CHAPTER 5

DISCUSSION

Variations in warning disclosures influenced consumers' recall, recognition and perception of the risk information in several ways. The most important finding of this study is that warnings in television advertisements for OTC drugs can be effectively communicated. The majority of experimental conditions with warnings raised warning recall, warning recognition, and risk perception more than control condition containing no warning message. These results indicated that warnings in televised advertisements for OTC drugs could communicate product-related hazard information. In this chapter, discussions are presented in four parts: discussion of experiment 1, discussion of experiment 2, discussion of covariable: involvement, and limitation of the study.

Discussion of Experiment 1

The discussions are presented in two parts by dependent variables, effects on warning recall and recognition, and effects on risk perception.

Effects on warning recall and recognition

Variations in warnings influenced the participants' recall and recognition in four aspects. First, the results of this study showed the interaction effects of warning conspicuousness and transmission mode on both warning recall and recognition for *Paranol*. The interaction effect of warning conspicuousness and transmission mode

on warning recall was also found for *Parachlor*. There were warning conspicuousness and transmission mode main effects on warning recognition for *Parachlor*. These results implied that successful communication in the television media depends on two factors; warning conspicuousness and transmission mode. The results indicated that warning messages were the most effective if they were presented in mutual dual modality and high conspicuousness. Laughery & Young (1991) and Young (1991) reported consistent findings that a combination of warnings features has been shown to increase the noticeability of warnings and more attention-getting than the presence of each feature alone.

Secondly, the results showed that participants viewing highly conspicuous warnings retrieved more OTC drug warnings than participants viewing less conspicuous warnings. The high conspicuous warnings produced greater warning recall and recognition than the low conspicuous warnings. These results concur with several studies, which showed that participants retained more information from highly conspicuous warnings than from less conspicuous warnings (Barlow & Wogalter, 1993; Truitt et al., 2002; Young & Wogalter, 1990). However, these findings were dubious in audio only condition for *Paranol* which the differences on warning recall and recognition between high and low conspicuous conditions were not found. No difference on warning memory between these two levels of warning conspicuousness implied that the participants in low conspicuous condition who heard the warnings presented in fast rate speaking could hear, understand, and retain the warning messages as well as the participants who heard the warnings presented in normal rate speaking. Possible reason might concern with higher attention level of participants to OTC drug advertisement. Regarding to the study method, the new mock advertisement (*Paranol* drug advertisement) and the setting condition were applied in this study which might lead to a higher attention level of participants who were exposed to warnings presented in low conspicuous with audio only condition. Higher attention level might result in more retention of warning messages in that condition.

High conspicuous warnings in this study were presented in large black print on white background, long durations, at more attractive positions (center of screen) and appeared as the last shot of the commercial. These findings were consistent with previous studies. Young (1991) found that the contrast of the black print on a white background facilitates its noticeability. Moreover, increasing the size also increased the perceived noticeability of the warnings (Barlow & Wogalter, 1991). The placement of warnings relative to the commercial may influence memory (Barlow & Wogalter, 1993). Increases in exposure time reflect greater processing opportunity and should improve both recognition and recall of advertisement information (Krishnan & Chakravarti, 1999). Simultaneous presentation of the warnings and the advertisement may disrupt processing of the warnings because of competition for attention. It would be expected that warnings following the commercial would receive greater attention and produce better memory (Krishnan & Chakravarti, 1999). Thus, from several variations in high conspicuous warnings, consumers were more attracted to notice warnings and have more time to process the information. These details provide explanation of the high conspicuous warnings produced greater warning recall and recognition than the low conspicuous warnings.

Third aspect concerns the effects of transmission mode. The effects of transmission mode on warning recall and recognition for *Paranol* and *Parachlor* were discussed in each pair of transmission mode: 1) dual modality vs. visual only, 2) dual

modality vs. audio only, and 3) audio only vs. visual only. In the first pair, warnings presented in dual modality produced greater recall and recognition scores than warning presented in visual only. Previous psychological research on mode of transmission has consistently found that audio-visual warnings are more effective than visual only warnings (Houston & Rothschild, 1980; Smith, 1990). The result of this study was supported by a theory suggesting that simultaneous presentation of the same message in both the visual and auditory channels enhances memory (Garner, 1974; Paivio, 1971).

