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Fear and Anger Responses to Local News Coverage of Alcohol-Related Crimes, Accidents, and Injuries: Explaining News Effects on Policy Support Using a Representative Sample of Messages and People

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Abstract

An experiment investigated emotional reactions to news on policy support. Stimuli were selected from a nationally representative sample of local crime/accident news, and a nationally representative online panel of U.S. adults. Stories were manipulated to mention or not mention the role of alcohol. Anger elicited by stories increased blame of individuals, whereas fear increased consideration of contributing societal factors. Mention of alcohol increased likelihood of different emotional responses dominating--greater anger when alcohol was mentioned and greater fear when not mentioned. Such emotions influence policy support: enforcement of existing laws controlling individual behavior in addition to new laws when anger predominated, and, indirectly, support for new laws changing social context in which alcohol is promoted and sold when fear predominated.

Keywords

news coverage; emotion; message processing; policy support; drunk driving

News coverage of health risks can influence health-related policies and public support (Yanovitzky, 2002). However, mechanisms for such effects remain poorly understood. Prior research suggests different emotional states can influence causal attributions and policy support for various issues (Nabi, 2003). The question addressed in this study is whether news content, by eliciting emotions such as anger and fear, can differentially impact public policy support, in this case concerning alcohol. We examine the impact of inclusion of alcohol as a causal factor in such stories, identifying its effect on anger and fear, and through these emotions, its impact on alcohol-control public policy support. Alcohol is a principal contributing factor to death and injury, associated with roughly one-third of homicides, motor vehicle fatalities, and other unintended injury deaths (National Highway Traffic Safety Administration, 2005; Smith, Branas, & Miller, 1999). One of the most effective strategies for reducing such harms is enforcement of alcohol-control policies (Toomey & Wagenaar, 1999), an outcome of focus in this study.

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Nabi's (2003) findings are conceptually exciting, as they suggest (but do not test) the possibility that discrete emotional responses to news story content may in part explain news effects on policy support. In the present study, we manipulate content differences (presence or absence of alcohol as a causal factor) to influence discrete emotional responses, rather than manipulate emotion and assess perceptions of social issues, as in Nabi (2003). In so doing, we provide a test of discrete emotional response differences as an explanation of news story effects on causal attribution and policy support. Moreover, we use as representative a population of participants and of news stories as is feasible in an experimental design. In order to claim theoretically derived predictions supported by such a study are relevant to journalism or media advocacy, we must study people reasonably representative of the voting public (not college students alone) and news stories reasonably representative of the wide variety of stories to which such people are exposed (rather than a few stories conveniently selected from a given locale). We thereby endeavor to provide as close to a "real world" test of the discrete emotions perspective on message processing as is realistically practicable in an experiment. We adopt the approach reported in Slater, Goodall, and Hayes (2009) for using multilevel models to analyze messages as random effects, in a way permitting generalization across messages and people.

News Coverage of Alcohol-Related Crimes, Accidents, and Injuries

Though news consumers are regularly exposed to stories about crimes and accidents in their communities, prevalence of stories referencing the role of alcohol in such incidents is inconsistent with real-world prevalence (see Slater, Long, & Ford, 2006). For example, Slater et al. (2006) found that although alcohol intoxication is a causal factor in 31.5% of violent crimes (Smith et al. 1999), only 2.6% of TV news articles and 7.3% of newspaper articles about crime note the role of alcohol. Similarly, intoxication is a factor in 31% of nonmotor-vehicle accidents (e.g., fires, falls, drowning, etc., Smith et al., 1999), but only 1.4% of TV news stories and 4.8% of newspaper articles about such accidents note the role of alcohol. Finally, 40% of motor vehicle accidents involve a driver under the influence of alcohol (Smith et al., 1999), and only 13% of TV news stories, and 19% of newspaper stories note the role of alcohol.

An agenda-setting perspective (McCombs & Shaw, 1972) suggests reason to be concerned about the lack of statistically representative coverage of alcohol-related crimes and accidents. Heavy coverage of issues can heighten estimates of prevalence (Iyengar & Kinder, 1987). Indeed, simply mentioning the role of alcohol in news stories can lead to heightened public concern, and greater support for public policy addressing these issues (Slater et al., 2009).

In a pilot study with college students (see Slater et al., 2009), we experimentally manipulated a pool of news stories about crimes and accidents to contain versions of the stories either making reference to alcohol as a causal factor, or making no such reference. Results indicated that mentioning the role of alcohol heightened issue concern, contingent on the extent to which students generally attended to crime and accident news. A follow-up investigation, using an additional set of stories from the nationally representative pool of local news coverage and a national probability sample of U.S. adults (the data set also serving this investigation), found exposure to crime and accident stories mentioning alcohol as a causal factor increased support for enforcement of existing alcohol-control policies (Slater, Hayes, Goodall, & Ewoldsen, 2012). These findings were robust and occurred regardless of participants' self-reported attention to crime/accident news. Mechanisms to explain such effects, however, remained undetermined. A goal of this study is to identify mediating mechanisms by analyzing discrete emotional responses elicited by the stories. In this case, we investigate fear and anger. There are several reasons for this emphasis. First,

fear and anger are active and intense emotions associated with clear action tendencies and goals (outcomes of interest in this study). Second, as noted by Nabi (2003), such emotions are commonly elicited by various social issues, particularly drunk driving.

