
Thomas P. Christensen,1,4 Frank J. Ascione,2 and Richard P. Bagozzi3

Received June 21, 1997; accepted July 24, 1997

Purpose. The goal of this research was to apply a well-known model of consumer behavior, the Elaboration Likelihood Model (ELM), to "direct-to-consumer" advertising of prescription drugs aimed at elderly consumers. In particular, the specific aim was to determine whether the effect of promotional aspects of consumer drug advertising predicted by the ELM could be demonstrated on elderly consumers' product attitudes and perceptions of risk.

Methods. Subject reaction to a fictitious drug advertisement was assessed using a $2 \times 2 \times 2$ factorial design based on the theoretical concepts of the ELM. The advertisement message varied in the expertise of the product endorser, the expected involvement or interest level of the study subject, and the content of the advertisement message.

Results. Analysis of variance revealed a three-way interaction effect between involvement, argument quality, and source credibility on subjects' attitudes toward the product [F(1, 123) = 4.77, p = 0.03] and perceptions of risk [F(1, 118) = 3.22, p = 0.08]. The information content of the ads had an impact on subject's attitudes under the low involvement/low credibility condition but not the low involvement/high credibility condition. Under high involvement conditions, the information content of the ad impacted attitudes under both the high and low credibility conditions.

Conclusions. It appears that the ELM may be a useful model for determining when elderly individuals are more likely to be influenced by the information content or the promotional aspects of consumer advertisements for prescription drugs.

KEY WORDS: advertising; prescription drugs; consumer behavior; elaboration likelihood model; risk perception.

INTRODUCTION

Since the late 1960's there has been an emphasis in public policy toward making drug information more widely available to the public (1–2). A relatively recent example is the Food and Drug Administration's regulatory stance on "direct-to-consumer" advertising of prescription drugs. Initially, pharmaceutical manufacturers' practice of advertising their prescription products directly to the public created quite a bit of controversy (3). However, after declaring a short moratorium on consumer advertising of prescription drugs, the FDA realized that the mass media had potential as an alternative method of informing the public about the risks and benefits of prescription drugs.

The FDA decided to allow the practice of consumer advertising of prescription drugs, provided the advertisements contained a "fair balance" of risk information.

Despite the FDA decision to allow drug manufacturers to advertise their prescription products directly to consumers, controversial issues surrounding consumer advertising of prescription drugs remain (4). Proponents of consumer drug advertising claim that the advertising increases patient awareness of the existence of disease, availability of treatment, and potential side effects associated with specific drugs. The claimed overall effect of increased patient awareness is greater patient participation in drug therapy decisions and risk assessment. Further, proponents claim that greater patient participation in drug therapy decisions might lead to better compliance with prescribed drug regimens.

Those opposed to consumer advertising of prescription drugs claim detrimental health effects. They believe consumers' limited understanding of risk and susceptibility to the promotional aspects of drug advertising will induce them to put pressure on physicians to prescribe inappropriately. Further, the opposition believes physicians will respond to this pressure causing stimulated drug misuse in an over-medicated society.

The greatest impact of direct-to-consumer advertising, whether favorable or not, is likely to occur in the elderly population. The elderly consume more prescription drugs and are a financially attractive market segment (5). Therefore, they are a prime target for drug promotion. The elderly are also in the greatest need of drug information. A number of age-related physiologic effects make the elderly more susceptible to adverse drug effects (6). Thus, the risk information contained in consumer drug advertisements may benefit the elderly. There is concern, however, that information processing deficits in the elderly may make them more susceptible to the promotional aspects of drug advertising; lending support to arguments of stimulated drug misuse (7).

The arguments favoring and opposing direct-to-consumer advertising fit well into two general theoretical approaches to explaining the underlying processes of persuasive communications: central and peripheral route approaches. Central route approaches explain attitude change or persuasion as a result of individuals giving careful and thoughtful consideration to the information or arguments presented in a persuasive appeal (8–11). Peripheral route approaches explain persuasion or attitude change as a process that can occur relatively independent of the information or arguments presented in a persuasive appeal. Instead, individuals rely on cues in the message context and simple heuristics or decision rules to form attitudes (12–14).

The Elaboration Likelihood Model of Persuasion (ELM) is a general model of attitude change that integrates central and peripheral route approaches to explaining the underlying processes of a persuasive communication (15–18). Importantly, the ELM explains how individual and situational differences among consumers determine when information content or promotional aspects of an advertisement are more likely to influence attitudes. For example, according to the ELM, a highly involved individual (one who finds a product in an advertisement personally relevant) is more likely to scrutinize the product-relevant information presented in an advertisement. If the information is perceived to be cogent and persuasive (a strong

1 Department of Pharmacy Practice, North Dakota State University, Fargo, North Dakota.
2 College of Pharmacy, University of Michigan, Ann Arbor, Michigan.
3 Michigan Business School, University of Michigan, Ann Arbor, Michigan.
4 To whom correspondence should be addressed. (e-mail: thechrist@plainse.nodak.edu)
argument), favorable attitudes will result. If the information is weak and specious (a weak argument), less favorable attitudes will result (central route processing).

