

**HOW OVER-THE-COUNTER MEDICATIONS ARE ADVERTISED IN  
MAGAZINES:  
EXPLICIT AND IMPLICIT MESSAGES VIA VISUAL CUES IN OVER-THE-  
COUNTER DRUG ADVERTISING FOR TARGETED READERS**

**THESIS**

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## CHAPTER I

### INTRODUCTION

According to Datamonitor (Nov. 2004), growth in the U.S. market for over-the-counter (OTC) medications increased 20% between 1999 and 2003. This market was valued at \$29.39 billion in 2003 and accounted for 32.1% of world revenues. Sixty-five and one-half percent of the total value in 2003 was \$19 billion in the OTC drug market while another 20% of the market was in the sector of vitamins, minerals and supplements. Herbal supplements and medicines alone accounted for 14.6% of the total value. It is estimated that by 2008, the U.S. market will reach a value of \$37.9 billion (Datamonitor, 2004). OTC medications are big business.

Consumers treat their medical problems with OTC medications approximately 80% of the time as reported by the National Center for Policy Analysis (Herrick, 2004). In a survey of 1505 consumers conducted for Consumer Healthcare Products Association (CHPA) in 2001, Roper and Starch Worldwide found that 77% of Americans take OTC medications to treat common, everyday ailments. The survey indicated that 73% of Americans prefer treating themselves at home instead of seeing a physician, and 62% would like to practice more self-treatment in the future (CHPA, 2005).

Why do so many Americans prefer treating themselves with OTC medications? Besides the convenience of self-treatment, it is generally less expensive to do so,

especially if the consumer is uninsured or has high medical insurance co-payments (Tahmincioglu, 2004). Approximately 14% of the U.S. population was uninsured in 2002. Therefore, OTC medications are less expensive for consumers as there are no physician costs, no lost time from work or school, and no expenditures for high-cost prescription medications (Elder, 2003). In research by LeClerc, Schmitt and Dubé (1995), it was found that consumers are adverse to risk regarding loss of time rather than loss of money.

However, consumers having medical insurance usually find that it is more cost effective to use prescription medications. This is expensive for insurers who often want those prescription medications to become OTC medications (Tahmincioglu, 2004).

#### *Rx to OTC Switches*

In the United States, \$5.3 billion accounted for Rx-to-OTC switches in 2002, which was a 3.4% market increase from 1997 (Elder, 2003). The market growth forecast for 2007 is expected to reach \$9 billion or an 11.2% increase, with gastrointestinal medications leading the market. Kalorama Information (Elder, 2003) classifies OTC medications as 1) Allergy, Cough, Cold, and Sinus products; 2) Analgesics, NSAID, and other Drugs; 3) Anti-infectives; 4) Gastrointestinal Drugs; 5) Smoking Cessation; and 6) Miscellaneous Drugs.

Prescription medications, as noted, are expensive for insurers, and they prefer those drugs to become OTCs to save costs. Drug companies also push for this change in status when their patents are expiring. This allows the drug company to start a marketing campaign to try to keep consumers buying the medications in greater quantities since no

prescription is needed, and the OTCs are readily available (Tahmincioglu, 2004). Financial and commercial interests of pharmaceutical companies as well as the U.S. government, along with healthcare professionals, pharmacists, physicians, insurance carriers, and consumers all affect the switch from Rx-to-OTC status (Elder, 2003).

Along with these factors that affect Rx-to-OTC switches, there are several other issues affecting the Rx-to-OTC market. The impact on the insurance company, the pharmacist's role, the impact of the prescription drug manufacturer, patent expirations, labeling changes as well as regulatory authorities such as the Federal Drug Administration (FDA), all affect the switch of status. Brand, generic, and private label manufacturers compete in the U.S. market for Rx-to-OTC switches (Elder, 2003).

While non-governmental experts review prescription ingredients for determining whether the drug meets the safe use guidelines under OTC marking regulations, the FDA determines that OTCs are safe to use without supervision. Third Class drugs such as emergency contraceptives, oral contraceptives, infection medications, bladder treatments and hormone replacement drugs are under FDA evaluation for OTC availability. Kalorama Information (Elder, 2003) reported that third class drugs would require some intervention by pharmacists; therefore, these drugs would be sold behind-the-counter. For example, Mucinex, a cough suppressant containing guaifenesin that releases phlegm, is available behind-the-counter.

Because Claritin<sup>TM</sup> was prescribed heavily by physicians, insurance companies pushed for this drug to switch to OTC status. Additionally, insurance companies are filing petitions with the FDA advisory panel to switch Allegra and Zyrtec, two other allergy prescriptions, from Rx-to-OTC status (Elder, 2003). The problem the consumers

face is that they pay more for these OTC drugs than they do with their medical insurance co-pay, therefore, they tend to switch to prescription medications that will be covered by their insurance companies. This was the trend when Claritin™ became an OTC drug causing consumers to switch to prescription Allegra and/or Zyrtec (Elder, 2003).

Pharmacists tend to favor consumers using OTC medications because this is a means to expand their roles as professional healthcare advisors. This role expansion would require better pharmacist-consumer relationships, especially with the possible emergence of more behind-the-counter medications (Elder, 2003).

The prescription drug manufacturers favor Rx-to-OTC switches when they begin losing sales due to the introduction of a new prescription drug that may be more effective. The competition becomes heightened in the OTC category chosen; therefore, manufacturers vie to extend the specified drug product life (Elder, 2003). For example, when H<sub>2</sub> antagonists, such as Tagamet™, were all switched for the treatment of ulcers, the prescription market for those drugs virtually became obsolete and was marketed to treat heartburn.

There are some drugs having dual status; they have the same brand name in both prescription and OTC markets but differ in strength or indication. This usually occurs when a prescription is close to expiration, and the manufacturers attempt to capture optimal revenue from the drug. Brand name manufacturers expect competition with generic companies, which reduce brand name drug manufacturer's profits. Thus, dual status of medications allows for patent protection for the prescription if the switch from Rx-to-OTC is completed before the patent expires (Elder, 2003).

How do Rx-to-OTC switches affect consumers? As noted, insurance is a factor in costs. However, consumers have more knowledge of health issues and are more readily accepting of responsibility for their own healthcare needs by purchasing OTC medications (Elder, 2003). Pharmaceutical companies and the government offer incentives for consumers to self-medicate and attempt to help them feel empowered with choices across all therapeutic categories. This tool increases sales or develops sales in a new sector for pharmaceutical companies and benefits the uninsured.

Research by Creyer, Hristodoulakis and Cole (2001) examined how consumers' healthcare behaviors change regarding physician consultation or self-medication as Rx-to-OTC drugs become more available. For their study, the researchers used Tagamet HB. Their data indicated that only the elderly in the 71+ range were more likely to seek the advice of a physician before taking Tagamet HB and that product familiarity does not indicate they will seek advice. Consumers who had a bad impression of the medication were also more likely to seek a physician's advice (Creyer et al., 2001). Thus, once consumers intend to self-medicate, they are less likely to seek the advice of or consult with a physician. Furthermore, younger consumers were found to be less likely to visit a physician than the elderly group and may be more likely to switch to or use Rx-to-OTC medications (Creyer et al., 2001).

### *Requirements and Regulations of OTC Medications*

The FDA introduced labeling requirements for pharmaceutical manufacturers of OTC drugs as more OTC medications became available to consumers. The FDA regulates the information on package labels such as warnings, indications, and directions

for use of the medication. The requirements for labeling must use relatively simple language with readable type stating facts about the ingredients, dosage and warning (Elder, 2003).

OTC drugs have labeling requirements to follow, while dietary supplements have labeling requirements based upon structure or function claims. Generally, claims between these two are indistinguishable and are marketing games played between the manufacturers and the FDA (Bachrach, 1999).

The FDA had regulations that made all OTCs, whether dietary supplements or drugs, adhere to strict labeling practices using precise words from the OTC monograph written by the FDA itself. However, the FDA decided in 1986 that labels should not inhibit marketers from describing the supplements or medications that are meaningful to the consumers as long as the message is truthful and nonmisleading. For example, it is acceptable for a dietary supplement label to make a structural/function claim that the product “helps maintain regularity” instead of the FDA OTC approved “bulk form laxative” or the drug claim that it “alleviates constipation” because the message that it “helps maintain regularity” is probably more meaningful to the consumer (Bachrach, 1999). In effect, these claims help consumers with diagnosing themselves and treating themselves based upon how the label is marketed.

OTCs marketed without approved New Drug Applications (NDAs) or Abbreviated New Drug Applications (ANDAs) are not required by marketers to report adverse drug reactions but are only encouraged by the FDA to do so (Soller, 2004). Any drug marketed, commercially, before May 11, 1972 will not be sampled for regulatory action for labeling deficiencies (FDA, 1997).

Morris, Lecter, Weintraub and Bowen (1998) reported that Rx-to-OTC status occurs if the labeling is written to ensure that the information is understandable to average consumers under normal conditions of purchase and use. To test label comprehension, tests are given for the proposed OTC drug label or a control label that is shown to subjects. Questions are given to measure the subjects' understanding. Actual use studies involve subjects being given the opportunity to purchase and/or use the product. In these studies, subjects' behavioral outcomes are measured. Consumers' are tested for label comprehension and actual use for new Rx-to-OTC products as requested by the FDA (Morris et al., 1998). The problem is that most OTC label comprehension tests results are not available to the public and are submitted to the FDA supporting the new drug application for switching from Rx-to-OTC status. Therefore, the tests are trade secrets that the FDA cannot release to the public (Morris et al., 1998).

Since the tests are not released to the public, how do the applicants define "ordinary" consumers? Their target audience must reside in communities where the English literacy rate is average. This poses a problem for communities where English is not spoken or is a second language as well as for those of lower socio-economic consumers who may not have completed school, and therefore do not read well.

According to the National Literacy Act of 1991, literacy is defined as "an individual's ability to read, write, and speak English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals and develop one's knowledge and potential." The National Adult Literacy Survey (NALS) definition of literacy focuses on using information that includes the knowledge and skills to understand and use written text, the knowledge and skills to locate and use

information from forms, maps, tables, graphs, etc., and the knowledge and skills to apply arithmetic operations (Morris et al., 1998).

In 1992, NALS tested a sample of 13,600 persons 16 years and older with oversamples of African Americans and Hispanic households. They also surveyed 1147 inmates in a separate survey. Their results indicated that 40% of the U.S. population functions with severe restricted literacy (Morris et al., 1998). This high rate of illiteracy included 25% who were immigrants, 33% who were over 65 years of age, and 25% who had physical/mental/health problems that restricted them from full participation (Morris et al., 1998).

Adkins and Ozanne (2005) reported that more than one-fifth of American consumers are functionally illiterate and that almost 50% read below the sixth grade level. These numbers vary from state to state. For example, the 1990 Census Bureau reported that 15.1% of San Antonio, TX residents are illiterate. San Antonio has a large Hispanic population. Texas, overall, has 12.3% illiteracy rate versus a U.S. average of 9.4%. El Paso, another city with a high concentration of Hispanics, leads the state with a 19.43% illiteracy rate. Houston and Dallas have illiteracy rates of 13.5% and 11.89%, respectively, while Austin has the lowest with 6.80% (Intercultural Development Research Association, 1996). If we assume that the majority of the illiterate population is in a low socio-economic class, they may be more likely to take OTCs due to lower cost, not having medical insurance, and believing the drugs are safe.

