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EFFECTS OF DIFFERENT TYPES OF DRINKING AND DRIVING PSAS
ON PERSONS WITH VARYING LEVELS OF DRINKING AND DRIVING
EXPERIENCE

By

Annesa Flentje Santa

Masters of Science, Capella University, Minneapolis, MN, 2003
Bachelor of Arts, University of Montana, Missoula, MT, 2000

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Approved by:

Dr. David A. Strobel, Dean
Graduate School

Bryan N. Cochran, Chair
Department of Psychology

David Schuldberg
Department of Psychology

Gregory Larson
Department of Communications

Santa, Annesa Flentje, M.A., Autumn 2006

Psychology

Effects of Different Types of Drinking and Driving PSAs on Persons with Varying
Levels of Drinking and Driving Experience

Chairperson: Bryan N. Cochran

The potential effectiveness of different types of anti-driving under the influence (DUI) Public Service Announcements (PSAs) was examined in both a college sample and a clinical sample mandated to treatment following a DUI offense. The empathy, fear, and informational PSA approaches were examined. The empathy approach and fear approach were found to be different on both perceived effectiveness and affective responses as measured by the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Less experience with DUI, lower sensation seeking as measured by the Sensation Seeking Scale V (Zuckerman, 1994), stage of change as measured by an adapted University of Rhode Island Change Assessment Scale (McConaughy, Prochaska, & Velicer, 1983), and higher perception of dangerousness of DUI were examined as predictors of perceived effectiveness of anti-DUI PSAs, with all of these variables emerging as good predictors of higher perceived effectiveness. Gender differences in perceived effectiveness were examined for fear and empathy PSAs, with inconclusive findings. Differences in perceived effectiveness were also examined based on level of fearfulness as measured by the Fear Survey Schedule-III (Wolpe & Lang, 1964), with higher fearfulness emerging as a predictor of higher effectiveness ratings for fear PSAs. This study has implications for future PSA research as well practical implications in guiding future PSA development.

Effects of Different Types of Drinking and Driving PSAs on
Persons with Varying Levels of Drinking and Driving Experience

Alcohol related accidents are a serious health problem in the United States. In 2002, motor vehicle accidents were the leading cause of death for persons ages 3-34 (Subramanian, 2005a). Of fatal motor accidents, alcohol-related accidents account for about 40% of accidents (Subramanian, 2005b). This problem is of particular importance in the state of Montana, because Montana has had the highest alcohol-related fatality rates in the fifty states for the past five out of eight years (United States Department of Transportation, 2004). In 2003, alcohol-related accidents accounted for 49% of all fatal crashes in Montana (United States Department of Transportation, 2004). However, the proportion of Montana's alcohol-related accidents has decreased significantly since the early 1980's, when alcohol or drug related crashes accounted for over 60% of all fatal accidents (United States Department of Transportation, 2004). Clearly, Montana's rates of alcohol-related fatalities are still alarmingly high.

One way to aid in decreasing the incidence of driving under the influence (DUI) is through the use of Public Service Announcements (PSAs). Both local and nationwide organizations produce and distribute anti-DUI PSAs every year, but these PSAs receive little research attention directed at examining their potential effectiveness. It appears that the paucity of PSA research is not limited to anti-DUI PSAs. For example, there was no experimental research done prior to launching a major anti-drug ad campaign as part of a 200 million dollar effort to reduce adolescent drug use (Fishbein, Hall-Jamieson, Zimmer, Haeflten, & Nabi, 2002). Atkin (2002) recommends that prevention funds not be used for campaigns that are ineffective or that may increase the negative behavior. In order to allocate funds to campaigns that are effective, it is necessary to evaluate the potential effectiveness of PSAs. Andsager, Austin, and

Pinkleton (2001) call for investigation into the area of PSAs, stating that conflicting research findings, such as differences in persuasiveness due to perceived realism of PSAs, indicate the need for future research. Atkin and Freimuth (2001) note that media campaigns are often created by artists without the benefit of a research basis. This may result in aesthetically pleasing ads which may not impact the desired health behavior (Atkin & Freimuth, 2001). One way to research the benefits of PSAs is to do program-specific evaluation. Unfortunately, such specific evaluation may not occur due to the cost of the evaluation (Valente, 2001).

In order to create PSAs which are based in research, PSA research may need to look at the elements of PSAs and how these elements may impact specific populations based upon individual differences. Researchers have begun to do this by looking at differences in perceptions of various alcohol-related or anti-DUI messages created by such factors as message realism (Andsager et al., 2001), message quality (Austin, Pinkleton, & Fujioka, 1999; Pinkleton, Austin, & Fujioka, 2001), message source (Atkin, Smith, & Bang, 1994), local relevance in message (Gotthoffer, 2001), and collectivist versus individualist messages (Parea & Slater, 1999). Researchers have also looked at differences in perception based on viewer factors such as experience with alcohol (Borzekowski, 1996) and gender and ethnicity (Parea & Slater, 1999). Research can be used to create generalized guidelines for the creation and implementation of PSAs so that this knowledge may be distributed at the level of PSA production. Eventually, a body of research could inform PSA production so that more resources could be allocated to programs and less to program evaluators. One way to do this is to compare different types of PSAs, and begin to examine how different approaches may affect different populations.

Creating a PSA is a complicated process. In particular, designing education interventions in general for alcohol related behaviors can be especially difficult (Baillie, 1996). First, there are

disagreements as to the desired content and approach of PSA campaigns. DeJong and Wallack (1999) have criticized previous health campaigns for not moving beyond introducing and reinforcing the existence of the problem. Introducing the problem does not necessarily persuade the viewer to think about changing behavior. Consistent with this criticism, the most commonly used PSA approach for anti-DUI PSAs is the informational or rational approach; this approach was used in 48.1% of anti-DUI PSAs reviewed by Slater (1999). The information approach provides the viewer with information about the problem (Slater, 1999). For example, an information appeal may consist of an image of a person talking to the camera, explaining the fatality rates of alcohol-related accidents, and providing information regarding what can be done to avoid drinking and driving. This approach is based on the theory that knowledge of the problem will help to change behavior (Baillie, 1996).

Other approaches may be more effective than the informational approach, thereby doing more than educating the public about the existence of the problem. Additional approaches that were reviewed and defined by Slater included positive appeals, social modeling appeals, empathy appeals, and fear appeals. Of these approaches, two approaches that are of particular interest are the empathy approach and the fear approach. The empathy approach is commonly used in anti-DUI PSAs (Slater, 1999), but there appears to be no research on the use of this approach in PSAs. The empathy approach highlights the consequences that others may experience as a result of DUI (Slater, 1999). For example, the empathy approach may feature a picture of a family, and then show one of the family members disappearing from the picture with an explanation that this person was a victim of an alcohol-related accident. An additional emotional approach which has aroused some controversy is the fear approach (Rossiter & Jones, 2004). The fear approach emphasizes the threat of consequences that may occur to the viewer as

a result of DUI (Dillard & Anderson, 2004). For example, a fear approach may show a person in the process of being arrested for DUI with a voiceover explaining that this could also happen to the viewer if they drink and drive. The fear approach has received considerable research attention (Rossiter & Jones, 2004), but has not been compared to the empathy approach. It would be informative to know how the empathy, fear, and informational approaches perform relative to one another.

