Participants included 235 college-affiliated adults. Data were analyzed using descriptive statistics and analysis of variance. The Bonferroni correction was used to control the family-wise Type I error rate. The most significant findings of this study are that DTCA is associated with patients asking more questions, having more office visits, and patients having a lower overall health status. Future researchers should consider a non-college-affiliated sample and the post-implementation impact of the Affordable Care Act. This study helps to address the community challenges of how DTCA impacts prescription drug use and costs, as well as patients' understanding of the associated risks. Having knowledge of the impact of DTCA can help patients and their communities, employers, and governments make more informed decisions that will positively impact their health, wellbeing, and prescription expenses.

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Dedication

This dissertation is dedicated to my husband (Jessie) and our two children (Emily and Ethan), who have supported me through this journey. Thank you for your patience and support. This dissertation is also dedicated to my loving memories of my mother.

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Chapter 1: Introduction to the Study

Background

The number of people taking prescription medications is on the rise. In 1993, the average number of prescriptions per person annually was seven, compared to 11 in 2000, and 12.1 in 2011, with West Virginia reaching a high of 19.3 (National Center for Health Statistics, 2014). In the United States alone, the total annual retail sales for prescription drugs filled in 2011 was $228 billion (National Center for Health Statistics, 2014). Over half of all people in the United States take a minimum of one prescription medication daily, on average (National Center for Health Statistics, 2014). Additionally, Pharmaceutical Research and Manufacturers of America (PhRMA; 2011) spent $28 million in 2009 lobbying members of Congress (Blumenthal, 2010). Despite safety concerns for certain prescriptions and the unknown effects of others, people rely on medications for numerous reasons. There is also concern about drug quality (Tognoni, Toussaint, Herxheimer, & Schaaber, 2014) and the association between research and advertising (Koch, Brandenburger, Türpe, & Birringer, 2014; McCarthy, 2014; Sacks et al., 2014; Sood, Kappe, & Stremersch, 2014). This worldwide drug dependency, questions about physician reliance and ethical decisions (Graf, Miller, & Nagel, 2014), and the involvement of medical financial resources (Jofre, 2014; Kmietowicz, 2014) have all created concerns about how pharmaceutical firms are portraying or marketing their products to consumers.

These concerns, at least in part, are centered in whether the quality of direct-to-consumer advertising (DTCA) creates a positive net benefit when compared to ethical, social, and economic costs (Kesselheim, 2013; Lansing & Vohra, 2013; Lichtenberg, 2011; Rusthoven, 2014). D. Lee and Emmett (2012) found that physicians are concerned about denying patients' requests for advertised prescription medications. There is a need for further comprehensive research of direct-to-consumer marketing (DTCM) and DTCA to determine whether DTCA stimulates patients to seek prescription drugs that they do not need (Jureidini, Mintzes, Raven, & Block, 2008; Kulkarni, 2014; McKinlay, Trachtenberg, Marceau, Katz, & Fischer, 2014; Moore, 2014a).

In this study, I focused on advertising (specifically DTCA) in the overall marketing field. Hawthorne (2010) claimed that the practice of advertising directly to consumers was an event that preceded the existence of the U.S. Food and Drug Administration (FDA). DTCA can be defined as using the lay media as a tool to promote prescription drug information to the public (Ventola, 2011). Marketing directly to the consumer is not a new practice. It was common during the 19th century to find phony medicines advertised in newspapers. These advertisements often claimed that the advertised medicine had healing abilities. Debates existed even then over the advertising and the legal and ethical aspects of marketing campaigns aimed at the general public. In the 1900s, the American Medical Association (AMA) tried to end public advertising by contacting medical journals and requesting an end to such practices (Hawthorne, 2010).

Critics during this time period accused the AMA of trying to control the medication purchasing process for financial gain.

There has been a transition from the traditional approach wherein pharmaceutical companies targeted physicians to introduce new products and to increase the use of their products. In the mid-1990s, focus was redirected on the end users of prescription drugs (Hawthorne, 2010). With pressure from the pharmaceutical industry and other parties, the FDA, which has been the U.S. regulatory body for prescription medication since 1962, has changed its position on marketing campaigns aimed directly at consumers (Hawthorne, 2010). The first DTCA advertisement occurred in 1983, which is when the FDA requested industry assistance in developing a formal policy. A draft of this guidance was presented to the FDA in 1997, with the final version issued to the industry in 1999. The regulations required the inclusion of a brief summary of product in print advertisements. Possible drug side effects, contraindications, and effectiveness were required disclosures information for each drug summary.

The United States and New Zealand are the only two countries that allow DTCA. Many countries have strict prescription requirements; in some countries, physicians must provide patients with a password to access information on the Internet to a drug company. DTCA presents its own set of challenges for advertising practitioners due to the possible harmful impact that medicines can have; however, as a whole, ethics in advertising is a difficult balance to achieve. Despite these challenges, the practice of DTCA is a sizeable marketing practice that continues to grow. Pharmaceutical companies

spend twice as much on advertising as they do on research and development (Tadena, 2010). They also court physicians (Moore, 2014b). The pharmaceutical industry has one of the highest profit margins of any industry, with the top pharmaceutical companies, including Pfizer, GlaxoSmithKline, and Bristol-Myers Squibb (Kornfield, Donohue, Berndt, & Alexander, 2013). As of 2010, Pfizer media spending reached $967.5 million, with Lipitor as the top advertised drug (Bulik, 2011). Advertisement spending increased from $700 million in 1996 to $5.4 billion in 2006 (Bulik, 2011). However, the spending declined by 20% from 2006 to 2010 (Bulik, 2011). The suggested causes for this decline include a decline in the number of new drugs, a decline in consumer spending, and consumer skepticism (Bulik, 2011).

Supporters of DTCA list several factors to support the practice, which include the empowering of consumers with information, public health awareness, and improved compliance with medication regimens. Those in support of DTCA argue that, by giving individuals better information, more informed health decisions can be made (Hawthorne, 2010). Providing this information is viewed by some supporters as a right to which each person is entitled. Also, with DTCA, people are becoming more in tune with their health condition and there is an overall greater awareness of medical conditions (Hawthorne, 2010). DTCA supporters believe that advertising has resulted in the general public becoming more comfortable with discussing medical conditions, as well as discussing such concerns with their physician. Supporters also argue that the final decision to prescribe a medication still remains with the doctor, but DTCA makes the patient aware

that there may be other possible treatments (Ahn, Park, & Haley, 2014; Liang & Mackey, 2011). These positions all assume that patients possess adequate understanding and knowledge to interpret technical information.

There are possible risks associated with taking prescription medications. Opponents of DTCA claim that DTCA fails to provide accurate information, increases physician time to correct misconceptions, ignores prevention and focuses on cure, and increases costs to the health care system (Huh & Shin, 2014). Opponents argue that advertisements, especially via TV commercials, cannot adequately cover these issues (Hawthorne, 2010). Additionally, many drug advertisements are the same as advertisements for basic and harmless other products. Although a physician's prescription is still required, DTCA can be a manipulative technique (Huh & Shin, 2014; Moore, 2013). Hawthorne (2010) suggested that the decision to take medications is not a simple process; rather, it is one that involves diagnostic tests, family history analysis, possible interactions, and other important elements. For these reasons the decision to take a prescription involves the consideration of many factors and exposure to DTCA may or may not be sufficient alone to make a final decision.

Studies have been conducted on exposure to DTCA for specific diseases. Jureidini et al. (2008), using a prior study conducted by Block (2007), examined the net social benefit of DTCA of antidepressants. Block used a DTCA survey and other empirical research to analyze care-seeking behavior when exposed to antidepressant advertising. According to Block, the use of advertising of antidepressants leads to a large net benefit.

However, Block argued that a net benefit would exist even if all people in the United States were treated with an antidepressant. Jureidini et al. claimed that Block's model, which included four steps, was missing a step. In the original study, the four steps included the following: the number of people exposed to advertising that motivates treatment, those with clinical depression, those who may or may not have depression but who receive prescriptions, and those who benefit from drug treatment. The step missing from Jureidini et al.'s study involved looking at the proportion of people experiencing harm from the prescription for both those having and not having depression.

The differences in the two DTCA research approaches in studying depression includes arguments regarding the use of various estimates. Block (2007), using data from the FDA, the Henry J. Kaiser Family Foundation, and from the U.S. National Ambulatory Care Survey, estimated that 4.59 million (9.4%) of 48.9 million consultations would have been stimulated by DTCA in 2000. Additionally, Block estimated that, for the same year, 5.85 million people experienced untreated depression. However, Jureidini et al. (2008) argued that Block's estimates were overly high. One example of Block's overestimate, according to Juriedini et al., was that the number of untreated people in the United States was derived from a subset in which there was minimal impairment, which goes against meeting the diagnostic criteria. Although Jureidini et al. stated that Block's work contributed to the DTCA debate, there were some noted weaknesses. Jureidini et al. concluded that advertising for antidepressants via television is presented in a seductive manner; however, no bottom line can be drawn on the benefits of DTCA. Mackert et al.

(2013) stated that DTCA is an educational tool that has benefited the patient by involving them in the decision making process. A patient may research their condition and the various available drugs once they are exposed to DTCA. Although physician approval is needed for a prescription, the patient is no longer relying solely on the physician.

Extensive research on DTCA is limited. However, the FDA Office of Prescription Drug Promotion (OPDP) has researched and continues to research this topic. Most studies conducted by the OPDP have been experimental in nature (HHS, 2004). The survey that was used for the present study was taken from the only research conducted by the OPDP using this type of research method. As such, the present study added to the growing body of research in this field.

Statement of the Problem

There are potentially significant adverse public health care consequences posed by DTCA, such as overuse, cost burden on patients, exploited public policy, and wasted limited resources. DTCA, or prescription drug advertising, is permitted by the FDA, the regulating government agency in the United States (HHS, 2004). The FDA attempts to assure safe drugs for both human and veterinary use. The office within the FDA that investigates the applied/theoretical issues relating to the communication of risk and benefit for DTCA and professional promotional prescription drug material is the OPDP.

The pharmaceutical industry is a profitable business. Additionally, DTCA has grown exponentially from less than $1 billion in 1996 (Bulik, 2011) to $4.2 billion in 2008 (Greene & Kesselheim, 2010; Macias, Lewis, & Baek, 2010), to $11 billion in 2010

(Ghosh & Ghosh, 2010). Pharmaceutical firms record more than $300 billion in sales revenue annually (Spurling et al., 2010). Provider targeting promotion has reached $36.1 billion (Kornfield et al., 2013) and improper drug use costs U.S. employers more than $276 billion (Conlon et al., 2012) in lost productivity, accidents, and health care costs. Additionally, developing countries are now spending 20-60% of their health budgets on prescription drugs, and governments tend to pay above-market rates, straining already limited governmental resources (Greene & Kesselheim, 2010). Finally, several pharmaceutical firms have paid settlements of $2.3 and $3 billion when confronted with allegations of inappropriate off-label marketing (Kesselheim, Mello, & Studdert, 2011; Matthews, 2013; Outterson, 2012). The examples of the above settlements and the overall possibility for large profits suggest the need for regulations and supervision.

The 340B Drug Discount Program was created by Congress in 1992 to provide significant discounts to organizations providing care for the indigent. Despite good intentions, the program has resulted in abuses that victimize the patients that the program was designed to help. Through an unrealized contractual loophole, health care organizations were able to increase their profit margins, while not passing on the expected discounts to indigent patients (Bress, 2014; J. Lee, 2013; Pollak, 2013). From a public policy perspective, this loophole provides an incentive to entice patients, especially the indigent who tend to be less educated (Kaushal, 2014; Robbins, Stillwell, Wilson, & Fitzgerald, 2012), to request prescriptions they have seen in advertisements.

Marketing of prescription drugs is distinctive in that potential risks to the patient in the marketing of these drugs are required to be disclosed by the FDA. However, patient perceptions about these advertisements may be distorted, given their often limited clinical understanding. In many cases, patients are either not afforded adequate time and or lack the ability to fully understand the risks and benefits of prescription drugs (Bishop & Salmon, 2013; Herbst, Hannah, & Allan, 2013). Not fully understanding the side effects, complications, and the cumulative interactions of prescription drugs presents a potential risk of injury or even death for patients. Additionally, although physician assistance is required, exposure to these types of advertisements may encourage medication-seeking behaviors (Bishop & Salmon, 2013; Bradford & Kleit, 2011; Callaghan, Laraway, Snycerski, & McGee, 2013; D. Lee & Emmett, 2012). In this study, I used the social learning theory, information integration theory, and prospect theory to examine consumer behavior as it relates to DTCA of prescription drugs.

Purpose of the Study

The purpose of this quantitative study was to determine the possible association between DTCA and health care-seeking behaviors and to explore patient perspectives on DTCA relative to patients' overall health care experience. If there is a link between the advertising component of marketing campaigns and health care-seeking behavior, an overuse of unnecessary medications and a subsequent decline in health status, wasted resources, exploited health policy, and cost burden could result for patients, employers,

and governments. FDA guidance and regulations, federal and state health care policy, and patient interaction with health care professionals are all impacted by DTCA.

Researchers remain unclear about the impact of DTCA on patient behavior (Callaghan et al., 2013; Lee-Wingate & Xie, 2013; Mukherjee, Limbu, & Wanasika, 2013; Niederdeppe, Byrne, Avery, & Cantor, 2013). This study will help to fill this gap and provide a deeper understanding of the possible association between DTCA and patient behavior. Additionally, given the concerns and risks associated with inappropriate prescription drug use (Mackey & Liang, 2013), an additional purpose of this study is to provide information for more socially responsible decision making for both patient and doctor.

Research Questions and Hypotheses

The following research questions were addressed in detail and acted as a catalyst for this study:

1. What is the relationship between direct-to-consumer advertising (DTCA) and physician office visits?
2. What is the relationship between direct-to-consumer advertising (DTCA) and patients asking for a prescription?

These questions were researched through two hypotheses. The independent variable in this study was patient exposure. The dependent variables were physician office visits and asking for a prescription. Each hypothesis was tested to determine which

independent variables were significantly associated with patient health care-seeking behaviors. Hypothesis 1 is related to physician office visits and exposure to DTCA:

$H1_0$: There is no relationship between patient exposure to DTCA and subsequent physician office visits.

$H1_a$: There is a direct association between patient exposure to DTCA and subsequent physician office visits.

Hypothesis 2 is related to requests for a specific prescription medication and exposure to DTCA:

$H2_0$: There is no relationship between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

$H2_a$: There is a direct association between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

Model components are depicted in Table 1. Chapter 3 provides a detailed description of the research methods and techniques used to analyze the hypotheses.

Table 1.

Components of the Model

Hypotheses	Independent variables	Dependent variables
1	Patient exposure	Physician office visits
2	Patient exposure	Asking for a prescription

Theoretical Base

In this study, the theoretical framework consisted of social learning theory, information integration theory, and prospect theory to examine consumer behavior as it relates to DTCA of prescription drugs. Bandura's (1971) social learning theory includes elements of conditioning and learning with cognitive aspects, while extending internal factors to explain behavior. Social learning theorists attempt to clarify behavior by examining environmental influences (Thorpe & Olson, 1990). Reciprocal determinism is the term used to explain the interactional process that applies to the shaping of behavior (Bandura, 1971). The interactions between the environment, the person, and the behavior have an equal impact on or influence of one another. Such interactions can include situations in which a person makes self-adjustments or when a person talks to himself or herself. Reciprocal determinism is important in explaining how a person learns by observing or modeling.

There are various theories that attempt to explain how learning occurs. Bandura (1971) argued that the majority of learning is gained through a person's direct experiences or secondhand observations. Thorpe and Olson (1990) presented three effects of learning: observational learning effects, inhibitory and disinhibitory effects, and response facilitation effects. When a person uses previously learned responses in new situations, this behavior demonstrates observational learning. In inhibitory and disinhibitory effects, a person can repeat or not repeat an observed behavior of a model based upon the consequences observed. If the observer is discouraged from engaging in

the behavior, an inhibitory effect occurs. With disinhibitory effect, the observer is encouraged by the observed behavior. Response facilitation effects can be described as observing a behavior that is defined as acceptable and following four steps in the modeling process.

In the learning process the observer first observes the model and then retains the information. The observer then compiles all of the observed information together and then, in the final steps, the actual modeling of the behavior occurs (Thorpe & Olsen, 1990). Modeling can take on many forms in addition to an actual live model or observation. Modeling can also take place from observing media, television, and so on. This type of modeling is known as symbolic modeling (Thorpe & Olsen, 1990). Also, covert modeling can take place in which the observer imagines observing a model (Thorpe & Olsen, 1990). According to Bandura (1969), imitating an observed behavior does not have to immediately occur following the observation. A person may not be aware of the observed images or the imitation of the observed behavior.

Studies have been conducted on DTCA and modeling. One example of this is when Welch Cline and Young (2004) conducted a content analysis based on Bandura's (1971) social learning theory. The purpose of the Welch Cline and Young study was to identify features of DTCA that may function as modeling. Visual cues were examined as vicarious motivators. According to Bandura's social learning theory, when a behavior is observed, the possible observed rewards can become motivators. Specifically in DTCA cures, happy or healthy product users serve as motivators. The Welch Cline and Young

study consisted of reviewing advertisements in 18 popular magazines for a 2-year period, from January 1998 to December 1999. Four research questions were developed:

1. What percentage of direct-to-consumer print advertisements depicted models?
2. What are the demographic characteristics of models depicted in direct-to-consumer print advertisements?
3. What are the nature and frequency of identity rewards offered in direct-to-consumer print advertisements via visual cues?
4. What are the natures and frequency of relational rewards offered in direct-to-consumer print advertisements via visual cues, respectively?

Welch Cline and Young (2004) indicated that more than 80% of the advertisements contained models and 35.7% included inanimate objects. Welch Cline and Young also indicated the use of either male or female models in advertisements; 33.3% of the ads used more female models than men. Advertisements with only African Americans, Hispanic Americans, or Asian Americans were few: 14.2%, 1.1%, and .5%, respectively. In 91.8% of the advertisements, people who appeared healthy were depicted. Welch Cline and Young concluded that changes in health care behavior might be triggered by DTCA. Consumers are often exposed to visual models with positive features, such as being active and friendly.

An example of another study focused on the nonmedical use of prescription drugs. Mui, Sales, and Murphy (2014) conducted a study of inappropriate prescription

drug use by individuals between the ages of 18 and 25 in the San Francisco Bay area. Social learning theory was used as a framework to understand the learned and imitated aspects of deviant behavior. Mui et al. found that through differential association, imitation, definitions, and differential reinforcement, social context can set the stage for behavior. Nonmedical drug use is popular among young adults and social learning theory provides support for the framework for understanding the initiation of nonmedical drug use. Also, from the 120 total participants in the Mui et al study, 73.3% were currently attending college.

In comparison differences between social learning theory and information integration theory. According to social learning theory (Bandura, 1971), behavior is examined as related to environmental influences, whereas information integration theorists (Anderson, 2014) examine how various sources of information are integrated internally by a person. Information integration theory was proposed by Anderson (2014) and was developed around four concepts: stimulus integration, stimulus valuation, cognitive algebra, and functional measurement. The fundamental concept in integration theory is that the way in which a person thinks or behaves depends upon multiple stimuli acting in cooperation with one another. Anderson's (2014) four concepts interlock when physical stimuli impose upon a person. Integration function combines the transformed psychological stimuli into an implicit response, which is then externalized using the response function. A person uses simple algebraic rules on the stimulus information before producing a response (Anderson, 2014).

Prospect theory is used to examine how a person makes decisions. Developed by Kahneman and Tversky (1979), prospect theorists attempt to describe decisions that are made in which a person makes a choice among alternatives when risk is involved. There are two phases in the decision process: editing and evaluation. During the editing phase, there is an initial analysis of the possible alternatives and the outcomes for a decision. This stage is followed by an evaluation of the alternatives, with the highest value choice selected. During the narrowing of alternatives, distinguishing features are evaluated in terms of gains or losses, while similar components are disregarded, demonstrating the isolation effect (Nickerson, 2012).