Lepkowska-White and Parsons (2001) studied consumers who did not complete high school and revealed that they had problems comprehending warnings on labels when the language was difficult because they lacked the needed vocabulary. Those with less

than a high school education were also found to believe that labels with simple words meant that the product was safer to use.

Assuming illiterate consumers do not read OTC labels, or are limited in their ability to comprehend the information, should we also assume that literate consumers do read the labels? According to Kalorama Information (Elder, 2003), the majority of consumers do not know the active ingredients or the risks of medications; 34% look for the active ingredient on the label; 19% check the directions; 16% check the dosage; and 31% of consumers do not read the label at all. Other research studied labeling effects and found that consumers selectively attend to warning messages that are more informative rather than persuasive and found that the effectiveness of disclaimer information is not attended to by consumers (Jacoby, Johar & Morrin, 1998).

A research study by Sansgiry, Sharp, and Sansgiry (1999) analyzed the content of printed OTC ads from three consumer periodicals for a nine-month period. The goal was to determine whether consumers comprehended and interpreted OTC print advertisements. The researchers wanted to compare the results of consumer interpretations to the interpretation of a panel of health professionals. The reviewers consisted of five clinical pharmacists as the experts, and students as the consumer group. Researchers found that 10% of consumers could not identify product use, 45% could not determine the age group for which the product could be used, 80% did not know the side effects of the product, and 86% could not identify the contraindications of the drug. Furthermore, 91% reported that the advertisements did not help them evaluate the information on side effects and contraindications. Sansgiry et al. (1999) found that consumers rated these ads much differently than did the expert reviewers. The factors

studied were interest, similarity, misleading, complete, good, and risk. The expert panel found the ads to be misleading, bad, and incomplete due to the fact that information on side effects, contraindications, and product use was not adequately stated in the advertisements. However, consumers rated them as factual, good and complete. The consumers were not able to identify advertisements that contained misleading and inaccurate information (Sansgiry et al., 1999).

Lepkowska-White and Parsons (2001) found that consumers with an undergraduate degree understood both simple and complex labels. However, this group had a negative attitude toward the difficult labels due to the unnecessary effort to process the content.

In contrast, Roper Starch Worldwide, in their 2001 telephone survey, indicated that 95% of consumers take necessary precautions such as reading the directions, and 89% examine labels to help them choose medications. This research found that 91% read the label for possible side effects and interactions (Lepkowska-White & Parsons, 2001). The conflicting results of this survey may be due to the surveyed consumers answering the questions as to what they “should” do instead of what they actually do.

Sansgiry, Bix, Clarke and Pawoskar (2005) showed that 60.7% of labels were concealed by price tags and 21% were concealed by anti-theft tags. The results of these showed that 50.4% of the Drug Facts boxes were concealed, 23.6% of warnings, 9.3% of the active ingredients, and 4.4% of the drug use. Therefore, literacy may not be the only problem regarding the inability to read labels on OTC medications, and consumers may be more at risk, since 75% of Americans prefer self-diagnosis and treatment, according to a 2002 study by Consumer Healthcare Products Association (CHPA, 2005).

*Beliefs/Attitudes/Risks*

With such a high percentage of consumers willing to treat themselves, we can assume that they believe they have knowledge of their illness and have confidence in self-diagnosis. Several studies dispute this notion.

Consumers may take OTCs inconsistently with product label warnings and dosages. Often, consumers take more than the recommended dose to improve symptom relief using the rationale that “more is better” or “more is not riskier”. The consumer may not realize that many OTC medications have increased health risks, especially when taken in conjunction with prescription medication (Montauk & Rheinstein, 2002).

Because consumers can buy any quantity of OTCs without consulting a physician, they have the misperception that OTCs are safe and are not “real” medicine. Consumers have a false sense of safety and may have a cavalier attitude toward OTCs because they are available in almost every grocery, discount and convenience store (Montauk & Rheinstein, 2002).

Braun, Fowles, Solberg, Kind, Healey and Anderson (2000) showed that 44% of adults believe that the common cold is caused by a virus, and 42% believed that both viruses and bacteria are responsible. Twenty-two million physician visits and 250 million restricted activity days per year are accounted for by colds, and 44% of consumers believe that antibiotics help relieve colds. Since viruses cause colds, and antibiotics fight bacterial infections, consumers (63.0%) mistakenly believe that these drugs are effective (Braun et al., 2000).

Pain relievers have been the topic of much research regarding OTC use, beliefs and misinformation. Harris Information surveyed 4,263 adults and found that more than

175 million American adults take OTC pain medications, and 44% of those surveyed exceeded the recommended dosage. Many ignored the label information (McKay, 2003).

There are two main categories of pain relievers: Nonsteroidal Anti-inflammatory Drugs (NSAIDs) and Acetaminophen. NSAIDs are drugs such as aspirin, ibuprofen and naproxen that reduce inflammation caused by injury or rheumatoid arthritis. NSAIDs also relieve pain caused by muscular aches, arthritis, headaches, menstrual cramps and other minor aches and pains. These drugs work by blocking the COX enzyme of which there are two types found in the body. COX-1 enzyme protects the kidneys and stomach, and COX-2 is responsible for inflammation. NSAIDs cannot differentiate between the two enzymes; therefore, gastrointestinal risks occur because the protection provided by the COX-1 enzyme is blocked (McKay, 2003).

Acetaminophen, however, is not an anti-inflammatory and is used to relieve pain and reduce fever by working on the central nervous system. Since it is not an anti-inflammatory, it is ineffective in reducing swelling or stiffness caused by injuries or rheumatoid arthritis. Although it is generally less irritating to the stomach than NSAIDs, acetaminophen can cause liver damage when taken with alcohol or during fasting (McKay, 2003).

Several problems exist with NSAIDs and acetaminophen. High doses of aspirin and other NSAIDs are taken by arthritis sufferers and increase their risk of stomach bleeding by two to three times. Stomach bleeding is one of the most common serious drug reactions and accounts for approximately 16,500 deaths and over 107,000 hospitalizations per year in the United States. Continuous use of acetaminophen can

cause kidney and liver damage (McKay, 2003). Stomach bleeding and liver damage caused by using OTC NSAIDs often show no warning symptoms.

The National Consumers League (NCL) found in their 2003 survey that 50% of consumers are not concerned about potential side effects of NSAIDs, 45% think it is more important to control pain regardless of risk, and only 16% said they read the product label. Furthermore, 45% surveyed believe it is safe to take an OTC pain reliever simultaneously with another OTC cold or flu medication, and 35% think it is safe to use NSAIDs with prescription medications (McKay, 2003). In this manner, a person may take two different medications having the same active ingredient, thus exceeding the recommended dosage and increasing their risk of stomach bleeding and liver damage. For example, a 37-year-old woman arrived at an emergency room complaining of a severe headache and reported that her only prescribed medication was an oral contraceptive. Her blood pressure was high at 190/118; her heart rate was 110; and her temperature was 100.8°F (38.2°C). The woman took an OTC long lasting, 75mg of phenylpropranolamine weight loss medication and increased her dose from one to two pills per day. She developed a cold and started using an OTC medication having pseudoephedrine HCL. She took two doses of this medication in conjunction with her weight loss medication. Both drugs can increase blood pressure, and when she combined them, she put herself at risk for a stroke (Shuster, 2005).

Another example of mixing medications that have the same ingredients is taking both Nyquil™ and extra-strength Tylenol. A person doing this effectively doubles the acetaminophen dose and at the same time accounts for one-half the recommended daily dose. NSAIDs can cause stomach irritation, but taking antacids or acid blockers, like

Pepcid AC, to reduce the stomach irritation in conjunction with NSAIDs, actually increases the risk of ulcers (McKay, 2003).

OTC pain relievers can also have adverse effects when taken with certain nutritional supplements. For example, taking aspirin and ginkgo can cause excessive bleeding because both substances thin the blood (McKay, 2003). The problem with nutritional supplements and herbal remedies is that they are not regulated by the FDA, and there is no standardization for potency and purity of the product. Therefore, many adverse effects are unknown (Haywood, 2004). Several herbal remedies cause ocular side effects such as hemorrhaging and transient visual loss. Since *Ginkgo Biloba* thins the blood, there have been cases of hemorrhaging in the anterior eye chamber and in the retina. Consumers use *Ginkgo Biloba* to treat tinnitus, asthma and tonsillitis (Haywood, 2004).

*Echinacea Purpurea* is an herbal remedy used for treating colds, coughs, fevers, urinary tract infections, burns and influenza. When used as a topical remedy, eye irritation and conjunctivitis have occurred in patients.

Chamomile tea is used topically in and around the eyes to treat styes and runny, irritated eyes. There are reported cases of severe conjunctivitis when used. Chamomile is also used for treating insomnia, indigestion, migraine headaches, bronchitis, fevers, colds, inflammation and burns (Haywood, 2004).

Finally, large doses of ingested licorice have caused transient vision loss, while canthaxanthine, which is used for food coloring and for producing artificial suntans, when taken orally, can cause deposits in the retina. These deposits take years to disappear and cause visual field abnormalities (Haywood, 2004).

Eighty percent of individuals surveyed by the NCL in 2003 admitted they do not discuss these key risks with their physician or pharmacist, and only 29% of arthritis sufferers did so. Finally, 60% of heavy drinkers (those who consumed three or more drinks per day five or more times each month) were not concerned about OTC related side effects, and 65% said they consume both alcohol and OTC pain medication the same day. Because alcohol thins the blood, alcohol increases the risk of stomach bleeding when using OTC pain relievers (McKay, 2003).

Most complications of OTCs involve pain relievers and their interactions with other medications. Acetaminophen, such as Tylenol, can cause hepatic failure in acute intentional overdose situations or when used with alcohol. The use of alcohol prompted the FDA to require warnings on labels in 1998 (FDA, 2004). From 1998 to 2001, the Adverse Event Reporting System (AERS) identified 307 hepatotoxicity cases in children and adults and identified 297 cases of gastrointestinal bleeding associated with NSAIDs. This included 197 cases involving ibuprofen, ketoprofen and naproxen as well as 82 cases of aspirin (FDA, 2004).

The Drug Abuse Warning Network (DAWN) monitors drug related emergency department (ED) visits for the nation and for some selected metropolitan areas. In the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2003, 52% of ED visits included prescriptions and OTC pain relievers, anticonvulsants and muscle relaxants. The visits usually consisted of patients having more than one medication in their system. Their report indicated that overmedication occurs more often in whites (72.0%), in females, and in patients 18-20 years of age. Furthermore, 26% of accidental ingestions in ED visits were from analgesics such as acetaminophen and ibuprofen. Forty-two percent of overdoses were caused by accidental

ingestion. Children under the age of 6 years had the highest rate of accidental ingestion (DAWN, 2003).