It is clear that different persons may see the same PSA and have very different interpretations, leading to different attitudes and behavior (Petty, Baker, & Gleicher, 1991). It would be helpful to know if there are any systematic differences in effectiveness of PSAs in persons with individual differences. In particular, it is important to know how persons who have different histories with and intentions to drive under the influence might perceive attributes of PSAs differently. Borzekowski and Pouissant (1999) describe this as looking at what the viewers bring to the PSA. Understanding the differences in these perceptions could help to understand how these ads affect persons who have past experience with DUI; persons who may be the most likely persons to have future DUI experiences. This could aid in the development of PSAs to target the populations who are at-risk for DUI. PSAs that are potentially effective for persons who do not intend to drive under the influence may still be useful, despite the fact that they do not directly impact persons who intend to drive under the influence. PSAs may be intended to change social norms (DeJong & Atkin, 1995) and therefore may have a societal value even if they are not immediately effective in stopping DUI on the individual level.

It is not enough to create an effective PSA, as repeated use of the same PSA may result in decreased effectiveness (Atkin, 2002). For this reason, Atkin advocates for the creation of several different PSAs with the same type of message. This suggestion points to the need to

examine whether there is empirical support for different types of PSAs and PSA messages, rather than only looking to particular PSAs.

The purpose of this study is to evaluate how different types of PSAs may have different potential effectiveness for persons who have varying levels of DUI experience and intentions. Specifically, this study will compare the perceived effectiveness of three different PSA approaches in two populations: college students with varying experience with DUI and persons who are mandated to treatment for past DUI convictions.

Use of PSAs

PSAs are often targeted at particular populations (Atkin, 2002), and researchers recommend targeting of these types of ads for increased effectiveness (Hewitt & Blane, 1984). Klajner, Sobell, and Sobell (1984) divide drinking and driving prevention into two categories: primary and secondary. Primary prevention is meant to stop any occurrence of DUI before it happens, while secondary prevention is meant to prevent future DUI by persons who have already driven under the influence (Klajner et al., 1984). It is unclear, however, whether or not drinking and driving PSAs are intended as primary or secondary prevention. It seems that the desired effect of these ads is to lower DUI behavior, irrespective of DUI experience. No matter what the intentions of the PSAs, in the case of DUI the PSAs have the potential to meet both primary and secondary prevention goals. In their review of drinking and driving PSAs, DeJong and Atkin (1995) found that most of the ads were targeted at the population in general, not just the high risk population. Given that most drinking and driving ads are meant to impact individuals at both high and low risk for DUI and would be more efficient if they could be effective with both populations, the ads in this study were shown to both high and low risk groups.

Empathy approach

The empathy approach consists of a message that invokes empathy from the viewer by highlighting the consequences that may occur to others as a result of the targeted behavior (Slater, 1999). Empathy has been defined as “sharing the subjective experience of another person” (Campbell & Babrow, 2004, p. 160). The empathy approach was being used in 13.2% of drinking and driving PSAs reviewed by Slater (1999). Despite this relatively widespread use, the empathy approach has received little investigation as an element of persuasive communication (Campbell & Babrow, 2004). Part of this lack of investigation may be due in part to a lack of clarity as to whether or not the empathy approach is truly distinctive from the fear approach. Slater states that part of the empathy message may include fear, while another part of it may encourage positive feelings of empathy. It is necessary to distinguish whether or not the empathy approach has different effects from the fear approach in order to establish the empathy approach as a distinct approach. At present, no research studies have compared these two approaches. Researchers have suggested that the empathy approach may be an attractive alternative to the fear approach, as it may appeal to more positive emotions (Hastings, Stead, & Webb, 2004). The empathy approach may align with the recommendations of DeJong and Atkin (1995) for successful drinking and driving PSAs: that members of the public must see themselves as potential victims of DUI, not just as potential perpetrators.

Although the empathy approach as used in PSAs has received little research attention, it may have elements in common with the Mothers Against Drunk Driving (MADD) Victim Impact Panels. In Victim Impact Panels, victims of DUI accidents describe the impact that DUI has had on their lives to groups of persons who have been convicted of DUI (Wheeler, Rogers, Tonigan, & Woodall, 2004). Victim Impact Panels have been shown to have an effect on

changing attitudes and behavioral intentions towards DUI (Badovinac, 1994). For instance, in a study by Polacsek et al. (2001), 80% of DUI offenders stated that they would never drive under the influence again after attending a Victim Impact Panel; however this effect did not seem to persist over time. At the two-year follow up time period, there were no statistically significant differences in recidivism or stages of change progression between persons in a group who only participated in a driving while intoxicated school and a group that participated in both a driving while intoxicated school and a Victim Impact Panel (Polacsek et al., 2001). Victim Impact Panels have not had a significant effect on drinking and driving recidivism when added to existing drinking and driving treatment (Polacsek et al., 2001; Wheeler et al., 2004).

Fear approach

The fear approach is defined by two components of a message: first, the fear message indicates that there is a threat that the viewers may be subject to; second, there is an action that is recommended to the viewer to evade the threat (Dillard & Anderson, 2004). The fear approach has received considerable research attention (Rossiter & Jones, 2004). The fear approach was used in 11% of the drinking and driving ads reviewed by Slater (1999). Dillard (1994) recognizes that there have been diverse approaches to fear messages, but summarizes the fear message that is currently used in public health messages as “If you value your health, then you should change your behavior” (p. 302) and here is how to do so. The fear approach may elicit one of three responses: the person may process the prescribed action and perhaps take it, ignore the threat, or hear the threat and ignore the message (Stephenson & Witte, 2001). Even if the viewer processes the message, the fear approach may be ineffective due to the tendency of persons to underestimate the risk of personal danger. Specifically, persons tend to rate the societal risk of

danger as higher than their own personal risk (Coleman, 1993); thus, they may fail to identify with the personal risk threatened by the fear based PSA.

The fear approach can very difficult to execute successfully (DeJong & Atkin, 1995). The use of a threat of death or bodily harm is not recommended or should be used very rarely (Atkin, 2002; Soames Job, 1988). Stephenson and Witte (2001) recommend that fear messages counter the problem of underestimation of personal risk by accentuating the intended viewer's susceptibility to the threat. This may be done by explaining that all persons are at risk by addressing the audience directly using words like "you" (Stephenson & Witte, 2001). Soames Job (1988) recommends that fear based approaches stir up a relatively low level of fear to avoid evoking defense mechanisms such as denial. Stephenson and Witte (2001) emphasize that a fear message may have a damaging effect without the inclusion of an action that the viewer may use to avoid the fearful situation. Job (1988) similarly recommends that the prescribed action that is included to reduce the fear evoked by the message should be adequate to be able to alleviate the feeling of fear.