In the second pair, dual modality warnings failed to produce higher recall and recognition than audio only messages. There were no differences of warning recall and recognition between dual modality and audio only presentations. These results concur with the study of Smith (1990), who found audio-visual warnings failed to produce higher recall than audio only warnings in alcoholic beverage advertisement. However, there were some previous studies which found that audio-visual warnings affected recall more than audio only warnings in prescription drug commercials (Morris, Mazis, & Brinberg, 1989). Further study is needed to indicate the actual effect between dual modality and audio mode.

In the third pair, the effects of audio and visual warnings on recall and recognition produced the mixed results. Although, in high conspicuous conditions, there were no differences of warning recall between audio only and visual only, in low conspicuous conditions, warning recall was higher in audio only than in visual only condition in both drug advertisements. The results of warning recognition showed that audio only produced greater recognition than visual only for *Parachlor*. However, there were no differences of warning recognition between audio only and visual only for Paranol. In previous psychological research, there were inconsistent findings between audio and visual modes. Barlow and Wogalter (1993) found that visual conditions were superiority in alcoholic beverage advertisement. Bryce and Olney (1987) found that visual presentations on television were recalled more often than verbal parts. The superiority of print over voice contrasts with the study of Penny (1989), who found that auditory presentation produced better memory than visual presentation. Wogalter and Young (1991) found greater compliance with voice warnings than printed ones. The inconsistent results between two mock drug advertisements in comparing audio and visual modes on warning recognition were found. This inconsistent result may be caused by two reasons, the different drug categories and the different drug advertisement scenarios. First, Paranol was a single drug of pain relief whereas Parachlor was a mixed formula of cold medication. Participants might be familiar with single drug more than combined drug. The familiarity of single drug, Paranol, might resulted in no differences of warning recognition between audio only and visual only condition. Second, the scenarios of Paranol and Parachlor drug advertisements composed of diverse stimuli, such as difference of plot, music, performer, color of scene, and movement. The unlike stimuli would differently capture consumers' attention (Engel, Blackwell, & Miniard, 1990), which was resulted in different effects of warning recognition between Paranol and Parachlor drug advertisement.

The last aspect was the comparisons between the control condition and the warning conditions. The results showed that warnings presented in experimental conditions produced greater warning recall and recognition than the control condition in both drug advertisements. This indicated that warnings can be communicated

effectively in television commercials. However, the experiments also showed that the effectiveness of warnings in advertisements depend on the way they are presented. There was only one warning condition, low conspicuous with visual mode, which showed no difference of warning recall and recognition scores comparing to the control condition. Therefore, the warnings in that format would be concerned as having less impact on warning memory.

Effects on risk perception

It was expected that high conspicuous warning would have more risk perception than low conspicuous warning. In addition, dual modality warning would have more risk perception than either audially or visually warning. However, no significant of such effects were found. These results were consistent with Ford and Kuehl (1979), who investigated the impact of the warnings in OTC drug advertising on the safety perceptions of the OTC products. They found that the perceived safety was no statistically significant differences among three levels of warning conspicuousness, by changing the type sizes: large, medium and small.

ີ Co A Three possible reasons were given to explain why there was no significant effect of warning conspicuousness and transmission mode on risk perception. The first concern was prior experience with warnings. Although two mock advertisements were created in new brand name, the warnings followed by Thai drug regulations were not novel for participants. In this study, about a half of the participants indicated that they had seen or heard OTC drug advertisements more than 3 times a week. They exposed to the same warnings from other brand names in the same drug category from several sources such as television, radio, or print advertisements. This may imply that these participants used to expose to warning messages. Previous studies suggested that several exposures with a warning or product might make someone more confident in using it. Consumers were less likely to look at the warning labels, and they might not comply with warnings (Godfrey, Allender, Laughery, & Smith, 1983). If there have been no dangerous situations in the person's history with the product, perception of risk might be low, and the warning might not be followed (Rogers, Lamson, & Rousseau, 2000).

The second explanation concerns product or drug type. Ford and Kuehl (1979) found the perceived safety of the advertised drug differed significantly based on drug type. OTC drugs are widely used for self-medication, and are viewed as safer than prescription drugs (Morris, Lechter, Weintraub, & Bowen, 1998; Morris, Ruffner, & Klimberg, 1985). Consumers generally believe that OTC drugs are safe and do not have serious side effect. Therefore, the altering warning conspicuousness or transmission mode of OTC drug advertisements may not enhance to increase risk perception level in participants who believe that OTC drugs are safety.

The third explanation concerns the content of warning messages. Warnings were not worded strongly enough to change participants' current view of OTC products.

Although there were no significant differences on risk perception between high and low conspicuous warnings, the results of this study showed that the higher conspicuous warnings tended to have the higher level of risk perception.