Nature of the Study

In this study, I used a quantitative approach to determine the association between DTCA and health care-seeking behaviors. Survey data were collected using a virtual bulletin board accessible to students who attended an online university and SurveyMonkey. Various research studies are regularly available on the virtual bulletin board. Students who show an interest can participate in a research study after completing an online informed consent form prior to the survey.

The collected data were analyzed and compared to data available in the public domain from documents obtained by the U.S. Department of Health and Human Services (HHS; 2004), of which the FDA is an agency. Specific reviews of prescription drug advertisements and promotional labeling are regularly performed by the FDA OPDP. The original research design used surveys in which participants were asked approximately 65

questions and the variables were measured based upon the responses. The results of the FDA study were published in 2004; however, the data were collected in 1999 and 2002 from telephone surveys.

In this study, I used the same 2004 survey instrument used by the HHS, but via online survey. The survey instrument is located on a public domain. The data were analyzed using analysis of variance (ANOVA), which were employed to test the hypotheses of this study. With each analysis, statistical significance and predictive value were assessed as applicable. Statistical Package for the Social Sciences (SPSS), Version 21, was used for all data analyses, and statistical significance was assessed at the $p < 0.05$ level. Finally, the predictive power of the two equations was compared to determine the predictive value of DTCA. Further analytical details are provided in Chapter 3, with results presented in Chapter 4.

Definitions of Terms

The following technical terms are used in this study:

Direct-to-consumer advertising (DTCA): A component of direct-to consumer marketing that involves the practice of presenting advertising material directly to the possible user rather than to the physician (Rollins & Perri, 2014).

Direct-to-consumer marketing (DTCM): A method of marketing that links consumers and suppliers together through comprehensive, systematic, market-based planning, managing, promoting, and advertising of products directly to consumers (Rollins & Perri, 2014).

Foreign consumer culture positioning (FCCP): A marketing position associated with a particular foreign culture (Alden, Steenkamp, & Batra, 1999).

Food and Drug Administration Amendments Act (FDAAA; 2007): A law that added provisions to the Federal Food, Drug, and Cosmetic Act, which gives the FDA authority to regulate drugs and other products.

Global consumer culture positioning (GCCP): An alternative approach to brand positioning that is designed for international marketing. GCCP involves sharing symbols that denote membership in a global consumer segment (Alden et al., 1999).

Local consumer culture positioning (LCCP): An approach to marketing that is associated with a particular local culture (Alden et al., 1999).

Patient exposure: A patient's recall of seeing or hearing any advertisement for prescription drugs (HHS, 2004).

Physician office visit: A face-to-face, care-driven interaction with a physician, physician assistant, or nurse practitioner working for a physician (HHS, 2004)

Voluntary simplicity: The source of personal satisfaction and happiness coming from nonmaterial aspects of life (Shaw & Newholm, 2002).

Assumptions

In conducting this study, I assumed that all participants responded truthfully to the survey and that all participants had access to the Internet or a computer. Additionally, I assumed that respondents to the HHS surveys, which were used for comparative purposes, answered the questions honestly. It was also assumed that the established

statistical methods employed in this study were reliable and representative of the national population. Additionally, I assumed that the influence of mass media on society (Bandura, 2001) is substantial and the pharmaceutical industry is aggressive in nature (Angell, 2011).

Scope and Limitations

I collected data via an online survey posted on two survey websites: a university participant pool and SurveyMonkey. The survey was adapted from the research instrument used in 2004 by the FDA. Only college students participated in the present study. However, the original data were collected from three national surveys (two surveys involving patients and one survey involving physicians) conducted by telephone. The original FDA population consisted of individuals in the United States with a listed or unlisted telephone number. No monetary incentive was offered in the FDA study or in the present study.

One possible limitation to the present study was the sample size. Due to the voluntary nature of this study, there was not a large sample. Sampling error can occur when some persons in the population are omitted (Fowler, 2014). To address this concern, the minimal sample size was calculated. The inclusion criteria for this study included adult students who had visited a health care provider within the last year for a health condition of their own (the same inclusion criteria used in the original FDA study).

The comparative data used in this study were collected in the Patient and Physician Attitudes and Behaviors Associated with DTC Promotion of Prescription

Drugs study conducted by the FDA in 2004. Although the OPDP has conducted other research relating to DTCA, the 2004 study conducted by the FDA was the only survey type study at the time the present study was conducted. Because the 2004 FDA study was one of the first studies in the area, only general questions were used on the instrument. Also, no analysis of the comprehension of the advertisement was included. Additionally, the FDA survey did not distinguish the type of medium for the DTCA exposure, which may differ from television, print, Internet, or radio. Although a random sample of telephone numbers (including both listed and unlisted numbers) were included in the FDA study, individuals without such service were not represented in the present study. Additionally, like the previous FDA study, the research instrument used in the present study was administered only in the English language.

Significance of the Study

The purpose of this study was to determine the association between DTCA and health care-seeking behaviors in an academic community and to explore patient perspectives on the issue related to the patients' overall health care experience. If there is an association between the advertising component of DTCM and health care-seeking behavior, then there could be an overuse of unnecessary medication. Additionally, patients who receive and consume unnecessary medication may experience a subsequent unnecessary decline to their health status and bear an additional cost burden. The long-range outcome from these findings may indicate a need for stricter FDA guidance and

regulations, changes in federal and state health care policy, and possible changes to patient interaction and health care management.

This study will provide a greater understanding and insight into opportunities to mitigate the potential adverse impacts of DTCA. Overuse, inordinate cost burdens on patients; health care organizations exploiting loopholes in public policy; patients, employers, and governments losing limited resources through inappropriate prescription drug use; and the diversion of innovation and research efforts to profitable drugs at the expense of drugs that could have a clinical impact are all potential negative outcomes resulting from inappropriate DTCA (Suh, 2012). Additionally, physicians feeling pressured to switch patients from known, effective, less expensive and older medications to new, more profitable medications, as well as the potential increased physician workload that may prevent more ill patients from obtaining limited appointments are other negative outcomes that this study can help to prevent. DTCA has a potential that can be leveraged for good, provided that responsibility is exercised.

As pharmaceutical companies are viewed as one of several contributors to the sustainability of the health care industry, this study can provide information on focusing DTCA efforts to help improve the availability, dependability, capability, affordability, and marketability of prescription drugs. As outlined by Mathaisel and Comm (2014), these abilities can help the health care industry to minimize waste, create value, and remain productive for the long term. According to Mathaisel and Comm, the United States is ranked 37 out of 191 on overall health system performance by the World Health

Organization. Further, of the seven industrialized nations, “the U.S. ranked last on quality, efficiency, access, equity and ability for citizens to lead long, healthy lives” (Mathaisel & Comm, 2014, p. 1046). In terms of cost-benefit, the United States is viewed as a poor “value” for health care, given the higher expenditures per capita that fail to yield the expected benefits or outcomes. Along with patient overtreatment, medical errors, failures in coordinating care, confusing bureaucracy, and fraud, pharmaceutical firms are believed to contribute to this less-than-optimal performance. This study will provide clearer information about pharmaceutical company opportunities that could, through patients, help to reverse these adverse national trends.

Increase in the use of DTCA by pharmaceutical companies suggests that this practice is profitable (Sanky, Berger, & Weinberg, 2012; Yaqub, 2014). Given the potential opportunity for positive or negative impact, Goldberg (2013) called for more quantitative assessments of DTCA to better understand its impact. This study will help to address this gap in the literature and offer opportunities for focusing further research in more appropriate areas. By providing a clearer understanding of the impact of DTCA, this study will provide managers and executives, as well as governments and legislatures, with information that can help to guide policy development, strategies, and health plan decisions. This guidance can help to ensure that patients have adequate information to make appropriate decisions, may drive education-adjusted DTCA, and can help to reduce risks for patients. Also, guidance has the potential to reduce costs for governments and employers, and can increase the awareness of inappropriate off-label advertising. This

information can also help to redirect limited economic resources to provide a greater impact on society by supporting a healthier workforce and economy (Huebner, 2014). The pharmaceutical industry has the potential and ability to positively or negatively drive hundreds of billions of dollars of direct costs and unknown billions in indirect or soft costs. A deeper understanding of DTCA is necessary for better managerial, clinical, and health policy decisions.

Summary

DTCA is a lucrative practice in the pharmaceutical industry. With the overall financial success of this industry using DTCA and the associated demand for significant returns by investors, discontinuing such practices is not likely. Regulation by the FDA attempts to protect the public; however, patient health-seeking behaviors are a concern. The purpose of this study was to determine the association between DTCA and health care-seeking behaviors, which were researched through two hypotheses. Additionally, patient perspectives were explored as they related to the overall health care experience. This study was quantitative and used an online university participant pool and SurveyMonkey to collect survey data. The survey instrument administered in the present study was used in the original FDA (HHS) 2004 study. The independent variables were patient exposure to advertising, sociodemographic characteristics (i.e., age, gender, income, and ethnicity), health status, and education. The dependent variable, health care-seeking behaviors, were composed of two variables: physician office visits and asking for a prescription. Only college students were eligible for participation in the present study.

Honesty by the respondents to the original FDA study and the present study, the influence of mass media, and the aggressive practices of pharmaceutical companies were assumptions of this study.

The remainder of the study is organized as follows. Chapter 2 includes a review of the literature on the subject. Chapter 3 contains an explanation of how the study was designed. Chapter 4 includes a discussion about the outcomes of the study. Chapter 5 includes a discussion about the conclusions drawn from the study and an explanation of the recommendations for further research.

Chapter 2: Literature Review

This review of the literature includes a discussion about the history of the FDA, which monitors advertising of prescription drugs. Literature that encompasses various positions regarding the DTCA debate is also included, as well as literature about the impact of DTCA on pharmaceutical companies and health policy. The theoretical framework section includes social cognitive theory, choice, and agency theory as related to advertising. Global consumer culture positioning is addressed in this review. The field of research on this topic is limited; however, it continues to grow (Goldberg, 2013). Most studies conducted by the FDA have been experimental in nature. Several researchers have used data from the original FDA (HHS, 2004) study to further this research base. However, patient attitudes may have changed over the last 10 years. The present study adds to the current field of research and serves as a comparison to other study findings.

Title Searches, Journal Articles, and Research Documents

I used refereed journal articles, scholarly books, and research documents through Internet search engines that included ProQuest Central, ProQuest Health & Medical, Academic Search Complete, Business Source Complete, Cumulative Index to Nursing & Allied Health Literature (CINAHL) Plus, Communication & Mass Media Complete, PsycARTICLES, PsycBOOKS, ProQuest Digital Dissertations, EBSCO ebooks, and SAGE Premier. Similar research tools from several local university libraries complemented the online research.

Background

The idea that certain expensive medications can only be obtained with a prescription from a physician has stirred controversy. Because there are physician incentives for the marketing of these medications to consumers (Jofre, 2014; Kmietowicz, 2014), a better understanding of these interactions is warranted. These potential conflicts of interest between physician and patient may present significant concerns (Brill, 2013; Korn & Carlat, 2014; Perry, Cox, & Cox, 2013). To clarify one aspect of this situation, I sought to identify the relationships between DTCA and patient medication-seeking behaviors.

Consumer behavior as it relates to DTCA was considered in this study within a theoretical framework that included social learning theory, information integration theory, prospect theory, and emerging theoretical constructs from published works. This framework served as the basis for the hypothesized relationships between DTCA, office visits, asking for a prescription, and several other variables. I considered the potential impact of DTCA on patients seeking access to prescription medications that can only be obtained from a provider licensed to prescribe substances that are regulated by the FDA.

History of the FDA and DTCA

The Pure Food and Drugs Act (1906) marked the beginning of efforts by the federal government to ensure the safety and veracity of medications. Standards and quality requirements for pharmaceuticals in Western nations were relatively nonexistent prior to World War II. The mix of qualified and science-based pharmacists and ill-

prepared distributors created an increased degree of confusion for consumers. This confusion was further exacerbated by the limited scientific knowledge of the period and the tendency of consumers to exercise several different options (Kastner, 2011), making inferences beyond the anecdotal difficult. The increasing potency and danger of formulations in the 1930s further transformed the environment by introducing the concept of so-called “wonder drugs” with increasingly positive outcomes within the advertisements. However, there were significant negative side effects from these increasingly potent medications provided support for increased governmental oversight and regulation (Kastner, 2011).

Furthering the aim of public safety, the Federal Food, Drug, and Cosmetic Act (1938) gave the FDA oversight of medication production and dispensing to ensure a more accurate accounting of the risks and benefits of formulations (Kastner, 2011). Since 1951, federal law has required that drugs be prescribed by a physician if they pose a high risk of harm if used incorrectly or abused. Through the Kefauver-Harris amendments, the FDA was given unprecedented and increasing enforcement authority in 1962 to demand drug efficacy and safety from manufacturers and distributors (Kastner, 2011). Wellington (2010) described DTCA in terms of a human right in which the patient has access to the information needed to make health-related decisions. This view of DTCA gives patients informed control over their health related decisions.

With the ultimate goal of public safety and informed consent, the FDA has considered the authenticity of claims and made appropriate adjustments to prescribing

guidance, limits, and restrictions. Achieving this goal, based in clinical research and outcomes feedback, has become increasingly complex with the evolving nature of formulations and increasing opportunities for off-label usages that are discovered through advancements (Sashegyi, Felli, & Noel, 2013; Sawyer, 2012). However, the ratio of benefits to harm for patients taking newer medications varies with the marketing of the drug (Brody & Light, 2011).

There are four steps that a pharmaceutical company must take to obtain FDA approval. The first step is known as the preclinical trail (Hawthorne, 2010). This process involves testing the drug on animals to determine initial suitability for human testing. During this stage, the drug company submits summaries of the animal test results and discusses the manufacturing process. This stage also requires an outline of how the drug will be tested on humans. The second step (Phase I clinical trials) involves testing the drug on healthy volunteers to determine safety (Hawthorne, 2010). This trial consists of a small group of healthy participants. Stages 3 and 4, also called Phase II and Phase III clinical trials, consist of participants with the disease (Hawthorne, 2010). The trials during Phases II and III involve a larger participant pool than in Phase I. After successfully completing Phase III, a company can submit an application to start selling the drug (Hawthorne, 2010).

The FDA has established standardized guidelines on how long the human trials should last to assist companies through this challenge. There are also a general number of groups involved in the phases. Phase I is typically made up of groups of 20 or 50

participants (Hawthorne, 2010). If Phase I is determined to be safe, Phase II would then include several hundred people with the disease that the drug is meant to target (Hawthorne, 2010). Phase II can last for 2 years before Phase III begins. Phase III consists of several thousand patients, typically over the course of 3 years (Hawthorne, 2010). Another challenge faced by drug companies is FDA bureaucracy involving selecting the right- or best-fit division for the proposed drug within the FDA.

Like other governmental agencies, the FDA continues to face many challenges. Political influence is one of many pressures on the FDA. Hawthorne (2010) presented the Reye's syndrome occurrence in the 1980s to illustrate the extent of this pressure. Reye's syndrome in children occurs after a viral infection and leads to death in 20% of cases; it is also associated with mental retardation. The Centers for Disease Control and Prevention (CDC) concluded there was a link between Reye's syndrome and aspirin. Although this information was submitted to the FDA, protests from the aspirin industry resulted in the FDA withdrawing its decision to require warning labels. The warning label requirement was passed by Congress more than 5 years after the CDC acknowledgments, after an interest group sued the FDA. Another problem of the FDA is a history of having approved products that are later found to be dangerous, such as the Bjork-Shiley artificial heart valve, which resulted in approximately 500 deaths (Hawthorne, 2010).

Drug companies are not required to obtain FDA approval prior to disseminating an ad. According to FDA regulations, prescription drug ads cannot be misleading or omit material facts (Avery, Eisenberg, & Simon, 2012). The ads must present a "fair balance"

regarding the presentation of risks and benefits. Additionally, if an ad is in print, the format must include information in a "brief summary about side effects, contraindications, and effectiveness" (Avery, Eisenberg, & Simon, 2012, p. 252). These guidelines attempt to present the necessary information for patients to make informed decisions.

Pharmaceutical Industry and DTCA

There can be various reasons why DTCA is used in the industry. Pharmaceutical companies often use DTCA in an attempt to improve their brand name, as well as to influence patients to use their particular product. Menon, Deshpande, Perri, and Zinkham (2003) conducted a study to determine if consumers attend to the brief summary of the risk information in the print DTCA. This summary is one of the requirements set by the FDA. The secondary objective was to determine if consumers found this information to be useful. Data collected from a 1999 national survey on consumer attitudes toward DTCA were analyzed. A national sample of telephone numbers was purchased by the magazine, with a sample size of 1,205. Ten combined hypotheses for the two objectives were developed. For Objective 1, the hypotheses were as follows:

*H*1: General consumer characteristics (age, sec, race, and educational level) influence whether consumers pay attention to the brief summary.

*H*2: Consumers' interaction with DTCA influence whether consumers pay attention to the summary.

*H*3: Consumers' attitudes toward the concept of DTCA influences whether consumers pay attention to the brief summary.

*H*4: Consumer characteristics specific to health care influence whether consumers pay attention to the brief summary. (Menon et al., 2003, p. 183)

For Objective 2, the following hypotheses were developed:

H5: General consumer characteristics influence usefulness of the brief summary in discussions with physicians.

H6: Consumers' interactions with DTCA influence usefulness of summary discussions with physicians.

H7: Consumers' attitudes toward the concept of DTCA influence usefulness of brief summary in discussions with physicians.

H8: Consumers' attention-related characteristics influence usefulness of brief summary in discussions with physicians.

H9: Consumers' perceptions of the clarity of the brief summary influence its usefulness in discussions with physicians.

H10: Consumer characteristics specific to health care influence usefulness of brief summary in discussions with physicians. (Menon et al., 2003, p. 183)

Menon et al. (2003) used a variety of measurement methods to analyze the data, including using yes/no as the dependent variable and demographic factors as the independent or predictor variable.

From the consumers surveyed with no missing responses, 438 subjects remained with an average age of 42. Additionally, the majority of the participants were women (62.5%) and Caucasian (87.58%). In summary, the results from the analyses supported H1, H2, and H3. Under Objective 2, H8 and H9 were also supported. However, the participants that consumed more prescriptions were significantly less likely to attend to the summary, which did not support H4. Additionally, under Objective 2, H5, H6, H7, and H10 were all not supported. Menon et al. (2003) reached the conclusion that, when attending to the summary of DTCA, the consumer's age was not relevant and neither was the number of prescriptions taken. Also, those who read the entire summary were less likely to find it to be useful (Menon et al., 2003).

For the last 13 years, *Prevention* has conducted an annual DTC survey. In 2010, the data were prepared by Princeton Survey Research Associates International and consisted of a national sample of 1,501 adults. Interviews were conducted via telephone and the margin of sampling error was reported at +/- 3%. The results indicated that consumers believe that pharmaceutical advertising is presented fairly and balanced in magazines and television. This finding is related to the FDA regulated "fair and balanced" mandate of presenting the risk and benefits equally. The study also reported that, for 5 consecutive years, 79% of consumers have either seen or heard the risk on TV ads, 73% had seen or heard the benefits on TV ads, and 48% had seen or heard the benefits in ads in magazines. These findings also reported 33% of consumers having

conversations with their doctor after seeing an ad, which has remained stable over the past 13 years (Prevention, 2010)(“Prevention Magazine Releases,” 2010).