Informational approach

The most commonly used drinking and driving PSA approach is the informational approach, also known as the rational approach; Slater (1999) found that 48.1% of the PSAs that he reviewed used the informational approach. The informational approach provides information about the problem in order to raise awareness, often in the form of a testimonial (Slater, 1999). In many cases, this testimonial is provided by a celebrity; the celebrity testimonial format was found in 66.4% of anti-DUI PSAs reviewed by DeJong and Atkin (1995). Slater asserts that the informational approach may not be an effective approach for anti-DUI PSAs because the majority of Americans are already aware that drinking can affect driving. It is also possible that

the informational approach may not be effective for persons who do not identify with the particular celebrities who provide the testimonial in the PSAs.

Individual Differences

Individual differences may have a large impact on the way in which a PSA is perceived. Factors such as gender, previous experience with DUI, and personality variables may differentially predict the perceived effectiveness of a given PSA.

Experience with DUI

Previous findings related to experience with DUI are mixed. Gotthoffer (2001) found that persons who drink and drive regularly were more likely to rationalize their drinking and driving behavior than persons who did not drink and drive regularly. This suggests that persons who drink and drive regularly may see the anti-DUI PSAs as inapplicable and ineffective. In looking at prosocial media messages, Austin et al. (1999) found that persons with more experience with alcohol rated prosocial advertisements as lower in perceived effectiveness. Similarly, Borzekowski (1996) found that personal experience with alcohol negatively influenced perceived credibility of anti-alcohol messages. This study was conducted with eighth and ninth graders; thus this finding may be vastly different in an adult population with messages that are specific to DUI. In contrast to this finding, Donohew, Lorch, and Palmgreen (1991) found that persons who used substances were more likely to demonstrate behavioral intentions to call a toll-free number following an anti-drug PSA than were persons who did not use substances. It is possible that attention could account for differences in these findings. Previous fear approach researchers (Dillard, 1994) have speculated that persons may attempt to cope with fear by decreasing their attention to the message; thus it is critical to control for this factor.

Sensation seeking

It is likely that there will be differences in the perceived effectiveness of the PSAs as a result of differences in personality factors, particularly sensation seeking. Sensation seeking is defined as a stable characteristic which involves the search for new and different experiences that may be sought under risk of personal consequences (Zuckerman, 1994). Atkin (2002) asserted that persons who are high in sensation seeking may see the PSA as a personal challenge in that they will want to engage in the behavior that is described as risky; Atkin has advocated for the examination of personality factors in health campaign creation. This would indicate that PSAs using the fear approach, which would identify DUI as raising personal risk, would be perceived as the least effective by persons high in sensation seeking. It has been shown previously in a study by Donohew et al. (1991) that different anti-drug advertisements have differential effects for persons who are high or low in sensation seeking. However, it should be noted that the ads in that study were explicitly targeted at high or low sensation seekers, so this effect might not be expected in the current study. Previous research indicates that persons who are high in sensation seeking paid more attention to programming that was high in sensation value than programming that was low in sensation value (Lorch et al., 1994). There may be a comparable difference in attention in PSAs for persons who are high in sensation seeking; thus attention should be controlled for in the examination of effects of sensation seeking on perceived effectiveness of PSAs.

Stages of change

The transtheoretical change model (Prochaska, DiClemente, & Norcross, 1992) delineates the stages that are involved in changing a targeted behavior and is a useful framework for conceptualizing individual attitudes and behavior regarding DUI. This model can help to classify persons into one of five stages of change depending on their current state in regard to

changing a behavior (Prochaska et al., 1992). These five stages are: Precontemplation, when there is no objective to change the behavior; Contemplation, when there is a consideration of changing the behavior without a commitment to do so; Preparation, when there is an objective to change the behavior or there have been unsuccessful attempts to change the behavior; Action, when there is a change in the behavior; and Maintenance, when there is an effort put forth to prevent a relapse in the behavior (Prochaska et al., 1992). The effects of the stages of change should be considered because persons who have DUI experience may vary considerably in how they perceive anti-DUI PSAs depending on the degree to which they want to change. Previous research has shown that persons who have been convicted of DUI who are farther along on the stages of change are less likely to reoffend (Polacsek, 2001). Likewise, Atkin (2002) suggests that persons may be more likely to change due to a health message if they are farther along on the stages of change. Atkin (2002) also suggests that populations should be targeted based on their readiness to change. Targeting these populations based on readiness to change would require some knowledge of the differential effects of different types of PSAs on persons in different stages of change.

Perception of dangerousness

Previous research has indicated that perceived effectiveness of PSAs was related to perceptions of harm and danger of the targeted behavior (Fishbein et al., 2002). This particular study was with adolescents regarding anti-drug use ads; however it may point to the underlying concept that persons who perceive DUI as dangerous will perceive PSAs as more effective. It is likely that perceived dangerousness of DUI will be higher in persons who do not drink and drive regularly, as a previous study has found this relationship (Gotthoffer, 2001).

Gender

Previous research has indicated that females rated collectivist message strategies that emphasize the impact to the greater social group higher than individualist strategies which emphasize the impact to the individual (Parea & Slater, 1999). Given that the empathy approach is meant to invoke the consequences of others while the fear approach is meant to invoke the consequences of the individual, it is likely that a similar effect will be seen when comparing these two approaches. Females may also be more likely to perceive the risks of DUI as higher than males. Previous research has found that females feared DUI related consequences more than males (Gotthoffer, 2001). The differences in perceived consequences may be reflected in higher overall perceived effectiveness ratings from females.

Hypotheses

Hypothesis 1: The empathy approach will have a different perceived effectiveness than the fear approach. The empathy approach will also result in different affective responses in the viewer than the fear approach.

This hypothesis will help to establish whether or not the empathy approach is in fact different from the fear approach. An additional exploratory question is how the empathy, fear, and information approaches will compare to one another in relation both to their affective responses and to their perceived effectiveness. As the latter question is exploratory, there is no specific hypothesis addressing the comparison of the three PSA approaches, nor is there an anticipated direction for the differences.

Hypothesis 2: PSAs will have a higher perceived effectiveness in persons who have less experience with DUI.

Hypothesis 3: Persons who are high in sensation seeking will rate the PSAs, and particularly the fear approach, as less effective.

Hypothesis 4: Persons who are farther along on the stages of change regarding drinking and driving will report higher effectiveness of the PSAs than persons who are less motivated to change.

Hypothesis 5: PSAs will have a higher perceived effectiveness in persons who already perceive DUI as dangerous.

Hypothesis 6: Females will report higher perceived effectiveness of the empathy approach than males. Males will report higher perceived effectiveness of the fear approach than females.

Hypothesis 7: Persons who are generally more fearful will rate the effectiveness of the fear approach PSAs differently than persons who are generally less fearful.

It is likely that persons who are generally more fearful will respond differently to messages meant to invoke fear than persons who are generally less fearful. This is an exploratory question; thus no direction for this relationship is posited.