Emotion

Emotions are psychological constructs that play the role of organizing, sustaining, and motivating behavior. They are intense, short-lived, caused by identifiable agents, and have discernible cognitive content. They are the primary motivation system for humans (Izard, 1977). Anger is an unpleasant emotion (Smith & Ellsworth, 1985), and is the most "involving and invigorating" of the negative emotions (Newhagen, 1998, p. 266). It is an approach emotion, and creates impulse to strike out (Izard, 1977). Although also a negative emotion, fear activates cognition of apprehension, uncertainty, and danger (Izard, 1977). It motivates energy for escape (Newhagen, 1998). Like all emotions, fear and anger have distinct and important functions—notably effects on perceptions and cognitions, judgments and decisions, and behavior.

In terms of perceptions and cognition (Izard, 1977), emotions can inform individuals about situations and conditions, influencing perceptions of necessary action (Keltner & Haidt, 1999). For example, anger can provide an assessment of fairness and can thus increase cognition regarding retributive action (Izard, 1977). Fear can indicate a situation of danger (Smith & Ellsworth, 1985), and increase cognition of escape (Izard, 1977). Information provided by experiences of discrete emotions can also influence individuals' motivations and goals. Specifically, anger increases motives and goals to hurt the agent responsible for inducing the emotion, and fear increases motives and goals to escape (Roseman, 1984). Emotions also serve a cognitive appraisal function (Smith & Ellsworth, 1985), and emotion-elicited appraisals influence judgments and decisions (Bodenhausen, Sheppard, & Kramer, 1994). Anger tends to lead individuals to appraise their situation as one of certainty, involving a clearly responsible agent, whereas fear tends to lead individuals to appraise their situation as one of uncertainty, involving diffuse causal agents (Lerner & Keltner, 2001; Smith & Ellsworth, 1985).

One of the reasons discrete emotions differentially influence judgments is because different emotions influence different types of cognitive processes—notably whether one engages in more systematic or heuristic processing (Tiedens and Linton, 2001). Angry individuals tend to process heuristically and rely on readily available information (often stereotypical, see Bodenhausen et al., 1994). This occurs because: (a) cerebral activity during a state of anger reduces capacity to think systematically (Bodenhausen et al., 1994), and (b) anger tends to result in a certainty appraisal (Roseman, 1984), which encourages heuristic processing (e.g., blaming an individual for a negative event, rather than considering potential contributing factors). On the contrary, fear tends to elicit an uncertainty appraisal (Smith & Ellsworth, 1985), which encourages systematic processing (Tidens & Linton, 2001), e.g., considering various contributing factors rather than making snap causal judgments. However, the relationship between emotion and cognitive processing is complex and contingent upon the intensity of the activated emotion, and the context in which it is experienced. For example, though fear may generally encourage systematic processing, intense fright reactions may shut down cognitive processing, and encourage avoidance and denial (see Leventhal, 1970; Witte, 1992). In the present study, it is unlikely that fright reactions elicited by news stimuli would be intense enough to shut down cognitive processing (as participants are not in an immediate threatening context). Thus, elicited fear in this context is more likely to encourage greater cognitive processing.

Finally, emotion-elicited appraisals can influence behavior. Much of this research has focused on whether emotions encourage approach or avoidance reactions (see Izard, 1977; Nabi, 2003). Specifically, this research suggests that anger encourages approach behavior (in the form of lashing out), and fear encourages avoidance (in an effort to flee from danger).

These distinctions between fear and anger make it clear that conceptualizing emotion solely in terms of positive or negative valence is insufficient, and can lead to flawed predictions (Izard, 1997, Roseman, 1984). Although both are negative emotions, fear and anger result in different cognitive processes and subsequent perceptions, judgments, and decisions. Some research has found greater similarities in responses among positive and negative emotions like anger and happiness (given both are associated with approach tendencies, and a sense of certainty, see Bodenhausen et al., 1994) than between negative emotions like fear and anger.

Emotional reactions to news

In the present study, we follow up work conducted by Nabi (2003) investigating her "emotions as frames" perspective, which argues that when discrete emotions are paired with ideas and events, those emotions can determine one's responses. This perspective suggests that emotions (much as frames) privilege some information by making it more accessible. Heightened accessibility subsequently influences judgments and information seeking. Framing theory, commonly discussed in the context of news, also emphasizes that framing operates by making certain aspects of a reality salient (accessible), and as a result, skews interpretations, judgments, and decisions (Entman, 1993). Thus, from the perspective of the functional approach to emotions, emotions may operate much as frames in messages do.

Episodic news stories (Iyengar, 1991), such as those investigated in this study, describe specific incidents with victims, and often perpetrators, allowing ample opportunity for emotional response. There is limited available research investigating effects of discrete emotions like fear and anger elicited by news coverage. For example, Lang, Newhagen, and Reeves (1996) and Newhagen and Reeves (1992) found differential effects of anger, fear, and disgust on message processing, attention, and memory. Further, research has investigated cultivation of emotions (such as fear) as a result of news exposure (e.g., Romer, Jamieson, & Aday, 2003). There is also research investigating differential effects of positive and negative emotions on responses to news coverage. Coleman and Wu (2010) found that negative emotions—including fear and anger—had stronger impact on political perceptions than positive emotions). However, there is little research available investigating discrete emotional reaction as a mechanism through which individuals differentially interpret and respond to news, as is investigated here.