Because the knowledge and understanding required to make safe and appropriate medication decisions is so advanced, the general public must rely on the expertise of physicians to determine the appropriateness and authority to obtain and consume some high-risk medications (Moore, 2014a). This agency relationship moderates the conditioning, learning, integration of information, and prospect decisions of the average person (Noor, Yap, Kok-Hong, & Rajah, 2014). Within this theoretical model, it is suggested that patients, regardless of their sociodemographic profile, will seek to engage their “agent” in their desire to be considered for or obtain prescription medications.

Newton and Ford (2013) posed the question of whether business and medicine are ethically incompatible. They described two types of ethics: professional and market. When the professional acts in the interest of the client, the behavior is known as professional or fiduciary ethics. In contrast, market ethics involve each side working in his or her own interest. In the physician-patient relationship, Newton and Ford (2013) described the professional ethic as being reflected in the Hippocratic Oath, which states that no harm or wrongdoing will come to the patient (p. 78).

The economic interests of physicians over patients remains a concern today (Rusthoven, 2014). However, many changes have occurred in medicine that affect this relationship. Medical facilities have expanded, and this expansion has increased competition. There are also more investor-owned health care facilities. The early view

that medicine is a social good has changed to one that considers medicine to be a commodity, where patients select services that they can afford. These changes in medicine are a few of the many factors that have caused providers to compete for patients and make decisions that may be based on profits (Rusthoven, 2014).

Factors Having an Impact on Health Policy

The health policy aspirations of the federal government, the capitalistic goals of big business, and the incentives for pharmaceutical firms and investors, have suggested an additional area for consideration (Mackert et al., 2013). Although there is evidence that DTCA reduces costs by reducing preventable care caused by patient noncompliance (Bergner, Falk, Heinrich, & Hölzing, 2013), significant potential downsides exist (Rodwin, 2013). The heightened degree of regulation by the federal government may have fostered public confidence and reduced perceptions of risk. This reduced perception of risk may have also created a secondary effect of encouraging questionable utilization. Essentially, because the medications are deemed safe, more consumers who otherwise would not seek or even need prescription drugs may desire them. Three of the apparent downsides of such questionable utilization are opioid abuse (Fischer, Keates, Buhringer, Reimer, & Rehm, 2014), testosterone over-prescribing (Gan, Pattman, Pearce, & Quinton, 2013), and the resistance to antibiotics that some organisms have developed due to antibiotic overprescribing. This increase in questionable utilization may also lead to an increase in patient complaints (Lewin, 2013) and litigation.

An additional concern is one of underuse. On the heels of the Great Depression, fear of a recurrence may have influenced health policy towards ensuring that consumers did not go without needed medications. An economic theory supporting this argument was that underuse would lead to higher prices that exclude the less affluent. The combination of these concerns, intents, agendas, and goals are believed to have framed the development of advertising, price and patent rules, and guidelines of the period. Prices, profits, patents, and advertising were increasingly viewed as vital elements of the effective development and use of modern technology. This statement is not meant to suggest malicious intent, but is important in understanding the basis and rationale for legislative activity and decisions by pharmaceutical firms and associated businesses. However, history does suggest that regulatory legislation benefits have been heavily weighted towards business and industry, and less so towards consumers (Blair, 2014; Jofre, 2014; Kmietowicz, 2014).

Some of the world's largest pharmaceutical companies are located in the United States and Great Britain. Among the largest in the United States are Pfizer, Merck, Johnson & Johnson, Bristol-Myers Squibb, and Wyeth. The British companies include GlaxoSmithKline and AstraZeneca. As prescription drug prices rise, so does the profit margin for these pharmaceutical companies. Americans spend billions of dollars on prescription drugs each year. Many pharmaceutical companies argue that high drug costs are due, in part, to research and development (R&D). However, Angell (2011) argued that R&D has little to do with these rising costs and pointed out three reasons to support

her position. First, the total amount spent on R&D makes up a relatively small part of the drug company budgets (Jack, 2014). Second, the number of completely new drugs developed is small. Many drugs are only variations to other already existing drugs (Angell, 2011; Boumil & Curfman, 2013). An example of this practice involves Claritin (used for allergies) by Schering-Plough, which originally made up approximately one-third of Schering-Plough revenues before expiration of the patent. In an attempt to regain revenues, the company tried to get users to switch to another patented drug, Clarinex, which was almost identical to Claritin. The third argument against R&D costs is that companies can charge whatever they want for the drugs with no or little restrictions from the government (Peterson, 2014). In fact, the same drugs are often priced higher in the United States than in other countries. Pricing is driven, in part, by return on investment demands by shareholders.

Many pharmaceutical companies claim that R&D takes many years and is extremely costly. The R&D process is divided into two stages: preclinical and clinical. During the preclinical stage, companies try to find promising drugs to treat a targeted property. This stage is often computerized and involves testing various molecules to possible drug candidates. It is the clinical testing phase that is often expensive (Sashegyi et al., 2013).

Theoretical Framework

Social Cognitive Theory

Bandura's (2001) social cognitive theory combines elements of conditioning and learning with cognitive aspects while extending internal factors to explain behavior. Thorpe and Olson (1990) explained that Bandura's theory attempts to clarify behavior by examining environmental influences. Reciprocal determinism is the term used to explain the interactional process in the shaping of behavior. The interaction between the environment, the person, and the behavior have an equal impact on or influence of one another. Such interactions can include situations in which a person makes self-adjustments or when a person talks to himself or herself.

Reciprocal determinism is important in explaining how a person learns by observing or modeling. Bandura (1971) argued that the majority of learning is gained through a persons' direct experiences or secondhand observations. Thorpe and Olson (1990) presented three effects of learning:

1. Observational learning effects: Learning that results from combining previously learned response in new ways;
2. Inhibitory and disinhibitory effects: The consequences of the model's behavior has an impact on the observer's behavior. An inhibitory effect discourages the observer from engaging in the model's behavior. Conversely, a disinhibitory effect would encourage learning to model the observed behavior.

3. Response facilitation effects: Generally, a person performs acceptable behaviors after observing others. The consequences observed influence the observer's decision to perform the observed behavior. This modeling process begins with a person showing attention to the model, which is then followed by some form of retention of the information. Next, the observer attempts to put the observed performance together, which sometimes requires small steps. The forth step involves modeling the behavior, if the motivational factors are acceptable. (Thorpe & Olsen, 1990, p. 72)

When a person uses previously learned responses in new situations, he or she is demonstrating observational learning. In inhibitory and disinhibitory effects, a person can repeat or not repeat an observed behavior of a model based upon the consequences observed. If the observer is discouraged to engage in the behavior, the person is exhibiting an inhibitory effect. But, in demonstrating the disinhibitory effect, the observer is encouraged by the observed behavior. Response facilitation effects can be described as observing a behavior that is defined as acceptable and following four steps in the modeling process. First, the observer observes the model and then retains the information. The observer then compiles all of the observed information together and then, in the final step, the actual modeling of the behavior occurs (Thorpe & Olsen, 1990).

Modeling can take on many forms, in addition to an actual live model or observation. Modeling can also take place from observing media, television, and so on.

This type of model is known as symbolic modeling. Also, covert modeling can take place, in which the observer imagines observing a model. According to Bandura (1969) imitating an observed behavior does not have to immediately occur following the observation.

Bandura's (1965) experiment on imitation of aggressive behaviors was an attempt to explain learning by observation. Bandura used four-year-olds in this experiment on imitation of aggressive behavior. The experiment involved each participant individually observing an adult perform four aggressive behaviors against a Bobo doll on film. The behaviors included both physical and verbal aggression. The adult sat on the doll and punched it, hit the doll with a mallet, kicked the doll, or threw rubber balls at the doll (all physical behaviors were coupled with verbal aggressive statements). The child participants then observed the adult being reinforced with snacks and verbally praised; punished and scolded; or having no consequence implemented. The children were then taken into a room with a Bobo doll and other toys. The findings showed aggressive behavior by the children, often with similar actions that resembled those of the model.

Social Cognitive Theory and Choice Theory

The role of reinforcement and other elements of social cognitive theory in the learning process were compared and debated by Malone (2002) in a compatibility analysis with Glasser's (2010) choice theory. Although both theories support individual responsibility, the two theories differ in regard to views on reinforcement, punishment, and self-efficacy. Choice theory states that all behavior is chosen and the most important

need that a person possesses is love and belongingness (Glasser, 2010). Behavior is described as humanistic, and a person's behavior is determined by survival, love and belonging, power, freedom, and fun (Malone, 2002). The term reinforcement, which is used in social cognitive theory, was not used by Glasser due to the external nature that is implied by the term. Glasser's choice theory stresses internal control and views punishment as an unethical and ineffective practice. Additionally, punishments and the administration of rewards are seen as manipulating and coercive techniques. Internal motivators can be eliminated if behavior is manipulated. Bandura's (1965) research with Bobo dolls illustrated the use of learning by watching others and vicarious punishment.

One of several similarities between social learning theory and choice theory is the decision to perform a learned behavior. A person can learn a behavior in both theories but many decide when or if to perform. Malone (2002) stated that, according to choice theory, a person creates images in his or her mind. These images form a persons' personal quality world. A person can retain these images or go to the next step of actually acting out the activity. A persons' actions can be changed in both social cognitive theory and choice theory. However, in cognitive theory, changing behaviors is accomplished though a person changing the pictures within his or her quality world and not the actual alteration of a behavior, as is the case according to social cognitive theory. Human behavior is regulated by self-efficacy, and the concept is an important aspect of both theories. Cognitive, motivational, affective, and selection aspects are all involved in the self-efficacy process.

Social System

Bandura (2002) discussed how social cognitive theory adapts to human development, adaptation, and change as part of the social cognitive theory in cultural context. Culture is described as a social system that is diverse and changing; therefore, human functioning within culture is unique. According to Bandura, there are three modes of agency (an intentional influence on a persons' functioning, which includes a persons' life circumstances): direct personal agency, proxy agency, and collective agency. Whereas personal agency involves a persons' own direct control over conditions, proxy agency relies on others to have a secure wellbeing. Collective agency relates to group actions in accomplishing desired outcomes. Bandura stated that people have limited direct influence or control over social conditions or institutional practices, and people must combine their skills and resources to accomplish many individual goals.

Cultural differences have an impact on how these three modes of agency mix for successful functioning. All three types of agency are needed each day, regardless of the specific culture. Despite the agentic blend, personal efficacy plays a critical role in a persons' actions. Personal efficacy is a persons' beliefs regarding his or her power to produce the desired outcome. Human functioning, which includes cognitive, motivational, affective, and decisional processes, are all regulated through a persons' personal efficacy beliefs (Bandura, 2002).

The role of culture was debated by Bandura (2002) in terms of whether a universal human nature exists or if there are several human natures that combine in

various cultural situations. Both direct and vicarious experiences shape human nature. However, biological limits exist that influence the shaping of human nature. These biological limits were described by Bandura as permitting a broad range of possibilities within a persons' culture. People adapt to their environments by using various agentic modes, while adjusting as needed to overcome physical limitations or restrictions. Cultural differences exist both cross-culturally and intraculturally; however, "globalization and pluralization of societies" has ended the insular nature of cultures (Bandura, 2002, p. 283) Culture is displayed in a persons' style of living. Culture has an impact on a person's choices. Material and nonmaterial are the two parts of culture. Culture can be described as habits that encompass diverse factors to include morals and laws (Kahle & Chiagouris, 2014). Additionally, Kolesnik (2013) using Hofestede, Hofstede, and Minkov's (2010) cultural dimensions theory asserted that people from different places are distinguished by culture.

Advertising and Social Cognitive Theory

The influence of mass media on society is substantial, requiring an explanation of the psychosocial role of communication and human behavior. Bandura (2001) described psychosocial functioning using a triadic reciprocal causation model that consists of personal, behavioral, and environmental determinants. In general, people are proactive and self-reflecting beings. Human nature is shaped or molded by direct and observational experiences within biological limits. Behavior is impacted cognitively by external influences rather than directly, and cognitive factors also determine which environmental

situations will be observed. A persons' own knowledge and understanding is derived from operating symbolically on personal and vicarious experiences (Bandura, 2001).

Bandura (2001) also described people as self-reactors. Through internal standards and reactions to a persons' own behavior, one can self-regulate motivation, affect, and action. This self-regulation is not limited to negative feedback of oneself, but also on motivation. This motivation was described by Bandura as a person setting challenging goals and mobilizing resources to accomplish these goals. People have internal standards that assess the adequacy of established achievements. Internal standards also regulate conduct, both socially and morally. Internal standards can slowly change, but are usually stable. Morality (right or wrong) was described by Bandura as inhibitive and proactive. Inhibitive morality is a persons' power to refrain from inhuman behavior, and proactive morality is the power to behave humanely.

Bandura's (2001) social cognitive theory also described people as being self-reflective. This process involves a person generating ideas, acting upon them, and then judging adequacy. Fours modes (enactive, vicarious, social, and logical) exist in the verification of a person's ideas or thoughts. The fit between a persons' thoughts and action results in what occurs with enactive verification. This type of verification corroborates thoughts (a good match) or refutes them (a mismatch). When a person observes another's actions, he or she can check the correctness of his or her own thinking process, which is vicarious verification. Social verification is conducted when one checks a persons' views against the beliefs of others. Logical verification involves checking

fallacies by deducing from known knowledge. Each of these four verification forms can produce faulty thinking. Bandura (2001) presented examples of this faulty thinking in an illustration in which distorted media versions of reality fostering shared misconceptions.

In 21st-century society, consumers are presented with images through media that would not otherwise be available in their lives. Bandura (2001) summarized four subfunctions that govern observational learning, such as through media. The subfunctions are attentional processes, cognitive representational processes, behavioral production processes, and motivational processes. Attentional processes are those in which a person selectively observes modeling. Factors that determine selection include cognitive skills, preconceptions, and held values. Bandura described cognitive representational processes in terms of memory retention. Observed events must be remembered to be influential; therefore, a process must occur that will change or transform the modeled event into a useable form. The third process, behavioral production, is the transformation of a concept into action. The final process involves motivational aspects that determine what encourages a person to perform the acquired behavior, because not all observed behavior is performed.

Conflicts sometimes occur when there is a conflict between observed events and internal moral standards. Additionally, vicarious motivators, such as punishment or reward, can influence the performance of the observed behavior by an observer. According to Bandura (2001), television and other forms of media often glamorize representations that may cause internal discord. This portrayal may work as a

motivational element to influence a person's behavior. Bandura argued that the media can both create and alter personal attributes. Technological advances have contributed to communicating to large numbers of people in a single transmission.

DTCA persuades people to use medications that they may not need, creating more harm than benefits (Rollins & Perri, 2014). There is also evidence to suggest that DTCA has the potential to influence patients' perceptions of treatment plans (Byrne, Niederdeppe, Avery, & Cantor, 2013). Physicians are also not immune to the social psychologically based efforts of pharmaceutical firms (Ball & Mackert, 2013; Sah & Fugh-Berman, 2013; Sismondo, 2013). New drugs are profitable and, although some testing has been done, long-term effects are not known. DTCA influences patients to take these new drugs with sometimes unknown risks. The advertised drug is often new and inferior to older methods, but is more expensive. Established medications are often not advertised as heavily because of generic competition (Ross & Kesselheim, 2013; Tenn & Wendling, 2014).

Pocock (2003) posited for and against non-inferiority trials, the aim of which is the development of new treatments that are safe. A non-inferiority trial refers to a "randomized clinical trial in which a new test treatment is compared with a standard active treatment rather than a placebo or untreated control group" (p. 483). During clinical trials, no patient is supposed to be denied effective treatment. In some trials, there may be an active control group and a placebo. Care during clinical trials is important to prevent the use of ineffective and unsafe treatments. Also, Type I and Type II errors are

to be avoided. As Pocock (2003) explained, “a Type I error would be the acceptance of a useless treatment into widespread use,” and “a Type II error is the failure to use an effective active control treatment by adopting a placebo control group instead” (p. 484). Most trials involve the patients receiving the active drug. In some trials, the research participant may already know that the new treatment is different from the active treatment.

Even with technological advances, diffusion of information differs among individuals and social groups. Bandura (2001) discussed three processes (innovative behaviors, adaptation of behaviors in practice, and social networks) that govern social diffusion of new behavior patterns. According to Bandura, the acceptance of new ideas or practices is a challenge due to factors such as customs and social unfamiliarity. Acceptance then takes on an accelerated course followed by a slowdown in the rate of diffusion. The dispersion of innovative behaviors, which is one of the three processes, relies on the method of diffusion (e.g., newspaper or television). More complicated innovations are more difficult for others to accept. In general, for modeling of a behavior to occur, many factors are involved, including human competency and self-belief (Bandura, 2001).

Another process presented by Bandura (2001) is adoption, which relates to the many factors that determine if a person will act or engage in a learned behavior. A person is more likely to adopt an innovation if there are benefits. These benefits may include social recognition or status as motivators. People also adopt behaviors that fit into their

value system. The third process that has an impact on diffusion is the social network. Whether it is an occupational colleague group, friendships, or kinships, people are often associated with networks. These networks contain various structural levels and interconnectedness; however, no one social network can serve all purposes. A person with many network ties is more likely to accept innovations and have a greater likelihood of exposure to modeling. Television and online transactions include a few media sources that cross barriers (e.g., geographic and time) in the transmission of innovations. The role of mass communication plays an important role in learning.

Social Cognitive Theory and Direct-to-Consumer Advertising

Rosenbaum (1999) used Sen's (1977) work as an origin and comparison for research. Sen's contribution related to culture and consumption. Rosenbaum divided his work into six sections. The first section of Rosenbaum's essay explored various views on consumption. Although Rosenbaum defined and summarized consumer theory, beginning as early as 1966, a general introduction to Sen's background and contributions were limited for a beginner reader. The second section of the article explored the importance and impact of goods on culture. Rosenbaum (1999) remarked, "In fact, goods receive meaning as a consequence of being used as markers and they are used as markers because they carry meaning" (p. 322).

Rosenbaum (1999) suggested that a persons' identity is established by commodities. The roles of preferences, cultural capital, and inequality are followed in the fourth section. Rosenbaum noted that goods carry meaning and should be taken seriously,

unlike Sen's (1977) suggestion. Rosenbaum's essay concluded by examining empirical evidence related to cultural capital. Here, the author focused on social mobility. Erikson and Goldthorpe (1992) debated the determinants of social mobility. Rosenbaum focused on how three claims perform in empirical tests, concluding that the evidence presented by Erikson and Goldthorpe left some doubt due to the difficulty in representing cultural capital empirically in research. Rosenbaum concluded that cultural capital has changed over time. He gave the example of the 20th-century pension system that focuses on the nuclear family rather than the traditional extended family. In conclusion, considering culture is an important element. Individuals choose goods based on symbolic meanings derived from their culture (Rosenbaum, 1999).

The extent of the influence of popular culture may vary. Cusic (2001) attempted to measure the economic impact of popular culture by gathering data from the U.S. Department of Commerce. The method by which popular culture is transmitted is the media; therefore, advertising expenditures were reviewed. Cusic began with a comparison of advertisement figures for 50 years, starting in 1948, which was the first full year of television programming. The figures were obtained from the Television Bureau of Advertising. In 1948, the most popular advertising medium was newspapers, which received $1.745 billion in advertising revenue, compared to $562 million spent on radio advertising. In 1948, the total amount spent on advertising was $2.784 billion, of which television received 0%, radio 20%, magazines 17%, and newspapers 62.7%. In comparison, in 1994, the advertising expenditures totaled $88.2 billion, of which 40%

was spent on television advertising, 39% on newspapers, 12% on radio, and 9% on magazines. Therefore, over the 50-year period ending in 1994, advertising expenditures continued to increase, with the most popular medium changing from newspapers to television (Cusic, 2001, p. 1). With the popularity of the internet a shift in the popular medium may have changed again.