Methods

Participants

One-hundred and thirty-seven participants were recruited from psychology 100 courses at the University of Montana. These participants were provided with experimental credits in exchange for their participation. It was expected that these students would have varying levels of experience with DUI because a survey of University of Montana students in 2004 found that within the 30 days prior to the survey 55% of students had driven after drinking any amount of alcohol, and 20% had driven after consuming 5 or more drinks (University of Montana Health Enhancement, 2004). Additional participants ($n = 17$) were recruited from a local treatment

agency (Turning Point) from a treatment program for persons who are mandated to treatment for DUI offenses. Participants who were in treatment were compensated \$10 for their participation.

Sixty-seven (43.8%) of the participants were male and 86 (56.2%) were female. The sample primarily reported their ethnicity as Caucasian (88.9%), with 2.6% identifying as Asian American, 2.6% as Native American or Alaskan Native, 2.6% as Hispanic or Latino/Latina, 1.3% as multi-racial, and 2% identifying their ethnicity as “other.” The mean age of the sample was 22.76 (standard deviation 7.11). Most (60.8%) of the participants were under 21 years of age. The modal and median age within the sample was 19.

Measures

Demographic questionnaire

A demographic questionnaire asked questions regarding age, gender, ethnicity, level of education, and income. This questionnaire also asked questions regarding weight in order to calculate approximate blood alcohol content estimates and driving history. An additional questionnaire assessed experience with DUI.

Previous experience with DUI

Several questions assessed previous experience with DUI (see Appendix A). Although several questions were asked regarding past drinking and driving history, experience with DUI was operationalized by the question: “In the past 12 months, how many times have you driven after drinking any alcohol?” This questionnaire also included questions about the perceived dangerousness of DUI. Some specific questions regarding drinking and driving and perceived risk of drinking and driving were taken from the ninth and tenth versions of the National Alcohol Survey (Greenfield & Rogers, 1999; Kerr, Greenfield, Bond, Ye, Rehm, 2004) to allow for future comparison of this current sample to a larger sample. Perceived dangerousness of DUI

was operationalized using the question: “How likely is it that something bad would happen to you if you drove while drunk?” Questions were also included regarding knowledge of the legal blood alcohol content limit for DUI and how many drinks it would take for each participant to reach the legal limit.

Sensation seeking measure

Sensation seeking was measured using the updated version of the Sensation Seeking Scale, Form V (SSS-V, Zuckerman, 1994). Previous research has used this scale to assess sensation seeking and its impact on advertisement viewing (Donohew et al., 1991; Lorch et al., 1994). Internal consistency for the SSS-V as reported by Zuckerman (1994) ranged from .83-.86. Recent research has provided psychometric support for the use of this scale in college-age populations (Roberti, Storch, & Bravata, 2003). A reliability generalization showed that this scale is most reliable with older populations (Deditus-Island & Caruso, 2001), so reliability should presumably be acceptable with both a college-age and a potentially older treatment population. Internal consistency for the sample used in this study was calculated for this and other scales used in the study and is reported in the Results section.

Stages of change

Stages of change was assessed using a forced choice question addressing stages of change and an adaptation of the University of Rhode Island Change Assessment Scale (URICA, McConaughy, Prochaska, & Velicer, 1983). The URICA was adapted with the help of Christine Fiore, Ph. D. to be specific to drinking and driving, and to evaluate the stages of change on this particular behavior (see Appendix B). The URICA consists of four subscales: Precontemplation, Contemplation, Action, and Maintenance.

Social Desirability Measure

The Social Desirability Scale (SDS, Crowne & Marlowe, 1960) was used to measure socially desirable response style, as this could impact both reporting of previous drinking and driving behavior and rating of PSAs. In their comparison of three social desirability scales, Holden and Fekken (1989) concluded that the SDS measures “sensitivity in relations with others” (p.187). A concern in this study was that respondents would under-report drinking and driving behavior or over-report effectiveness of PSAs to manage the impression that they give to others; thus the SDS appears to measure the construct of interest in this study. Leite and Beretvas (2005) describe the SDS as the instrument that is most frequently used in research to control for socially desirable response styles. Crowne and Marlowe (1960) report the one-month test-retest reliability as .89, and found a statistically significant correlation between the SDS and the Edwards Social Desirability Scale

Fear Inventory

The Fear Survey Schedule-III (FSS-III) was used to measure a general trait of fearfulness (Wolpe & Lang, 1964). There are many different versions of the FSS-III available; this study employed the version described by Wolpe and Lang (1964). The FSS-III was designed for use in clinical applications (Wolpe & Lang, 1964), but has also been used for research (e.g. Arrindell et al., 1987). The FSS-III asks the respondent to describe how much they fear a list of 76 items by rating them on a 5-point Likert-type scale (Wolpe & Lang, 1964). The FSS-III includes items such as “Automobiles”, “Open wounds”, and “Receiving injections” (Wolpe & Lang, 1964, p. 28). These items can be classified into six subcategories as theoretically defined by Wolpe and Lang (1964) or four factors as empirically derived using factor analysis (Beck, Carmin, & Henninger, 1998; Kartsounis, Mervyn-Smith, & Pickersgill, 1983). The factor of interest in this

study was overall fearfulness, so a composite score was used, calculated as a total score of the ratings for the 76 items.

Attention questionnaire

Dillard (1994) speculates that individuals may try to decrease their fear by decreasing their attention while watching a PSA with a fear-based message. This is particularly problematic if the ads are relevant to them. To control for this effect, a question asking participants to recall general content of the PSAs was included after each PSA. These questions were piloted with four research assistants who were instructed to pay attention to the PSAs to make sure that none of the questions were ambiguous.

Rating questionnaire

A rating questionnaire (see Appendix C) was used to establish the participants' response to the PSAs. Several items of the questionnaire were used to establish the perceived effectiveness of the PSAs. Perceived effectiveness has been commonly used as the construct of interest within the health communication literature (Andsager, et al., 2001; Atkin et al. 1994; Austin et al., 1999; Fishbein et al, 2002). Fishbein et al. (2002) describe the respondent's view as an essential but insufficient condition for identifying effectiveness in changing behavior. Additionally, respondents were asked about their perceptions of how realistic the ads are, a method used by Andsager et al. (2001) and Fishbein et al. (2002). Questions were also included regarding believability and credibility of the ads, as used by Perea and Slater (1999). Due to concern that the repeated viewing of PSAs will result in decreased effectiveness (Atkin, 2002; Hewitt & Blane, 1984), participants were also asked whether or not they have seen the PSA before.

Affective responses

The Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988) were used to identify feelings that were experienced after watching each of the PSAs. The PANAS consists of two scales, one for positive affect and one for negative affect. Each scale consists of a list of 10 feelings and a 5 point scale, ranging from very slightly or not at all to extremely, to identify the extent to which the respondent is experiencing each of the feelings. These scales can then be used to create a composite score representing either positive or negative affect. The PANAS scales were previously validated primarily on a sample that primarily consisted of undergraduate students, however the sample also included some participants who were not students (Watson et al., 1988). For the purposes of this study, PANAS instructions were altered to indicate that the participant should rate the extent to which they feel each of the feelings after watching the last advertisement.

