

GENDER DIFFERENCES IN PREFERENCE FOR AND USE OF BRAND NAME AND GENERIC/STORE BRAND OVER-THE-COUNTER ANALGESICS

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ABSTRACT

One of the largest categories of medications sold in pharmacies without prescriptions is analgesics. This category exhibits a market typically defined by active ingredients ranging from aspirin to ibuprofen. Promotional dollars spent on this category are large due to TV direct-to-consumer ads, but even those costs have not stopped new entrants. The question rarely addressed in marketing research in this product category concerns possible gender segmentation in preferences for and use of over-the-counter analgesics containing various active ingredients. Results from a web survey of 872 consumers suggest there are important gender differences marketers should consider when promoting over-the-counter analgesics.

INTRODUCTION

Gross sales of over-the-counter (OTC) pain medications (analgesics) declined 11% between 1999 and 2004. That represents a 21% drop in constant 2004 dollars in market channels excluding Wal-Mart. However, the market size was over \$2.1 billion in 2004.

Some of the decline in the OTC analgesics market since 1999 may be due to the discovery of the new COX-2 inhibitor class of drugs and the growth of the prescription drugs Celebrex[®] and Vioxx[®]. These drugs were approved by the Federal Drug Administration (FDA) in 1998 and 1999, respectively, and appeal to many looking for effective treatment for arthritis pain without the potential upset stomach that aspirin and other COX-1 blockers such as aspirin or ibuprofen can cause.

In addition, many issues related to the safety of OTC analgesics have been noted by the Food and Drug Administration (FDA). Among them are studies that show many Americans tend to overuse these types of products sometimes causing “analgesic neuropathy.” There also have been some well-publicized incidences of harmful consequences of OTC pain reliever usage such as liver failure and bleeding ulcers. Vioxx and Celebrex as well as other prescription drugs, have been shown to sometimes have serious and even fatal side effects. The drug Vioxx, a Merck drug used to alleviate arthritis symptoms, was pulled from the market in September 2004, and in April 2005, the FDA asked Pfizer to voluntarily remove Bextra[®] from the market. These problems seem to be perceived by the consumer as a class problem, since OTC analgesics have yet to benefit from concerns about prescription pain relievers [7].

The analgesic products can be usefully segmented based on ingredients (narcotic vs. non-narcotics or acetaminophen vs. aspirin vs. ibuprofen vs. naproxen sodium) and delivery system (pills-capsules-caplets vs. liquids vs. spray vs. oral melt-away vs. topical). For the purposes of this study, the analgesics market includes all oral analgesics that are available without a prescription, containing one of the four main ingredients acetaminophen, aspirin, ibuprofen, or naproxen sodium listed above.

However, from a marketing perspective, the analgesic consumer market can also be segmented on the basis of whether the consumer is male or female. Previous research has shown basic physiological and psychological differences between men and women may influence their reactions to drugs in terms of both effectiveness and side effects.

Gender Differences in Effectiveness

One main factor involved in gender differences is that women generally have lower body weight and organ sizes, and a higher percentage of body fat which affects drug effectiveness [6][4]. One impact of this difference is that acetaminophen is inactivated (conjugated) nearly 50 percent more in women taking an oral contraceptive compared with women not on contraception [6]. Also, when compared with placebo, ibuprofen is less effective at providing analgesic relief for women than for men during experimentally induced pain situations [9].

Hypothesis 1: On the basis of these findings, it is expected that women would report less use of acetaminophen and ibuprofen compared to men.

Gender Differences in Side Effects

Ten prescription drugs were withdrawn from the market in the U.S. between January 1997 and December 2000. Statistically greater health risks for women than men occurred for eight of these withdrawn drugs. For four of these eight drugs showing gender differences, the higher statistical risk for women may be accounted for by the fact more women than men took the drug. However, in four cases where these drugs were evenly prescribed to men and women, the higher risk for women may be linked to physiological differences between the sexes [3][8].

Although men and women report about the same number of adverse events, those reported for women are more serious rather than nuisances. These differences could be caused by differences in the way that men and women report adverse drug events. However, there are a number of potential factors that might explain the increased risk of serious adverse drug reactions in women, such as sex-related differences in physiology and in the way in which drugs are absorbed, metabolized, and eliminated by the body. Gender-related differences in the use of medications may also explain the higher risk for serious adverse reactions in women [5]. Women consume more medications than men, including over-the-counter medications, herbal remedies, and vitamins, which may put them at higher risk for adverse drug reactions [6].

Hypotheses 2 and 3: Because of these greater risks, women may be more likely to read drug information and ask their doctor about OTC medications more often compared to men.

METHODOLOGY

Questionnaire Development

Focus group research was used to identify pertinent areas of inquiry regarding the use of OTC analgesics, including:

- Analgesics currently in use
- Pain occasions
- Medicine format preferences
- Brand Preferences
- Marketing influences on consumer decision-making
- Product influences on consumer decision-making
- Attentiveness to product packaging information

From this beginning effort, subsequent pre-tests were used to further refine the self-administered questionnaire used in this study. The finalized questionnaire was then posted to a unique Internet address for data collection (done by WebSurveyor/VOVICI software product).

An Opportunity for Course Integration

Students enrolled in Marketing Strategy (at Coastal Carolina University) and Principles of Marketing (at The Citadel) participated in online simulations of the OTC pharmaceutical industry. In addition, the survey was introduced into these courses to enhance survey delivery and use, including:

- Providing students richer information on which to base decisions.
- Providing a market comparison to the consumer data included in the simulation.
- Involving the students in an active research project.