According to the monograph of the American Academy of Family Physicians (AAFP) in 2002, several factors were identified that may contribute to the misuse of OTC pain relievers and cough/cold medications: 1) public perception that OTC medications are not “real” medicine; 2) lack of understanding of OTC ingredients; 3) the belief that taking more is better when treating headaches and other pains; and, 4) having unrealistic expectations of the normal range and duration of symptoms regarding colds, flu, allergies and the medications’ ability to relieve these symptoms (NCLnet.org, 2005). Looking at the risks involved with OTCs and popular beliefs of their safety, we need to examine the role of marketing’s influence on consumer behavior.

### *Marketing*

According to the Federal Trade Commission (FTC), OTC manufacturers need to have high standards in advertising because consumers take such ads based upon perceived credibility. OTC drug manufacturers have the obligation to expressly and implicitly tell the truth in their advertising. For example, an ad that would be expressly and implicitly false would be one advertising a pain medication that cures arthritis and shows the “cured” arthritic person doing gymnastics. There are no strict regulations for explicit and implicit messages in advertising. However, the FTC (1990) tries to ensure that claims are substantial and consumers are not deceived, but the basic criterion for making these assurances is by determining the amount of consumer harm caused by OTC advertising. This can be subjective and difficult to monitor.

There are several problems associated with OTC advertising, and most problems involve the information, or lack thereof, presented to consumers. Advertising is a powerful influence that could motivate consumers to purchase overly expensive, overrated or less than optimum medications for their specific needs. Although advertisements tend to be truthful, they frequently omit information that the consumer needs to make appropriate selections (Chandra & Holt, 1999). For example, there might be a claim that an OTC product contains “more pain reliever that doctors recommend most,” which is a true statement in that Extra-Strength Tylenol contains more acetaminophen than regular strength Tylenol; however, the consumer is not told that the amount is not clinically significant with a difference between 650mg and 1,000mg. Since our culture believes that more is better, consumers’ perception is determined by the amount of milligrams rather than the true statistical difference of the product’s clinical effects (Chandra & Holt, 1999).

Researchers found that some ads provide information with unproven suggestions, stating claims that have not been scientifically or clinically demonstrated through sound scientific research (Chandra & Holt, 1999). A famous legal case for corrective advertising was the FTC vs. Novartis regarding advertising of Doan’s (Mazis, 2001). The Doan’s ads were ruled containing unsubstantiated claims that Doan’s was more effective than other analgesic products for back pain. When Ciba-Geigy Corporation merged, they used advertising that included back relief claims that enabled them to sell Doan’s at approximately 66% higher prices than general purpose pain relievers and added formulas that included extra-strength and P.M. to sell at premium prices. Ciba advertised that no other pain reliever had the same ingredient, which implied that Doan’s was

superior over other pain medications. However, there was no scientific evidence that the magnesium salicylate found in Doan's was more efficacious than other OTC analgesics; therefore, the FTC ruled that their advertisements were likely to mislead reasonable consumers (Shapiro, 2000).

Vitamins are notorious for such suggestions by making statements that they increase energy or prevent diseases such as heart disease or cancer. Although vitamins have some health benefits, they do not replace poor lifestyle choices, such as eating fast food or not exercising (Chandra & Holt, 1999). Since consumers are continually attracted to quick fixes, they may not realize that vitamins do not replace the full health benefits of natural vitamins occurring in whole foods, and therefore, vitamin supplements could cause more harm than good. The harm caused by synthetic vitamins is by depleting the body of other needed nutrients and by forcing your kidneys to work harder before the synthetic vitamins are eliminated through urination (Kim, 2004). Synthetic vitamins are made up of a single component, whereas natural vitamins found in whole foods consist of several components, such as enzymes, co-enzymes and co-factors, that work together to produce needed biological effects (Kim, 2004). The labels on synthetic vitamins mislead consumers into believing that these vitamins replace vitamins found in whole foods. For example, synthetic vitamin labels and advertising include messages such as "Just ONE tablet daily: A good source of 22 vitamins & minerals, or provides 100% of the recommended daily allowance (RDA)." However, this is not true. Vitamin C supplements, for example, do not include the components of rutin, bioflavonoids, factor K, factor J, factor P, tyrosinase, ascorbinogen and ascorbic acid that are found in whole foods such as fruits and vegetables (Kim, 2004). Weight loss supplements are

another large market demonstrating consumers' belief that they can obtain their desired weight via a pill instead of by exercise and healthy eating. Again, consumers are misled by what is written on labels or in ads into believing that one pill is an easy way to achieve their goals. Weight loss ads are also notorious for misleading consumers via visual cues. Most of these ads show a "before" and "after" picture of a person who appears to have lost a significant amount of weight, with a caption such as "Lose 20 lbs in 2 weeks". At first glance, the consumer may believe that this product will aid them in losing the desired amount of weight in a similar timeframe, without realizing that exercise and dietary changes were necessary for the results shown.

OTC and supplement marketers can mislead consumers without explicitly making false claims. Marketers do this by providing information in ads which is framed in such a way to prompt consumer reasoning based on faulty logic, thereby causing consumers to make incorrect conclusions. The implication in using this faulty logic is that if science has not disproved the claims, then the product can cure or prevent the ailment. Although research may not disprove the claim, it does not mean the claim is valid (Chandra & Holt, 1999). Advertisers use faulty logic to increase sales by suggesting that a product can provide cures without making false claims. Advertisers often use testimonials that lead to faulty logic in consumers. Testimonials are uncontrolled case reports which are not necessarily indicative of typical results, but are used as supportive evidence for a product (Lilienfeld, Lynn, & Lohr, 2004). If people see that a product cured the individuals depicted in the ad, then they draw the conclusion that "the product will work for me, because it worked for them", feeding society's view of absolute dualism. That is, if the claim cannot be disproved, then it must be true. Testimonial claims cannot be disproved

by clinical trials (Lilienfeld, Lynn, & Lohr, 2004). This attitude of dualism also persuades consumers, through use of reasoning heuristics or mental shortcuts, that every drug is the same for everyone, causing some consumers to disregard reading product labels and warnings (Chandra & Holt, 1999). Most ads are constructed to appeal via peripheral mode of information processing designed to automatically affect consumer response. All ads intend to persuade consumers into buying and using the product.

Based upon the Elaboration Likelihood Model (ELM) of persuasion by Richard E. Petty and John T. Cacioppo, people process information either through peripheral or central processing routes (Moore, 2001). The peripheral route occurs when consumers are persuaded by visual cues, sounds, or language that causes positive or negative thoughts toward the message. For example, advertisers will often use a popular celebrity to promote a product to create positive feelings toward the brand and causes the consumer from thinking deeply about the message. This route of persuasion is also used to cause consumers to make a quick decision about the message such as using a lot graphs or statistics that enables the consumer to use a simple rule that the message is good (ciadvertising, 2000). The central route of persuasion, however, is more complex because an individual must comprehend the entire message of an ad by being familiar with all the terms and concepts as well as be able to associate past experiences and knowledge to the new information being provided (ciadvertising, 2000). The central route of persuasion, then, takes much more effort on the part of the consumer to have positive feelings about the product and to make the decision that the product is worth buying. It makes sense that advertisers would not want consumers to use the central route of persuasion because it could cause a loss in sales. Therefore, advertisers construct

an ad in such way that lead consumers to use peripheral routes of persuasion, causing consumers to falsely conclude that the product is safe and cures the ailment. Thus, the example of testimonials works by activating the availability heuristic that produces tendencies of overgeneralization in the form of the conclusion that “the drug is an effective cure for everyone”. However, similar claims cannot be included in the explicit form. If advertising claims a cure which cannot be scientifically proven, then the FTC will take action to have the company remove an ad containing a false claim. For example, in the 1975 case of the FTC vs. Warner-Lambert Co, the manufacturer’s advertising claimed that Listerine was effective for preventing and treating colds and sore throats, which was determined to be false advertising (Mazis, 2001).

In both the Doan’s and Listerine cases, the FTC surveyed consumer beliefs about these products based upon company advertising. In the Listerine case, over 60% of consumers believed the product prevented and treated colds and sore throats (Mazis, 2001).

Advertising, due to misleading claims, may change behavior in consumers by encouraging them to purchase OTC products or to make poor selections. For example, a consumer may be encouraged to purchase OTC analgesics for self-care of arthritis instead of seeking a physician. Medication advertising rarely provides reliable guidance for proper medical treatment and may suggest a need that does not exist. Misleading claims may also have a form of undermining the side effects of drug use. The focus is on the specific drug benefits, and not on its interactive effects relative to the context of other medications, physical health, and the lifestyle of the consumer. Therefore, consumers

may perceive ads as informative, but in reality, ads provide an illusion of information to sell the product (Lipman, 2000).

Advertising often uses words or actions that imply cures that cannot be delivered (CMP Information Ltd., 2004). Bell, Wilkes and Kravitz (2000) found in their study of drug advertisements that most ads provide the name of the medical condition and its symptoms, but they omit risk factors and the prevalence of the condition. These authors noted that drug ads tend not to discuss their treatment success rates or its mechanism of action in treating the condition. Because of the lack of information regarding risk factors, advertising can encourage unhealthy healthcare decisions. For example, ads for some laxatives state that everyone needs help without stating that they should never be the first choice in treating constipation. Labels warn that laxatives can cause dependency; however, if people do not read the label or if their motivation for relief is stronger than the warning, then dependency will probably occur (Chandra & Holt, 1999).

In research by Bell, Kravitz and Wilkes (1999), 43% of consumers believed that only “completely safe” drugs could be advertised through Direct-to-Consumer advertisements. Results of this study suggest that if consumers believe in the safety of prescription medications, that they would believe that all OTC drugs are safe.

Tsao (1997) analyzed the informational and symbolic content of 150 drug commercials on television and found that the informational content focused on the concern of what the drug will do for the consumer instead of why the drug should be taken. The primary goal of advertising appeared centered on consumer awareness of the product; however, the findings did not show that educational commitment was a

promotional effort. The commercials encouraged a casual attitude toward drug usage, but the drug effects over time were overlooked (Tsao, 1997).

In a similar study, Byrd-Bredbenner and Grasso (2000) used content analysis to compare television advertisements and determine the information congruency with current health recommendations. The primary message in advertisements was the product's ability to relieve symptoms. Almost all of the OTC medication advertisements indicated they should be used as directed. Two warned of potential side effects, and one encouraged consumers to review the instructions on the packaging out of 69 medication ads in the years of 1992 and 1998. No ad indicated that symptoms relieved by the product might be caused by a more serious condition. Therefore, the results showed ads were not congruent with health recommendations, provided bias toward potential benefits and gave incomplete information regarding risks that encourages unhealthy healthcare decisions. For example, if women have recurring yeast infections, it could be a sign of having diabetes mellitus; however, the advertisement for Monostat-7<sup>R</sup> only suggested that women should consult with their physician before using the product for the first time. The ad for OTC acne medication implied it cures acne and would increase the physical attractiveness and social acceptance of the drug user (Byrd-Bredbenner & Grasso, 2000). The ads did not state the actual time lapse to achieve relief of conditions or symptoms, and they did not explain why an OTC should be ingested. These ads help cultivate and/or perpetuate an attitude that medicines are magic (Byrd-Bredbenner & Grasso, 2000). In both Tsao (1997) and Byrd-Bredbenner and Grasso (2000) studies, the message was that OTC advertisements portray the product as a simple and safe solution in relieving symptoms and encouraging casual attitudes toward drug usage.