Cusic (2001) discussed several possible reasons for the changes in advertising channels. One theory suggests that newspaper and television advertising are at-home activities, whereas radio penetration is primarily outside of the home. These so-called in-home activities have a greater chance of being used. The penetration of radio advertising may therefore be limited by the reduced amount of time in which listeners engage in this type of activity. A second assumption to explain medium changes explored the number of radio stations compared to the number of daily newspapers in a market. In a given market, there is often one newspaper, but several radio stations. It is more economical to advertise in one medium than on several radio stations. Cusic reported that the number of U.S. households with cable television increased to 62.4% in 1995, up from 6.7% in 1970. The application of these economic findings has an impact on the production of movies, music, products, and prescription medications (Cusic, 2001). The practices of marketing prescription drugs directly to consumers began in the 1980s, when the FDA removed restrictions. The possible effects of such practices on the patient/physician relationship, prescription writing, and consumer education are all factors that may experience the impact of DTCA.

There have been other studies that have used social cognitive related theories and DTCA. Welch Cline and Young (2004) conducted a content analysis based on Bandura's (2001) social cognitive theory. The purpose of the study was to identify features of DTCA that may function as modeling. Visual cues were examined as vicarious motivators. Social cognitive theory describes behavior change in terms of rewards associate with observed behaviors that, in turn, becomes motivators. Motivators may be direct or vicarious. In DTCA, financial incentives or claims regarding the potential of a product to cure an illness may be direct motivators, whereas images of healthy, happy, or socially engaged product users may be vicarious motivators (Welch Cline & Young, 2004, p. 136). The present study used Bandura's social cognitive theory as part of the theoretical framework.

Many industries, including alcohol and tobacco, engage in social modeling through the use of billboard advertisements. Social rewards associated with product consumption in advertisements are known as relational motivators, whereas the use of attractive cues are identity motivators. For observational learning to be effective, the reader must be attentive to the advertisement and associate a positive image. Additionally, the ad must exhibit the same realities of the reader.

Magazine advertising continues to be a popular medium used by pharmaceutical companies for DTCA. The study conducted by Welch Cline and Young (2004) consisted of reviewing advertisements in 18 popular magazines for a two-year period (January 1998 to December 1999). The researchers coded the articles based on factors such as

whether models were present and the number of people in the ad. Illustrations featuring rewards were also identified and coded, such as if they were healthy, active, and friendly models. The first of the four research questions was, What percentage of direct-to-consumer print advertisements depicted models? The results indicate that over 80% of the advertisements contained models and 35.7% included inanimate objects. Welch Cline and Young further analyzed the advertisements with models by medical condition. Advertisements for musculoskeletal conditions and respiratory conditions used people in the advertisements 100% of the time. Advertisements for allergies, urologic condition, and dermatologic condition depicted people, 94.3%, 92.3%, and 91.7%, respectively. Infectious conditions (other than the human immunodeficiency virus [HIV]) and tobacco-addiction advertisements were the least likely to depict people, both 62.5%, from the sampled advertisements.

The second research question Welch Cline and Young (2004) asked was, What are the demographic characteristics of models depicted in direct-to-consumer print advertisements? The findings showed that either male or female models were commonly found in advertisements 33.3% of the time. The use of female-only models (38.3%) in advertisements was more popular than advertisements containing only male models (26.8%). The authors also found trends in the advertisements based upon the type of medical condition. Advertisements for cancer disproportionately showed females (75%). Other types of medical conditions that depicted women more often than men included obstetric-gynecologic (89.5%), psychiatric-neurological (71.4%), and tobacco addiction

(60%). The use of men only by medical condition was popular for such conditions as cardiovascular (66.7%) and gastrointestinal-nutritional advertisements (66.7%). Advertisements for the drug Viagra (which, for advertising purposes, the type of medical condition is presented as undisclosed), depicted both a male and a female model in 100% of the reviewed advertisements.

With regards to ethnic groups, Welch Cline and Young (2004) found nearly three fourths of the advertisements (71.6%) depicted Whites only. Advertisements with only African Americans, Hispanics, or Asians were few (14.2%, 1.1%, and .5%, respectively). Additionally, differences were also found for the type of medical condition and ethnicity. The depiction of Whites was dominant in advertisements for cancer, cardiovascular, psychiatric-neurological, respiratory, and tobacco-addiction conditions. African Americans were most commonly reflected in advertisements for HIV/AIDS and diabetes, 48.4% and 33.3%, respectively. Hispanics were also more likely to be depicted in advertisements for HIV/AIDS, even though this group was less likely to appear in any type of advertisement.

Restating RQ3 and RQ4 of the Welch Cline and Young (2004) study (What are the nature and frequency of identity rewards offered in direct-to-consumer print advertisements via visual cues, and what is the nature and frequency of relational rewards offered in direct-to-consumer print advertisements via visual cues, respectively). The findings of Welch Cline and Young's (2004) study indicated that in 91.8% of the advertisements, people that appeared healthy were depicted. Additionally, the majority of

the advertisements showed people in some form of activity, social activity (17%), and physical activity (43.4%). Most advertisements also showed either smiling (72%) or friendly (64.1%) behaviors. The depiction of social contexts was found in many of the advertisements (40.7%). This social context was often family- or romantically orientated, 31.1% and 29.8%, respectively.

Based on these findings, Welch Cline and Young (2004) concluded that change in health care behavior might be triggered by DTCA. Consumers are often exposed to visual models with positive features, such as active and friendly models. Additionally, over 90% of the advertisements showed only healthy-looking people. Exposure to DTCA may be misleading and promote stereotypes. Age (Abernathy, Adams-Price, & Henley, 2013), ethnicity (Ceccoli & Klotz, 2013), where consumers live (Spake, Joseph, & Megehee, 2014), and the mode of DTCA delivery (Bhutada, Deshpande, Menon, & Perri, 2013; Huh & Shin, 2014; Koch et al., 2014; Vats, 2013) have also been found to have potential impacts on consumers' perceptions. The present study may add to the debate regarding ethical questions surrounding the use of DTCA. This study presents a comprehensive discussion regarding the power of DTCA and states that analysis supports observational learning, which can influence to relationship between physician and patient.

Given these theoretical perspectives, patients are believed to synthesize information that encourages them to seek medications that reduce the disparity between their current perceived health status and wellness, and their desired health status and wellness. DTCA could provide consumers with information to develop the perception or

belief that the advertised medication could provide better options and more favorable health status alternatives. This consumer information processing typology suggests that DTCA can make an impact on consumer behavior by developing the cognitive processes that synthesize information, develop a need for a change in health status or standing, identify a solution to that need, and encourage a desire to act on that need by seeking medications (Mukherjee et al., 2013).

Moderating and Other Theoretical Constructs

Most consumers do not possess the educational background, pharmaceutical knowledge, or experience to appropriately understand medication risks. Additionally, they do not have the authority or ability to obtain prescription drugs without physician approval. As a result, social learning, information integration, and prospect theoretical postulates must be mediated or at least moderated within the context of agency theory (Epstein & Ketcham, 2014).

Agency theory suggests that situations involving information asymmetry or lack of decision-making authority require a qualified "agent" to act on behalf of the consumer (Epstein & Ketcham, 2014; Wang, Dou, Li, & Zhou, 2013). Principle-agent relationships are found in many industries and products, from real estate to accounting to prescription drugs. Associations involving these principle-agent relationships must involve sound ethical and moral standards, given the redistribution of value that creates the relationship (Epstein & Ketcham, 2014). In the case of the present study, the consumer-physician relationship required for a prescription is at least partially facilitated by DTCA. This

facilitation, coupled with consumers' limited knowledge of behavior-shaping learning, information processing, and risk factors, completes the theoretical framework required to better understand the impact of DTCA on prescription-seeking behaviors (Arney & Lewin, 2013; Spence, 2013).

In keeping with the tenets with agency theory, consumer search behavior, at least in part, is motivated by perceived risk and consumer ability to acquire pertinent information to determine whether a purchase is necessary. In the case of prescription drugs, this risk can be defined as a diminished health status, illness, injury, or even death (Fountain & Reith, 2014; Ross & Kravitz, 2013). Anvari and Amin (2010) provided further support for the mediating effects of perceived risk and the increased consumer search activity. This phenomenon is known as surrogate consumption theory. The theory focuses on those who must or believe that they must rely on other persons for the acquisition- and consumption-related activities that they desire (Lantos, 2010). Given disenfranchisement, a lack of opportunity, or an inability to act on their own behalf, consumers often engage in surrogate consumption activities. Galbraith's controversial thesis suggested that large corporations seek to manage the demand for their products (Goldberg, 2013). Implying that the direct manipulation of consumers' fuels product demand, this thesis provides a potential financial explanation for why DTCA may increase demand (Goldberg, 2013).

The FDA OPDP investigates the applied/theoretical issues relating to the communication of risk and benefit for DTCA and professional promotional prescription

drug material (HHS, 2013). In 2011, several experimental research studies were completed by the OPDP. In its 2012 study, the FDA investigated alternative formats for presenting the brief summary statement and examined how people read through and understand the summary. The study findings showed that adding a serious risk to the statement being read did not increase or decrease the overall amount of time taken by the participants. The readers' intention of asking for the prescription also did not change under these circumstances. Additionally, individual characteristics had a greater influence over reading time compared to characteristics found in the ad statement.

The FDA (2012) found that the amount of time spent reading the display page and summary were significantly related to the reading speed, age, and health of the reader. Finally, there was evidence to support that serious risk information scares possible consumers away. Focus groups are also used by the OPDP to gather information as related to DTC advertising. The Food and Drug Administration Amendments Act (FDAAA) of 2007 has assisted in providing resources for ongoing research and reviews.

Alden et al. (1999) offered global consumer culture positioning (GCCP) as an alternative approach to brand positioning design for international positioning. The researchers examined and contrasted GCCP with local consumer culture positioning (LCCP) and foreign consumer positioning (FCCP). GCCP involves sharing symbols that denote membership in a global consumer segment. These shared symbols can take on several forms, such as language. Alden et al. used the example advertising with the

English language, which is viewed as modernism. English is therefore used for a brand to convey this associated meaning.

Alden et al. (1999) formulated eight hypotheses. First, all three positioning approaches are meaningful in television advertising. Second, the most commonly used strategy in television advertising is LCCP. Third, in the United States, GCCP is used less frequently in television advertisements. Fourth, in the United States, LCCP is used more frequently in television advertisements. Fifth, in television advertisements, more indirect, image-oriented approaches are used when GCCP is employed. Sixth, if GCCP is used, food products are less often represented, whereas durable goods often use this approach. Seventh, in television advertising for food, LCCP is used most, but LCCP is used least often for durable goods. Eighth, for services, LCCP is more often used.

A broad array of Asian and Western cultures (e.g., United States, Germany, Korea, India, Thailand, France, and the Netherlands) were selected by Alden et al. (1999) to participate. Alden et al. selected random samples of television advertisements from each country. A random sample of 20% to 25% of ads was then taken from all collected advertisements. A total unduplicated sample of 1,267 remained. Graduate students conducted in-depth coding for each of their native countries.

The results supported Alden et al.'s (1999) primary hypothesis, with 85% of advertisements displaying one of the three positioning options, GCCP, LCCP, or FCCP. The researchers' second hypothesis was also supported, with 59% of advertisements using LCCP, compared to 22.4% that used GCCP and less than 4% that used FCCP.

Additionally, Chi-square analysis resulted in support for Alden et al.'s third and fourth hypotheses, both of which relating to positioning in the United States. Significance was found for types of products that used GCCP, with 56.3% of advertisements using soft-sell approaches, which supported Alden et al.'s fifth hypothesis. The other findings also support the sixth, seventh, and eighth hypotheses. GCCP was found to be highest (33.3%) for high-tech durables, but was only 18.6% of food advertising. In service advertising, LCCP was most frequently used often positioning option.

Alden et al. (1999) concluded that the then relatively new approach of GCCP may be beneficial. For example in economically developing countries, GCCP may work more effectively than might LCCP. This study contributed to the existing body of knowledge by adding an alternative approach to advertising. The researchers acknowledged several limitations in their study, including coding and interpretation of advertisements. The study appeared to be generalizable, with the use of seven diverse countries (Alden et al., 1999).

Voluntary simplicity (VS), which has evolved in meaning over the years, can be defined as a commitment to the nonmaterial aspects of life or living a simpler life. In practice, a person minimizes consumption of material goods and may even carry over to working less (Ekstrom & Glans, 2012).

Shaw and Newholm (2002) examined the differences between ethical consumption behaviors and voluntary simplified behaviors, and presented findings from two qualitative studies that explored consumer behaviors. Briefly defined, VS is a

consumer's choice to simplify individual consumption behavior. In comparison, ethical consumers restrain from consumption because of some ethical concern, such as taking public transportation rather than driving a fuel-inefficient car. Shaw and Newholm (2002) stated that "a fine distinction cannot be made between the extent and nature of consumption in affluent consumer societies" (p. 169). Therefore, consumers engage in the following behavior approaches: downshifting, voluntary simplicity, and sustainable levels of consumption. Shaw and Newholm described downshifting as a type of VS; however, downshifters seek to maximum quality time over other motivations, such as income.

Shaw and Newholm's (2002) premise was that VS may be demonstrated among consumers whose behavior includes some ethical consideration of the environmental and social impact of their consumption choices (p. 180). The two qualitative studies examined by Shaw and Newholm were conducted in the United Kingdom between 1996 and 1999. One study consisted of 15 ethical consumers forming two focus groups. The other study involved 16 case studies of ethical consumers. The respondents' attitudes in relationship to three consumption areas (diet, car or non-car travel, and use of secondhand products) were discussed. Shaw and Newholm reported that, in both studies, the majority of respondents had modified their diets for various ethical reasons, including treatment of animals and environmental concerns. Dietary changes included becoming a vegetarian, reducing meat purchases, only buying free-range animal products, or increasing purchases of organic products.

Environmental concerns were one of the issues associated with choices made relative to transportation. Although some respondents owned cars, they indicated a lack of or problems with public transportation. Shaw and Newholm (2002) cited that some respondents decided to live in areas in which employment and amenities were in walking distance to address the transportation concern. The use of secondhand items was another choice made by respondents. One respondent reported that it was more economical and efficient to purchase used products or items, including homes, clothes, and appliances. The authors concluded that the findings "suggest[ed] that consumers who start from the premise that ethical issues are applicable to their consumption also consider the extent of that consumption" (Shaw & Newholm, 2002, p. 180).

Finally, Ahn et al. (2014) and Park, Ju, and Kim (2014) provided empirical evidence of the positive association between DTCA and consumer perceptions of the prevalence and risks of depression. By playing a role in creating social reality of diseases and medicine, the social cognitive effects of DTCA are considered far-reaching and influencing to pharmaceutical firm marketing strategy. This effect further raises complex ethical concerns. Although the study was limited to print advertisements for antidepressants, it provided support for the broader exploration of this phenomenon in general DTCA. The present study sought to contribute to the overall body of knowledge regarding DTCA by providing empirical support for the association between DTCA and consumer behaviors.

Review of Research Methods and Differing Methodologies

The approach to research designs can be qualitative, quantitative, or a combination of both. There are many approaches to each design; some of the more frequently used include field research, experimental, evaluation, and survey. Singleton, Singleton, and Straits (2010) defined field research as directly observing others in a natural setting. This form of observation may extend over a period of time and may include interaction. Case studies are one of two approaches of field research. The other type of study is known as ethnographies. According to Singleton et al., most field research involves a case study in that a single unit analysis is examined. In comparison, ethnographies usually describe a culture based upon long field investigation. Singleton et al. stated that researchers select this type of research to obtain an insider's viewpoint. In addition to observing the unit of analysis or social phenomenon, the researcher can better understand substance of views within a setting.

Like other research approaches, there are advantages and disadvantages to using field research. Field research can be less costly in comparison to other methods because it can be conducted nearby; however, this type of research tends to be labor-intensive. Other disadvantages to using field research include replication difficulty and issues involving generalizability. In situations where the researcher has limited knowledge about the subject or ethical challenges restrict other research approaches, field research may be used (Singleton et al., 2010).

Experimental research is another approach that is described as an empirical investigation that attempts to describe a causal explanation. In a true experimental research design, the participants are assigned randomly to either an experimental group or a control group (Marczyk, Dematteo, & Festinger, 2010). Additionally, according to Singleton et al. (2010), this type of research entails the manipulation of an independent variable while controlling exposure or contact to other events. Control of extraneous variables is crucial due to the threat to internal validity.

Singleton et al. (2010) also defined evaluation research as a type of social science research that focuses on analyzing social programs and policies. These social programs are primarily instituted by government entities (federal, state, or local). Evaluation research uses the same types of methods and addresses many of the same issues as other research methods; therefore, the designs and validity (internal and external) issues are similar to those discussed under other methods. The primary distinction is that evaluation research applies research to social context. Monette, Sullivan, and DeJong (2013) described three reasons for conducting evaluation research: to test hypotheses, to support evidence-based practice, and for administrative purposes.

This present study used survey research. Like the other approaches, there are many advantages and disadvantages to this approach. Marczyk et al. (2010) described survey studies as a method in which the researcher asks a large number of people questions. These questions can address attitudes, opinions, or specific behaviors. The findings from surveys may be limited to describing people’s responses, but an attempt

may be made to find a relationship between reported behaviors/opinions and the respondents' characteristics. Similarly Singleton et al. (2010) explained that the researcher examines the relationships among the measures once information is gathered from the survey. Additionally, survey research designs are divided into two categories: cross-sectional and longitudinal.

The cross-sectional design is one in which data are collected at one point in time from a sample of respondents selected to represent the target population. According to Singleton et al. (2010), this one point in time means that the data are collected in the shortest feasible amount of time. The cross-sectional design has two variations: contextual design and social network design. Both types of designs can be used to study individuals within the same social context; however, contextual designs involve sample cases within a particular group to describe characteristics. In comparison, social network designs, which often require the researcher to interview every person in the study, are used to examine the relationship among people or other target performers. Longitudinal designs are studies in which data are collected at more than one point in time. Researchers using this type of design may ask the same questions to every individual or independently select samples from the same population. When repeated surveys are administered to independent samples of the same population, this type of longitudinal design is known as a trend study. The other type of study in which the same individuals are surveyed more than once is known as a panel study. The cross-sectional design is the more popular of the two designs (Singleton et al., 2010).

Using the survey approach, researchers often strive to make inferences about a whole (known as the population) from observations taken from a sample of the whole (Singleton et al., 2010). Because it is often impossible to observe all actions or events, sampling may be a solution; a sample that is representative (characteristics are close to those of the target group) of the target population is used. Typically, sampling reduces time and cost of a study. Once a researcher has selected the unit of analysis, the number of units and the method upon which the units will be selected must be decided. According to Singleton et al. (2010), the first step in sampling is defining the population of interest, which is a two-step process. The target population, which is the population to which results are to be generalized, must be identified. This process can be performed by the researcher by establishing criteria to determine which cases to include and exclude in the population. Geographic boundary and time frame are two characteristics identified by Singleton et al. that can assist in defining the researcher's target population.

The second step is making the target population operational, which requires constructing a sampling frame. A sampling frame for a survey approach often entails obtaining a listing of the population or subgroups of the population. Next, a sampling design is developed. This design establishes how cases will be selected for observation and falls into two categories: probability sampling and nonprobability sampling.

In probability sampling, all cases have a chance of being randomly selected from a population. In contrast, nonprobability sampling does not have this known probability because random selection does not occur. Singleton et al. (2010) discussed five different

types of probability sampling: random selection, simple random sampling, stratified random sampling, cluster sampling, and systematic sampling. In random selection, each case within a population has an equal chance for selection. According to Singleton et al. (2010), mechanical or electronic aids should be used in this process. Similarly, in simple random sampling, each case has an equal chance of selection, but this procedure refers to combinations of cases. In the third type of probability sampling, stratified random sampling, a subdivision is made to the population first and then simple random samples are selected from each segment. These subdivisions are mutually exclusive and this procedure can increase sample precision.