Discussion of Experiment 2

In this section, the discussions are also presented in two parts by dependent variables, effects on warning recall and recognition and effects on risk perception.

Effects on warning recall and recognition

Variations in warnings influenced the participants' recall and recognition in four aspects. First, high conspicuous warnings produced greater recall and recognition than low conspicuous warnings in specific context (both two and four statements). In order to enhance recall and recognition in specific warnings, warnings should be presented in a high conspicuousness. The results were consistent with experiment 1 which showed that participants retained more information from highly conspicuous warnings than from less conspicuous warnings.

Second, no significant differences between high and low conspicuousness on warning recall and recognition were found in one statement within general warning. This may be caused by prior exposure to drug warnings. General warning stated as "read the warning every time before using the medicine" is not a novel statement. Based on Thai drug regulations, several OTC drugs must present the same general warning message in their commercials. People normally see and/or hear this general warning message from other drug commercials, thus many used to expose with this statement. Consumers who had higher experience with products were less likely to look at the warnings (Godfrey et al., 1983). General warning was presented in short and simple phrase, thus general warning in both high and low conspicuous conditions can be easily remembered. This reason may lead to no differences of warning recall and recognition between high and low conspicuous conditions in one general warning.

109

Third, the main results showed that the general warning (one statement) produced significantly greater recall and recognition than the specific warnings (both two and four statements) in low conspicuous messages. There were no significant effects of warning specificity in high conspicuous warnings on warning recall and recognition. However, warning presented in general form tended to have greater recall and recognition than specific warnings. These findings were inconsistent with previous studies which have shown that specific information is better recalled than general information (Houston & Rothschild, 1980; Morris et al., 1989; Smith, 1990). With the same length of risk information, a warning that has an unambiguous or specific warning (e.g., "a side effects of the drug is gout") is easily elaborated. On the other hand, an ambiguous or general warning (e.g., "the drug cause serious side effects") is more difficult to elaborate because a general warning does not have an easily available context, making it difficult for the consumer to form a distinctive memory trace (Schwanenflugel & Shoben, 1983). The explanations for the inconsistent results with previous studies may also involve the amounts, novelty, and complexity of information. General warning in this study was presented in one statement in a shorter message whereas specific warnings were presented in two and four statements with longer statements. Several studies have shown that both recognition and recall decline with increasing content and list length (Atkinson & Juola, 1973; Roberts, 1972). Therefore, longer messages with two and four specific warnings would lead to the lower level of warning recall and recognition. In addition, general warning is neither complicated nor new to participants. As mentioned above, participants generally expose to a general warning from other OTC drugs. They might have former knowledge and memory of the general warning. These details may

explain why participants who are exposed to general warning had greater recall and recognition than those exposed to specific warnings.

Fourth, although the main results showed no differences of warning recall and recognition between two and four statements presented in specific warnings, the latter tended to have higher recall and recognition than two specific warnings. This finding concurs with Morris, Mazis, and Brinberg (1989) who found that the disclosure of more risk messages produced greater risk awareness (recall test) than shorter risk messages. When more risk information is presented (up to some limit), an increase in elaborative processing of these risks is expected. Increased elaboration is presumed to lead to greater awareness of risks.

Effects on risk perception

Consumers who were exposed to specific warning messages (either two or four statements) had significantly higher level of perceived risk than those exposed to general warning messages (one statement) for *Paranol*. No such differences in risk perception were found for *Parachlor*. Although no effect of specificity was found on risk perception for *Parachlor*, the mean scores of risk perception were in expected direction, specific warnings produced a higher mean than general warning. These findings concur with many studies which concluded that the specific warnings were more effective in informing consumers about product risks than were general warnings (Ford & Kuehl, 1979; Morris et al., 1989; Morris et al., 1985). These studies indicated that general warnings in prescription drug advertisements were perceived as uninformative, the inclusion of specific risks within an advertisement is likely to be perceived as a highly vivid message to the consumers. Consumers

111

exposed to the specific warnings tended to know or to infer the advertised drug caused serious side effects (Morris et al., 1989). The more severe messages alerted participants to a specific danger while the milder version served as a general guide to product use (Smith, 1990). Consequently, the specific content of warning also has a direct influence on compliance (Rogers et al., 2000). The more severely worded warning was more likely to lead to compliance.