As noted, the FTC regulates advertising claims of OTC products, but there is often ambiguity regarding which agency regulates pictures used on OTC labels. There may be a discrepancy between agencies and the monitoring and regulation of consumer comprehension of pictures leading to inconsistency between the claim and the image. Research indicates that pictures used on labels produce a *picture-superiority effect*. Visual elements make a package more vivid and can increase perceived attractiveness of the product resulting in more favorable attitudes toward the OTC and cause increased purchase intentions (Sansgiry, Cady & Sansgiry, 1997).

Sansgiry et al. (1997) evaluated whether pictures used on OTC packages alter vividness, defined as exciting the imagination to the extent that it is emotionally interesting, concrete and imagery-provoking, and proximate in a sensory, temporal or spatial way. Thus, their study determined if pictures were evaluated positively on various attributes and whether the pictures were evaluated differently based upon knowledge. Participants in the study evaluated package vividness based upon the following attributes: not colorful-colorful, drab-rich, vague-graphic, abstract-concrete, confusing-clear, not descriptive-descriptive and not distinctive-distinctive. Participants also rated the informational value instead of the promotional value they thought the package label provided.

The results showed that pictures used on OTC labels were considered more interesting, reassuring, stimulating, convincing and different from labels without pictures (Sansgiry et al., 1997). Therefore, increased vivid effects could lead to positive package evaluation since pictures are used to attract attention and gain consumer patronage. That is, vivid pictures were evaluated higher and influenced consumers who are not

knowledgeable about OTC products (Sansgiry et al., 1997). However, the authors suggested that the impact of pictures might be reduced with consumers having more drug knowledge because they tend to replace brand names with lower cost generic products, thus, they make few product decisions based upon pictures. For consumers having more knowledge about drugs, pictorial information is not clear or descriptive, and the pictures were rated low on informational value. This study indicates that people having less drug knowledge are more likely to make purchase decisions based upon visual cues instead of cognitively evaluating the product.

Sansgiry and Cady (1997) examined both how consumers view print ads and how they process informational concepts based upon how information is given on OTC product labels. Authors hypothesized that better understanding of information may occur if labels include only verbal information or congruent picture-verbal information. It was further expected that better understanding will lead to positive evaluation defined as positive thoughts by consumers and positive purchase intention. However, if the design formats are picture only or include noncongruent picture-verbal information, consumers may not understand the information and perceive it as confusing. Thus, noncongruency could result in negative or neutral thoughts regarding the product and result in no purchase or in negative purchase recommendations of the product (Sansgiry & Cady, 1997).

The results of this study indicated that OTC labels having congruent picture-verbal design increase comprehension of product information and may increase product purchase behavior. For example, a label with a picture of a pain reliever with the words “Works Immediately” appeals to the consumer’s comprehension that the product is better

and works faster. However, labels having picture-only or noncongruent picture-verbal design lead to low comprehension of the product, because information is lacking. A picture of a pain reliever, by itself, does not give any information to the consumer that persuades him or her to purchase the product. When noncongruent picture-verbal designs are used, the conflict is confusing to the consumer. For example, a picture of someone with a red, runny nose and watering eyes with the label “Works Immediately” does not convey that the product effectively treats allergies. As label confusion increases, product knowledge decreases, which can lead to misunderstanding and misuse of the product (Sansgiry & Cady, 1997).

Advertisers use explicit and implicit messages to promote their products. Explicit cues include literal meanings of words in printed form whereas implicit messages can be conveyed by connotative associations in order to be effective (Sisson, 2003). For example, an OTC pain reliever ad would not want the explicit message to encourage the buyer to conquer a migraine and enjoy life, and then show a picture of a person lying in bed in a darkened room. This visual message would be incongruent with the explicit message that emphasizes the benefits of pain relief. However, if the same explicit message is combined with an image of a person playing sports, then this implicit message would enforce the direct claim that the pain reliever works and allows a person to enjoy daily activities.

In addition to labels that show visual cues of OTC products, print media expose consumers to pictorial messages in advertisements. The Market Budget Analysis of 2002 by Management Science Associates reported the demographics of magazine purchasers: 70% of consumers are between the ages of 25 and 55 years, 65% have a college

education with 20% of those having a post-graduate degree, 66% have a household income of over \$40,000 USD, and 86% have household sizes of at least two persons, and almost 60% have three or more persons in the household (DuBois, 2002). Based upon these demographics, the statistics discussed above suggest that those who are younger and do not have a college education would be expected to be more influenced by visual cues in print ads than they would with product labels.

Other results by the 2002 Market Budget Analysis showed that magazines contribute to 59% of total retail grocery dollars (DuBois, 2002). Additionally, 53% of households in the top 30% of high grocery spending purchase magazines. Furthermore, marketing showed that main line displays of magazines are an important factor in magazine purchases. Forty-five percent of readers purchase magazines from main line, or a main aisle, while another 55% of readers purchase magazines from front-end displays. The retail conference of 2002 also indicated that magazines are the second highest frequency purchase item and account for 39% of sales; only candy/mints/gum out sell magazines. Because of magazine profitability and the broad access to readers, it would make sense that advertisers would include OTC drug ads with visual cues within their pages (DuBois, 2002).

Many advertisers use comparative methods to sell their products. For example, a new pain reliever might compare its ingredients with other pain relievers. The meta-analysis research on comparative advertising conducted by Grewal, Kavanoov, Fern, Costley and Barnes (1997), revealed that message awareness, measured by the number of message parts recalled, and brand awareness were greater for comparative ads than for noncomparative ads. Comparative advertising resulted in 22% more purchases and was

responsible for 28% more favorable attitudes toward a new sponsored brand. The same advantage was 5% for established sponsored brands. When established brands were compared, 36% more message points were recalled. Interestingly, comparative advertising tends to be less believable and generates less favorable attitudes toward the ad by 13% (Grewal et al., 1997). Generally, comparative advertising elicits more attention to the ad, greater message and brand awareness, increased information processing, more favorable brand attitude, and increased intentions to purchase and have actual purchase of the product (Grewal et al., 1997).

In research by Cline and Young (2004), a content analysis identified and quantified features of prescription medication advertising that promoted social modeling in ads for viewers. The researchers described visual cues that functioned as vicarious motivators to appeal to consumers' identification with ad models by associating with identity and relational rewards, or motivators (Cline & Young, 2004). Identity rewards are used when advertisers want to use cues that make consumers associate themselves with a model depicted, such as attractiveness, good health, friendliness, and physical activity. These rewards allow the consumer to "see" themselves like the model in the ad. Relational rewards, however, are based upon social context (Cline & Young, 2004). For example, an ad for pain relief might show a person at a party because the headache is gone. Therefore, relational rewards are based upon the view of one's self in relationships. Purchase decisions are regulated by direct and vicarious motivators. Direct motivators are those that the consumer learns from via experience, previous knowledge, or incentives. Vicarious motivators encourage purchases through observing the rewards gained by others (Bandura, 1994). Researchers assumed that financial

incentives or claims for a product's potential to cure a condition operate as direct motivators for consumers to purchase the product. Images of healthy, happy or socially engaged product users work as vicarious, or indirect, motivators to purchase a product. Vicarious motivators may urge consumers to identify with models in ads and to associate identity and relational rewards with the products (Cline & Young, 2004).

The idea of drug advertising is to change consumer healthcare behaviors. Therefore, ads need to attract attention, offer messages that invite identification with depicted models by being similar to ourselves, and associate rewards given to models in the advertised products (Cline & Young, 2004). Visual models are likely to portray positive personal characteristics such as being healthy, active and friendly, that could cause consumers to identify with, and have the desire to emulate, those models within the ads (Cline & Young, 2004). In their research, Cline and Young (2004) examined direct-to-consumer advertising (DTCA) in 18 popular magazines with a total of 684 issues. The issues consisted of 994 DTCA ads in total. After removing duplicate ads, the researchers had a sample of 225 advertisements that were unique.

These researchers found that prescription drug advertising provides models that may aid consumers' observational learning because popular magazine readers were highly likely to be exposed to associations between the prescription drug and identity rewards. The message in the ads was that prescription drug treatment can make the consumer attractively healthy looking and lively (Cline & Young, 2004). For example, ads for treating HIV depicted only healthy people or showed images conveying health, activity and strength. HIV ads without images conveying these messages used powerful text. This trend also was seen for arthritis drugs (Cline & Young, 2004).

Finally, the researchers found that people depicted in ads portrayed demographic disparities that reinforced social stereotypes. For example, two-thirds of ads for psychiatric products used only women and two-thirds of the ads for cardiovascular disease showed only men despite that this is the number one killer for both sexes (Cline & Young, 2004).

### *Racial Disparities*

Although the principle of homophily (McPherson, Smith-Lovin & Cook, 2001) states that consumers are more likely to attend to, and be persuaded by, sources perceived as similar to themselves, ads for cardiovascular disease and cancer featured predominately white people (Cline & Young, 2004). Cardiovascular disease and cancer are the leading causes of death among whites, African Americans and Hispanics according to the National Center of Health Statistics in 2000 (Cline & Young, 2004). Furthermore, results of the study indicated prescription ads for psychiatric-neurological, respiratory and smoking cessation products featured predominately Caucasians. Ethnic minorities were largely ignored in the ads sample selected for the study suggesting that these segments of the population may not attain any valuable information, such as risks or side effects, from prescription drug advertising due to not attending to models who were not similar to themselves (Cline & Young, 2004).

Ads including African Americans were disproportionately for HIV/AIDS medications of which 50% portrayed this group when only 38.1% of AIDS cases are African American according to the Center of Disease Control (CDC) in 2001. One

hundred percent of ads featuring Hispanics were for HIV/AIDS related products (Cline & Young, 2004).

Interestingly, Cline and Young (2004) found that no ad for HIV/AIDS related products or for allergy products featured older adults. Therefore, older adults will probably not identify with the models in the ads and will not be vicariously motivated to use the advertised products. Furthermore, with the HIV/AIDS products, this underrepresentation of older adults reinforces the stereotype that older adults are asexual. Older adult ads for psychiatric or urological conditions, such as impotence and incontinence, made up over 50% of the ads for prescription drugs in this age group (Cline & Young, 2004). Older adults were shown that mental problems and urological conditions are what they have to “look forward” to through vicarious learning.