We build upon Nabi (2003) by pursuing the notion that fear and anger differentially influence perceptions and preferences about the issue of drunk driving. Nabi conducted an experiment in which she primed emotions (fear or anger) by having participants respond to questions assessing their present fear or anger state and then assessed whether such activated emotions resulted in different policy preferences. She did not investigate reactions to news stories, or other kinds of mediated messages. Rather than prime emotions, we sought to investigate effects of different emotions naturally elicited by a variety of news stories about alcohol-related crimes and accidents as a function of mention of alcohol as a casual factor.

In this study, we used episodic news stories (covering recent events—not overviews of policy issues, see Iyengar, 1991) about crimes and accidents derived from a representative national sample as stimuli, and manipulated presence or absence of alcohol as a causal factor. A crucial question regards the nature of the emotions induced by inclusion of alcohol as a causal factor. There are several possibilities. First, Nabi (2003) found that in her sample,

the baseline perspective on drunk driving was one of greater fear than anger, suggesting that fear might be the dominant emotion in response to the inclusion of alcohol as a causal factor in news stories about car accidents. Second, it may be that inclusion of alcohol as a causal factor increases emphasis on individual culpability, thereby increasing anger at the irresponsible perpetrator or victim relative to fear. Therefore, we ask: Will those exposed to the alcohol version of the stories be more likely to respond with anger, fear, or both, compared to those exposed to the nonalcohol version? We also propose that (a) anger about the crimes and accidents in the stories will increase individual-focused causal attributions (e.g., blaming the person responsible), and (b) fear about the crimes and accidents in the stories will increase societal-focused causal attributions (e.g., unsafe roads, inadequate penalties for driving violations).

If the experimental manipulation of alcohol as a causal factor influences anger and fear responses to the new stories, then it may be that the nature of the emotion elicited will influence policy support. We investigate two types of policies: support for enforcement of existing policies, and support for new policies. The existing alcohol-control policies presented in the study deal with individual-focused solutions (e.g., policies that punish individuals responsible for alcohol-related crimes/accidents), whereas the new policies deal with changing the social context in which alcohol is sold and consumed (e.g., restrictions on outdoor advertising and the number of alcohol sales outlets). If these policies are in fact perceived as societal vs. individual solutions, we expect to see unique effects of fear and anger on support for existing (individually-focused) policies vs. new (societally-focused) policies.

Individually focused policies may be viewed as a form of retribution—action taken against the offending individual. Thus, episodic news that elicits anger (an approach emotion that encourages lashing out) may lead to support for policies perceived as retributive against individuals believed to be causes of the problem. Therefore, if inclusion of alcohol as a causal factor increases anger, we might expect to find an indirect path from the manipulation through anger to both emphasis on individual causes for injuries, and support for enforcement of alcohol control policies that penalize individuals contributing to alcohol-related crimes and accidents.

To the extent the manipulation increases fear, we might expect to find a path through fear to both emphasis on social-level causes and support for the creation of new social-level policies. Specifically, given that fear (unless excessively intense) tends to encourage in-depth, systematic thought about the fear-arousing stimulus (in comparison to anger, which tends to encourage quick, biased judgment, Tidens & Linton, 2001), one might expect that fear might encourage individuals to consider larger contributing issues to the alcohol problem, and enhance openness to societal-level policies that change the context in which alcohol is consumed and sold. We raise the following questions: Is there an indirect path from exposure to the alcohol version of the news stories to (a) societal-level causal attributions, and (b) societally oriented alcohol control support via fear elicited by the manipulation? Is there an indirect path from exposure to the alcohol version of the news stories to (a) individual-level causal attributions and (b) individually oriented alcohol control policy support via anger elicited by the manipulation?

Method

Design

The study used a 2 × 3 between subjects experimental design. The three-level between-subjects factor is story topic: motor-vehicle accident, violent crime, or nonmotor-vehicle accident (e.g., fire, fall, drowning, etc.). Twenty stories[1] were selected for each of the three

crime and accident topics from a previously collected representative sample of U.S. local newspapers (Slater et al., 2009). The two-level between subjects factor is the experimental manipulation of primary interest: whether the story mentioned the role of alcohol as a causal factor in the crime, accident, or injury, or made no such reference to alcohol as a causal factor.

Stimuli

Communication researchers have long been concerned about the problem of representing real-world communication phenomena with limited, convenience samples of messages, or a single message (Jackson, O'Keefe, & Jacobs, 1988). Slater (1991) argues that use of multiple messages as stimuli and random effect analytic models, urged by Jackson et al., is a particularly promising way to assess effects over a random sample of messages when these are used as the source of the experimental stimuli. Accordingly, a representative sample of over 1,000 U.S. newspapers was obtained, and all the crime and accident stories reliably identified (see Slater, Long, & Ford, 2006, for a detailed description of the sampling and coding procedures). We randomly selected 20 stories from this pool from each topic category (motor vehicle accident, non-motor vehicle accident, violent crime) to compile 60 base stories. These 60 stories were manipulated into alcohol and nonalcohol versions by either removing mention of alcohol as a causal factor, or adding reference to alcohol as a causal factor in others. Content of included stories was unaltered from the original versions, except for the alcohol manipulation, correction of obvious typos, and changing of names and identifying information (e.g., streets, addresses).[2]

Participants

Participants were recruited from an online panel from Knowledge Networks, Inc. (KN). The KN panel is recruited via a U.S. population random sample and is designed to be representative of U.S. adults. To eliminate access biases due to lack of computers or internet among potential panel members, KN provides internet access and/or web TVs if needed. Amongst the panel members studied here, 21% of the people invited to the panel by KN participated. Studies indicate that responses from panel members closely parallel responses from true population-based random sampling procedures (Dennis, 2001; Krosnick & Chang, 2001). Participation rate of panel members invited to participate in this experiment was 66%, for an overall response rate of 14% (.21*.66).