Procedure

The procedure that was used is what is described by Austin et al. (1999) as a “receiver-oriented content analysis” (p. 200), in that the intended viewers of the media rate the advertisements rather than using experts as raters (Pinkleton et al., 2001). Borzekowski and Poussaint (1999) describe this process as a look at what participants bring to a message, instead of an examination of PSA impact on the viewers. This approach was particularly important for this study, as one question of interest was what impact the variables that the participants bring with them may have on message perception. The participants were asked to complete the demographics questionnaire, SSS-V, questionnaire regarding previous experience with DUI, FSS-III, SDS, and stages of change measures prior to viewing and evaluating the PSAs.

Some researchers have asked participants to evaluate the advertisements before reporting on past behaviors in order to not bias the response to the advertisements (Austin et al., 1999;

Pinkleton et al., 2001). These researchers have acknowledged that this order may have led to response bias (Austin et al., 1999). In this study, in contrast to the studies by Austin et al. (1999) and Pinkleton et al. (2001), all of the ads were meant to persuade in one direction: discouraging DUI. For the purposes of this study, there was more concern that past behaviors would be underreported as a result of the viewing of the anti-DUI PSAs that address the negative consequences of DUI. Past DUI behavior needed to be accurately reported in order for one of the hypotheses of this study to be testable. For this reason, the participants were asked about past behaviors prior to viewing the advertisements, a method that has also been used by other researchers (Kelly & Edwards, 1998; Parea & Slater, 1999). In order to encourage honest reporting, a statement reminding the participant of confidentiality was presented prior to the administration of the previous experience with DUI questionnaire.

Participants completed the measures and viewed the PSAs via a computer, and data were collected via a web-based survey system. Participants came to the location of the study (on campus or at the treatment center) and were directed to a computer in a private location. This allowed for the participants to be able to fill out the questionnaire with increased privacy and greater assurance of confidentiality. The order in which the PSAs were shown was randomly counterbalanced using a Latin square design as described by Pittenger (2003) to distribute order effects evenly. A PSA that was not of particular interest in this study was shown to participants first, so that participants could become familiar with the viewing and response process. This was done to help to reduce variability due to practice effects between the earlier and later PSAs of interest. Each participant was shown 10 PSAs which were 30 seconds in length. Following each PSA, participants were asked to respond to the rating questionnaire. The rating questionnaire

provided a few minutes between media messages, so that contamination carry-over effects between media messages were minimized (Reeves & Geiger, 1994).

PSAs

Reeves and Geiger (1994) recommend that several examples be used to test a media message factor of interest in order to isolate the variance that is due to the factor of interest. Reeves and Geiger further state that failing to use several examples of a factor of interest in a media message may result in findings that are based on extraneous variables that are present in the one specific media message. For this reason, this study used different examples of PSAs on each level of the factor that is to be tested (empathy, fear and informational PSAs). PSAs were obtained through organizations such as MADD and the AdCouncil, as well as through other researchers who have done anti-DUI PSA research. A large sample of potential PSAs was collected. Six raters were trained on the different approaches to PSAs as delineated by Slater (1999). These raters then viewed and independently rated each of the PSAs that were collected. PSAs that did not have 100% agreement on type of approach were eliminated from the sample. Additionally, PSAs that were not classified as empathy, fear, or informational approaches and PSAs that the raters identified as outdated were discarded. Three PSAs were randomly selected from the three remaining subgroups. These PSAs represented the empathy, fear, and informational factors.

Design

The design of this study was both experimental and quasi-experimental. It was experimental in that in one of the hypotheses the different types of PSAs functioned as the independent variable, and the experimenter exposed the treatment group to the different levels of this independent variable. It is quasi-experimental in that in some of the hypotheses the

participants have not been assigned to levels of the IV, as with levels of DUI experience, stages of change, sensation seeking, perceived risk of DUI, gender, and fearfulness. The design also had a within-subjects component, as each participant was exposed to 3 levels of the independent variable of PSA type (empathy, fear, and informational PSAs). Reeves and Geiger (1994) support the use of within-subject designs in testing responses to media messages, as this method allows for comparison between messages within the same subject and requires fewer subjects to reach adequate statistical power.

Analyses

Given that prior research in this area is limited, effect sizes for power analysis were determined using Cohen's standard of .20 for a small effect and .50 for a medium effect (Cohen, 1992). An analysis of power using the Sample Power software program indicated that for a multiple regression analysis 163 subjects would be required to achieve statistical power of .80 for an effect size of .20 when the effect size is distributed across the 5 predictors. For an effect size of .50, 46 subjects would be required to achieve statistical power of .80. Given that actual effect size for this study was unknown, a subject pool of 125 Psychology 100 students was the intended sample size. Originally, 30 persons who were mandated to treatment for DUI were also going to be included. Due to the difficulties encountered in recruiting subjects who were mandated to treatment, recruitment ceased after 17 participants who were mandated to treatment had participated in the study.

Three repeated measures ANCOVAs were used to test hypothesis 1. The empathy approach and fear approach were entered as two levels of the independent variable; location of subject recruitment and social desirability scores were entered as covariates; and perceived

effectiveness, negative affect, and positive affect responses were entered as dependent variables. In this analysis, type of approach was treated as a fixed factor resulting in a fixed effects model.

Three additional ANCOVAs were used to test the exploratory question of how the three approaches to PSAs compare to one another on the measures of perceived effectiveness and affective responses, with the same structure as the previous ANCOVAs and the addition of the informational PSA as an additional level of the independent variable. Since the latter analyses were exploratory, a Bonferroni correction was used to control for Type I error rate, resulting in a decision rule at $p < .0167$ for these three analyses.

Four hierarchical regressions were conducted to evaluate hypotheses 2, 3, 4, and 5. First, location of recruitment and social desirability scores were entered into the regression models to ensure that these variables were not responsible for a large proportion of the variance in the response variable. It was originally intended that attention scores would be entered into this model at this time; however, only 3.2% of participants received a less than perfect attention score, and these participants only missed one attention question, so this variable was excluded from the analysis. Previous experience with DUI, sensation seeking, stages of change as identified using the forced choice measure, and perceived dangerousness of DUI were entered into regression models as predictor variables with perceived effectiveness entered as the response variable. Additionally, the predictive value of the stages of change variable was evaluated using four hierarchical regression models, with social desirability and location of recruitment being entered as covariates and with each model using one of the four scales of the URICA as predictors. Hypothesis 3 was further evaluated using hierarchical regression analysis with location of recruitment and social desirability entered as step one, sensation seeking entered as step two, and effectiveness ratings of fear appeals entered as the dependent variable. Hypothesis

6 was evaluated using a within-subjects ANCOVA, with an expected interaction. Type of appeal was entered as the within-subjects variable, with gender entered as the between subjects independent variable, and social desirability scores and location of recruitment entered as covariates; the term of interest is the gender by appeal type interaction. Hypothesis 7 was evaluated using hierarchical regression, with location of recruitment and social desirability entered as step one, overall fearfulness scores entered at step two, and effectiveness ratings on fear appeals entered as the response variable.