In conclusion, we have seen that many drugs become over-the-counter when newer drugs become available by prescription and as patents run out with pharmaceutical companies. This switch from prescription to OTC saves insurers money, and makes self-treatment readily available to consumers. However, consumers are not always aware of the risks of taking OTC medications; they may not read warnings on, or be able to comprehend the information given on, OTC labels. Furthermore, many consumers believe that if a medication is sold as over-the-counter, then it is invariably safe to use. Marketers enhance these beliefs by using appeals that persuade consumers through heuristics; that is, via mental shortcuts that discourage cognitive analysis of the content of the ad. Thus, consumers often fall victims of faulty logic and fail to notice misleading claims in OTC advertising. The persuasion techniques used in marketing of OTCs to consumers is also worth examining. Although marketers use a variety of techniques to

sell their products, the use of models, identity rewards and relational rewards appears to be common. Because there are known risks associated with taking OTC medications, it is important to evaluate how models and rewards are used in print advertising to persuade consumers into buying OTC drugs without considering their risks.

### *Research Questions*

- RQ1 What percentage of over-the-counter print ads depicted human models as a direct motivator for consumers to identify with the advertised product?
- RQ2 What are the gender, ethnicity and age demographics of depicted models used as direct motivators for consumers to identify with the advertised products for pain relief, gastrointestinal, neurological, dermatological, respiratory, optical, obstetric-gynecological and nutritional medical conditions in OTC print ads?
- RQ3 What are the frequency and nature of identity rewards given in over-the-counter print ads by way of visual cues?
- RQ4 What are the frequency and nature of relational rewards given in over-the-counter print ads by way of visual cues?

## CHAPTER II

### METHODS

#### *Sample of Printed OTC Advertisements*

This study examined eight magazines that were randomly selected for specific target audiences during the period of November/December 2003 through September 2005. Magazines were matched by the general audience of young females, young males, general population, parenting/mothers, and older adults and circulation according to the Fall 2004 Mediamark Research Inc (MRI) database (see Table 1, page 33).

The magazines chosen were as follows: young males (FHM and Maxim), young female (Jane and Seventeen), parenting (Parents and Parenting), general audience (Time), and older adults (AARP) for a total of 136 magazines evaluated. These magazines were chosen to obtain a representative sample of ads directed toward broad groups of readers. These magazines are easily obtained by general audiences and were not targeted by specific interests. For example, although there might be a high circulation of young male readers who purchase the magazine, "Hot Rod", it was not chosen because of the specific interest of racing and cars instead of the general population of young males. Similarly, magazines were not chosen based upon ethnicity targets such as "Ebony". Since the magazines chosen were for general readers, ethnic models were measured as a means to

determine how well they are represented in general, popular magazines. However, age and gender were targeted in general popular magazines to determine how models are depicted for specific medical conditions based upon those demographics.

Table 1

*Criteria for Magazines Chosen Based Upon Audience and Circulation*

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<b>Magazine</b>	<b>Group (Audience and Median Age)</b>	<b>Circulation (000)</b>	<b>Reason</b>
Jane	Young Females (29.0 yrs)	736	Lower circulation and similar type of content as young male magazine, FHM.
Seventeen	Young Females (27.4yrs)	2,226	Similar in circulation to young male magazine, Maxim.
Maxim	Young Males (27.6yrs)	2,351	Similar in circulation as young female magazine, Seventeen.
FHM	Young Males (27.7yrs)	1,078	Similar in circulation as young female magazine, Jane.
Time	General Audience (46.5yrs)	4,174	Large circulation for general audience and consists of almost the same number of men as women (2.69 and 2.37 readers per copy, respectively).
Parenting	Housewives (32.5yrs)	2,284	Similar in circulation. Assumes Family.
Parents Magazine	Housewives (32.9yrs)	2,189	Age group of women readers similar to Parenting. Similar circulation. Assumes Family.
AARP The Magazine	Seniors (63.1yrs)	22,263	Large circulation. Almost the same number of men and women read the magazine (.50 and .70 readers per copy, respectively).

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The sampling process yielded a total of 674 OTC advertisements for 111 drugs. These advertisements addressed 8 types of medical conditions: respiratory, nutritional, analgesics related, optical, gastrointestinal, obstetrics-gynecological, neurological and

dermatological. After removing duplicate advertisements, there were 316 advertisements in the unique sample.

Unique and total samples were analyzed across magazines. The *unique sample analysis* was studied to determine how marketing strategies were used by drug manufacturers. The *total sample analysis* compared the relative frequency of different marketing strategies that showed that some ads are printed more often than others by drug manufacturers. One marketing strategy used in the total sample was to expose consumers to ads repeated both across magazines and across issues of a specific magazine. Unique ads may be repeated across issues of the same magazine and in different magazines over time; some ads may be unique to both samples. For example, there may have been 20 advertisements for a product of which five of them were different ads. The ones that are different are considered the unique sample, but the unique sample might consist of more than one of the same ad, which reflects the frequency of the total sample. The unique ad, then, may appear only one time, or it may appear several times, but it is only counted once as part of the unique sample.

### *Coding Systems*

The coding system followed coding protocol designed by Cline and Young, 2004, (see Appendix 1 for coding method). Advertisements were first sorted into two categories: (1) ads with people, and (2) ads without people. The dominate visual image of the advertisements in the *without people* category were coded as follows: body part, product, words-text, animals or inanimate objects.

The ads in the *with people* category were coded according to gender, ethnicity, and age. This category was also coded based upon whether the person shown was in photograph form or in a drawing/cartoon form. If we are to identify with models in ads, then, we should expect that most models will be depicted realistically in a photograph form. In ads that used models, the unique advertisements were reviewed in search of visual cue patterns that would serve as identity and relational rewards, directly and vicariously, to the consumer. Codes represented variations in the presence or absence of identity and relational rewards as well as their specific nature and how often they were depicted in ads (Cline & Young, 2004). For vicarious *identity rewards*, ad models were coded as follows: (1) healthy or ill, (2) being physically active, socially active, taking medications, or inactive-passive, and (3) people smiling or not smiling to measure the identity reward of friendliness. The positive identity rewards, then, would be models being healthy, being physically or socially active, and being friendly (smiling). For vicarious *relational rewards*, models were coded by social contexts and relationships. The rewards of social context was coded as models being depicted as being a part of family, romance, work, or recreation. Relational context was coded based upon the number of people within the ad as dyad or group. Thus, positive relational rewards in advertising would depict models as having social context and having relational context.

#### *Demographic Characteristics of Models*

Following the methodology of Cline and Young (2004), each advertisement was coded for the following *model-related factors*: the factor of whether photographs, drawings or cartoons were used to depict people. Again, photographs should cause

consumers to identify more readily with the model instead of drawing or cartoons that are not as realistic. Furthermore, the demographic characteristics of gender, ethnicity and age (infant/child, adult, or older adult) were coded to determine how well these groups are represented in OTC ads as well as determining the likelihood of consumers identifying with models depicted. In order for demographic features to be coded, a person's face had to be visible.

### *Identity Rewards*

Three types of identity rewards were coded in ads depicting people: health identity reward, activity identity reward with additional coding of activity levels, and friendliness identity reward (Cline & Young, 2004). Only ads depicting people were coded for identity rewards.

The *health identity reward* was defined by images of people depicted as being healthy or ill. If there was at least one person in the ad appearing ill, the ad was coded as reflecting illness; if the ad contained people not appearing to be ill, it was coded as "healthy".

The *activity identity reward* was coded as the person being physically active, whether actual or implied (e.g. playing sports, running, having sports clothing or equipment), socially active in which the ad must have had more than one person (e.g. parties, people embracing), taking medication (or implying this), or inactive-passive (e.g. people reading, head shots). It was assumed that the highest appeal of the activity reward is associated with physical activity, followed by social activity. This was expressed by as

system of ranks as associated with activity categories (i.e., the highest rank was for physical activity, and the lowest rank was for inactive/passive).

The *friendliness identity reward* was defined by depicting an image of a smiling model. Each ad *with people* was coded by the number of people smiling versus the number of people not smiling. Following Cline and Young's procedure (2004), a *composite positive identity reward* index consisted of a combination of specific identity rewards in each ad (i.e., if an ad depicted healthy people, being physically or socially active, and any smiling model, it was coded as a composite positive identity reward). Thus, a separate variable was constructed to determine whether each OTC ad had positive vicarious identity rewards across all three specific factors related to identity rewards. This was to determine to what extent identity rewards were used.

### *Relational Rewards*

Two factors, social and relational context, reflected relational rewards in ads *with people*.

The *social context* was coded as (a) family (models from two generations), (b) romance (two people engaged in embracing or mutual gazing), (c) work (depicted by work-related clothing and/or equipment), or (d) recreational (relaxing)<sup>1</sup>. Note that ads had to have two or more models to be coded within social context (Cline & Young, 2004).

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<sup>1</sup> Cline and Young (2004) coded a baby alone as the social context of family. However, since the main definition for social context is more than one person, this author changed this coding criteria and excluded the baby alone as part of the social context of family as a separate coding category. Although it can be assumed that a baby has a family, the same can be said for any small child; therefore, this author eliminated baby alone.

The number of people depicted in an ad (dyad or group=more than two people) were coded for *relational context*. Again, following the Cline and Young's (2004) coding system, a *composite positive relational reward* index was constructed for each ad. It consisted of a combination of specific relational rewards in each ad (i.e., if an ad depicted family or romance and two or more people, then it was coded as a *composite positive relational reward*). Thus, a separate variable was constructed to determine whether each OTC ad had positive vicarious relational rewards across the two specific factors related to relational rewards. This was to determine to what extent relational rewards were used. The complete description of coding criteria is included in Appendix 1; Table 2 represents a summary of our coding system.

### *Coding Procedures*

Two coders analyzed ads in practice sessions: an independent person who was not familiar with the study and this researcher. The pilot sessions were to test interrater and intrarater reliability levels relative to a sample of 30 advertisements, and the criteria level was determined to be set at a minimum .80 agreement to establish acceptable rating consistency between the two coders. Cases of ads with inconsistent coding between the two coders were discussed and recoded until coding reliability within all coding categories reached the established criteria of a minimum of .80 consistencies across all variables. The majority of cases resulting in coder discrepancies involved the variables of gender, ethnicity, and age. The general discrepancy regarding age was the coding of adolescents. It was decided to code them as adults instead of children.

Table 2

*Summary of the Coding System for Analyzed Ads*

<u>Main Categories:</u>	<u>Type of Ad</u>	<u>Model Form</u>	<u>Medical Condition</u>	<u>Demographics</u>	<u>Identity Rewards</u>	<u>Relational Rewards</u>	<u>Other</u>
<u>Subcategory</u>	<u>With People</u>	<u>Photo</u>	<u>Pain relief</u> <u>Gastro.</u> <u>Neuro.</u> <u>Dermat.</u> <u>Ob-Gyn.</u> <u>Nutri.</u> <u>Resp.</u> <u>Optic</u>	<u>Gender</u> (male or female)	<u>Healthy-III</u>	<u>Social Context</u> (family, romance, work-related, or recreational)	<u>Visuals</u> <u>Body Part</u> <u>Product</u> <u>Words/Text</u> <u>Animals</u> <u>Inanimate Objects</u>
<u>Subcategory</u>	<u>Without People</u>	<u>Drawing</u> <u>Cartoon</u>		<u>Ethnicity</u> (white or other)	<u>Activity Level</u> (physically, socially, taking medications, or inactive/passive)	<u>Relational Context</u> (dyad or group)	
<u>Subcategory</u>				<u>Age</u> (baby/child, adult, older adult)	<u>Friendliness</u> (Smiling vs Not smiling)		

The entire sample of selected ads for our study was coded by two independent coders. The results of final coding of the unique ads sample were analyzed for the interrater reliability. The variables included in the assessment of rating consistency were the type of ad (with people vs. without people), type of medical condition in an ad, the form of which people were depicted (i.e., photo vs. drawing/cartoon), model demographics (gender, ethnicity, age – baby/child, adult and older adult), other visuals (body part/no face, product, words/text, animals, inanimate objects), identity rewards (healthy-ill, physical activity, social activity, taking medication, or inactive/passive, and friendliness), and relational rewards (social context, relational context). The Pearson product-moment correlation coefficient and Cohen's kappa were used to determine interrater reliabilities of ad categorization. The obtained intrarater reliabilities ranged from 95% to 100%.