Eight hundred and forty-three individuals participated. Forty-nine participants were excluded from analyses because they completed the study in less than 8 minutes, and pilot tests indicated that participants could not read the stories and answer the questions that quickly. Five additional participants were excluded for failing to respond to any outcome variables. Thus, 789 participants were included in the analysis (93% of the initial sample). Half were male (49.8%) and half were female (50.2%). The mean age was 48.77 (SD=16.47). Seventy six percent of participants identified themselves as White, 8.2% Black, 8.4% Hispanic, and 7.4% selected other or multiple races. Several analyses demonstrated no differences between the retained and discarded cases. Specifically, there were no differences across conditions, and no gender or ethnicity differences among retained and discarded cases. There was a significant difference in age, with younger participants (M_{age} = 35.59) being more likely to be excluded than older participants (M_{age} = 48.77), $t(841) = -5.74$, $p <$

[1]We selected this number based on previous power analyses.
[2]Although the stories were initially nationally representative, it may be inaccurate to deem them truly representative after manipulating reference to alcohol as a causal factor, and changing names and identifying details. Regardless, this sample is a major improvement upon the types of stimuli commonly used in experimental research.

0001. Due to sporadic missing data on some outcomes variables, the sample size fluctuates between 776 and 789 from analysis to analysis.

Procedure

Members of the KN panel were sent a series of emails with a link to the study. Once consent was obtained, participants were presented with one story (either the alcohol or nonalcohol version). Each base story was read by between 11 and 14 participants. Participants read their assigned story twice to ensure comprehension. They completed story evaluation questions assessing their thoughts about the story quality immediately after the first reading of the story. They were presented with three multiple-choice questions assessing their knowledge of story content after the second reading. These items served as a manipulation check (see below).

Measures

Demographics—Two items were included: gender (females coded high) and age.

Alcohol use—Participants were asked: (a) "how often do you drink one or more alcoholic beverages?" (1="Never, 2="About once a month or less," 3="Several times a month,"4="Several times a week," 5= "More than once a day"), and (b) "on the days you drink, how many drinks do you normally consume?" Responses to these questions were multiplied, with higher score indicating that a participant drinks often and heavily, $M = 4.76$, $SD = 6.40$.

Emotion—Participants were asked to indicate how *frightened* ($M = 6.42$, $SD = 3.65$) they were by the story, and whether they felt *angry* ($M = 6.46$, $SD = 3.58$) with one of more individuals in the story on a scale from 0 (not at all) to 10 (very). Fear and anger were positively associated ($r = .45$, $p < .001$).

Alcohol-control policy support—Items were derived by Slater, Lawrence, and Comello (2009) from Wagenaar, Harwood, Toomey, Denk and Zander (2000). Items were on a 0 (strongly oppose) to 10 (strongly support) scale and dealt with individually and socially oriented policy support. *Individually oriented policy support* included: stricter enforcement of laws prohibiting serving alcohol to (a) intoxicated individuals, (b) underage youth, and (c) having open alcohol containers in vehicles. An index was created by averaging responses to the items, Cronbach's $\alpha = 0.89$, $M = 9.10$, $SD = 2.36$, with higher scores reflecting greater support. *Socially-oriented policy support* included: limiting (a) the number of bars and (b) liquor stores in a community, and (c) banning alcohol billboard advertising. An index was created by averaging responses to the items, Cronbach's $\alpha = 0.90$, $M = 6.73$, SD = 2.99, with higher scores reflecting greater support. Those supportive of individually oriented policy support where also more supportive of socially oriented policy support, $r = 0.57$, $p < .001$.

Causal attributions—Participants were asked to indicate the extent to which they believe various factors contribute to incidents such as those depicted in the story they read. These were assessed on a scale from 0 (not at all a factor) to 10 (a major factor). Using the guidance of Nabi (2003), items were constructed that dealt with societal/global causal factors (e.g., insufficient police patrolling, poor road design, inadequate safety education) and with personal causal factors (e.g., poor driving skills, lack of moral judgment, risk taking). Items were matched to the story topic (i.e., motor-vehicle accident, violent crime, or nonmotor-vehicle accident) and thus differed slightly between story topics. The set of items from each topic was subject to an exploratory factor analysis ($n = 799$) with oblique rotation, revealing two-factor solutions. Items which loaded cleanly on either factor were retained for

use in the analysis. Items, reliabilities, means, and standard deviations are available at www.kent.edu/comm/facultystaff/~cgoodall/.