Results

Participant Characteristics

Drinking and driving experience

Results indicated that 58.6% of the participants had driven after drinking alcohol in the past year, and 28.3% had driven after drinking alcohol in the past 30 days. Within the last 12 months, participants had consumed a maximum of between 0 and 40 drinks before driving (mean 3.70, standard deviation 5.74). Participants who had consumed at least one drink before driving in the past twelve months had consumed a mean of 6.15 drinks (standard deviation 6.30). In total, 27.5% of the sample reported that they had consumed 5 or more drinks before driving within the prior 12 months. Within the entire sample, 14 participants (9.2%) had been arrested for driving after drinking within the last year, while 25 participants (16.6%) had been arrested for driving after drinking in their lifetime.

Measures

Cronbach's *alpha* was calculated for all scales used in the study, to assure that they generated scores with internal consistency within this sample. The six items that were intended to measure perceived effectiveness were used to calculate Cronbach's *alpha*. This analysis

revealed that the *alpha* coefficients would be improved if two of the items were dropped. These two items were dropped from the scales and the resulting Cronbach's *alpha* for effectiveness ratings for each of the PSAs were all above .83. Cronbach's *alpha* was calculated on each of the PANAS scales for each of the PSAs, resulting in 18 *alpha* coefficients: one for each of the positive and negative scales of the PANAS for each of the 9 PSAs of interest. Within this sample, the Cronbach's *alpha* for the positive affect scale of the PANAS ranged from .89 to .93 with a mean of .90. The *alpha* coefficients for the negative affect scale ranged from .88 to .93 with a mean of .91. Cronbach's *alphas* were also calculated for the remaining scales used in the study (see Table 1).

Table 1.

Scale	Cronbach's <i>alpha</i>	Mean	Standard Deviation
SDS	.70	14.42	4.62
SSS-V	.74	19.04	5.36
URICA- Precontemplation	.65	20.30	5.51
URICA- Contemplation	.89	21.78	7.82
URICA- Action	.88	22.62	7.82
URICA- Maintenance	.92	17.03	7.24

PSAs

The fear approach resulted in different effectiveness ratings than the empathy approach, with the empathy approach receiving higher effectiveness ratings than the fear approach ($F [1, 140] = 10.694, p = .001, \text{partial } \eta^2 = .071$). Within this analysis, there was a detectable effect for the covariate social desirability ($F [1, 140] = 5.26, p = .023, \text{partial } \eta^2 = .036$) but not for location of recruitment. The empathy approach evoked higher negative affect ratings than the fear approach ($F [1, 140] = 11.316, p = .001, \text{partial } \eta^2 = .075$). Within this

analysis there was a detectable effect for location of recruitment, a covariate ($F [1, 140] = 12.002, p = .001$, partial *eta* squared = .079), with persons who were recruited from mandatory treatment having higher mean scores (i.e., more negative affect endorsed) than persons who were recruited from psychology courses. There was no detectable effect for social desirability scores within this analysis. There were no detectable differences between the positive affect ratings evoked by the fear and empathy approaches. A relatively small effect (partial *eta* squared = .020) for the difference in these positive affect ratings resulted in a low level of observed power (observed power = .393). There was, however, a detectable effect for location of recruitment ($F [1, 139] = 9.314, p = .003$, partial *eta* squared = .063), with persons who were recruited from treatment having higher mean positive affect ratings than persons who were recruited from psychology 100 courses.

In the exploratory analyses comparing the informational, fear, and empathy approaches, the findings were similar. There were differences in the effectiveness ratings of the three different PSA approaches ($F [2, 280] = 6.395, p = .002$, partial *eta* squared = .044). Within this analysis there was a detectable effect for social desirability scores ($F [1, 140] = 5.171, p = .024$, partial *eta* squared = .036). The empathy approach was rated most effective overall, followed by the fear approach and informational approach, respectively. There were differences in negative affect ratings across the three PSA approaches ($F [1.730, 242.207] = 7.198, p = .002$, partial *eta* squared = .049), with informational approaches evoking the least amount of negative affect, and empathy approaches evoking the most negative affect. There was also a detectable effect for the covariate of location of recruitment ($F [1, 140] = 11.741, p = .001$). Again, the effect size for the differences in positive affect ratings between the fear, empathy, and informational PSAs were very small and were not detected in this analysis (partial *eta* squared = .01, observed power =

.294), and there was a detectable effect for the covariate location of recruitment ($F [1, 139] = 9.597, p = .002, \text{partial } \eta^2 = .065$).

Table 2.

PSA Approach	Effectiveness Mean	Effectiveness SD	Positive Affect Mean*	Positive Affect SD*	Negative Affect Mean*	Negative Affect SD*
Empathy	3.55	.73	1.95	.71	2.00	.74
Fear	2.76	.82	1.65	.62	1.46	.55
Informational	2.51	.81	1.56	.53	1.21	.41

*PANAS scores were computed by taking a Mean of the responses for each of the items in the scale

Individual Differences

In the first hierarchical regression analysis, social desirability scores and location of recruitment were entered as covariates in the first step, with experience with DUI entered as the independent variable and perceived effectiveness of all of the PSAs entered as the independent variable. In the first step of this analysis, the covariates did not result in a statistically significant model; however social desirability scores were a statistically significant predictor of perceived effectiveness ($Beta = .186, t = 2.226, p = .028$). In the second step of this analysis, the entire model was statistically significant ($F (3, 137) = 3.926, p = .010, \text{Adjusted } R\text{-squared} = .059$), with drinking and driving experience being the only statistically significant predictor ($Beta = -.215, t = -2.500, p = .014$). As hypothesized, persons with higher levels of experience with DUI had lower ratings of the effectiveness of the PSAs.

In the model testing sensation seeking as a predictor of effectiveness ratings for all PSAs, the entire model was not statistically significant; however higher levels of sensation seeking predicted lower levels of perceived effectiveness ($Beta = -.176, t = -2.011, p = .046$), and this was the only statistically significant predictor in the model. When sensation seeking was used to predict perceived effectiveness of fear PSAs, both the model was statistically significant ($F (3,$

132) = 3.605, $p = .015$, Adjusted R -squared = .056), and sensation seeking was the only statistically significant predictor in the final model ($Beta = -.224$, $t = -2.583$, $p = .011$), with higher levels of sensation seeking predicting lower perceived effectiveness of fear PSAs.