Data Collection

The population of analysis for this study consisted of the general population. Data collection occurred through two universities in the United States, both medium-sized comprehensive universities (Coastal Carolina University and The Citadel). The data was collected using a non-random process: each student enrolled in Marketing Strategy (at Coastal Carolina University) and Principles of Marketing (at The Citadel) assumed responsibility for sending the questionnaire to a pre-determined number of email addresses from members of their social network. Given the student composition of these two institutions, the students have access to a wide cross section of the general population as family, friends, co-workers, and so on.

To ensure consistency, the following cover letter was used to request respondent participation:

As you know, I am a student here at (CCU or The Citadel). In one of my senior-level marketing classes, we are using an online computer simulation to study the challenges of formulating marketing strategy. Specifically, we are using a simulation of the over-the-counter (OTC) pharmaceutical industry. We must make product, pricing, promotion, and distribution decisions in our role as brand managers.

We have lots of consumer information available to us to help us make smart decisions. We thought it would be interesting (and fun!) to collect additional information to help us. Here is a link to a survey we have created to learn more about these buyer behaviors.

<http://websurveyor.net/wsb.dll/40369/OTCSP07.htm>

I ask that you go to the link and take the survey. (You may be able to link directly to the survey ... or, you may have to paste the link into your internet browser.) As our class moves forward, we'll analyze the data and use the results to make smart strategy decisions. Thanks for your help. I knew I could count on you!

RESULTS AND DISCUSSION

Sample Demographics

The sample of 873 respondents came from both Coastal Carolina University (n=564) and The Citadel (n=309) student fielding. The sample demographics are below in Table 1:

Table 1: Sample Demographics

Gender <ul style="list-style-type: none">• Male = 58%• Female = 42%	Covered by Health Insurance with Prescription Drug Plan <ul style="list-style-type: none">• Yes = 84%• No = 3%• Unsure = 13%
Age Group <ul style="list-style-type: none">• 18 – 25 = 55%• 26 – 44 = 20%• 45 – 64 = 25%	Educational Attainment <ul style="list-style-type: none">• High school graduate or less = 6%• Attending/attended college = 61%• Graduated 4-year college = 20%• Postgraduate study or degree = 13%

Differences Between Universities

Chi Square tests for significant differences between the two university samples on the main dependent variables were conducted. No significant differences at $p < .05$ were found between the universities on any of the four dependent measures: use of acetaminophen, use of ibuprofen, likelihood of reading packaging information, and asking the doctor for advice about using OTC and prescription medications.

Hypothesis 1

Hypothesis 1 stated that women would report less use of acetaminophen and ibuprofen compared to men. Hypothesis 1 was supported by the data for acetaminophen. Significantly (Chi Square (1) = 14.8, $p < .0001$) more females (71%) reported using acetaminophen in the past 12 months compared to males

(58%). There was no significant difference in use of ibuprophen [Chi Square (1) = .65] for males (75%) compared to females (73%).

Hypothesis 2

Hypothesis 2 stated that women are more likely to read drug information about OTC medications compared to men. The data for this issue appear in Table 2 below. The data were collected in response to a question concerning how likely respondents are to read packaging information about an OTC analgesic.

Table 2: Percentage of Males and Females Likely to Read Specific Drug Information

Specific Drug Information	Always		Almost Always		Sometimes		Not Likely at All	
	F	M	F	M	F	M	F	M
Recommended Dosage	77%	61%	16%	21%	6%	13%	1%	5%
Recommended Time Between Dosages	72%	52%	18%	25%	9%	17%	2%	7%
Active Ingredient List	33%	18%	17%	19%	32%	35%	18%	28%
Possible Side Effects	41%	32%	31%	29%	23%	28%	5%	12%

In support of Hypothesis 2, females are more curious about all four items of drug information compared to males. These differences are all statistically significant with three degrees of freedom at $p < .0001$.

Hypothesis 3

Hypothesis 3 said women are more likely to ask their doctor about OTC medications compared to men. The data for this issue appear in Table 3 below. The data were collected in response to a question about how often respondents ask their physician for advice concerning use of OTC and prescription analgesics.

Table 3: Percentage of Males and Females Likely to Ask the Doctor about Advertised Drugs

Asking Physician For Advice	Never		1 – 2 Times		3 – 4 Times		4 – 5 + Times	
	F	M	F	M	F	M	F	M
OTC Medication	56%	69%	37%	27%	4%	3%	3%	1%
Prescription Medication	33%	37%	45%	41%	14%	13%	9%	9%

Hypothesis 3 was supported for OTC Medications, but not Prescription Medications. Females are more likely to ask the doctor for advice about OTC Medications than are males ($p < .0001$). However, there is no significant difference in the likelihood of females to ask the doctor about prescription medications compared to males.

These findings suggest there are important gender differences marketers should consider when promoting over-the-counter analgesics. Promotion suggesting females should ask their doctor about acetaminophen may be effective since females are likely to talk to their doctor and are likely to use acetaminophen more than males. This finding also suggests loyalty to acetaminophen may be reinforced by physicians in the market.

Although patient opinions about direct-to-consumer advertising (DTC) have become less positive over time in general [1] it has been shown [2] that DTC television advertising has an effect of getting the right medications to the right patients in the analgesic class. The use of information about drugs to inform discussions with doctors about OTC analgesics among females may be an important treatment efficiency factor in getting OTC products used instead of dangerous narcotics or expensive COX-2 inhibitors.

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