Manipulation Checks

Each story had three associated multiple choice questions to assess recall. Participants were told that testing recall was a purpose of the experiment. Two items required participants to identify story details. One item (consistent for each story) asked participants to indicate the cause of the crime/accident as stated in the story. Alcohol was an option in all cases. Nearly all (98%) participants in the alcohol condition identified alcohol as a cause, and only 10% did so in the nonalcohol condition, $\chi^2(1) = 595.73$, $p < 0.001$, indicating successful manipulation. Further, to verify successful random assignment, we tested for differences in attention to news, alcohol use, and demographics across experimental groups. No statistically significant differences emerged.

Analytic Approach

Given the unusual design of the study – one article from our sample was randomly selected for each participant and participants were randomly selected using a population-based online panel—multilevel modeling was chosen as the analytical approach, with participants nested within the news article they read. The experimental manipulation (alcohol vs. no alcohol) was treated as a participant-level or level-1 variable, as both the manipulation and random assignment to this condition were on the participant level. This approach simultaneously models influence of story-level attributes (topic), and influence of participant-level attributes (emotional) on outcomes of interest. As recommended by Enders and Tofighi (2007) when participant-level predictors are of substantive interest (in this case, emotion), we center level one predictors within context[3]. Model coefficients and standard errors were estimated using HLM6 with restricted maximum likelihood.

Results

Effects of Manipulating the Presence/Absence of Alcohol Mention in News Stories on Emotional Responses

First we investigated whether participants exposed to the alcohol version of the story responded with greater anger and/or fear than those exposed to the nonalcohol version. Two multilevel models were estimated, each predicting participants' anger or fear responses from story version, controlling for age, sex, alcohol use, and topic of the story. The intercept and effect of the alcohol manipulation were allowed to randomly vary and random error of estimation was included. Results showed that the presence of alcohol increased anger, $\beta_{alcohol\ manipulation} = 1.47$, $p < .001$, but decreased fear, $\beta_{alcohol\ manipulation} = -.59$, $p < .01$.

Emotional Responses and Causal Attribution

We expected that anger elicited from news would be more likely to activate individual-focused causal attribution among readers and fear would activate societal-focused causal attribution. A multilevel model was estimated, predicting causal attributions from emotional reactions of anger and fear. Story topic (motor-vehicle accident, violent crime, or nonmotor-vehicle accident) was included as a story-level control and participant's age, sex, alcohol use, and the presence or absence of alcohol in the story were included as participant level factors. Results confirm these hypotheses. The angrier the participants, the more likely they were to hold individuals responsible, $\beta_{angry} = .08$, $p < .001$, although fear also led participants to hold individuals responsible $\beta_{fear} = .06$, $p < .01$. Looking at the relationships

[3]Including the alcohol manipulation, see Enders and Tofighi, 2007, p.134.

between emotion and attribution of causation to *society*, participants who were more frightened were more likely to hold society responsible than those who were less frightened, $\beta_{fear} = .19$, $p < .001$. Anger was unassociated with societal causal attributions, $\beta_{amgry} = -.02$, $p = .55$ (see Figure 1).

Mediation of the Experimental Manipulation's Effect on Causal Attribution by Emotional Response

We assessed whether emotional responses mediated the relationship between the presence/absence of alcohol in the story and individual and social causal attributions. First, we estimated the direct effect of the alcohol manipulation on these outcomes, discovering no direct effect of the mention of alcohol on individual ($\beta = -.003$, $p = .98$) or societal ($\beta = -.003$, $p = .98$) causal attributions. We then conducted a multilevel mediation analysis following recommendations of Zhang, Zyphur, and Preacher, (2009). For the first step we predicted participants' anger and fear emotional responses from the presence or absence of alcohol in the news story; controlling for topic of the story and the proportion of participants who viewed the alcohol version of the story (the reintroduction of the group mean) at level 2 and controlling for age, sex, and alcohol use at level one. In the second model, we predicted participants' individual and social causal attributions from emotional responses, controlling for story topic, proportion of participants who viewed the alcohol version within each story, and average emotional response within each story (the reintroduction of the group means, see Zhang et al., 2009) at level two and controlling for age, sex, alcohol use, and presence/absence of alcohol in the story at level one (see Table 1).

From these models, it is possible to estimate the indirect effect of the alcohol manipulation on causal attribution through emotional response. These indirect effects were estimated by multiplying the coefficients for the alcohol manipulation on fear and anger ($\beta_{anger.alcohol\ manipulation} = 1.51$ p < .001 and $\beta_{fear.alcohol\ manipulation} = -.56$ p < .05 in the model predicting the emotional response) with the coefficients for *anger and fear* ($\beta_{individual\ causation.anger} = .08$, $p < .001$ and $\beta_{individual\ causation.fear} = .07$, $p < .01$ in the model predicting individual causal attribution and $\beta_{social\ causation.anger} = .08$, $p < .001$ and $\beta_{social\ causation.fear} = .07$, $p < .01$ in the model predicting social causal attribution). The Sobel test was then utilized (see Zhang, et al., 2009).

Results show that anger mediates influence of the alcohol manipulation on individual causal attributions, but not societal causal attributions, (indirect $effect_{individual\ causation.anger} = .12$, $Z = 3.39$, $p < .001$, indirect $effect_{societal\ causation.anger} = -.03$, $Z = -.68$, $p = .49$). Presence of alcohol increases the likelihood that a participant will be angry, which in turn increases the amount that the participant blames the individual for the event.