The fourth type of sampling, cluster, also involves dividing the population; however this breakdown into clusters is according to natural areas or groupings. Random sampling then occurs from the clusters. Singleton et al. (2010) offered several examples of clusters to include colleges, churches, states, and cities. Clustering is performed most often to reduce the expenses associated with data collection. Another type of probability sampling is systematic sampling in which a researcher chooses a number, then selects a case with that number from a complete list of the population, such as every 10th case (Singleton et al., 2010).

There are several modes of survey instrumentation: face-to-face interviews, telephone interviews, self-administered questionnaires, or a combination of these approaches. The overall interviewing technique has the advantage of allowing the interviewer to clarify or restate questions. Probing by the interviewer can also be used to

clarify answers given by the respondents. One possible disadvantage to interviewing is the required training that is often needed for the interviewers. Interviewing can be done in person (face to face) or over the telephone. Face-to-face interviews typically have a high response rate, allows for the use of visual aids and the making of unobtrusive observations. However, one disadvantage to face-to-face interviewing is the cost. Costs may be reduced by using telephone interviews; however, establishing rapport with respondents is often more difficult. Additionally, complex questions may not be suitable for telephone interviews. Another mode is self-administered questionnaires via the mail or electronic means, such as the Internet. This approach is often the least costly of all approaches and has the advantage of allowing the respondents to complete the item at their convenience (Singleton et al., 2010). The present study used an online survey approach.

Summary

In this chapter, the theoretical framework was discussed. This theoretical framework included social cognitive theory, choice, and agency theory as related to advertising. Global consumer culture positioning was also discussed in this review. Research does exist in the overall advertising field of study; however, research specific to DTCA in comparison is limited. DTCA is a particular type of advertising; its possible risks may be associated with the use of prescription medications. Several studies have been conducted by the FDA, with most being experimental in nature. A 2004 study by the FDA was one of the first studies conducted in this field, and it has been referenced

frequently in the review of literature. Like the 2004 FDA research, the present study used the survey method. Other research discussed in this literature review included a content analysis based on Bandura's (2001) social cognitive theory. The purpose of the Welch Cline and Young (2004) study was to identify features of DTCA that could function as modeling.

Relevant literature covering the history of governmental regulation of the production and sale of prescription medications, the potential supply and demand side incentives, as well as the behavioral and agent aspects of consumer drug seeking were reviewed in developing the theoretical framework. As a comprehensive consideration of the phenomena associated with DTCA, this literature review and theoretical framework provided a foundation and balanced understanding of the factors and issues pertinent to understanding the complexities of suggested associations. This framework established the premise for the present study and served as the basis for the two specific hypotheses that were tested. Chapter 3 contains an explanation of how the study was designed. Chapter 4 includes a discussion about the outcomes of the study. Chapter 5 includes discussion, conclusions, and recommendations for future research.

Chapter 3: Research Method

Introduction

The purpose of this study was to determine the association between DTCA and health care-seeking behaviors and to explore patient perspectives on their overall health care experience. Singleton et al. (2010) defined research, specifically social research, as a process of first formulating questions and then seeking answers to the questions about a person's social environment or surroundings. Both future producers of research and consumers of research findings benefit from understanding research methods. From the consumer perspective, research findings are displayed on a daily basis in everyday life. One example of such use of research is in advertising, in which results from studies and other forms of research are introduced to encourage the viewer to purchase a specific product or service. At times, it can be difficult to decipher which advertisements are presenting misleading information. Therefore, the consumer must listen and understand the methods that are used in the overall research process.

Generally, the approaches to research are either qualitative or quantitative. Research designs can also use a combination of both (qualitative and quantitative) approaches. Additionally, there can be a variety of methods or strategies used with either approach (Singleton et al., 2010). This section provides details on the research design, research questions and hypotheses, data collection, data analysis, and theoretical framework.

Research Variables

This research study included two types of variables. The independent variables were patient exposure to advertising as measured by eight questions (see Table 2), sociodemographic characteristics (i.e., age, gender, income, and ethnicity), health status, and education. The dependent variable, health care-seeking behaviors, were comprised of two variables: physician office visits as measured by four questions (see Table 2) and asking for a prescription as measured by four questions (see Table 2).

Research Hypotheses

The two hypotheses of this study posited that patient exposure to DTCA is associated with physician office visits. Specifically, Hypothesis 1 related to physician office visits and exposure to DTCA:

$H1_0$: There is no relationship between patient exposure to DTCA and subsequent physician office visits.

$H1_a$: There is a direct association between patient exposure to DTCA and subsequent physician office visits.

Hypothesis 2 related to requests for a specific prescription medication and exposure to DTCA:

$H2_0$: There is no relationship between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

$H2_a$: There is a direct association between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

Research Design and Approach

In this study, I used a quantitative approach. There are pros and cons to either (qualitative or quantitative) research design. Denzin and Lincoln (2011) defined qualitative research as an approach in which the researcher studies factors or events in their natural settings. The data or material can be collected through a variety of methods, including case studies, interviews, observations, historical account, or personal experience. Creswell (2012) presented a list of the characteristics of qualitative research:

- Natural setting as source of data (the environment in which the observed event occurs);
- Researcher as key instrument of data collection
- Data collected as words or pictures
- Outcome as process rather than product
- Analysis of data inductively, attention to particulars
- Focus on participants' perspectives, their meaning;
- Use of expressive language
- Persuasion by reason. (Creswell, 2012, p. 44)

Quantitative research was described by Marczyk et al. (2010) as involving studies that use statistical analyses in the process of obtaining findings. Quantitative methods can also be defined as focusing on strict quantifiable data. In quantitative research, large-scale sampling procedures are most often used, as well as statistical tests to study averages and variances of a group (Willig, 2013). The history of quantitative research can be traced

back to the natural sciences, whereas the qualitative research approach is more related historically to the human or social sciences. Quantitative research is often represented by the following characteristics: deductive in nature, is theory-driven, attempts to understand laws and causes, and is outcome-oriented. In contrast, qualitative research is inductive, theory-generating, seeks meanings, and is discovery-oriented.

A quantitative survey was used to collect data from participants in the present study. Specifically, I used the 2004 FDA survey instrument in this study. Marczyk et al. (2005) claimed that researchers use survey studies to ask questions to a large number of people. These questions can be used to investigate attitudes, opinions, or specific behaviors. The findings from surveys may be limited to describing responses, but an attempt may be made to find a relationship between reported behaviors/opinions and the respondents' characteristics. Similarly, Singleton (2010) stated that relationships among the measure are examined once people answer questions, which is the basic idea of a survey. Reasons for using this approach vary; however, Fowler (2014) stated that surveys may be the only means of getting information that is easy, quick, and inexpensive. The budget of researchers vary and surveys may allow for quick collection of data that is also less expensive.

Surveys are unique from other means of collecting data. Singleton et al. (2010) described three features of survey research. First, many surveys consist of a large number of respondents. To represent the target population, the respondents are selected through probability sampling. Second, systematic questionnaires or interviews are used as a part

of the process of asking prearranged questions. These interviews may be structured, unstructured, or semistructured. The optimal structured interview contains specific objectives with prearranged questions. Comparatively, in an unstructured interview, the interviewer may make adaptations. The third feature of surveys consists of the numerically coding and analyzing of respondents' answers.

Survey research methods have numerous advantages and disadvantages. One advantage is that surveys can be an efficient means of gathering data. This approach can address multiple research questions within one survey. Another advantage is the lower costs of obtaining data, which can be even less when using secondary analysis of survey data collected from professional or other resources. There are also several limitations to survey research. Surveys are less adaptable and systematic measurement error may occur (Singleton et al., 2010).

Setting and Sample

The survey for this study was available to participants via the university website and SurveyMonkey. Inclusion criteria for this study consisted of adult college students. A diverse population of people worldwide was represented by this online university and SurveyMonkey. According to the U.S. Department of Education (2013), the actual number of college students in 2010 was 21 million and, for the fall of 2013, it was projected to be 21.8 million. Published sample size tables, online sample calculators, and formulas are some of the tools that can be used to determine sample size of a study. Additionally, the population size, sampling error, and the overall purpose of the study are

all factors that have an impact on the needed sample size for a study (Cottrell & McKenzie, 2010).

In this study, I used Cochran's (1963) formula for calculating sample size:

$$n = Z^2(pq)/e^2$$

where the sample size is *n*, *Z* is the appropriate *Z* score for a confidence interval, *p* represents an estimate of the proportion of the attribute in the population, *q* is 1 - *p*, and *e* is the margin of error or level of precision. A conservative estimate was used, whereas the value of *p* was 0.5, given the unknown variability of the attribute (health care-seeking behaviors), and the margin of error, *e*, was 10%. The confidence interval of 95% was used for this study. Using this equation and the projected number of college students (21.8 million), the suggested minimum sample was 96 participants.

Given the small sample size suggested by Cochran's (1963) formula, a power analysis was conducted. Because the alpha level is the probability of incorrectly rejecting the null hypothesis (Type I error), the alpha level is the chance of incorrectly inferring a difference where none exists. Beta is the probability of incorrectly rejecting the null hypothesis (Type II error), or incorrectly inferring no difference where one actually exists. The power of a test is measured by 1 – beta and therefore relates to Type II errors.

Decreasing the alpha level increases the probability of a Type II error by decreasing power but increases the confidence in the results by decreasing the probability of a Type I error. Conversely, increasing the alpha level increases the potential for a Type 1 error and decreases the confidence in the results but decreases the potential for a Type

II error by increasing power. Because the standard deviation and mean for the population are unknown, a conservative alpha level of 0.05, medium effect size of 0.30, and power of 0.95 were used to ensure adequate power and confidence in the results. Using this information, a power analysis and sample size-determining statistical program called G*Power version 3.1.9.2 (Faul, Erdfelder, Buchner &, Lang, 2009; Jones & Lentz, 2013) determined a minimum sample size of 177 to provide statistical power of 0.95. This more conservative required sample size was used for this study.

Instrumentation and Materials

The survey instrument used in the present study was adapted from a 2004 study by the FDA. Report findings from the FDA study, the survey, and the dataset were all available to the public on the FDA.gov website. The FDA survey was conducted nationally via telephone in 1999 and 2002. These previous surveys were basically identical, with only slight revisions made for clarification purposes and the inclusion of health insurance questions. The present study used only 24 questions (relevant to study variables) from the patient survey, the original of which contained 65 questions. The survey was divided into the following sections:

1. Survey inclusion: Participants must be 18 or older and have visited a doctor, nurse practitioner, or a physician's assistant for a health condition or concern of his or her own within the last year. This visit was for a concern of the patient's own, not for a child or parent or someone else.
2. Awareness of prescription drug advertising: Exposure to advertisements.

3. Interaction with doctor: Patient type of visit and conversation.
4. Attitude/questions about prescription drug advertising: Overall attitudes about DTCA.
5. Demographic Information: Education, ethnic group, health insurance, and so on.

The survey instrument was adapted for the present study. The original study was conducted via telephone; therefore, adaptations were made to conduct the survey online. This change allowed participants to select from a list of answer choices online compared, to responding verbally to questions posed over the telephone. The majority of the survey questions were measured using Likert scales. Table 2 provides a “crosswalk” of the variables and the selected questions that were derived from the operational definitions.

Table 2.

Study Variables and Corresponding Survey Questions

Study variables	Survey question*
Patient exposure	Q3. In the last year, do you recall seeing or hearing any advertisements for prescription drugs? (Recall DTCA) Yes No Q4. Have you seen or heard any ads for prescription drugs in any of the following ways: (Forms of DTCA) a. On television b. On the radio c. In a magazine d. In a newspaper e. On the Internet f. In a letter, flyer, or announcement you got in the mail g. On an outdoor billboard h. In a grocery store or pharmacy i. Anywhere else? (please specify)

Table continues

Study variables	Survey question
Patient exposure	Q5. In the last year, how many different prescription drugs do you recall seeing advertised in any form? (Number of DTCA) None One Two Three Four Five Six Seven Eight Nine Ten More than ten Q6. Thinking about the ads you have seen both in print and on television, has an advertisement for a prescription drug ever caused you to look for more information, for example, about the drug or about your health? (Look for more DTCA information) Yes No Q7. What information did you look for? (Type of DTCA information) Side effects Interactions with other drugs/medicines Dangers of the drug Cost of the drug Other_____

Table continues

Study variables	Survey question
Patient exposure	Q8. Has an advertisement for a prescription drug ever caused you to ask a doctor about a medical condition or illness of your own that you had not talked to a doctor about before? (Ask doctor about medical condition) Yes No Q15. I like seeing advertisements for prescription drugs. (Like seeing DTCA) Agree strongly Agree somewhat Neither agree nor disagree Disagree somewhat Disagree strongly Q16. Advertisements for prescription drugs help me make better decisions about my health. (DTCA help in decision making) Agree strongly Agree somewhat Neither agree nor disagree Disagree somewhat Disagree strongly

Table continues

Study variables	Survey question
Physician office visits	Q1. How long has it been since the last time you saw a doctor, a nurse practitioner, or a physician's assistant where you talked about a health condition or concern of your own, not for a child or parent or someone else? (Last Visit) Within the last week 1 to 4 weeks ago 5 weeks to 3 months ago 4 to 6 months ago 7 to 11 months ago 1 year ago More than 1 year ago Never Q2. Was this a routine visit, such as a checkup or physical? (Routine visit) Yes No Don't know Q9. At any of the visits to your doctor, did you talk about a prescription drug? (Talk about prescription) YesNo

Table continues

Study variables	Survey question
Physician office visits	Q14. Overall, how would you rate your interaction with your doctor at this visit? (Interaction with doctor) Excellent Good Only fair Poor
Asking for a prescription	Q10. Did you go to this visit expecting your doctor to prescribe a drug for you? (Expect Prescription) Yes No Q11. At that visit, did you ask whether there might be a prescription drug to treat you? (Ask about prescription) Yes No Q12. Did you mention an advertisement you saw or heard for a drug or bring information about the advertised drug with you? (Mention DTCA) Yes, I mentioned an ad I saw or heard Yes, I brought something about the drug with me Yes, both No

Table continues

Study variables	Survey question
Asking for a prescription	Q13. Did your doctor do one or more of the following: (Doctor recommendation) [Select all that apply] Give you the prescription drug you asked about Not give you the prescription drug you asked about Recommend a different prescription drug Recommend an over-the-counter drug Recommend no drug Recommend you make changes in behavior or lifestyle Something else (specify)
Sociodemographics	Q17. Overall, would you say your health is: (Health Status) Excellent Very good Good Fair Poor Q18. How many hours in a typical week do you use the Internet or World Wide Web at home and at work? (Use of Internet or World Wide Web). _____ Do not have a computer. Q19. Gender (Gender): Male Female

Table continues

Study variables	Survey question
Sociodemographics	Q20. What is your marital status? (Marital Status) Married Single Widowed Divorced Separated Q21. What is the last grade of school that you completed? (Education) Grade school or less Some high school Completed high school Some college Completed college Graduate school or more Other beyond high school (business, technical, etc.) Q22. Are you of Hispanic, Latino, or Spanish origin? (Hispanic origin) No, not of Hispanic, Latino, or Spanish origin Yes, Mexican, Mexican American, Chicano Yes, Puerto Rican Yes, Cuban Yes, another Hispanic, Latino, or Spanish origin – Please state origin, for example Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, and so on _____.

Table continues

Study variables	Survey question
Sociodemographics	Q23. What is your race? (Race) Select one or more White Black, African American, or Negro American Indian or Alaska Native Asian Indian Chinese Filipino Japanese Korean Vietnamese Other Asian – (For example Laotian, Thai, Pakistani, Cambodian, and so on) _____. Native Hawaiian Guamanian or Chamorro Samoan Other race _____. Q24. What year were you born? (Age) _____

Note. An abbreviation for each question is presented in parentheses.

Reliability and Validity

Validity refers to the extent to which an instrument measures what it is purported to measure (Leedy & Ormrod, 2013). There are no statistical tests for validity, but an instrument is considered valid when the researcher reaches the opinion that the instrument is measuring what it was designed to measure. There are several types of validity (criterion, content, and construct). Criterion validity checks the performance of an instrument to outcomes that are already held to be valid. Content validity considers where the instruments items are logically associated with the phenomenon to be measured. According to Cronbach and Meehl (1955), “construct validity must be

investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured" (p. 282). In addition to FDA assurances of survey validity from their use of the instrument for other studies, the questions or variables were compared to other drug advertising research in peer-reviewed journals as an assessment of content and construct validity (Bhutada et al., 2013). Because the questions were direct and were not intended to measure complex psychometric concepts such as personality, trust, mental capacity, or quality of life, face validity was determined by comparing the question to the applicable operational definition to ensure congruency.

Leedy and Ormrod (2013) described reliability as referring to the extent to which an instrument produces consistent results on repeated tests. Reliability of an instrument is closely associated with its validity; however, an instrument cannot be valid unless it is reliable (Tavakol & Dennick, 2011).

The present study used Cronbach's alpha to measure reliability with the following formula:

$$\alpha = N\rho / [1 + \rho(N - 1)]$$

where N is equal to the number of items and ρ is equal to the mean inter-item correlation. This calculation is expressed between 0 and 1 and is a measure of the internal consistency of a test/scale. No pilot testing was performed; however, researchers who developed, validated, and used the survey instrument in the 2004 FDA study reported a reliability coefficient of $\alpha = .71$ when using three items for doctor-patient interaction.

Data Collection

Approval from the institution review board (IRB) was obtained prior to uploading the study to the participant pool and SurveyMonkey. Once uploaded and approved, a mass e-mail informing the college community of the study, as well as a link to the survey, was distributed by the college and SurveyMonkey. Participants were able to access the survey anonymously. Based upon the 15-minute collection time reported by the FDA (HHS, 2004), it was anticipated that participants would take approximately 5–8 minutes to complete this online survey. The survey was made available for several weeks to reach the target sample. A total of 235 participants completed the survey.

Data Analysis

The present study was quantitative and the data were analyzed using descriptive statistics and analyses of variance (ANOVAs), which were employed to test the hypotheses of this study. Descriptive statistics are used in research to summarize data and numerically describe variables. Inferential statistics, in contrast, are used to make an assumption about a population based upon the sample (McNabb, 2013).

With each analysis, statistical significance and predictive value were assessed, as applicable. A two-step technique was used, as applicable. First, the independent variables and the dependent variable were loaded into an ANOVA to determine the predictive power of the equation. Next, the applicable sociodemographic variable(s) were loaded into an equation with the dependent variable to assess the impact of the variable(s). Finally, the predictive power of the two equations were compared to determine the

predictive value of DTCA. Statistical Package for the Social Sciences (SPSS), Version 21, was used for all data analyses. Given that multiple tests would be run on the data, the Bonferroni correction was used to control the family-wise error rate. Although considered conservative, this correction seeks to maintain an acceptable probability of false positives and false negatives by adjusting the *p* value to a level more stringent than 0.05. An ANOVA can be used to determine if the considered means are different and the Bonferroni correction helps to identify specifically which means are different. Using SPSS Version 21, statistical significance was assessed at the $p < 0.025$ level, given the more stringent level required by the Bonferroni correction. This value was derived by dividing the traditional alpha level of 0.05 by the number of hypotheses being tested (0.05/2=0.025; Jiang, Barmada, Cooper, & Becich, 2011; Patel, Chen, Kodama, Ioannidis & Butte, 2012; Pollak, Jones, Castillo, Bosse, & MacKenzie, 2010).