However, the results indicated that there were smaller risk perception scores among participants who were exposed to general warning than in the control group for *Paranol* drug advertisement. One reason to explain this phenomenon could be participants' prior experience with general warning. In this study, fifty percent of the participants had seen or heard OTC drug advertisements more than 3 times a week. Moreover, participants who were exposed to a general warning had also seen or heard OTC drug advertisements more frequently than were participants in the control group (60 percent vs. 50 percent). Therefore, this implies that their frequent exposure to general warning of all OTC drug advertisements possibly enhances confidence of OTC drug use and safety which may lead to lower risk perception. This reason is supported with several studies which indicated that consumers who had higher exposure with products rated them to be less hazardous (Godfrey et al., 1983; Rogers et al., 2000).

In addition to the specificity of warnings, the amount of warnings may be an important factor in risk perception. Although there were no differences on risk perception between participants exposed to two and four specific statements, both two and four specific warning participants had higher risk perception than those exposed to one-general warning. This leads to the conclusion that the greater the length of warnings, the more perceived risk of warning should be. However, the effects of higher risk perception of two and four warnings in this study may depend on specificity of warning, because two and four warnings were presented in specific form while one warning was presented in general form. In addition, no differences of risk perception between two and four specific statements were found. These results were inconsistent with previous study which have shown that advertisements with greater amounts of risk information led to increased views of drug potency compared to advertisements with lesser amount of risk (Morris et al., 1985).

Discussion of Covariable: Involvement

Involvement of self medication was used as covariable in this study. The results indicated that the involvement was not significantly related to warning recall and warning recognition for both drug advertisements. The reason of no relationships between involvement and warning recall/recognition in this study could be the homogeneous participants. All participants were undergraduate students, which were determined to have the same characteristics such as, education level and interval of age. Similar characteristics of the participants could lead to no differences of involvement among those participants. In addition, approximately 80 percent of the participants did not have any personal diseases. Those healthy participants did not need to use any drugs for their self-care medication. Without activation of need and drive, there would be no involvement of self medication (Engel, Blackwell, & Miniard, 1990).

Additionally, the results of this study showed that the involvement was significantly related to risk perception for *Parachlor* drug advertisement, but no such

effect was found for Paranol drug advertisement. In conceptualizing involvement, Zaichkowsky (1986, 1994) viewed involvement as having many major antecedent factors, which one important factor relates to the physical characteristics of the stimulus. The physical differences might pertain to the differences in content of the communication, or even the variation found in the product classes being advertised. The physical characteristics influence the consumers' level of involvement or the way the consumers respond to advertising. Therefore, rationales for the inconsistent results between Paranol and Parachlor drug advertisements could be the differences of physical characteristics, including the different drug category and the differences of warning messages in each drug advertisement. Paranol and Parachlor drugs were different in drug category. Paranol was pain relief drug whereas Parachlor was used for cold medication. Consequently, warning messages presented in Paranol drug advertisement were different with warning messages presented in Parachlor drug advertisement. The differences of product category and content of warnings between Paranol and Parachlor drug advertisement might result in the variation of participants' level of involvement or the different way the participants respond to drug advertising. Parachlor drug advertisement might motivate the participants to pay much more attention to what they heard because warning messages presented in Parachlor drug advertisement were more complex and specific than warning messages presented in Paranol drug advertisement. Thus, the results showed that the involvement was significantly related to risk perception for Parachlor drug advertisement. These findings supported the suggestion of Engel, Blackwell, and Miniard (1990) who mentioned that involvement was related to perceived risk.

Limitations

There were some limitations in this study. First, the mock advertisements were new for the participants which might lead to greater attention level. Second, this study was performed in setting conditions where attempts were made to simulate natural viewing conditions. Thus, participants' attention levels to advertising might be greater than viewing at home. The greater attention level of participants might yield the over-estimate of the results. Treatment differences might be attenuated in the "real world." Third, with the homogenous education level and great opportunities for obtaining the same message content appeared in the assessed mock advertisement; the undergraduate participants in this study were determined to be the highly educated subjects. With this reason, the evaluated results might be shown the overestimated effect when compared with general consumers consisting of more diversification of education level. Fourth, as one part of our experiment was conducted at the Faculty of Pharmacy, Chiang Mai University, hence it possibly leads the participants for their prior anticipation of the objective in this research on dealing with drug item. However, the participants could not completely predict that the intention of this study is emphasized on warning information issue towards the consumers. Finally, the majority results of this study indicated that involvement was not significant related to warning recall, recognition, and risk perception. However, the control for involvement variable in this study provided a more accurate effect of three dependent variables. **TIGNTS TESETVED**