On the other hand, a lesser involved person will not spend the effort required to think about the product-relevant information or arguments contained in an advertisement. Instead, the individual is likely to focus on contextual cues such as the credibility or prestige of a product endorser (peripheral route processing). If a product endorser appears credible, favorable attitudes will result. A less credible product endorser will generate less favorable attitudes (19).

The developers of the ELM conducted a number of experiments examining how individual and situational differences determine when an individual will engage in careful argument processing (central route processing) or rely on peripheral cues (peripheral route processing) (20–22). The ELM postulates a tradeoff between argument processing and the operation of peripheral cues. When argument scrutiny is reduced, peripheral cues become relatively more important determinants of attitude change. When argument scrutiny is increased, peripheral cues become relatively less important. Thus, the general plan for examining when individuals will engage in central or peripheral route processing usually involves establishing two kinds of persuasion contexts: one in which the likelihood of argument elaboration is relatively high (e.g., high involvement) and one in which the likelihood of elaboration is low (e.g., low involvement).

The hypothesis to be tested is that attitudes are determined primarily by argument quality when elaboration likelihood is high (central route processing) but primarily by peripheral cues when elaboration likelihood is low (peripheral route processing). The evidence for central route processing is generally a significant interaction effect between involvement and argument quality. Under high involvement conditions strong arguments generate significantly more favorable attitudes whether a message contains a credible or less credible source. Similarly, evidence for peripheral route processing is generally a significant interaction effect between involvement and source credibility. Under low involvement conditions, messages that contain a more credible source generate more favorable attitudes whether the arguments in the message were strong or weak.

Although the application to consumer drug advertising in an elderly population is novel, the present study replicates previous research on the ELM by examining involvement as a moderator of central and peripheral route processing. When involvement is high, central route processing is more likely to occur. When involvement is low, peripheral route processing is more likely to occur. The reported results are useful in determining whether the ELM is a useful model for determining when information content (central route processing) or promotional aspects (peripheral route processing) of direct-to-consumer advertising are more likely to influence elderly individuals.

MATERIALS AND METHODS

Subjects and Design

A total of 131 elderly male and female subjects were recruited from the University of Michigan Geriatric Research and Training Center Human Subject Core and a local senior citizen apartment complex. Selection criteria included: 1) 60 years of age or over; 2) ability to communicate effectively with researchers; 3) adequate literacy skills; 4) no obvious vision impairment; 5) no apparent cognitive impairment; and 6) living independently. To select subjects meeting the criteria, the investigators relied on the administrators of the Human Subject Core. In 1992, the Human Subject Core recruited approximately 2,000 adults as volunteers for aging-related research projects. Registry information on volunteers is updated annually and includes basic demographic, ability to participate, and health related information to be used as selection criteria in forming subject groups for particular research projects. For the senior citizen complex, background data was not available. Thus, the activities director of the complex was asked to identify individuals meeting the selection criteria.

The study plan involved randomly assigning subjects to each of the experimental conditions in a two (high or low involvement) by two (strong or weak arguments) by two (high or low source credibility) factorial design and exposing them to an advertisement for a fictitious prescription nonsteroidal anti-inflammatory (NSAID) drug. The fictitious ad varied in the expertise of the product endorser, the expected interest level of the study subject, and the content of the advertisement message. The ad was presented to subjects in a booklet along with two other advertisements. After reviewing the advertisements, subjects responded to a set of questions measuring their attitudes toward the fictitious product and their perception of the product’s risk.

Data Collection Procedure

Data collection occurred during eleven study sessions over a two-month period. The number of subjects attending each session ranged from two to 23. An appropriate number of test packets containing an informed consent form, advertisement booklet, and questionnaire were prepared for each study session. Each study packet represented one of the eight experimental conditions. Prior to each study session, test packets were randomly distributed throughout the room. High and low source credibility conditions were kept on opposite sides of the room since this was the only obvious difference between test packets. The room position of high and low source credibility packets was alternated at each session. Upon entering the room, subjects were instructed to sit wherever they found a study packet.

At the beginning of each session, subjects were asked to read and sign the informed consent form. They were instructed that they would have ten minutes to view the advertisement booklet. After ten minutes, the advertisement booklet would be collected and they could begin the questionnaire. Subjects were informed that the questionnaire was self-directed and they were free to leave after completing the questionnaire. Upon leaving, subjects were debriefed, reimbursed for parking or cab fare and were given a token gift (a medication information booklet published by the United States Pharmacopoeia).

Independent Variables

The independent variables were created by manipulating the three experimental conditions: involvement, argument quality and source credibility. This section describes the operationalization of these variables.