In the next hierarchical regression with stages of change, as defined by a forced choice question as the independent variable, neither the model nor the stages of change variable were statistically significant predictors of perceived effectiveness. The only predictor that was statistically significant was the social desirability covariate. In the four models which used the scales of the URICA as predictors, scores on Contemplation ($Beta = .330$, $t = 2.884$, $p = .005$), Action ($Beta = .325$, $t = 2.785$, $p = .007$), and Maintenance ($Beta = .307$, $t = 2.800$, $p = .006$) were good predictors of perceived effectiveness, while Precontemplation was not. It is possible that the poor internal consistency of the Precontemplation scale was indicative of a larger problem with this scale which may have impacted this analysis. For the stages of change which were good predictors, in each case persons who were farther along on the stage rated the PSAs as more effective. Additionally, perception of DUI as dangerous was a good predictor of PSA effectiveness ($Beta = -.247$, $t = -3.020$, $p = .003$), with higher perceived danger predicting higher ratings of effectiveness. Within this model, social desirability also remained a statistically significant predictor.

Table 3: Regression models testing individual differences

Predictor in model	Response variable	Obtained $Beta$ and t -statistic	p -value	Squared semi-partial correlation for the predictor
Drinking and driving experience	Effectiveness of all PSAs	$Beta = -.215$, $t = -2.500$	.014*	.042
Sensation Seeking	Effectiveness of all PSAs	$Beta = -.176$, $t = -2.011$	.046*	.030
Sensation Seeking	Effectiveness of fear PSAs	$Beta = -.224$, $t = -2.583$	.011*	.048
Stages of change: forced choice	Effectiveness of all PSAs	$Beta = .012$, $t = .145$	.885	.000

Stages of change: Precontemplation	Effectiveness of all PSAs	$Beta = -.113, t = -.908$	.367	.010
Stages of change: Contemplation	Effectiveness of all PSAs	$Beta = .330, t = 2.884$	.005*	.094
Stages of change: Action	Effectiveness of all PSAs	$Beta = .325, t = 2.785$	.007*	.092
Stages of change: Maintenance	Effectiveness of all PSAs	$Beta = .307, t = 2.800$	.006*	.088
Perception of DUI as dangerous	Effectiveness of all PSAs	$Beta = -.247, t = -3.020$	.003*	.059
Level of Fearfulness	Effectiveness of fear PSAs	$Beta = .218, t = 2.554$	.012*	.045

*Statistically significant at the preset value of $p < .05$

It was also expected that there would be different levels of perceived effectiveness of the fear and empathy PSAs based on gender. In this between-within-subjects design, there was an effect for type of approach, but the anticipated interaction between type of approach and gender only approached significance ($F [1, 138] = 3.415, p = .067, \text{partial } \eta^2 = .024$), and there was no detectable main effect for gender. It was also expected that level of fearfulness would be a good predictor of perceived effectiveness of fear based appeals; and this relationship was supported ($Beta = .218, t = 2.554, p = .012, \text{squared semi-partial correlation} = .045$).

Discussion

The first finding in this study is that the fear and empathy approaches are two distinct approaches with different responses elicited on both perceived effectiveness and affective responses. Additionally, there was an effect for location of recruitment, with persons who were mandated to treatment for DUI reporting stronger affective responses. It is likely that since the treatment group is experiencing consequences for drinking and driving that this issue is able to elicit stronger emotional responses. Previously the differences between these empathy, fear, and informational approaches have only been definitional, but now it seems clear that they elicit different responses from viewers. The empathy approach was perceived as more effective than

the fear approach. This has implications for future PSA development. Hastings, Stead, and Webb (2004) have raised concerns that the fear approach may have deleterious effects and that substitute interventions should be considered for future social marketing campaigns. The findings of this study indicate that there should be future development of and research on the empathy approach.

The second finding of this study was that anti-DUI PSAs had differential perceived effectiveness for persons with varying levels of DUI experience. Specifically, persons with more drinking and driving experience reported that the PSAs were less effective than persons with less drinking and driving experience. This could have implications for future PSA design. Specifically, PSAs may need to be targeted at secondary prevention efforts; specifically targeting populations that already drink and drive.

The third finding in this study was that persons who are high in sensation seeking perceived the PSAs as less effective. Additionally, persons high in sensation seeking perceived the fear based PSAs as less effective. This finding is in line with Atkin's (2002) assertion that persons who are high in sensation seeking may see the PSA as a challenge to try the behavior that is being described as risky. This finding may have implications for future PSA development, as they may have iatrogenic effects for the sensation seeking population. The fourth hypothesis for this study was that persons who are farther along in the stages of change would perceive the PSAs as more effective. This hypothesis was supported by this study. This may indicate that PSAs may want to try to enhance motivation to change in order to reach an audience which is not motivated to change. An additional finding was that persons who perceived DUI as more dangerous perceived the PSAs as more effective than persons who perceived DUI as less dangerous. This finding may be overlapping with levels of experience with DUI, as persons who

have more experience with DUI may perceive it as less dangerous (Gotthoffer, 2001). This may have implications for future PSA development as future PSAs may need to target persons who do not perceive DUI as dangerous.

The sixth hypothesis for this study was that males would perceive the fear approach as more effective than females, and that females would perceive the empathy approach as more effective than males. Although this analysis was approaching statistical significance, there was insufficient evidence to support this hypothesis within this study. This suggests that there may be an effect within the population, even though it was not detected within this study. There remained an effect for type of approach, which suggests that both males and females perceived the empathy approach as more effective than the fear approach. This indicates that the empathy approach should be researched further, and that this approach may have an even stronger impact on a female audience. The final hypothesis was that persons differing on levels of fearfulness would perceive the effectiveness of fear approaches differently. This hypothesis was not supported in this study.

Limitations

The results of this study are limited by the confounding variables that may be included with each of the messages. It is very difficult to isolate any one aspect of a message as an independent variable (Reeves & Geiger, 1994), as the message may have other features which change audience response. Hopefully, the use of several examples of each PSA type has helped to isolate the variance due to the type of PSA and to filter out some of the noise due to other elements of the PSAs. Despite this, some of the variance between PSAs may have been due to factors other than the type of PSA.

The results of this study are also limited to the measurements of perceived effectiveness regarding the PSAs; they cannot measure actual effectiveness of these PSAs. Perceived effectiveness is not able to measure actual behavior change and may not even correlate with behavior change. Despite this limitation, this study may have implications for future research that may look at behavioral changes due to approaches that are found to be high in perceived effectiveness.

This study was limited by its use of self-report to assess past experience with DUI. Despite this limitation, self-report can be a valid and reliable way to collect data about criminal behavior (Thornberry & Krohn, 2000). Additionally, the computer assisted method of data collection that was employed in this study may help to increase the reporting of sensitive behaviors (Tourangeau & Smith, 1996). Respondents were also reminded of the confidential nature of the study to encourage accurate self-report. Despite this, self-report of illegal behavior may have been inaccurate.

Despite these limitations, this study has provided more information about different approaches to PSAs and their differences between persons with different experiences. Specifically, this study compared three different approaches to DUI PSAs. This study has also gathered information about how these PSAs may impact different populations differently.