The 2004 FDA study sought to assess patient awareness of and opinions about DTCA efforts, and patients' processes for obtaining more information and asking questions. As a largely descriptive study, few inferential assertions were included in the original study. The present study used the raw data obtained from the FDA survey for comparative purposes. A sociodemographic profile of the survey respondents for the 1999 and 2002 surveys is presented in Table 3. The highest proportion of respondents were between 35 and 54 years of age (43%/40%), female (65%/65%), White/Caucasian (77%/79%), with incomes of less than $50,000 (53%/53%), completed college or more (40%/40%), were married (56%/58%), and reported believing that their health status was

excellent/very good (56%/51%). The stark sociodemographic similarities between the two surveys and society at large support the reliability of the employed sampling techniques. The present study had 235 respondents, with characteristics shown in Table 4. Chapter 4 provides more details regarding study respondents.

Theoretical Model

This research used a theoretical framework consisting of social learning theory, information integration theory, and prospect theory to examine consumer behavior as it relates to DTCA of prescription drugs. The 2004 study by Welch Cline & Young conducted a content analysis based on Bandura's social learning theory. The purpose of the Welch Cline & Young study was to identify features of DTCA that may function as modeling. Visual cues were examined as vicarious motivators. Bandura's social learning theory describes that when a behavior is observed the possible observed rewards can become motivators. Specifically, in DTCA cures, happy or healthy product users are motivators. Welch Cline & Young concluded that change in health care behavior might be triggered by DTCA. Consumers are often exposed to visual models with positive features, such being active and friendly.

The fundamental concept of integration theory is that the way a person thinks or behaves depends on multiple stimuli acting in cooperation with one another. Integration function combines the transformed psychological stimuli into an implicit response, which is then externalized using the response function. A person uses simple algebraic rules on the stimulus information before producing a response (Anderson, 2014).

Table 3.

Sociodemographics of FDA (HHS, 2004) Survey Respondents

	1999 (*N* = 960)		2002 (*N* = 944)	
Respondents	%	*n*	%	*n*
Age				
18–24	7	69	7	65
25–34	17	155	15	140
35–44	23	218	18	171
45–54	20	196	22	208
55–64	14	131	17	164
65+	20	191	21	196
Gender				
Male	35	334	35	327
Female	65	626	65	616

Table continues

Respondents	1999 (*N* = 960)		2002 (*N* = 944)	
	%	*n*	%	*n*
Ethnicity (multiple responses permitted)				
American Indian/Alaska Native	4	34	4	34
Asian/Pacific Islander	3	25	2	23
Black/African American	12	116	10	99
Hispanic/Latino	4	43	4	36
White (Caucasian)	77	742	79	747
Income				
Less than $20,000	20	189	19	185
$20,000–less than $34,999	17	162	17	161
$35,000–less than $49,999	16	153	17	158
$50,000–less than $74,999	14	132	18	166
$75,000+	16	155	20	191
Education				
Completed high school or less	36	341	39	366
Some college	24	226	21	201
Completed college or more	40	388	40	375
Marital status				
Married	56	534	58	550

Table continues

Respondents	1999 (*N* = 960)		2002 (*N* = 944)	
	%	*n*	%	*n*
Single	22	212	21	197
Widowed	10	100	9	83
Divorced	9	84	10	95
Separated	3	27	2	16
Health status				
Excellent/very good	56	536	51	481
Good/fair/poor	44	421	49	463

Prospect theory similarly examines how one makes decisions. Prospect theory attempts to describe decisions that are made among alternatives where risk is involved (Nickerson, 2012). The knowledge and understanding required to make safe and appropriate medication decisions is so advanced that the general public must rely on the expertise of physicians to determine the appropriateness and authority to obtain and consume some high-risk medications (Pardun, 2014). In agency theory, this agency relationship moderates the conditioning, learning, integration of information, and prospect decisions of the average person. Within this theoretical model, it is suggested that patients, regardless of their sociodemographic profile, seek to engage their agent in their desire to be considered for or obtain prescription medications.

To summarize the theoretical model, social learning theory considers environmental influences on behavior. In the present study, DTCA is considered an

environmental influence on patient behavior. Information integration theory considers the interaction of multiple stimuli on behavior. In the present study, DTCA is considered a stimulus affecting patient behavior. Prospect theory suggests that individuals engage in beneficial decision making, ensuring that gains are greater than losses. In this study, DTCA helped individuals draw conclusions about gains and losses in terms of their health. All these theories about individual behavior must be considered within the context of agency theory because only doctors can prescribe prescription medications and patients are generally less educated about health care than their doctors. Therefore, doctors act in an agent role on behalf of their patient.

Protection of Participants

The university IRB oversees all proposals to maintain participant rights and protections. The IRB ensured that the methods of data collection for this study presented minimal risk to participants, complied with ethical principles, and met confidentiality requirements. Participation in this study was voluntary. Participants had the right to withdraw from the study at any time during the study process. Additionally, participants had the right to ask questions during the survey process or afterwards. No incentives were given for participation in this study. Approval from the IRB was obtained before data collection began.

Summary

The purpose of this study was to determine the association between DTCA and health care-seeking behaviors and to explore patient perspectives on the issue relative to

patients' overall health care experience. This research used a theoretical framework consisting of social learning theory, information integration theory, and prospect theory to examine consumer behavior as it related to DTCA of prescription drugs. This research study included two types of variables. The independent variables were patient exposure to advertising, sociodemographic characteristics (i.e., age, gender, income, and ethnicity), health status, and education. The dependent variable, health care-seeking behaviors, was the summary of two variables: physician office visits and asking for a prescription. The two research hypotheses of this study posited that patient exposure to DTCA was associated with physician office visits.

This study uses a quantitative approach however; there are pros and cons to either design method. The survey instrument that was used was taken from the 2004 study conducted by the FDA. This instrument was made available to participants in the present study via the university website and SurveyMonkey. Approximately 5,000 individuals were included in the overall university participant pool. Inclusion criteria for this study consisted of adult students who had seen a doctor, a nurse practitioner, or a physician's assistant for a condition or concern of his or her own in the past year. A diverse population of people worldwide was represented in this online university. Data were analyzed using descriptive statistics and ANOVAs, which were employed to test the hypotheses of this study. The Bonferroni correction was used to control the family-wise Type I error rate. With each analysis, statistical significance and predictive value were assessed, as applicable. A two-step technique was used, as applicable. Approval from the

university IRB was obtained prior to the data collection process. The results of the analyses of the collected data are presented in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this study was to determine the association between DTCA and health care-seeking behaviors and to explore patient perspectives on patients' overall health care experience. Two research questions acted as a catalyst for this study:

1. What is the relationship between direct-to-consumer advertising (DTCA) and physician office visits?
2. What is the relationship between direct-to-consumer advertising (DTCA) and patients asking for a prescription?

These questions were researched through two hypotheses. Hypothesis 1 related to physician office visits and exposure to DTCA:

$H1_0$: There is no relationship between patient exposure to DTCA and subsequent physician office visits.

$H1_a$: There is a direct association between patient exposure to DTCA and subsequent physician office visits.

Hypothesis 2 related to requests for a specific prescription medication and exposure to DTCA:

$H2_0$: There is no relationship between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

$H2_a$: There is a direct association between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

The data were collected via an online survey and were analyzed with the statistical program SPSS, Version 21. This chapter includes a presentation of the collected data, an analysis of the findings, and summarized results.

Data Collection

Data were collected via an online survey posted on two survey websites, a university website participant pool and on SurveyMonkey. The collected data were analyzed with SPSS using ANOVAs, which were employed to test the hypotheses of this study. The statistical significance and predictive value were assessed, as applicable.

After receiving approval from the IRB, the survey was uploaded to the university website for access by an online participant pool. A mass e-mail list of newly posted studies for that month was sent to inform the college community. Interested participants were then able to register (if needed) to use the site and then access the anonymous survey instrument via this online participant pool. The survey was made available for 4 weeks with few participants (five). To reach the target sample of 96 participants, the survey was made available for an additional 3 months, for a total of 132 days. Still, only 30 participants had accessed and taken the survey via the online participant pool. To obtain additional participants, I engaged the services of SurveyMonkey to assist in obtaining additional participants who met the criteria of at least 18 years of age and a current student.

This study remained a focus of an academic community; therefore, the criteria remained unchanged. According to the U.S. Department of Education (2013), the actual

number of college students in 2010 was 21 million and, for the fall of 2013, was projected to be 21.8 million. Maintaining a confidence level of 95% and a confidence interval of 10, the sample size remained at 96 participants. Prior approval was obtained from the IRB to make this procedural change of posting on SurveyMonkey. SurveyMonkey participants received the same invitation/consent forms and were offered the survey to complete online. The survey consisted of 24 questions (eight questions used to assess patient exposure, four questions for physician office visits, four questions for asking for a prescription, and eight sociodemographic questions). There were 205 respondents via SurveyMonkey. Data from the participant pool and SurveyMonkey were combined and analyzed for a total of 235 participants. The sociodemographic profile of participants in this survey was also compared to the profile of the participants in the FDA (HHS, 2004) 2002 survey. To minimize the number of deleted cases in each analysis, pairwise deletion was used to address missing completely at random data (Baraldi & Enders, 2010).

Descriptive Statistics

The survey was opened for volunteers for approximately 8 months. A total of 89 male students (38%) and 144 female students (62%) participated. The 2002 FDA survey, although having a larger sample size (944), had a similar composition of 35% male participants and 65% female participants, as shown in Table 4. All participants were over 18-years-old, with 90 (38.3%) between 18- and 24-years-old, 59 (25.1%) between the ages of 25 and 34, 27 (11.5%) between the ages of 35 and 44, 16 (6.8%) between the ages

of 45 and 54, and 13 (5.6%) over 55 years of age. By comparison, there were a larger number of older respondents in the original FDA (HHS, 2004) survey, with 58% being over the age of 45. The ethnicities of respondents in both the present study and the FDA survey were similar: 79% were White/Caucasian American for the FDA survey and 80.5% for this survey. However, respondents to the original FDA survey showed a higher percentage of being married at 58%, compared to 28% in this study. Table 3 represents the sociodemographic characteristics of participants in the original FDA survey. Table 4 shows a summary of the respondent's sociodemographic data for this study.

Table 4.

Respondent Sociodemographics (N = 235)

Sociodemographic	%	*n*
Age		
18-24	38.3	90
25-34	25.1	59
35-44	11.5	27
45-54	6.8	16
55-64	4.3	10
65+	1.3	3
Gender		
Male	38	89
Female	62	144
Ethnicity (multiple responses permitted)		
American Indian/Alaska Native	3	7
Asian/Pacific Islander	1.3	3
Black/African American	9.5	22
Hispanic/Latino	6	14
White (Caucasian)	80.5	186

Table continues

Sociodemographic	%	*n*
Income		
$0–$24,999	24.9	51
$25,000–$49,999	18	37
$50,000–$99,999	24.9	51
$100,000–$149,999	12.2	25
$150,000+	20	41
Education		
Completed high school or less	7.4	15
Some college	46	94
Completed college or more	46.6	95
Marital status		
Married	28	66
Single	60	140
Widowed	1.3	3
Divorced	9.4	22
Separated	0.9	2
Health status		
Excellent/very good	58	136
Good/fair/poor	42	99

Explanation of Tables

SPSS Version 21 was the statistical program used to perform ANOVAs. ANOVA determines if there is a significant difference between the means of at least two independent variables or groups. The results were grouped by the applicable hypothesis. Results are presented in the following ANOVA tables with abbreviated question titles. The corresponding full-text survey questions are presented in Table 2.

Hypothesis 1

Hypothesis 1 related to physician office visits and exposure to DTCA:

$H1_0$: There is no relationship between patient exposure to DTCA and subsequent physician office visits.

$H1_A$: There is a direct association between patient exposure to DTCA and subsequent physician office visits.

Patient exposure to DTCA was associated with several aspects of physician office visits. As shown in Table 5, seeing an advertisement for prescription drugs was associated with rating the interaction with a doctor as positive [F = (1, 229) = 15.94, p = 0.00]. There were no statistically significant differences ($p < 0$ .025) between seeing an advertisement for prescription drugs and more recent visits to a doctor, a nonroutine visit, and talking to doctor about a prescription drug.

The number of different prescription drug advertisements that were seen over the past year was associated with rating the interaction with a doctor as positive [F = (11, 218) = 2.09, p = 0.02], as shown in Table 6. There were no statistically significant

differences ($p < 0.025$) between the number of different prescription drug advertisements that were seen over the past year and talking to a doctor about a prescription drug, the timing of the last office visit, or the type of visit (routine or nonroutine).

Analytical results in Table 7 demonstrate that viewing a prescription drug advertisement that caused a search for more information was associated with a more recent visit to a doctor, nurse practitioner, or physician's assistant [$F = (1,228) = 8.05$, $p = 0.01$], and talking to a doctor about a prescription drug [$F = (1,231) = 34.70$, $p = 0.00$]. There were no statistically significant differences ($p < 0$ .025) between viewing a prescription drug advertisement that caused a search for more information and a nonroutine visit or rating the interaction with a doctor.

As shown in Table 8, there were no statistically significant differences ($p < 0$ .025) between looking for additional information (side effects, interactions with other drugs/medicines, dangers, and/or costs) and the timing of the last visit, type of visit, talking to doctor about prescription, or rating the interaction with the doctor.

Table 5.

One-Way ANOVA for Physician Office Visits: Question 3, Recall DTCAs

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	.138	1	.138	.036	.850
	Within groups	891.086	230	3.874		
	Total	891.224	231			
Routine visit	Between groups	.053	1	.053	.199	.656
	Within groups	61.566	229	.269		
	Total	61.619	230			
Talk about Rx	Between groups	.335	1	.335	1.349	.247
	Within groups	57.945	233	.249		
	Total	58.281	234			
Rate interaction	Between groups	8.086	1	8.086	15.942	.000*
	Within groups	116.148	229	.507		
	Total	124.234	230			

Note. Significance was assessed at the *$p < 0.025$ level. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2.

Table 6.

One-Way ANOVA for Physician Office Visits: Question 5, Number of DTCAs

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	45.415	11	4.129	1.074	.384
	Within groups	845.809	220	3.845		
	Total	891.224	231			
Routine visit	Between groups	1.685	11	.153	.560	.860
	Within groups	59.934	219	.274		
	Total	61.619	230			
Talk about Rx	Between groups	5.013	11	.456	1.910	.039*
	Within groups	52.970	222	.239		
	Total	57.983	233			
Rate interaction	Between groups	11.683	11	1.062	2.093	.022*
	Within groups	110.648	218	.508		
	Total	122.330	229			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 7.

One-Way ANOVA for Physician Office Visits: Question 6, Look for More DTCA Information

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	29.913	1	29.913	8.047	.005*
	Within groups	847.569	228	3.717		
	Total	877.483	229			
Routine visit	Between groups	1.119	1	1.119	4.232	.041*
	Within groups	60.042	227	.265		
	Total	61.162	228			
Talk about Rx	Between groups	7.546	1	7.546	34.702	.000*
	Within groups	50.231	231	.217		
	Total	57.777	232			
Rate interaction	Between groups	.143	1	.143	.263	.608
	Within groups	123.307	227	.543		
	Total	123.450	228			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 8.

One-Way ANOVA for Physician Office Visits: Question 7, Type of DTCA Information

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	3.515	2	1.758	.453	.636
	Within groups	887.709	229	3.876		
	Total	891.224	231			
Routine visit	Between groups	1.410	2	.705	2.670	.071
	Within groups	60.209	228	.264		
	Total	61.619	230			
Talk about Rx	Between groups	.718	2	.359	1.447	.237
	Within groups	57.563	232	.248		
	Total	58.281	234			
Rate interaction	Between groups	1.543	2	.772	1.434	.241
	Within groups	122.691	228	.538		
	Total	124.234	230			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the $*p < 0.025$ level.

Viewing a prescription drug advertisement that caused a search for more information was associated with a more recent visit to a doctor, nurse practitioner, or physician's assistant [F = (1,228) = 8.05, p = 0.01], and talking to a doctor about a prescription drug [F = (1,231) = 34.70, p = 0.00], as shown in Table 9. There were no statistically significant differences (p < 0 .025) between viewing a prescription drug advertisement that caused a search for more information and a nonroutine visit, the type of visit or how the interaction with the doctor was rated.

As shown in Table 10, agreeing that advertisements for prescription drugs help make better decisions about health was associated with talking to a doctor about a prescription drug [F = (4,230) = 2.94, p = 0.02]. However, there were no statistically significant differences (p < 0 .025) between agreeing that advertisements for prescription drugs help make better decisions about health and the timing of the last office visit, the type of visit, or the rating for interaction with a doctor.

Several sociodemographic variables were associated with more physician office visits. Better self-reported health status was associated with rating the interaction with a doctor as positive [F = (4,226) = 4.20, p = 0.00], as shown in Table 11. There were no statistically significant differences (p < 0 .025) between the self-reported health status and not talking to a doctor about a prescription drug, timing of the last visit or the type of visit.

In Table 12, being a male participant was associated with a more recent visit [F = (1,228) = 9.31, p = 0.00] and talking to a doctor about a prescription drug [F = (1,231) =

7.69, $p = 0.01$]. There were no statistically significant differences ($p < 0$ .025) between being male participant and the type of visit or rating the interaction with the doctor.

As shown in Table 13, being married was associated with talking to a doctor about a prescription drug [$F = (4,228) = 3.23$, $p = 0.01$]. There were no statistically significant differences ($p < 0$ .025) between marital status and the timing of the last visit, the type of visit, or rating the interaction with the doctor.

As shown in Table 14, a lower education level was associated with talking to a doctor about a prescription drug [$F = (6, 227) = 3.34$, $p = 0.00$]. There were no statistically significant differences ($p < 0$ .025) between education and the timing of the last visit, the type of visit, or rating the interaction with the doctor.

Table 9.

One-Way ANOVA for Physician Office Visits: Question 8, Ask Doctor About Medical Condition

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	19.065	1	19.065	5.025	.026*
	Within groups	857.404	226	3.794		
	Total	876.469	227			
Routine visit	Between groups	.154	1	.154	.574	.450
	Within groups	60.542	225	.269		
	Total	60.696	226			
Talk about Rx	Between groups	3.606	1	3.606	15.387	.000*
	Within groups	53667	229	.234		
	Total	57.273	230			
Rate interaction	Between groups	.376	1	.376	.691	.407
	Within groups	122.540	225	.545		
	Total	122.916	226			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 10.

One-Way ANOVA for Physician Office Visits: Question 16, DTCA Help in Discussion Making

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	27.098	4	6.775	1.780	.134
	Within groups	864.126	227	3.807		
	Total	891.224	231			
Routine visit	Between groups	.355	4	.089	.327	.860
	Within groups	61.264	226	.271		
	Total	61.619	230			
Talk about Rx	Between groups	2.836	4	.709	2.941	.021*
	Within groups	55.445	230	.241		
	Total	58.281	234			
Rate interaction	Between groups	1.003	4	.251	.460	.765
	Within groups	123.231	226	.545		
	Total	124.234	230			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the $*p < 0.025$ level.

Table 11.

One-Way ANOVA for Physician Office Visits: Question 17, Health Status

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	29.197	4	7.299	1.922	.108
	Within groups	862.027	227	3.797		
	Total	891.224	231			
Routine visit	Between groups	1.059	4	.265	.988	.415
	Within groups	60.560	226	.268		
	Total	61.619	230			
Talk about Rx	Between groups	2.425	4	.606	2.497	.044*
	Within groups	55.856	230	.243		
	Total	58.281	234			
Rate interaction	Between groups	8.598	4	2.149	4.201	.003*
	Within groups	115.636	226	.512		
	Total	124.234	230			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 12.

One-Way ANOVA for Physician Office Visits: Question 19, Gender

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	34.571	1	34.571	9.314	.003*
	Within groups	846.250	228	3.712		
	Total	880.822	229			
Routine visit	Between groups	.066	1	.066	.244	.622
	Within groups	61.052	227	.269		
	Total	61.118	228			
Talk about Rx	Between groups	1.865	1	1.865	7.694	.006*
	Within groups	55.998	231	.242		
	Total	57.863	232			
Rate interaction	Between groups	.161	11	.161	.296	.587
	Within groups	123.542	227	.544		
	Total	123.703	228			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 13.