Interrater reliabilities from Cohen's kappas ranged from .80 to 1.00 agreements for nominal data. Interrater reliabilities from Pearson product-moment correlation ranged from .93 to 1.00 for continuous data (see Appendix 2 for listing of all reliability values).

## CHAPTER III

### RESULTS

The sample of selected OTC advertising was analyzed regarding our four research questions on the percentage of OTC ads depicting models, the demographic characteristic of models in OTC ads, the frequency and nature of identity rewards given via visual cues, and the frequency and nature of relational rewards given via visual cues. Results from the unique and total ad samples are reported separately. The first reported number (frequency or percentage) refers to the unique sample (US), and the second reported number refers to is the total sample (TS). The Chi-square test was used to examine a statistical significance of the differences in frequencies between analyzed coding categories. The statistical tests were performed only on frequency counts obtained from the unique sample in order to meet the requirement of independence of observations.

#### *Percentage of Human Models Depicted in Ads (RQ1)*

We asked in the first research question, “What percentage of over-the-counter print ads depicted human models?” The results showed that the majority of OTC ads in our sample contained people (US=68.9%, TS=73.9%). Chi-square analysis revealed that there was a significant difference in the number of ads *with people* vs. *without people*,  $\chi^2$

(1,  $n = 316$ ) = 45.57,  $p < .001$ . In ads *with people*, the majority (US=97.7%, TS=96.0%) showed people in the lifelike form of photos instead of drawings or cartoons.

The average number of people in ads with models was  $M=2.14$  in the unique sample, and the average number of people in ads with models was  $M=1.94$  in the total sample, and the range was from 1 to 31. For the remaining ads, other visual were used of which the majority showed the product (US=60.8%, TS=54.5%). Additionally, ads depicting inanimate objects (US=17.5%, TS=19.9%), body parts (US=13.4%, TS=13.6%), and words-text (US=8.2%, TS=11.9%) were shown less often. Animals were not depicted as dominate in any OTC ad except as inanimate objects in cartoon form. Again, because the purpose of this study was to analyze ads depicting people, ads without models were not analyzed further.

#### *Demographics of Models in Ads and by Medical Condition (RQ2)*

For the second research question, we asked, “What are the demographic characteristics of models depicted in over-the-counter medication print ads and their medical condition?” For the majority of medical conditions, less than two-thirds of OTC ads featured people, and the number varied by unique or total sample. Depending upon the specific medical condition, the number of people presented in ads varied as well (see Table 3). There were relatively few people shown in ads for pain conditions (53.8%) and respiratory conditions (62.1%) within the unique sample relative to 67.2% and 72.8% in the total sample. For both the unique and total samples, people were shown generally less often for gastrointestinal (US=37.5%, TS=37.5%), neurological (US=33.3%, TS=50.0%) and for obstetric-gynecological (US=50.0%, TS=25.0%) conditions.

However, people were most often depicted in optical (US=100.0%, TS=100.0%), dermatological (US=79.8%, TS=82.7%) and nutritional (US=69.9%, TS=73.2%) ads.

For the purpose of statistical analysis, the medical conditions with low frequencies (i.e., optical, ob-gyn, neurological and gastrointestinal) were combined into “Other medical condition category”. The significance of differences in number of human models presented in ads related to five medical conditions (i.e., pain, respiratory, dermatological, nutritional and other) was analyzed by Chi-square. The results indicated a significant difference between the medical condition categories in the number of people depicted in the ads,  $\chi^2 (4, n = 218) = 171.68, p < .001$ . The dermatological ads had the highest percentage of human models (79.8%), followed by nutritional ads (69.9%), respiratory ads (62.1%), pain relief ads (53.8), and other medical condition ads (48.0%).

Table 3

*Frequency of Human Models and Their Medical Condition in the Unique Sample of OTC Ads*

<i>Total Unique Sample of OTC Ads</i>			<i>OTC Ads Depicting People Only</i>		
<b>Medical Condition</b>	<b>n</b>	<b>%</b>	<b>Medical Condition</b>	<b>f</b>	<b>%</b>
<b>Pain</b>	26	8.2	<b>Pain</b>	14	53.8
<b>Respiratory</b>	29	9.2	<b>Respiratory</b>	18	62.1
<b>Dermatological</b>	84	26.6	<b>Dermatological</b>	67	79.8
<b>Nutritional</b>	156	49.4	<b>Nutritional</b>	109	69.9
<b>Other Medical</b>	21	6.7	<b>Other Medical</b>	10	48.0
<b>TOTAL</b>	<b>316</b>	<b>100.0</b>	<b>TOTAL</b>	<b>218</b>	<b>69.0</b>

The percent of males and females in the unique sample was 44.0% and 56.0%, respectively. The female models were significantly more frequently presented in OTC ads than males,  $\chi^2 (1, n = 411) = 5.84, p < 0.02$  (unique sample). The total sample consisted of 49.6% males and 50.4% females showing the same trend. Gender was

undetermined with ads having infants depicted as models (US=19.9%, TS=22.9%), and these numbers were not included in these analyses<sup>2</sup>.

Results indicated that there were some differences in gender with regards to medical conditions (see Table 4).

Table 4

*Distribution of Models' Gender across Medical Conditions in OTC Advertisements (Unique Sample)*

<b>Medical Condition:</b>	<b>n</b>	<b>% Males Only</b>	<b>% Females Only</b>	<b>% Both</b>	<b>% Indet</b>
<b>Pain Relief</b>	14	28.6	57.1	7.1	7.1
<b>Dermatological</b>	67	14.9	34.3	26.9	23.9
<b>Respiratory</b>	18	22.2	38.9	16.7	22.2
<b>Nutritional</b>	109	28.4	23.9	28.4	19.3
<b>Other Medical</b>	10	40.0	30.0	20.0	10
<b>TOTAL</b>	<b>218</b>	<b>24.1</b>	<b>30.6</b>	<b>25.2</b>	<b>19.7</b>

Overall, females appear to be depicted disproportionately more often than males in OTC ads. This trend was revealed in all medical condition categories with the exception to nutritional and other medical conditions ads. However,  $\chi^2 (3, n = 218) = 5.34, p > .05$  showed no significant differences between ads containing males only, females only, ads having both genders present, or ads having models whose gender was indeterminate. When ads having both genders present and ads having indeterminate gender models were removed, leaving ads with males only and ads with females only, there were no significant differences, present,  $\chi^2 (1, n = 218) = 1.633, p > .05$ . Thus, there were no differences between male only and female only human models in OTC ads.

<sup>2</sup> There were several ads that showed a female with an infant baby of which the gender could not be determined (7.6%). Furthermore, there were several ads that depicted only an infant of whom the gender could not be determined (11.4%).

In regards to ethnic groups, the majority of ads (US=94.9%, TS=97.6%) depicted one ethnic group only. The vast majority (US=85.2%, TS=88.5%) depicted whites only. Caucasians appeared to be portrayed in the ads more often than other ethnic groups. There were few ads that depicted African Americans (US=4.6%, TS=5.0%) or Asians only (US=1.4%, TS=1.6%). There were almost no ads depicting Hispanics only (US=0.90%, TS=0.60%). The remaining ads depicted mixed racial groups (US=3.7%, TS=2.2%) and ethnicity as indeterminate (US=4.2%, TS=2.4%). Chi-square analysis resulted in a significant difference in the ethnicity of depicted human models,  $\chi^2(5, n=218) = 741.28, p < .001$ .

There were disproportionate Caucasian ethnic representations regarding medical conditions in OTC ads. Whites dominated nutritional ads (US=88.1%, TS=89.6%), pain relief ads (US=85.7%, TS=86.7%), dermatological ads (US=82.1%, TS=88.5%) and respiratory ads (US=77.8%, TS=84.7%) as well other medical condition ads (US = 90.0%, TS = 82.6%) (see Table 5).

Table 5

*Ethnicity of Models Depicted in Advertisements by Medical Condition (Unique Sample)*

<b>Medical Condition:</b>	<b>n</b>	<b>W</b>	<b>AA</b>	<b>H</b>	<b>AS</b>	<b>MX</b>	<b>IND</b>
<b>Pain Relief</b>	14	84.6	7.1	0.0	0.0	0.0	7.1
<b>Dermatological</b>	67	82.1	1.5	3.0	0.0	4.5	9.0
<b>Respiratory</b>	18	77.8	11.1	0.0	0.0	11.1	0.0
<b>Nutritional</b>	109	88.1	4.6	0.0	2.8	2.8	1.8
<b>Other Medical</b>	10	90.0	10.0	0.0	0.9	0.0	0.0
<b>TOTAL</b>	<b>218</b>	<b>85.3</b>	<b>4.6</b>	<b>0.9</b>	<b>1.4</b>	<b>3.7</b>	<b>4.2</b>

W = White, AA = African American, H = Hispanic, AS = Asian, MX = Mixed ethnic groups, IND = Indeterminate

Finally, the results showed a significant difference in age of presented models, the results showed a significant difference in the age of presented models,  $\chi^2(3, n = 218) =$

88.46,  $p < .001$ . Adult models were depicted more often than any other age group (US=47.2%, TS=42.6%), followed by baby/child only models (US=32.1%, TS=40.6%), and older adult models (US=6.0%, TS=4.0%). There were few OTC ads having more than one generation (US=14.8%, TS=12.9%).

Children were disproportionately frequently represented in OTC ads for respiratory conditions (US=77.8%) and pain relief ads (US=50.0%). They also were represented in 100% of gastrointestinal ads, but this subcategory of other medical conditions was represented by only three ads. Adults were disproportionately represented in dermatological ads (58.2%) followed by nutritional (45.9%) and other medical condition ads (50.0%). Older adults were underrepresented in ads for all medical categories with the highest percentage of ads being for nutritional (10.1%) and other medical condition ads (10.0%), followed by pain relief ads (7.1%). Twenty-one percent of nutritional ads depicted mixed age groups (see Table 6).