Results of the fear mediation tests show that fear mediates the influence of the alcohol manipulation on both individual and societal causal attributions (indirect $effect_{individual\ causation.fear} = -.04$, $Z = -2.08$, $p < .05$, indirect $effect_{societal\ causation.fear} = -.11$, $Z = -2.47$, $p < .05$). The presence of alcohol decreases the likelihood that a participant will be fearful, which in turn decreases the likelihood that the reader will place blame on either the individual or society.

When considering these mediation paths through emotion on causal attribution, we see that the total indirect effect of the manipulation on individual causation through these mediators is .08 (calculated by summing indirect effects through anger and fear), indicating that, as a whole, presence of alcohol in a story results in greater blame on the individual through emotion. The total indirect effect of the manipulation on societal causation through these mediators is −.13, indicating that as a whole, presence of alcohol in a story results in less

blame on society through the path of emotional reaction. No direct effects of the manipulation on causal attribution were observed.

Effects of Emotional Response on Public Policy Support

We investigated whether emotion would mediate the relationship between message exposure and policy support. The alcohol manipulation significantly increased support for individually-oriented policies ($\beta = .47$, $p < .01$), but was not a significant predictor of support for socially-oriented policies ($\beta = .23$, $p = .27$), consistent with previously reported results using a slightly different statistical model, see Slater et al., 2012. We conducted multilevel mediation analyses in the same manner used to test RQ2a and RQ3b and discussed above (see Table 1). Results for the mediation paths on policy support (individually oriented vs. socially oriented) through anger are discussed first. Presence of alcohol was associated with greater anger ($\beta_{alcohol\ manipulation} = 1.51$, $p < .001$ in the model predicting anger), and anger was associated with both support for enforcement of existing individual-oriented alcohol-control policy ($\beta_{anger} = .12$, $p < .001$) and with support for new societal-oriented policies ($\beta_{anger} = .08$, $p < .05$). There was evidence of a indirect path from the presence of alcohol in a story to support for enforcement of existing individually oriented laws through anger, indirect effect= .18, $Z = 3.61$, $p < .001$; and through anger on support for new laws changing the context in which alcohol is promoted and sold, indirect effect= .13, $Z = 2.25$, $p < .05$.

Results from models testing the mediation paths on policy support through fear show reverse findings. Presence of alcohol was associated with responding with less fear ($\beta_{alcohol\ manipulation} = -.56$, $p < .05$). Fear was associated with support for enforcement of existing individual-focused laws ($\beta_{fear} = .07$, $p < .01$) and support for the creation of new societal-focused laws ($\beta_{fear} = .18$, $p < .001$). The indirect path from presence of alcohol in a story to support for enforcement of existing individual-focused laws through fear was marginally significant, indirect effect= −.04, $Z = -1.88$, $p < .10$. However, there was an indirect path through fear on support for creation of societal-focused new laws, such that presence of alcohol in a news story decreased fear, which lowered support for new laws restricting outdoor advertising, and limiting the number of bars/liquor stores in neighborhoods, indirect effect= −.10, $Z = -2.36$, $p < .01$.

When considering these mediation paths through emotion on policy support, we see that the total indirect effect of the manipulation on individually oriented policy support through these mediators is .14, calculated by summing indirect effects through anger (.18) and fear (−.04). These indirect effects operate in opposite directions – with the indirect effect through anger resulting in *increased* support for individually oriented policies, but with the indirect effect through fear resulting in *decreased* support for individually oriented policies. As the positive indirect effect through anger is substantially larger than the negative indirect effect through fear, the total indirect effect of the manipulation on individually-oriented policy support through these two mediators is still positive. In contrast, the total indirect effect of the alcohol manipulation on support for socially-oriented policies is. 03 (calculated by summing the indirect effect through anger of .13 and the indirect effect through fear of −.10); these indirect effects through anger and fear effectively cancel one another out.

Discussion

Results illustrate that after reading news about crimes and accidents, readers tend to assign responsibility to individuals involved rather than society, consistent with Iyengar's (1991) hypotheses regarding episodic news. It is a human tendency to blame individuals rather than consider larger situational factors that might have contributed (Jones & Nisbett, 1972). Our results illustrate that anger elicited by crime and accident stories heightens this tendency,

and fear lessen it, consistent with Nabi (2003). It seems Nabi's (2003) findings (recall she looked at effects of experimentally manipulated emotions on opinions about social issues, but did not investigate message effects on emotion) hold up in the general population with a sample of real-world news stories, and with emotion permitted to vary as a result of message exposure. These findings substantially advance understanding of how news can influence discrete emotions and through them, public policy.

Our interest in understanding the impact of emotional responses to news focuses on the impact of news explicitly noting the role of alcohol in the incidents reported. Our findings illustrate that mentioning the role of alcohol increases the likelihood of readers responding with greater anger, but not greater fear, perhaps because injuries or deaths occurring as a result of alcohol use seem more preventable than those not caused by alcohol. Greater anger responses heighten tendencies to hold individuals responsible, presumably because anger is directed toward the source of the problem and motivates retribution. When the intoxicated state of the individual responsible for the crime is made clear, a clear target of retribution is present, making an anger response likely and appropriate. Thus, there appears to be an indirect effect of reference to alcohol on readers' tendencies to blame individuals (vs. society) via anger.