Future Directions

The findings in this study point to several future directions for research. First, future research needs to examine other approaches to PSAs, including the social modeling approach and positive approach, which were not examined in this study. Second, future research into the empathy approach is clearly warranted; as currently there is a paucity of research on empathy approaches and they were rated as the most effective PSAs within this study. Next, research

examining effective PSAs for secondary DUI prevention efforts is warranted. Airing PSAs that are effective in populations that drink and drive regularly may help to reduce overall DUI rates. Additionally, future prevention efforts should target populations that do not perceive DUI as dangerous, and may want to use a message meant to increase the perception of dangerousness of DUI. This may require future research as to how to effectively target these populations.

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Appendix A

Pre-PSA Questionnaire, Assessing: Forced Answer Stages of Change, Past Experience with DUI, and Perceived Dangerousness of DUI.

Please remember that your responses to these questions are confidential.

1. Which of the following statements best describes you:
 - a. I drive after drinking alcohol and I don't have any interest in changing.
 - b. I drive after drinking alcohol and think I shouldn't.
 - c. Within the next month, I plan to stop driving after I have been drinking alcohol .
 - d. I used to drive after drinking alcohol in the past 6 months but I have stopped.
 - e. I have not driven after drinking alcohol in the past 6 months or more.
 - f. I have never driven after drinking alcohol.
2. What is the largest number of drinks that you have ever had before driving (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
3. In the last 12 months, how many times have you driven after drinking *any* alcohol?
4. What is the largest number of drinks that you have had before driving in the last 12 months (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
4. In the last 30 days, how many times have you driven after drinking *any* alcohol?
5. What is the largest number of drinks that you have had before driving in the last 30 days (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
6. How many times have you been arrested for driving after drinking in the last 12 months?
7. How many times have you been arrested for driving after drinking in your lifetime?
8. About how many drinks (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits) do you think you can have, over a two hour period, before your ability to drive

becomes impaired? By impaired we mean you have had too much to drink to drive safely.*

9. How much drinking is all right when you're going to drive a car?***
 - a. none
 - b. 1-2 drinks
 - c. enough to feel effects but not drunk
 - d. getting drunk is sometimes all right

10. How likely is it that something bad would happen to you if you drove while drunk?***
 - a. very likely
 - b. likely
 - c. about 50/50
 - d. unlikely
 - e. very unlikely

11. How likely is it that something bad would happen to a passenger riding with you if you drove while drunk?
 - a. very likely
 - b. likely
 - c. about 50/50
 - d. unlikely
 - e. very unlikely

12. How likely is it that something bad would happen to other motorists, pedestrians, or bicyclists if you drove while drunk?
 - a. very likely

- b. likely
 - c. about 50/50
 - d. unlikely
 - e. very unlikely
13. Have you ever ridden with a driver who was drinking before he/she got into the car?
- a. yes
 - b. no
14. What is the largest number of drinks that a driver had consumed before you rode with them (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
15. In the last twelve months, how many times have you ridden with a driver who was drinking before he/she got into the car?
16. What is the largest number of drinks that a driver had consumed before you rode with them in the last 12 months (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
17. In the last 30 days, how many times have you ridden with a driver who was drinking before he/she got into the car?
18. What is the largest number of drinks that a driver had consumed before you rode with them in the last 30 days (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits)?
19. For someone who is 21 years old or older, at what blood alcohol content can they receive a DUI in Montana? . ____%

20. How many drinks (1 drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits) would it take for you to reach the legal limit (if you were 21 years or older)?

21. For someone who is under 21 years of age, at what blood alcohol content can they receive a DUI in Montana? ._____%

*Adapted from National Alcohol Survey version 10 (Kerr, Greenfield, Bond, Ye, Rehm, 2004)

**Taken from National Alcohol Survey version 9 (Greenfield & Rogers, 1999)

Appendix B

URICA Adaptation, Adapted with the help of Christine Fiore, Ph. D., University of Montana

There are five possible responses to each of the items that follow:

1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree

1. As far as I'm concerned, I don't need to change my driving after drinking.
2. I think I might be ready to change my driving after drinking.
3. I am doing something about my driving after drinking.
4. It might be worthwhile to work on my driving after drinking.
5. I'm not the problem one. It doesn't make sense for me to get help with my driving after drinking.
6. It worries me that I might slip back to driving after drinking, so I am going to seek help.
7. I am finally doing some work on my driving after drinking.
8. I've been thinking that I might want to change my driving after drinking.
9. I have been successful in working on my driving after drinking, but I'm not sure I can keep up the effort on my own.
10. At times, it is difficult to not drive after drinking, but I have been working on it.
11. Looking at my driving after drinking behavior is pretty much a waste of time for me, because this problem doesn't have to do with me.
12. I'm hoping that someone will be able to help me to better understand my driving after drinking.
13. I guess I have faults, but I don't really need to change my driving after drinking.
14. I am really working hard to change my driving after drinking.
15. I have a problem with driving after drinking and I really think I should work on it.

16. I'm not following through with what I had already changed about my driving after drinking as well as I had hoped, and I'm going to get someone to help me to prevent a relapse of the problem.
17. Even though I'm not always successful in not driving after drinking, I am at least working on my problem.
18. I thought once I had resolved the problem of driving after drinking I would be free of it, but sometimes I still find myself struggling with it.
19. I wish I had more ideas on how to avoid driving after drinking.
20. I have started working on my driving after drinking but I would like help.
21. Maybe someone will be able to help me.
22. I may need a boost right now to help me maintain the changes I've already made in my driving after drinking.
23. I may be part of the problem of people driving after drinking, but I don't really think I am.
24. I hope that someone will have good advice for me.
25. Anyone can talk about changing; I'm actually doing something about it.
26. All this talk about psychology is boring. Why can't people just forget about their problems?
27. I want to get help from others to prevent myself from having a relapse of driving after drinking.
28. It is frustrating, but I feel I might be having a recurrence of my problem with driving after drinking that I thought I had resolved.
29. I have worries but so does the next person. Why spend time thinking about them?

30. I am actively working on my problem with driving after drinking.
31. I would rather cope with my faults than try to change them.
32. After all I had done to try and change my problem of driving after drinking, every now and again it comes back to haunt me.

Appendix C

Post Message Measure

There are five possible responses to each of the items that follow:

1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree

I have seen this advertisement before today.

I have seen an advertisement similar to this one before today.

I think that this message will be effective in reducing my driving after drinking.

I think that this message will be effective in reducing other people's driving after drinking.

I think that this message is realistic.

My friends would be influenced by this advertisement.

This advertisement makes me want to drink and drive.

This advertisement was of high quality.

This advertisement was not persuasive.

This advertisement cannot be trusted.

This advertisement was realistic.

This advertisement could help to reduce drinking and driving in my community.

This advertisement was appealing.

This advertisement was memorable

I learned something from this advertisement.

This advertisement was far fetched.

This advertisement was poorly made.

This advertisement was confusing.