One-Way ANOVA for Physician Office Visits: Question 20, Marital Status

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	18.280	4	4.570	1.179	.321
	Within groups	871.911	225	3.875		
	Total	890.191	229			
Routine visit	Between groups	.478	4	.119	.441	.779
	Within groups	60.913	225	.271		
	Total	61.391	229			
Talk about Rx	Between groups	3.107	4	.777	3.234	.013*
	Within groups	54.756	228	.240		
	Total	57.863	232			
Rate interaction	Between groups	2.579	4	.645	1.192	.315
	Within groups	121.125	224	.541		
	Total	1243.703	228			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 14.

One-Way ANOVA for Physician Office Visits: Question 21, Education

Visit/purpose	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Last visit	Between groups	20.631	5	4.126	1.067	.379
	Within groups	870.079	225	3.867		
	Total	890.710	230			
Routine visit	Between groups	1.524	5	.305	1.140	.340
	Within groups	59.867	224	.267		
	Total	61.391	229			
Talk about Rx	Between groups	4.705	6	.784	3.336	.004*
	Within groups	53.367	227	.235		
	Total	58.073	233			
Rate interaction	Between groups	3.011	6	.502	.926	.477
	Within groups	120.833	223	.542		
	Total	123.843	229			

Note. Last visit, routine visit, talk about Rx, and rate interaction correspond to survey questions 1, 2, 9 and 14 respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Hypothesis 2

Hypothesis 2 related to requests for a specific prescription medication and exposure to DTCA:

$H2_0$: There is no relationship between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

$H2_A$: There is a direct association between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

Patient exposure to DTCA was associated with patients asking for a prescription drug. As shown in Table 15, there were no statistically significant differences ($p < 0$ .025) for seeing or hearing advertisements and asking whether there might be a prescription drug to treat the patient/survey participant, the expectation for a prescription, the mentioning of an advertisement, or to the doctor's outcome.

The number of different prescription drug advertisements that were seen was associated with expecting a doctor to prescribe a drug [$F = (11,219) = 3.31$, $p = 0.00$] and a doctor giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change [$F = (11,222) = 2.23$, $p = 0.01$], as shown in Table 16. However, there were no statistically significant differences ($p < 0$ .025) between the number of different prescription drug advertisements and asking whether there might be a prescription drug to treat the patient/survey participant or mentioning a prescription drug advertisement that was seen or heard.

As shown in Table 17, seeing an advertisement for a prescription drug in print or on television that caused a patient/survey participant to look for more information was associated with expecting a doctor to prescribe a drug [F = (1,228) = 16.25, p = 0.00], asking whether there might be a prescription drug to treat the patient/study participant [F = (1,226) = 43.23, p = 0.00], mentioning a prescription drug advertisement that was seen or heard [F = (1,229) = 43.33, p = 0.00], and a doctor giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change [F = (1,231) = 37.51, p = 0.00].

As shown in Table 18, looking for side effects, interactions, dangers, or cost information about a prescription drug was associated with mentioning a prescription drug advertisement that was seen or heard [F = (2,230) = 7.76, p = 0.00] and a doctor giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change [F = (2,232) = 14.90, p = 0.00]. There were no statistically significant differences (p < 0 .025) between looking for side effects, interactions, dangers, or cost information about a prescription drug and expecting a doctor to prescribe a drug or asking whether there might be a prescription drug to treat the patient/survey participant.

Table 15.

One-Way ANOVA for Prescription Request: Question 4, Forms of DTCA

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	2.240	8	.280	1.152	.330
	Within groups	54.204	223	.243		
	Total	56.444	231			
Might Rx	Between groups	3.608	8	.451	1.956	.053*
	Within groups	50.953	221	.231		
	Total	54.561	229			
Mention ad	Between groups	.930	8	.116	1.064	.389
	Within groups	24.461	224	.109		
	Total	25.391	232			
Did Dr.	Between groups	5,445	8	.681	.906	.512
give Rx	Within groups	169.746	226	.751		
	Total	175.191	234			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 16.

One-Way ANOVA for Prescription Request: Question 5, Number of DTCAs

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	8.031	11	.730	3.314	.000*
	Within groups	48.238	219	.220		
	Total	56.268	230			
Might Rx	Between groups	3.723	11	.338	1.449	.153
	Within groups	50.687	217	.234		
	Total	54.410	228			
Mention ad	Between groups	1.195	11	.109	1.021	.429
	Within groups	23.425	220	.106		
	Total	24.621	231			
Did Dr.	Between groups	17.448	11	1.586	2.233	.014*
give Rx	Within groups	157.714	222	.710		
	Total	175.162	233			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 17.

One-Way ANOVA for Prescription Request: Question 6, Look for More DTCA Information?

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	3.731	1	3.731	16.24	.000*
	Within groups	52.361	228	.230		
	Total	56.091	229			
Might Rx	Between groups	8.677	1	8.677	43.233	.000*
	Within groups	45.358	226	.201		
	Total	54.035	227			
Mention ad	Between groups	4.035	1	4.035	43.332	.000*
	Within groups	21.324	229	.093		
	Total	25.359	230			
Did Dr.	Between groups	24.000	1	24.000	37.510	.000*
give Rx	Within groups	147.802	231	.640		
	Total	171.803	232			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 18.

One-Way ANOVA for Prescription Request: Question 7, Type of DTCA Information?

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	1.728	2	.864	3.615	.028*
	Within groups	54.716	229	.239		
	Total	56.444	231			
Might Rx	Between groups	1.474	2	.737	3.152	.045*
	Within groups	53.087	227	.234		
	Total	54.561	229			
Mention ad	Between groups	1.604	2	.802	7.757	.001*
	Within groups	23.786	230	.103		
	Total	25.391	232			
Did Dr.	Between groups	19.938	2	9.969	14.897	.000*
give Rx	Within groups	155.254	232	.669		
	Total	175.191	234			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

ANOVA results shown in Table 19 indicate that a prescription drug advertisement that caused a patient to ask a doctor about a new medical condition or illness was associated asking whether there might be a prescription drug to treat the patient/study participant [F = (1,224) = 31.98, p = 0.00], mentioning a prescription drug advertisement that was seen or heard [F = (1,227) = 64.90, p = 0.00], and a doctor giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change [F = (1,229) = 23.60, p = 0.00]. However, there were no statistically significant differences (p < 0 .025) for expecting a doctor to prescribe a drug.

Liking to see prescription drug advertisements was associated with asking whether there might be a prescription drug to treat the patient/study participant [F = (4,223) = 4.53, p = 0.00] and mentioning a prescription drug advertisement that was seen or heard [F = (4,226) = 9.19, p = 0.00], as shown in Table 20. However, there were no statistically significant differences (p < 0 .025) between liking to see prescription drug advertisements and expecting a doctor to prescribe a drug or for the doctor giving a prescription, or recommending a behavior or lifestyle change.

Table 19.

One-Way ANOVA for Prescription Request: Question 8, Ask Doctor About Medical Condition

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	.856	1	.856	3.524	.062
	Within groups	54.877	226	.243		
	Total	55.732	227			
Might Rx	Between groups	6.684	1	6.684	31.977	.000*
	Within groups	46.824	224	.209		
	Total	53.509	225			
Mention ad	Between groups	5.631	1	5.631	64.899	.000*
	Within groups	19.696	227	.087		
	Total	25.328	228			
Did Dr.	Between groups	16.043	1	16.043	23.595	.000*
give Rx	Within groups	155.706	229	.680		
	Total	171.749	230			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 20.

One-Way ANOVA for Prescription Request: Question 15, Like Seeing DTCA

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	1.734	4	.433	1.794	.131
	Within groups	54.358	225	.242		
	Total	56.091	229			
Might Rx	Between groups	4.077	4	1.019	4.530	.002*
	Within groups	50.182	223	.225		
	Total	54.259	227			
Mention ad	Between groups	3.549	4	.887	9.193	.000*
	Within groups	21.810	226	.097		
	Total	25.359	230			
Did Dr.	Between groups	5.775	4	1.444	1.967	.100
give Rx	Within groups	167.359	228	.734		
	Total	173.133	232			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Agreeing that advertisements for prescription drugs help make better decisions about health was associated with asking whether there might be a prescription drug to treat the patient/study participant [F = (4,225) = 4.08, p = 0.00] and mentioning a prescription drug advertisement that was seen or heard [F = (4,228) = 6.68, p = 0.00], as shown in Table 21. However, no statistically significant differences (p < 0 .025) were found between agreeing that advertisements for prescription drugs help make better decisions about health and expecting a doctor to prescribe a drug or for the doctor giving a prescription, or recommending a behavior or lifestyle change.

Several sociodemographic variables were associated with patients asking for prescription drugs. As shown in Table 22, better self-reported health status was associated with not mentioning a prescription drug advertisement that was seen or heard [F = (4,228) = 4.19, p = 0.00] and a doctor not giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change [F = (4,230) = 3.27, p = 0.01]. But self-reported health status was not associated with expecting a prescription or asking if there might be a prescription drug to treat the patient/study participant (p < 0 .025).

Table 21.

One-Way ANOVA for Prescription Request: Question 16, DTCA Help in Decision Making

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect RX	Between groups	1.188	4	.297	1.221	.303
	Within groups	55.255	227	.243		
	Total	56.444	231			
Might RX	Between groups	3.686	4	.922	4.075	.003*
	Within groups	50.875	225	.226		
	Total	54.561	229			
Mention ad	Between groups	2.662	4	.666	6.677	.000*
	Within groups	22.728	228	.100		
	Total	25.391	232			
Did Dr.	Between groups	3.125	4	.781	1.044	.385
give RX	Within groups	172.067	230	.748		
	Total	175.191	234			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 22.

One-Way ANOVA for Prescription Request: Question 17, Health Status

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	1.332	4	.333	1.372	.245
	Within groups	55.112	227	.243		
	Total	56.444	231			
Might Rx	Between groups	.660	4	.165	.689	.600
	Within groups	53.901	225	.240		
	Total	54.561	229			
Mention ad	Between groups	1.740	4	.435	4.193	.003*
	Within groups	23.651	228	.104		
	Total	25.391	232			
Did Dr.	Between groups	9.436	4	2.359	3.273	.012*
give Rx	Within groups	165.756	230	.721		
	Total	175.191	234			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

As shown in Table 23, the number of hours per week spent using the Internet or World Wide Web was associated with mentioning a prescription drug advertisement that was seen or heard [F = (36, 191) = 1.6, p = 0.02]. Even so, no statistically significant differences (p < 0 .025) were found between the number of hours per week using the Internet or World Wide Web and the expectation for a prescription, asking whether there might be a prescription drug to treat the patient/study participant, or for a doctor giving or recommending a prescription.

Being a male patient/study participant was associated with going to a visit and not expecting a doctor to prescribe a drug [F = (1,228) = 5.65, p = 0.02], as shown in Table 24. No statistically significant differences (p < 0 .025) were found for being male patient/study participant and the expectation for a prescription, mentioning of an advertisement, or to the doctor's prescribing outcome.

Being married was associated with not mentioning a prescription drug advertisement that was seen or heard [F = (4,226) = 4.11, p = 0.00], as shown in Table 25. Still, no statistically significant differences (p < 0 .025) were indicated between marital status and a doctor giving a prescription, recommending a prescription, recommending an over-the-counter drug, or recommending a behavior or lifestyle change, the expectation for a prescription, or asking whether there might be a prescription drug to treat the patient/study participant.

Table 23.

One-Way ANOVA for Prescription Request: Question 18, Use of Internet or World Wide Web

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	11.318	36	.314	1.355	.101
	Within groups	44.083	190	.232		
	Total	55.401	226			
Might Rx	Between groups	7.393	36	.205	.836	.733
	Within groups	46.189	188	.246		
	Total	53.582	224			
Mention ad	Between groups	5.690	36	.158	1.600	.024*
	Within groups	18.872	191	.099		
	Total	24.561	227			
Did Dr.	Between groups	33.271	37	.899	1.235	.182
give Rx	Within groups	139.773	192	.728		
	Total	173.043	229			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the $*p < 0.025$ level.

Table 24.

One-Way ANOVA for Prescription Request: Question 19, Gender

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	1.349	1	1.349	5.651	.018*
	Within groups	54.412	228	.239		
	Total	55.761	229			
Might Rx	Between groups	.327	1	.327	1.384	.241
	Within groups	53.475	226	.237		
	Total	53.803	227			
Mention ad	Between groups	.039	1	.039	3.64	.547
	Within groups	24.567	229	.107		
	Total	24.606	230			
Did Dr.	Between groups	1.134	1	1.134	1.511	.220
give Rx	Within groups	173.338	231	.750		
	Total	174.472	232			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

Table 25.

One-Way ANOVA for Prescription Request: Question 20, Marital Status

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	.995	4	.249	1.018	.399
	Within groups	54.936	225	.244		
	Total	55.930	229			
Might Rx	Between groups	.605	4	.151	.631	.641
	Within groups	53.431	223	.240		
	Total	54.035	227			
Mention ad	Between groups	1.721	4	.430	4.113	.003*
	Within groups	23.638	226	.105		
	Total	25.359	230			
Did Dr.	Between groups	6.945	4	1.736	2.363	.054*
give Rx	Within groups	167.527	228	.735		
	Total	174.472	232			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. give Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the *$p < 0.025$ level.

As shown in Table 26, no statistically significant differences ($p < 0$ .025) were indicated between higher levels of education and asking whether there might be a prescription drug to treat the patient/study participant, mentioning a prescription drug advertisement that was seen or heard, or the expectation for a prescription or to the doctor's prescribing outcome. Likewise, as shown in Table 27, there were no statistically significant differences ($p < 0$ .025) between race and the expectation for a prescription, asking if there was a prescription drug for treatment, mentioning an advertisement that was seen or heard, or the doctor's response.

Summary

The purpose of this study was to determine if an association exists between DTCA and health care seeking behaviors and to explore patient perspectives on the issue as they relate to the overall health care experience. This study was quantitative and the data were analyzed using descriptive statistics and ANOVA, which were employed to test the hypotheses of this study. A two-step technique was used, as applicable, using SPSS, Version 21. First, the independent variables and the dependent variable were loaded into an ANOVA to determine the predictive power of the equation. Next, the applicable sociodemographic variable(s) were loaded into an equation with the dependent variable to assess their impact. Finally, the predictive power of the two equations was compared to determine the predictive value of DTCA. All data analyses and statistical significance were assessed at the $p < 0.025$ level, given the Bonferroni correction.

Table 26.

One-Way ANOVA for Prescription Request: Question 21, Education

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	2.527	6	.421	1.761	.108
	Within groups	53.577	224	.239		
	Total	56.104	230			
Might Rx	Between groups	3.221	6	.537	2.338	.033*
	Within groups	50.963	222	.230		
	Total	54.183	228			
Mention ad	Between groups	1.544	6	.257	2.430	.027*
	Within groups	23.831	225	.106		
	Total	25.375	231			
Did Dr.	Between groups	5.337	6	.890	1.189	.313
do Rx	Within groups	169.825	227	.748		
	Total	175.162	233			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. do Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the $*p < 0.025$ level.

Table 27.

One-Way ANOVA for Prescription Request: Question 23, Race

Behavior	Factor	Sum of squares	*df*	Mean square	*F*	*Sig.*
Expect Rx	Between groups	.515	2	.258	1.055	.350
	Within groups	55.929	229	.244		
	Total	56.444	231			
Might Rx	Between groups	.662	2	.331	1.393	.250
	Within groups	53.899	227	.237		
	Total	54.561	229			
Mention ad	Between groups	.537	2	.269	2.485	.086
	Within groups	24.853	230	.108		
	Total	25.391	232			
Did Dr.	Between groups	.810	2	.405	.539	.584
do Rx	Within groups	174.381	232	.752		
	Total	175.191	234			

Note. Expect Rx, Might Rx, Meaningful, and Did Dr. do Rx correspond to survey questions 10, 11, 12, and 13, respectively, as all survey questions are displayed in Table 2. Significance was assessed at the $*p < 0.025$ level.

For Hypothesis 1, there was limited evidence that college-affiliated adult patients/study participants who saw advertisements for prescription drugs were more likely to (a) rate their doctor interactions higher; (b) talk to their doctor about a prescription drug; and (c) have a recent visit to their doctor, nurse practitioner, or physician's assistant. Lower health status, being a man, being married, and lower education levels were all associated with more office visits.

For Hypothesis 2, there was limited evidence that college-affiliated adult patients/study participants who saw advertisements for prescription drugs or searched for additional information about a prescription drug were more likely to (a) ask their doctor if there was a prescription drug to treat them; (b) expect a doctor to prescribe a drug; (c) have a doctor give them a prescription, recommend a prescription, recommend an over-the-counter drug, or recommend a behavior or lifestyle change; and (d) mention a prescription drug to their doctor. Lower health status, the number of hours spent on the Internet or World Wide Web per week, being a woman, being single, higher education levels, and being an ethnic minority were all associated with requesting prescription drugs. Chapter 5 includes an interpretation of the findings, discussion of the findings, the limitations of the study, implications for social change, recommendations for future study, and conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Summary

The purpose of this quantitative study was to determine if an association exists between DTCA and health care-seeking behaviors. The theoretical framework consisted of social learning theory, information integration theory, and prospect theory. The research questions addressed in this study included identifying if exposure to DTCA (a) is associated with physician office visits, (b) influences a patient/physician conversation regarding a prescription, (c) influences requesting a prescription, and (d) has an impact on patients' ratings of the overall interaction with the physician. Data were derived from an online survey adapted from an FDA study (HHS, 2004). Participants included 235 college-affiliated adults. Data were analyzed using descriptive statistics and ANOVAs. The Bonferroni correction was used to control the family-wise Type I error rate. According to study results, seeing advertisements for prescription drugs was associated with a recent doctor visit, asking whether a prescription drug was available to treat a condition, expecting to receive a prescription, receiving a prescription, and mentioning a prescription drug to a doctor. Future researchers should consider a non-college-affiliated sample and the post-implementation impact of the Affordable Care Act. Social change implications of the study include better consumer education and protection, more responsible health care policy and corporate decision making, and the potential prevention of unnecessary drug- and health care-seeking behavior.

Significance of the Study

The United States is ranked low on quality, efficiency, access, equity, and ability for citizens to lead longer and healthier lives (McCarthy, 2014; Mathaisel & Comm, 2014). Pharmaceutical companies are viewed as one of several contributors to the sustainability of the health care industry. Therefore, this study can provide information to focus DTCA efforts to help improve availability, dependability, capability, affordability, and marketability for prescription drugs. The increase in the use of DTCA by pharmaceutical companies suggests that this practice is profitable. Given the potential opportunity for positive or negative results, more assessments of DTCA are needed to understand its impact. This study could help to address this gap in the literature and offer opportunities for focusing further research in more appropriate areas.

This study could also provide greater insight into opportunities to mitigate the potential impacts of DTCA. Overuse and inordinate cost burdens on patients are all potential negative outcomes resulting from inappropriate DTCA. Additionally, physicians feeling pressured to switch to new, more profitable medications may be another negative outcome that this study can help to better understand. Understanding the impact of DTCA will provide managers and executives, as well as governments and legislatures, with information that can help to guide policy development, strategies, and health plan decisions. Additional guidance can help to ensure that patients have adequate information to make appropriate health care decisions.

Assumptions

Several assumptions were made in this study. Among them are the following. It was assumed that all participants responded truthfully to the survey and all participants had access to the Internet or a computer. Additionally, I assumed that respondents to the HHS (2004) survey, which was used for comparative purposes, answered the questions honestly. It was also assumed that the established statistical methods employed in this study were reliable and representative of the national population. Additionally, I assumed that the influence of mass media on society (Bandura, 2001) is substantial and the pharmaceutical industry is aggressive in nature (Angell, 2011).