Table 6

*Age of Models Depicted in OTC Advertisements by Medical Condition (Unique Sample)*

<u>Medical Condition:</u>	<u>n</u>	<u>B/C</u>	<u>AD</u>	<u>OA</u>	<u>MX</u>
<b>Pain Relief</b>	14	50.0	42.9	7.1	0.0
<b>Dermatological</b>	67	31.3	58.2	0.0	10.4
<b>Respiratory</b>	18	77.8	16.7	0.0	5.6
<b>Nutritional</b>	109	22.9	45.9	10.1	21.1
<b>Other Medical</b>	10	30.0	50.0	10.0	10.0
<b>TOTAL</b>	<b>218</b>	<b>32.1</b>	<b>47.2</b>	<b>6.0</b>	<b>14.7</b>

B/C = Baby or child, AD = Adult, OA = Older Adult, MX = Mixed age groups

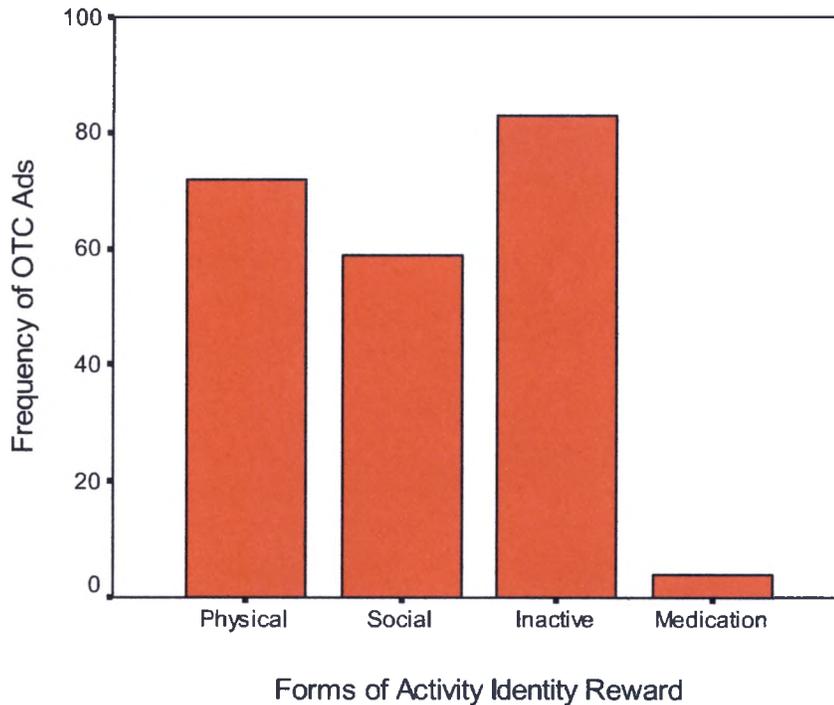
*Identity Rewards (RQ3)*

The third research question asked, “What are the frequency and nature of identity rewards shown in over-the-counter magazine print ads via visual cues?” Health, activity and friendliness were the three components of identity rewards. The majority of advertisements showed people appearing healthy (97.7%),  $\chi^2(1, n=218) = 198.46, p < .001$ .

The results also showed a significant difference between different forms of activity identity rewards,  $\chi^2(3, n=218) = 67.69, p < .001$ . The physical activity subcategory was represented in 33.0% of all OTC ads *with people*; social activity in 27.1%; ads depicting people as inactive/passive constituted 38.1% of the sample, and there were only four ads depicting people taking medications (1.8% of the sample). The analysis repeated on forms of activity identity rewards with the exclusion of the lowest frequency subcategory (i.e., people taking medication) revealed no significant differences in frequency of representing physical activity, social activity or inactive human models,  $\chi^2(2, n=218) = 4.05, p > .05$ . (see Figure 1).

Figure 1

*Distribution of Activity Identity Reward (Unique Sample)*



There was a significant difference in the number of smiling people relative to non-smiling (i.e., friendliness identity reward),  $\chi^2(1, n=218) = 288.21, p < .001$ . The majority of ads showed at least one person smiling (US=68.1%).

When identity rewards were analyzed across the three subcategories (i.e., health, activity or friendliness), the majority of ads showed at least one identity reward (US=99.5%, TS=99.8%). All medical conditions except for pain relief ads (US=92.3%, TS=97.8%) showed 100% of the ads having at least one identity reward for both the unique and total samples.

### *Relational Rewards (RQ4)*

The fourth research question asked, “What are the frequency and nature of relational rewards given in over-the-counter print ads by way of visual cues?” The two factors that comprised relational rewards were relational context and social context. The majority of ads showed people in nonrelational contexts as being alone (US=61.1%, TS=61.6%). Out of the relational rewards, the majority of ads showed dyadic (US=92.9%, TS=94.2%) relational context, whereas, groups of people were shown only in few OTC ads (US=7.1%, TS=5.8%).

Social context relational rewards showed the highest frequencies of ads depicting romance (38.1%) and family (35.7%), followed by recreation (25.0%) and work (1.2%). The difference between different types of social context was statistically significant,  $\chi^2(3, n=84) = 28.67, p < .001$ . However, there were no significant differences in the distribution of frequency regarding different types of social context across medical conditions,  $\chi^2(12, n=84) = 16.12, p > .05$ .

When relational rewards were analyzed across both samples, results showed that relational rewards were used less frequently in OTC ads than were identity rewards (US=39.9%, TS=38.0%). The use of relational rewards varied based upon medical condition (see Table 7). The most frequent use of relational rewards was in nutritional ads (US=45.0%, TS=51.3%) and dermatological ads (US=40.3%, TS=33.6%). Relational rewards for pain were few (US=21.4%, TS=4.4%). When analyzing ads for both identity and relational rewards together, more than one-third (US=38.9%, TS=38.4%) of the ads had both rewards present.

Table 7

*Identity and Relational Rewards Depicted in Advertisements by Medical Condition  
(Unique Sample)*

<b>Medical Condition</b>	<b>n</b>	<b>% Identity</b>	<b>% Relational</b>
<b>Pain Relief</b>	14	92.9	21.4
<b>Dermatological</b>	67	100.0	40.3
<b>Respiratory</b>	18	100.0	22.2
<b>Nutritional</b>	109	100.0	45.0
<b>Other Medical</b>	10	100.0	0.9
<b>TOTAL</b>	<b>218</b>	<b>97.7</b>	<b>39.0</b>

*Discussion*

As noted, there are several problems associated with over-the-counter medications, such as the belief that they are safe and cause no harm. Since there is a trend of people taking more control over their health care needs, this leads to less informed decision-making due to a lack of awareness and information. People are less likely to discuss over-the-counter medications with their physicians, and as noted, they are not likely to read warning labels.

This study analyzed the visual characteristics of over-the-counter print advertising that could prompt consumers to change their health care behavior through vicarious rewards as direct motivators to purchase OTC medications. For advertising to have an effect, the over-the-counter ads must attract the attention of consumers, give messages that induce identification with models, and give the consumer an association regarding rewards with the models depicted. In this manner, the consumer will associate rewards with the advertised product. The results of this research were very similar to those found in Cline and Young's (2004) study of prescription medication advertising.

The results of this study indicate that over-the-counter medication advertising might influence change in consumers' health care behavior through direct motivators of vicarious rewards. Results suggest that advertising generally exposes consumers to human models of whom we can identify. As noted, almost 70% of the ads used human models in OTC ads and depicted those human models realistically via photographs instead of drawings or cartoons. This should cause consumers to view human models in OTC ads similar to themselves.

Marketing tactics of over-the-counter print ads show patterns of demographic characteristics of models that may lead to disparities in advertising. Marketing uses advertising to target audiences, but the practice also leads to reinforcing stereotypes as well as not sending the message to the demographic that would most benefit. For example, in ads for menstrual pain, all of the ads showed a woman alone, which reinforces the message that menstruation only affects women and that it is only their problem. Over 90% of ads showed women as models for dermatological acne medications, therefore, the message is that only females need to worry about their attractiveness and that it is not acceptable to have skin flaws. These examples reinforce the social norms in our society.

Most ads tend to reinforce gender stereotypes. Females dominated ads for obstetric-gynecological, dermatology and nutritional supplements for weight loss. Again, this reinforces the stereotypes that gynecological conditions and looking good only affect females. Although there were ads for weight loss for both men and women, marketing strategies use weight loss for women to indicate they must be slim, and metabolic enhancers for men that stress muscle building instead of weight loss. Females were

depicted in more than half the ads for nutritional supplements regarding weight loss (60.2%, 57.9%); whereas, men were depicted in 100% of the ads for metabolic enhancers. According to the Center for Disease Control and Prevention, CDC, (2004), 43.4% percent of males are overweight and only 27.4% of females are overweight. For men, the ads use sex and physical activity as being important issues. Although the dermatological and nutritional ads for male penile enhancement showed a heterosexual couple as models, it follows the stereotype that males must be engaged in sexual relationships. The female is not the model to attend to in the ad other than showing heterosexual males that they can have a sexual relationship with a female by using the products. Furthermore, the social stereotype of males remaining physically active can be seen in the nutritional supplement ads for joint relief/flexibility of which they comprised over 70% of the ads showing physical activity. When women were shown as being physically active, it was to a lesser degree, such as leg lifts. Men, however, were shown running (pushing someone in a wheelbarrow), playing tennis and waterskiing.

Minority ethnic groups were extremely underrepresented in our sample. Caucasians were depicted in 85.0% of the ads. If we were to assume that the magazines chosen were general magazines for the general population without regard to specific interest, then ethnic minorities were not represented well in being represented in OTC advertisements across all medical conditions. If we assume that we identify with human models who resemble ourselves, then ethnic minorities are less likely to attend to ads having only Caucasians.

More ads indicated disparities regarding ethnicity. For example, studies indicate that erectile dysfunction occurs slightly more often in African-Americans (Padia, 2005),

yet no African-American was depicted in the nutritional or dermatological ads for penile enhancement. This disparity in advertising indicates that only whites should have enjoyable sexual relationships, however, it could also re-enforce the stereotype of the African-American lover needing no help sexually. Weight loss ads were also 100% white, yet whites (35.2%) and African Americans (35.7%) are relatively equal in being overweight (CDC, 2004). In ads with Hispanics, less than 1% was depicted as models, but they account for 40% of the overweight population. Finally, another example of ethnic disparity in over-the-counter print ads is for tobacco addictions. African Americans were depicted in 80% of the total sample in neurological ads for tobacco addiction, but 4.5% of blacks and 3.8% of whites smoke. The highest percentage of smokers is Hispanics (5.0%) according to the CDC (2004). This reinforces the stereotype that African Americans have higher frequencies of addictions. If visual images of over-the-counter drug advertising are representative of minorities, then they are related to addictions instead of health.

Age was another area where there were disproportionate frequencies. Adults were represented more frequently than children or older adults in OTC ads. They were represented in almost 60.0% for dermatological ads, and they were represented in almost half of the ads for nutritional and other medical conditions. Children were in the majority of OTC ads for respiratory conditions and in over half of the ads for pain relief. It would seem that children are being medicated with OTC medications at young ages, and this is a concern regarding pain relievers mixed with respiratory medications. As noted, respiratory OTC medications often have the same ingredients as pain relievers, and when taken together, children are being exposed to doses much higher than what is

recommended. This could cause severe health problems affecting the kidneys and liver. Finally, older adults were underrepresented in all OTC ads. This would seem to confirm society's view that youth is more valuable than older age. Furthermore, older adults like ethnic minorities, are less likely to attend to OTC ads due to the human models of children and adults being dissimilar to themselves and could cause them to not benefit from OTC medications. It was interesting that there was only one ad depicting older adults for the pain relief condition. Since we would think that they have higher rates for arthritis and other joint pain, we would have thought they would have been represented in this medical condition much more frequently.