We also investigated impact of emotion on support for public policy. We found fear and anger reactions to coverage of crimes and accidents have different implications for policy support. Moreover, these emotions may provide an indirect path explaining effects of alcohol mention on policy support. Specifically, stories mentioning alcohol as a causal factor in crimes and accidents elicited stronger anger responses. This heightened anger increased support for various types of alcohol-control policies, including enforcement of existing laws restricting individual behavior and support for new laws intended to influence social context that might help deter alcohol-related crimes and accidents. Conversely, the stories omitting reference to alcohol as a causal factor heightened fear. Fear heightened support for the development of new laws intended to influence social context, but had no impact on support for enforcement of existing laws.

These findings are generally consistent with our conceptualization of the policy items (with one important exception—discussed below): The existing policies deal with controlling or punishing responsible individuals, and the new policies deal with changing the social context. Anger leads individuals to support policies punishing responsible individuals, and fear leads individuals to support societal-level policies. This makes sense given that anger is an approach emotion that motivates retribution (Izard, 1977), and encourages quick judgment-making based on available information (Lerner et al., 1998). Policies punishing responsible individuals provide an outlet for anger's retribution tendencies. Fear, on the other hand, encourages systematic contemplation of the situation (Tiedens & Linton, 2001), and is associated with a sense of uncertainty, and perceptions of diffuse causal agents (Smith & Ellsworth, 1985). As a consequence, fear may encourage systematic consideration of various contributing factors to the alcohol problem, making societal-level solutions desirable.

However, the social-level solutions in this case also are likely to have some bearing on restricting the behavior of responsible individuals, (e.g. by making fewer alcohol outlets available, or reducing encouragement for such individuals to consume alcohol via marketing restrictions, society indirectly enforces some degree of control over potential perpetrators). Therefore, it is not, at least in retrospect, surprising that anger would have some influence on social-level policies, in addition to a stronger impact on enforcement of existing laws to control responsible individuals.

Overall, it seems that the effect of explicit mention of alcohol essentially washes out with respect to effect on social-level policy support because alcohol mentions increase anger while decreasing fear. On the other hand, the effect of alcohol mentions on support for individual-level policies regarding enforcement of existing law, via anger, appears more robust than the contrary effect, leading to a net impact supportive of alcohol control policies. In other words, our evidence strongly suggests such mentions do more good than harm with respect to public support for alcohol control policies. Nonetheless, the contrary effect of the alcohol mentions on fear does reduce the overall effect of such mentions. It would be desirable, from an applied perspective, to address this in news coverage. Efforts by public health advocates and law enforcement sources to note the possible effectiveness of social-level interventions, such as reduced alcohol outlets when discussing alcohol-related injuries might help ameliorate this effect by further linking angry responses to social-level as well as individual-level policy approaches. Tests of such approaches would be a useful future step in studying news impact on such health policies.

Our findings illustrate the important role of emotion[4] in processing of news about crimes and injuries, especially when alcohol is involved. Episodic coverage can increase support for existing policies that are focused on restricting individual behavior, such as enforcement of underaged drinking laws and open-container restrictions, via elicitation of anger. Anger is one explanation for the effect of episodic coverage on support for alcohol-control enforcement. One may argue that such support, however, may come at a cost: anger may deflect fear and indirectly reduce support for more social-level policy instruments such as marketing and outlet restrictions. We have no evidence to support that position, as additional analyses did not find effects for difference scores of anger and fear. The two emotions operate independently, and increase in one does not mean decreases in the other. It is possible, in practice, for a message to increase both anger and fear.

These findings should be interpreted within the context of strengths and weaknesses of our research design. The study assessed short-term effects of exposure to a single story; in reality, many such stories may be encountered weekly. Given the modest incremental effect of this experimental exposure, it is striking that effects on policy support were obtained. It seems likely that repeated exposure would strengthen, rather than diminish effects of news identifying alcohol as a causal factor on support for alcohol-control policy enforcement.

This study also focuses on emotion elicited by the experimental manipulation. However, various other factors likely contribute to the nature and intensity of the activated emotion—notably existing attitudes, experiences, and knowledge about the issue of alcohol-related crimes and accidents—important considerations for future research.

These findings are exceptionally robust with respect to generality by experimental research standards. The multilevel random effects analysis permits generalization to the population of U.S. news stories—with the caveat that stories included an experimental manipulation, so they are no longer precisely representative of the population from which they were sampled. Likewise, it permits generalization to the U.S. population—with the caveat that the KN sample is self-selecting, with a 14% response rate; while there is no obvious reason to suggest that willing to join the panel is confounded with characteristics that would systematically bias results concerning effects of emotion evoked by a news story, that possibility cannot be conclusively excluded. As a result, we can assert with considerable confidence, by the standards of experimental research, that support for different types of public policies appears to be differentially influenced by discrete emotions elicited by news coverage, and that effects of including alcohol as a causal factor in news coverage of crime

[4]Although we focus on fear and anger, the role of other discrete emotions is an important topic of future research.

and accidents on support for alcohol control enforcement found in our earlier research (Slater et al., 2009; Slater et al., 2012) can in part be explained by anger elicited when intoxication is a cause of the injury.