Limitations

Several limitations must be acknowledged relative to this study. Generalizability is limited because this study was open to only college-affiliated adults. Additionally, due to the reliance upon the online university participant pool and SurveyMonkey, participants had to have online access. In this sample of 235 participants, there was an underrepresentation of many racial ethnic groups, with 80.5% of participants self-reporting as members of the White/Caucasian American category. Given the statistically significant differences identified across sociodemographic characteristics, this disparity could have affected the outcomes. Additionally, there may be differences relative to ethnic minorities who were not discovered, given the small representation of this population in this study. Overall, due to the nature of the survey—personal health—respondents may not have been comfortable answering survey questions. Finally, college

students are traditionally younger, more educated, and in other ways different from members of society in general.

Interpretation of Findings

The association between DTCA and health care-seeking behaviors and patient perspectives on the issue relative to the patient's overall health care experience were studied. SPSS was used to analyze data. All data analyses and statistical significance were assessed at the $p < 0.025$ level. The following research questions were addressed in detail and were the catalyst for this study:

1. What is the relationship between direct-to-consumer advertising (DTCA) and physician office visits?
2. What is the relationship between direct-to-consumer advertising (DTCA) and patients asking for a prescription?

These questions were researched through two hypotheses. Hypothesis 1 related to physician office visits and exposure to DTCA:

$H1_0$: There is no relationship between patient exposure to DTCA and subsequent physician office visits.

$H1_a$: There is a direct association between patient exposure to DTCA and subsequent physician office visits.

Hypothesis 2 related to request for a specific prescription medication and exposure to DTCA:

$H2_0$: There is no relationship between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

$H2_a$: There is a direct association between patient exposure to DTCA and a patient asking subsequently for a corresponding prescription drug.

For Hypothesis 1, there was limited evidence that college-affiliated adult study participants who saw advertisements for prescription drugs were more likely to (a) rate their doctor interactions higher; (b) talk to their doctor about a prescription drug; and (c) have a recent visit to their doctor, nurse practitioner, or physician's assistant. Lower health status, being a man, being married, and lower education levels were all associated with more office visits.

For Hypothesis 2, there was limited evidence that college-affiliated adult study participants who saw advertisements for prescription drugs or searched for additional information about a prescription drug were more likely to (a) ask their doctor if there was a prescription drug to treat them; (b) expect a doctor to prescribe a drug; (c) have a doctor give them a prescription, recommend a prescription, recommend an over-the-counter drug, or recommend a behavior or lifestyle change; and (d) mention a prescription drug to their doctor. Lower health status, the number of hours spent on the Internet or World Wide Web per week, being a woman, being single, higher education levels, and being an ethnic minority were all associated with requesting prescription drugs.

Implications for Social Change

The United States and New Zealand are the only two industrialized nations that permit DTCA, and pharmaceutical firms in these countries have the highest profit margins of any industries in these two countries (Hawthorne, 2010). With increasingly greater numbers—more than 50%—of all people in the United States taking prescription drugs, the total annual retail sales of prescription drugs exceeding $300 billion a year, and more than $28 million being spent by PhRMA to lobby members of Congress, it is difficult for the FDA to ensure consumer protection (PhRMA, 2011). The significant societal dependency on prescription drugs provides a potentially endless supply of individuals who are vulnerable to abuse. Deadly side effects and contraindications are but a few of the many dangers associated with prescription drugs. Additionally, the principal-agent relationship between consumers and physicians provides an example of the potential patient vulnerabilities.

The most significant findings of this study are that DTCA is associated with patients asking more questions, having more office visits and patients having a lower overall health status. As DTCA is associated with patients asking their physicians more questions, this increased communication could help patients make better decisions about the potential risks, benefits and costs of prescription drugs. As patients, especially those who perceive themselves as less healthy, attempt to understand the very complex issues around their health care, asking questions can help.

Given that DTCA is associated with more office visit, physicians can help patients to better understand this tendency as well as the positive or negative impacts. Physicians are trained to help patients make informed decisions about their health care. Being aware of the DTCA and office visits association can help physicians assist patients in taking better care of themselves, minimizing unnecessary office visits, and reducing their out of pocket costs.

Evidence from this study also suggests a strong association between DTCA and patients with a lower health status. Knowledge of this association can help patients and physicians to focus their efforts on ensuring a positive social impact. Awareness of this relationship can change patient, physician and healthcare policy maker decision making and reduce the likelihood of adverse clinical and financial implications. This could provide a significant opportunity to help the least healthy of society to greatly improve their health, quality of life and ability to return to work if they have been hindered by their poor health status.

Additionally, health care policy has a financial impact and drives corporate and individual decisions and behavior. This study provides a clearer understanding of what aspects of DTCA should be carefully considered in the development of local and national health care policy. This understanding will reduce the probability of unintended negative consequences from legislation and policy.

Other social change implications of this study include consumer protection in a risky market and the prevention of unnecessary and expensive drug- and health care

seeking-behavior. The discovered link between the advertising component of marketing campaigns and health care-seeking behavior can potentially drive an overuse of unnecessary medications and a subsequent unnecessary reduction in health status and added cost burden for patients. FDA guidance and regulations, federal and state health care policy, and patient interaction with health care professionals are all documented factors that may be touched by DTCA. As a result, it is important to understand the impact of DTCA because it can be used to improve the health status and economic prosperity of society. This knowledge can also be used to better manage the potential for abuse, given the industry financial incentives. Using the identified significant aspects of DTCA, physicians have a better understanding of the aspects of DTCA that impact patient decision making. Having this information could help physicians to develop more effective ways of communicating with patients and developing more effective care plans.

Recommendations for Further Study

Future researchers can address the limitations of this study by investigating a larger sample size that is not limited by Internet access, college affiliation, or age. Although the type of medium used in this study was not restrictive geographically, cultural and geographic preferences and differences may still have existed.

This study focused on participants associated with an academic community. A study that collects information regarding students' major and current occupation might also provide additional insights regarding attitudes and behaviors relative to DTCA. Behaviors and attitudes may vary depending upon type of occupation, medical

experience, and training. As an example, undergraduate nursing students may provide different answers than undergraduate business students. The degree to which patients truly comprehend and understand the information in DTCA could provide an additional research opportunity. Finally, an assessment of how much information patients retain from DTCA and whether that retention is tempered or enhanced by health status or the length of the patient-physician relationship. Further research may reveal that different degrees of retention exist for patients with severe conditions such as terminal cancer, and patients with other conditions such as a minor cold. Additional research may also reveal that the length of an established physician-patient relationship may mitigate the impact of DTCA.

Quantifying the financial impact of DTCA could provide insight into corporate incentives. Research that better clarifies the incentives and disincentives for pharmaceutical companies could help to drive safer corporate decisions and potentially influence health care policy. Research in this area could help to ensure that corporate incentives are aligned with desired positive patient outcomes.

The FDA study (HHS, 2004) was one of the initial studies to focus on the doctor-patient relationship and its broad implications for health care. The OPDP continues research projects on this topic, with current studies including an examination of online DTC drug promotion, experimental study of format variations in the brief summary of DTC print advertisements, and health care professional survey of prescription drug

promotion. With students as participants, this study provided information that could enhance the overall patient care experience.

Finally, given the full implementation of the unprecedented employer, health care industry, and individual changes required under the Affordable Care Act, future research may produce different results. Signed into law by President Barack Obama in 2010, the Affordable Care Act seeks to improve access to the U.S. health care system and increases individual responsibility as it relates to a persons' health care. Once fully implemented in the coming years, employer requirements to provide coverage for older children, individual mandates to obtain coverage or be subjected to a penalty, and health care industry performance requirements for payment could likely produce different research findings and opportunities. Future research could also help with the assessment of the impact of the Affordable Care Act.

Concluding Remarks

A few of the hypothesized associations were not supported quantitatively, so this study can contribute to the development of new knowledge by specifying the aspects of DTCA that are associated with patient behaviors and perceptions. The findings of this study outline the specific models that more clearly explain the impact of DTCA. Social change implications of the study include consumer protection in a risky market and the prevention of unnecessary, expensive, and potentially dangerous drug- and health care-seeking behaviors.

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Appendix A: Direct-to-Consumer (DTC) Promotion of Prescription Drugs Survey

1. How long has it been since the last time you saw a doctor, a nurse practitioner, or a physician's assistant where you talked about a health condition or concern of your own, not for a child or parent or someone else?

- ☐ Within the last week
- ☐ 1 to 4 weeks ago
- ☐ 5 weeks to 3 months ago
- ☐ 4 to 6 months ago
- ☐ 7 to 11 months ago
- ☐ 1 year ago
- ☐ More than 1 year ago
- ☐ Never

2. Was this a routine visit, such as a checkup or physical?

- ☐ Yes
- ☐ No
- ☐ Don't know

3. In the last year, do you recall seeing or hearing any advertisements for prescription drugs?

- ☐ Yes
- ☐ No

4. Have you seen or heard any ads for prescription drugs in any of the following ways: (check all that apply)

- ☐ a. On television
- ☐ b. On the radio
- ☐ c. In a magazine
- ☐ d. In a newspaper
- ☐ e. On the Internet
- ☐ f. In a letter, flyer or announcement you got in the mail
- ☐ g. On an outdoor billboard

☐ h. In a grocery store or pharmacy

i. Anywhere else? (please specify) _____

5. In the last year, how many different prescription drugs do you recall seeing advertised in any form?

☐ None
☐ One
☐ Two
☐ Three
☐ Four
☐ Five
☐ Six
☐ Seven
☐ Eight
☐ Nine
☐ Ten
☐ More than ten

6. Thinking about the ads you have seen both in print and on television, has an advertisement for a prescription drug ever caused you to look for more information, for example, about the drug or about your health?

☐ Yes
☐ No

7. What information did you look for?

☐ Side effects
☐ Interactions with other drugs/medicines
☐ Dangers of the drug
☐ Cost of the drug

Other (please specify) _____

8. Has an advertisement for a prescription drug ever caused you to ask a doctor about a

medical condition or illness of your own that you had not talked to a doctor about before?

- ☐ Yes
- ☐ No

9. At any of the visits to your doctor, did you talk about a prescription drug?

- ☐ Yes
- ☐ No

10. Did you go to this visit expecting your doctor to prescribe a drug for you?

- ☐ Yes
- ☐ No

11. At that visit, did you ask whether there might be a prescription drug to treat you?

- ☐ Yes
- ☐ No

12. Did you mention an advertisement you saw or heard for a drug or bring information about the advertised drug with you?

- ☐ Yes, I mentioned an ad I saw or heard
- ☐ Yes, I brought something about the drug with me
- ☐ Yes, both
- ☐ No

13. Did your doctor do one or more of the following: [Select all that apply]

- ☐ Give you the prescription drug you asked about
- ☐ Not give you the prescription drug you asked about
- ☐ Recommend a different prescription drug
- ☐ Recommend an over-the-counter drug
- ☐ Recommend no drug
- ☐ Recommend that you make changes in your behavior or lifestyle
- ☐ Something else (please specify)

_____

14. Overall, how would you rate your interaction with your doctor at this visit?

- Excellent
- Good
- Only fair
- Poor

15. I like seeing advertisements for prescription drugs.

- Agree Strongly
- Agree Somewhat
- Neither Agree nor Disagree
- Disagree Somewhat
- Disagree Strongly

16. Advertisements for prescription drugs help me make better decisions about my health.

- Agree Strongly
- Agree Somewhat
- Neither Agree nor Disagree
- Disagree Somewhat
- Disagree Strongly

17. Overall, would you say your health is:

- Excellent
- Very good
- Good
- Fair
- Poor

18. How many hours in a typical week do you use the internet or world wide web at home and at work?

- Do not have a computer

Number of hours? _____

19. Gender

- ☐ Male
- ☐ Female

20. What is your marital status? Are you:

- ☐ Married
- ☐ Single
- ☐ Widowed
- ☐ Divorced
- ☐ Separated

21. What is the last grade of school that you completed?

- ☐ Grade school or less
- ☐ Some high school
- ☐ Completed high school
- ☐ Some college
- ☐ Completed college
- ☐ Graduate school or more
- ☐ Other beyond high school (business, technical, etc.)

22. Are you of Hispanic, Latino, or Spanish origin?

- ☐ No, not of Hispanic, Latino, or Spanish origin
- ☐ Yes, Mexican, Mexican American, Chicano
- ☐ Yes, Puerto Rican
- ☐ Yes, Cuban
- ☐ Yes, another Hispanic, Latino, or Spanish origin

Please state origin, for example Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, or Other. _____

23. What is your race? Select one or more

- ☐ White
- ☐ Black, African American, or Negro
- ☐ American Indian or Alaska Native
- ☐ Asian Indian
- ☐ Chinese
- ☐ Filipino
- ☐ Japanese
- ☐ Korean
- ☐ Vietnamese
- ☐ Native Hawaiian
- ☐ Guamanian or Chamorro
- ☐ Samoan
- ☐ Other Asian, Other Pacific Islander, or Other Race – (For example Laotian, Thai, Pakistani, Cambodian, Fijian, Tongan, or other)

24. What year were you born?

Survey adapted *Patient and Physician Attitudes and Behaviors Associated with DTC Promotion of Prescription Drugs*, from U.S. Department of Health And Human Services, Federal Drug Administration, 2004. Retrieved May 1, 2009, from http://www.fda.gov.

Appendix B: Direct-to-Consumer Advertising and Patient Healthcare Behaviors Consent Form (Participant Pool)

You are invited to participate in a study of direct-to-consumer drug advertising (DTCA) and health care behaviors that you may have experienced in the last 12 months of your adult life. You are selected as a potential participant in this study because you are an adult and you are available through the Walden Participating Pool website voluntarily. I ask that you read this form and ask any question you may have before agreeing to be in the study. This study is being conducted by Patricia Kennedy-Tucker, a doctoral candidate at Walden University.

Background information: The purpose of this study is to gain an understanding of DTCA and health care behaviors and to explore patient perspectives on the issue as they relate to the overall health care experience.

Procedures: If you agree to participate in this study, please read this informed consent form and go ahead to respond to the survey questions. I will ask you to complete the demographic questions at the end of the survey. There are a total of 23 questions and you should be able to complete the survey in 5-8 minutes.

Confidentiality: The survey is anonymous. The records of this study will be kept private. The research records will be kept in encrypted form.

Voluntary nature of the study: Your participation in the study is voluntary and you are free to withdraw at any time during the process of completing the survey. Your decision to participate in this study will not affect your relationship with your school or

employer in any way. If you decide to withdraw your participation you may do so without affecting your relationship with your current schooling or employment.

Risks and benefits of being in the study: There are no physical risks and no benefits due to participating in the study. However, the proposed study may provide social change implications to include consumer protection in a risky market and prevention of unnecessary and expensive drug and health care seeking behavior. Participants are not obligated to complete any part of the survey with which they are not comfortable.

Contacts and questions: The researcher conducting this study is Patricia Kennedy-Tucker. The university IRB may be contacted by e-mail at IRB@waldenu.edu if you have any question about your right as participants.

Statement of consent: I have read the above information. I have asked any necessary questions and received answers. I consent to participate in the study.
In order to protect your privacy, signature is not being collected and your completion of survey would indicate your consent if you choose to participate. You may keep or print a copy of the consent form for your record.

Appendix C: Direct-to-Consumer (DTC) Advertising of Prescription Drugs

Informed Consent

You are invited to participate in a study of direct-to-consumer drug advertising (DTCA) and health care behaviors that you may have experienced in the last 12 months of your adult life. You are selected as a potential participant in this study because you are an adult and your student status. I ask that you read this form and ask any question you may have before agreeing to be in the study. This study is being conducted by Patricia Kennedy-Tucker, a doctoral candidate at Walden University.

Background information: The purpose of this study is to gain an understanding of DTCA and health care behaviors and to explore patient perspectives on the issue as related to the overall health care experience.

Procedures: If you agree to participate in this study, please read this informed consent form and go ahead to respond to the survey questions. There are a total of 24 questions and you should be able to complete the survey in 5-8 minutes.

Confidentiality: The survey is anonymous. The records of this study will be kept private. The research records will be kept in encrypted form.

Voluntary nature of the study: Your participation in the study is voluntary and you are free to withdraw at any time during the process of completing the survey. Your decision to participate in this study will not affect your relationship with your school or employer in any way.

Risks and benefits of being in the study: There are no physical risks and no benefits due to participating in the study. However, the proposed study may provide social change implications to include consumer protection in a risky market and prevention of unnecessary and expensive drug- and health care-seeking behavior. Participants are not obligated to complete any part of the survey with which they are not comfortable.

Payment: No payment, thank you gifts, or reimbursements are provided by the researcher to participants.

Contacts and questions: The researcher conducting this study is Patricia Kennedy-Tucker. The university IRB may be contacted by e-mail at IRB@waldenu.edu if you have any question about your right as participants. Walden University's approval number for this study is 05-21-13-0019798 and it expires on May 20, 2014.

Results: If you would like to obtain a copy of the results of this study, please contact the researcher at the above e-mail.

Statement of consent: I have read the above information. I have asked any necessary questions and received answers. I consent to participate in the study. In order to protect your privacy, signature is not being collected and your completion of survey would indicate your consent if you choose to participate. You may keep or print a copy of the consent form for your records.

Appendix D: Institutional Review Board (IRB) Approval Form

Dear Ms. Kennedy-Tucker,

This e-mail is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, Exploring the Effects of Direct-to-Consumer Advertising of Drugs on Patients' Health Care-Seeking Behavior

Your approval # is 05-21-13-0019798. You will need to reference this number in your doctoral study and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on May 20, 2014. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application document that has been submitted as of this date. If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden web site or by e-mailing irb@waldenu.edu:

http://researchcenter.waldenu.edu/Application-and-General-Materials.htm

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Please note that this letter indicates that the IRB has approved your research. You may not begin the research phase of your dissertation, however, until you have received the **Notification of Approval to Conduct Research** e-mail. Once you have received this notification by e-mail, you may begin your data collection.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Sincerely,
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Curriculum Vitae

Patricia Kennedy-Tucker

Education

Walden University,
Doctor of Philosophy in Management: Expected Date of Completion: November, 2014

Troy State University
Master of Business Administration (M.B.A.): December, 1996

Auburn University Montgomery
Master of Science in Psychology (M.S.): May 1996

Bowie State University
Bachelor of Science in Psychology (B.S.): May 1992

Honors & Awards

Magna Cum Laude and Dean's list

Work Experience

Department of the Treasury: Charlotte, NC & Atlanta, GA
Associate Bank Examiner

Participated in examining national banks and federal savings associations to determine the existence of unsafe practices. Provided assessments in all areas of banking to include loans, interest rate risk, capital, liquidity, consumer protection programs, and compliance with banking laws and regulations. Analyzed financial information and prepared written comments for inclusion in reports of examination. Presented report findings to boards of directors and institution management.

Federal Deposit Insurance Corporation: Austin, TX & Denver, CO
Assistant Bank Examiner

Assisted in examining state chartered banks. Evaluated bank processes to determine if standard practices and policies are followed. Assessed the overall performance of the institution including the following areas: loans, capital, liquidity, and interest rate risk. Prepared and presented report findings to boards of directors and institution management.

Retail Store Manager
Hired and trained employees. Prepared personnel schedule and performed other payroll functions. Directed sales activity including inventory control. Prepared banking transactions and reconciled cash. Prepared short and long range budgets. Analyzed financial data to assist in preparing sales reports.

Professional Publication
Tucker, J., III, & Kennedy-Tucker, P. (2004). Equity holdings and the financial performance of managed care firms. *Management Research News*, 27(6), 1-10.

Skills
Knowledge of banking operations and practices. Detail oriented and able to perform multiple tasks in a limited timeframe. Proficient in Microsoft Office tools (Word, PowerPoint, Outlook, and Excel) and web browsing.