Finally, ads regarding age also show disparities. Although, 100% of weight loss ads were for adults, almost 23.5% of African American and 18.8% of Hispanic children between the ages of 10 and 17 are overweight (Child and Adolescent Health Measurement Initiative, 2005). Older adults are almost 40% overweight (CDC, 2004), yet none of the nutritional supplements for weight loss or metabolic enhancement ads depicted older adults. Although older adults have a significant decline in sexual health (Padia, 2005), they are not depicted in any of the nutritional or dermatological ads for male penile enhancement. This sends the message that only young, healthy males should have sexual relationships. The majority of ads with older adults are those for joint relief/flexibility and for tobacco addiction. Again, older adults appeared in 80.0% of ads in the total sample for tobacco addiction, yet only 2.0% of the older population smokes (CDC, 2004).

The results indicated that human models are much more likely to have positive identity rewards (i.e., health, physical or social activity and friendliness). These

characteristics could cause consumers to identify with the human models vicariously and be a direct motivator in purchasing OTC medications. The vast majority of ads used identity rewards (over 97.0%) in our sample of magazines; readers may be likely to make associations between the over-the-counter medication and these positive characteristics causing them to believe that if they take the medication that they, too, will have health, physical or social activity, and be friendlier. This could be a problem for consumers if the product they purchase does not meet their expectations. They may try different medications, or they may give up and believe that they cannot be helped with their ailment.

Finally, almost 40% of the ads showed models as the recipients of relational rewards with dyadic relationships and romance or family being depicted the most often. Again, consumers may be motivated to purchase the OTC medication by believing that they will also be rewarded with relationships. One example of this is with the ads for male penile enhancement (a nutritional supplement or dermatological cream). Almost all of the ads showed a heterosexual couple in romantic situations. This reinforces sexual behavior as a relational value, but only with regard to the norm of heterosexuality.

If we assume that consumers identify with the human models and the models' medical condition and wish to gain identity and relational awards that are associated with the advertised product, then it may be more likely for consumers to act upon the health care behaviors needed to use the advertised over-the-counter medications. Thus, the results of this study indicate that models may aid in vicarious learning from magazine print ads, which may also influence consumers to make more independent choices without paying attention to the potential problems of taking over-the-counter

medications. Thus, consumers may use heuristics for their purchasing behavior and use of OTC medications.

Using heuristics poses a problem when evaluating how misleading OTC ads are. Ads for nutritional supplements for joint pain/flexibility showed over 90% of older people being physically active such as with water skiing, playing tennis, running, and playing polo. In an ad for arthritis, a woman was sculpting clay. In an ad for a nutritional supplement, the message was that if you take the supplement, you will grow taller. The model was shown as being a basketball player. Clearly, over-the-counter medication ads are misleading regarding visual cues of health and vitality and could result in detrimental physical, psychological, and/emotional effects. Since the ads used can mislead consumers and guide them into using faulty logic, consumers could become disillusioned when the medication does not work for them like it does for the models depicted in the ads. The ill-health effect could also be that the consumer takes more of the medication based on the belief that “more is better”, and thus, cause serious health problems.

Over-the-counter drug advertising promotes social stereotypes and reinforces disparities in access of health information by visual cues. Furthermore, advertising promotes self-care through identity and relational rewards as depicted by models. This situation could lead to serious health conditions. Print ads do not include the warnings and advice of over-the-counter medications. Including such warnings and advice, however, could aid consumers in making better informed decisions instead of leaving them to rely on visual cues and explicit/implicit messages.

There are several limitations in this research that could lend to future studies.

Visual cues were the focus of this research, which could be taken out of context from the whole meaning of the ad. Therefore, future research should include a content analysis of text to determine identity and relational rewards. Visual cues and text should be studied as a whole. Text messages are more likely to give explicit messages that could warn a consumer to talk with his or her physician and to read warning labels before taking medications. Visual cues in over-the-counter medications give identity and relational rewards, but they do not give explicit messages.

Although this study adopted a social cognitive theory regarding visual cues to the consumer in regards to possibly changing their health care behavior, it is not known whether the influences of visual cues actually alter those behaviors. Future research would need to have a controlled experiment in which participants were measured by the influence of over-the-counter print ads in relation to their choice of product use and purchase behaviors.

Finally, since models are shown being rewarded with identity and relational rewards in advertising, we need to investigate which consumers are more likely to attend to these visual cues. Obviously, all consumers are not influenced by the visual cues in print ads. However, based upon the social cognitive theoretical model, there may be some consumers who are more likely to attend to those visual cues and use heuristics for processing the information.

Social cognitive theory has several processes that mediate the influence of self-efficacy, the belief or confidence in one's abilities, on behavior. A person who does not have a belief in his abilities is said to have low self-efficacy, thus, this person is more

likely to rely on ad promoting a “quick cure” for OTC medications advertised because he will be less willing to try a different or more difficult approach to succeed. For example, if a pain relief ad depicts a model that looks happy and lively, a person with low self-efficacy may tend to identify with that person and purchase the medication instead of going to physical therapy or exercising to relieve the pain. The person does not have the confidence in himself to try anything more complex than to take a pill. It is also likely that the visual cues of healthy, happy people will influence someone with low self-efficacy because the visual cues are expected outcomes. That is, by taking the pill, the person with low self-efficacy expects that he will also be happy and healthy because that is what he observed in the ad. We might also expect that a person with low self-efficacy would attend to visual cues in ads due to the personal thoughts and emotions the person is experiencing. For example, if the person has intense pain, he is more likely to pay attention to pain relief ads that show models with desired outcomes. The person is not evaluating the ad’s true value or likelihood of being misleading, but he is making a decision based upon his own feelings and desire for relief. Thus, future research might look at persons with low-self efficacy in regards to their likelihood to use or purchase the advertised OTC medications.

Other research might look at the factors of locus of control and self-esteem. Locus of control is based upon the feeling of having self-control (internal locus of control) or the belief that control is by others or by fate (external locus of control). For example, a person with an external locus of control might be told by his physician that he needs to take ibuprofen for joint pain. The person believes that he must take the pill without thinking there might be other actions he could take to relieve his pain, such as

physical therapy, because his doctor (external control) said he needs the drug. We might assume that a person with external locus of control would be more likely to use OTC medications and attend to advertising visual cues. The models, external forces, prompt the person with external locus of control to use the medication, and possibly, attain the identity and relational rewards by doing so. Future research could look at persons with external versus internal locus of control to determine whether those with external locus of control are more likely to be persuaded by visual cues in print ads.

Finally, the construct of self-esteem could also be tested in future research regarding the attention paid to visual cues in OTC medication ads. We might assume that a person with low self-esteem, feeling a lack of self-worth, would attend to visual cues more than someone with high self-esteem. A person with low self-esteem might feel that he is not worth more than taking a pill for his pain; he might also feel that by taking the pill, he will increase his feelings of self-worth if he feels better and looks better based upon the visual cues shown in the ad. It would be interesting to test the different social cognitive constructs to determine if any of these possibilities may be valid. By learning which constructs may cause consumers to use and purchase OTC medications, we may be able to develop methods that will reduce the risk of these medications in advertising through heuristic purchasing behavior.

## APPENDIX 1

Coding Materials adapted by Cline & Young (2004)

### I Visual Cues

#### A. People Depicted (Must show a person's face to code)

##### 1. Are people depicted?

1 = Yes

0 = No (Go to B)

##### 2. Form of depiction

1 = Photo

2 = Cartoon/Drawing

##### 3. Number of people depicted (2 column numbers; e.g. 2 people = 02)

##### 4. Individual Demographics

\* Code this demographic only if the faces of the people are shown (i.e., not legs or other body parts)

\* Code individuals left to right, then top to bottom

(Upper left-hand corner = Individual Person 1)

##### a. Individual Person 1

Gender: 1 = Male; 2 = Female; 3 = Undetectable

Ethnicity: 1 = White; 2 = African American; 3 = Hispanic

4 = Asian; 5 = Undetectable

Age: 1 = Baby or Child; 2 = Adult; 3 = Older Adult

(Rule: Older adult = gray hair)

\*\*\*Repeat these codes for every individual as separate variables.

#### B: Other Visuals (Use only if no people are depicted)

Note: Code dominate visual image

1 = Body part (no face)

2 = Product

3 = Words/Text

4 = Animals

5 = Inanimate objects

### II Social Learning Visual Rewards

Notes: All codes are related to people in the ads as "models"

#### A. Healthy – Ill

Rules: Unhappiness, showing concern, wrinkles on face, or blank expressions does not equate to illness

If ANY ill people are shown, then code as III

Codes:

1 = Healthy

2 = Ill

**B. Social Context**

Rules: Must have 2 or more people per picture to code

Codes:

1 = Family (2 generations)

2 = Romance (hugs/embraces or mutual gazing between two people)

3 = Work

4 = Recreational and/or Social Relaxing

5 = Other

**C: Relational Context**

Codes:

1 = Alone

2 = Dyad (N = 2)

3 = Group (N =  $\geq 3$ )

**D. Activity Depicted**

Rules: Code the highest level of activity (if multiple pictures)

Have to see some concrete indicator of activity or impending activity to count as activity

Social activity must have more than 1 person

Codes:

1 = Physical Activity (can be actual or implied)

Examples of Actual – climbing stairs, act of dressing, dancing, skating, walking

Examples of Implied – person shown with sports equipment, active work related clothing or equipment preparing for physical activity

2 = Social Activity (more than 1 person)

Examples – social interactions, family social interactions (Note: does include family portraits). Social togetherness: party, picnic, cocktail hour, holding/embracing

3 = Inactive/Passive

Examples – reading, handwriting, headshots, face and body parts with no apparent activity, person alone gesturing (as if talking)

4 = Taking Medication

**E: Identity: Friendliness**

Number of people smiling

Number of people not smiling

Number of people smiling indeterminate

## APPENDIX 2

### *Intrarater and Interrater Reliabilities of Variables in Pilot Session*

Variable	Intrarater Reliabilities (%)	Interrater Reliabilities (Cohen's kappas for nominal data)	Interrater Reliabilities (Pearson product-moment correlations for continuous data)
Type of ad	100	1.00	
People depicted in ads	100	1.00	
Form of people depicted	100	1.00	
Gender	100	.92	
Ethnicity	95	.93	
Age	98	.80	
Other visuals	100		
Healthy-ill	98	.98	
Social context	100	.85	
Relational context	100	1.00	
Activity Level		1.00	
Number of people depicted in ads			1.00
Number of people smiling			.93
Number of people not smiling			1.00
Number of people smiling indeterminate	100		1.00

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