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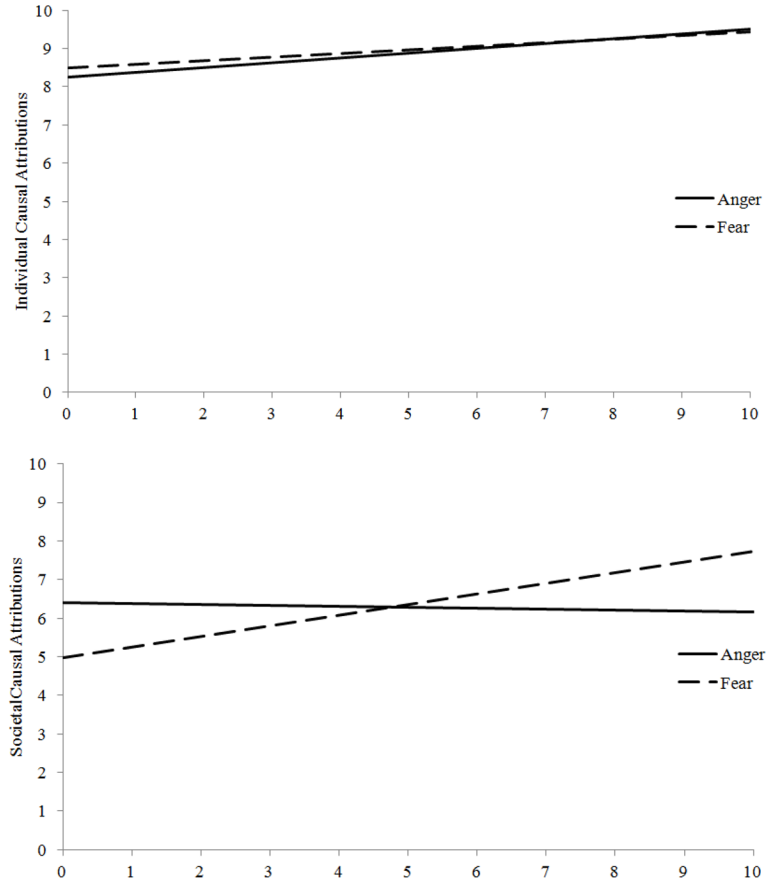

Figure 1.
Relationship between emotion and causal attributions.

Table 1

Models for RQ2a and RQ3a, mediation analysis (testing the indirect effect of the alcohol manipulation on individual and social causal attributions through the emotional responses of anger and fear individually)

	Mediation, *part a* Predicting Anger Response	**Mediation, *part a* Predicting Fear Response**	**Mediation, *part* b_1 Predicting Individual Causal Attributions**	**Mediation, *part* b_2 Predicting Social Causal Attributions**
Intercept[#]	4.74***	4.18***	8.70***	5.54***
Motor Vehicle Acc.	−.90*	−.80*	.15	−.64**
Other Accident	−2.38***	−1.37***	−.21	−.85***
Alcohol Man. (GM[+])	3.94*	2.24	.28	1.49[+]
Anger (GM)	---	---	−.01	.03
Fear (GM)	---	---	.04	.08
Anger	---	.42***	.08***	−.02
Fear	.43***	---	.07**	.19***
Alcohol Manip.[#]	1.51***	−.56*	−.12	.03
Alcohol Use	−.02	−.01	−.01	−.01
Age	−.001	.01	.01**	.01[+]
Gender	−.09	.48*	.21[+]	.09
σ^2_{ij}	7.57	7.81	2.16	4.19
Random effect, intercept, τ_{00}	1.15***	.76***	.02	.01
Random effect, alcohol manip., τ_{04}	1.85***	.21	.02	.04

Note: All level-1 predictors are centered within context.

[#]effect allowed to vary randomly

[+]Group Mean

*$p < .05$;

**$p < .01$,

***$p < .001$

Table 2

Models for RQ2b and RQ3b, mediation analysis (testing the indirect effect of the alcohol manipulation on support for enforcement and support for new laws through the emotional responses of anger and fear individually)

	Mediation, *part a* Predicting Anger Response	**Mediation, *part a* Predicting Fear Response**	**Mediation, *part* b_1 Predicting Support for Enforcement of Individually Oriented Policies**	**Mediation, *part* b_2 Predicting Support for Societally Oriented New Policies**
Intercept[#]	4.74***	4.18***	8.72***	6.48***
Motor Vehicle Acc.	−.90*	−.80*	−.04	−.67*
Other Accident	−2.38***	−1.37***	−.01	−.44
Alcohol Man. (GM[+])	3.94*	2.24	.001	−.29
Anger (GM)	---	---	.004	−.09
Fear (GM)	---	---	.09	.25**
Anger	---	.42***	.12***	.08*
Fear	.43***	---	.07**	.18***
Alcohol Manip.[#]	1.51***	−.56*	.29+	.10
Alcohol Use	−.02	−.01	−.08***	−.13***
Age	−.001	.01	.04***	.03***
Gender	−.09	.48*	.30*	.59**
σ^2_{ij}	7.57	7.81	4.06	7.16
Random effect, intercept, τ_{00}	1.15***	.76***	.02	.13
Random effect, alcohol manip., τ_{04}	1.85***	.21	.01	.19

Note: All level-one predictors are centered within context.

[#]effect allowed to vary randomly

[+]Group Mean

*$p < .05$;

**$p < .01$,

***$p < .001$