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Anger, Sadness and Fear in Response to Breaking Crime and Accident News Stories: How Emotions Influence Support for Alcohol-Control Public Policies via Concern about Risks

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Abstract

Prior research shows that discrete emotions, notably anger and fear, can explain effects of news articles on health and alcohol-control policy support. This study advances prior work by coding expressed emotional responses to messages (as opposed to directly manipulated emotions or forced responses), incorporating and controlling for central thoughts, including sadness (a particularly relevant response to tragic stories), and examining concern's mediating role between emotion and policy support. An experiment with a national online adult panel had participants read one of 60 violent crime or accident news stories, each manipulated to mention or withhold alcohol's causal contribution. Multi-group structural equation models suggest that stories not mentioning alcohol had a direct effect on policy support via fear and central thoughts, unmediated by concern. When alcohol was mentioned, sadness and anger affects alcohol-control support through concern. Findings help confirm that emotional responses are key in determining news story effects on public support of health policies.

Keywords

Alcohol-control; news story; emotion; public policy support; risk concern

News coverage, including health news, appears to influence policy enactment and enforcement (Cook et al., 1983; McCombs & Shaw, 1972; 1993; Yanovitzky, 2002). Health policies can be an important influence on health outcomes, particularly in the area of alcohol-related risks (Wagenaar, Salois & Komro, 2009; Wagenaar & Toomey, 2002; Wagenaar et al., 2000). But what of the question of mechanism—*how* do news stories influence the public in ways that might shift public opinion and public support for legislative initiatives?

One possible explanation is that news triggers emotions, which in turn causes motivated processing and decision-making (Berntson & Cacioppo, 2008; Carver, 2004). Moreover, recent evidence suggests that anger and fear can be differentially evoked by different kinds of health news stories, and have distinctive effects on policy support (Goodall, Slater, & Myers, 2013). In this analysis, we examine the hypothesis that the effect of discrete emotions arising in response to a news story on policy support is mediated by relative concern about risks. We also investigate the role of sadness in addition to anger and fear. Unlike anger and fear, sad response to news has been largely unstudied. Furthermore, given the frequently unfortunate nature of newsworthy events, sadness is particularly relevant in the context of reports covering violent crime and unintended injury.

Finally, we also examine the contribution of evoked emotion versus cognitive elaboration in response to news stories (Petty & Cacioppo, 1986) that cover health policy. In so doing, we hope to advance understanding of how news reports of crime, accidents, and other incidents can influence support for alcohol-control policy and, by extension, provide insights regarding how such breaking news may influence policy across a variety of realms.

Alcohol-Related Injuries and the News

Stories about instances of violent crime, accidents, and injuries are a staple of local news coverage (Graber, 1979; McManus 1992). Prior research has found that such stories mention the possible contributing role of alcohol in serious assaults or unintended injuries far less often than would be expected given epidemiological evidence concerning the role of alcohol. Alcohol is estimated to be a factor in 31.5% of violent crimes (Smith, Branas, & Miller, 1999), yet a content analysis based on a random sample of U.S. news over two years found that only 2.6% of TV news stories and 7.3% of newspaper articles about crime made mention of alcohol's role (Slater, Long, & Ford, 2006). Smith et al. (1999) also estimate that alcohol use is a causal factor in 31% of unintended injuries, such as: falls, drowning, fires, and electrocution. However, only 1.4% of TV news stories and 4.8% of newspaper articles about such injuries mention alcohol's role (citation withheld). Furthermore, approximately 40% of automobile fatalities involve alcohol (34% legally intoxicated, Smith et al., 1999), but only 13% of TV news stories and 19% of newspaper articles note alcohol's role (Slater et al., 2006).

The agenda-setting literature has long recognized the importance of news coverage in increasing issue salience and, in turn, contributing to public opinion and motivating legislative action (e.g., McCombs, 2004). Coverage can increase perceptions of issue prevalence and push certain issues ahead of others with respect to public attention (e.g., Iyengar & Kinder, 1987). In our prior analyses of the present data set, we demonstrated that exposure to even a single breaking news story that mentions alcohol as a causative factor in violent crime, motor vehicle accidents, and other unintended injuries can increase support for the enforcement of existing alcohol-control laws, such as selling to minors or open-container laws (Slater et al., 2012). In the present research, we seek to further understand the process by which news stories influence public policy support, by examining the role of discrete emotional responses to the news stories in increasing concern about the issue, and thereby influencing policy support.

News and Discrete Emotions

Emotions are the primary way humans are motivated (Izard, 1977). Different (or discrete) emotions tend to produce distinct effects. For example, anger can arise in response to perceptions of unfairness, and can lead to retributive thoughts and actions that target a perceived responsible agent (Izard, 1977; Lerner & Keltner, 2001; Smith & Ellsworth, 1985). Fear alerts people to danger, motivates thoughts and strategies for escape, and tends to be associated with uncertainty and diffuse causal agents (Lerner & Keltner, 2001; Roseman, Weist & Swartz, 1994; Smith & Ellsworth, 1985). While both fear and anger may be considered emotions with negative valence, they tend to have opposite behavioral implications: anger leads to hostile approach behaviors (e.g. lashing out, retribution), while fear motivates avoidance (see Izard, 1977; Newhagen, 1998; Roseman et al., 1994).

We further explore the relationship between discrete emotions and message processing by examining the effects of alcohol-mention in crime and accident-related news stories on concern and policy support. Breaking crime and accident news (or episodic news stories, per Iyengar, 1991) involve outcomes that are often devastating. These outcomes can befall victims who may be much like the news consumers themselves, or their friends and family members, and sometimes involve perpetrators who are irresponsible or dangerous in their actions. These stories therefore provide ample opportunity to elicit emotions of anger, fear, and sadness. Emotions, such as fear and anger, influence how messages are processed and remembered (Nabi, 2002; Newhagen & Reeves, 1992; Newhagen, 1998). For example, cultivation research has investigated the effects of fear evoked by news coverage (see Romer, Jamieson, & Aday, 2003).

Discrete emotions and differential support for various public policies

Nabi (2003) takes this research a step further by suggesting that specific discrete emotions may be linked to support for particular types of public policies. Nabi (2003) primed either anger or fear pertaining to the issues of gun violence or drunk driving by having participants respond to a series of items assessing those emotions (similar to how attitudes are made accessible via attitude rehearsal tasks). She then assessed whether these emotions, once activated, influenced policy preferences. Indeed, anger increased preference for retributive solutions, and fear increased support for protective solutions.

Goodall and colleagues (2013) advanced this line of work by assessing the extent to which people self-reported feeling fear and anger in response to reading news stories that either attributed or did not attribute the cause of violent crime and unintended injury to alcohol. They showed that the degree to which participants reported feeling angry mediated the effects of alcohol-mention as a causal factor on support for the enforcement of alcohol-control public policies. Conversely, fear was more associated with non-alcohol stories and tended, though less strongly, to be associated with support for more social-level interventions, such as outlet controls and marketing restrictions.

Goodall and colleagues (2013) study provides initial evidence for how the emotions evoked by a news story can impact policy support. However, there are a number of limitations that we seek to address, both conceptually and methodologically. Asking participants about the

degree to which they felt anger or fear in response to a message asks them to assess a latent emotion, one that they may not consciously recognize until they are directly prompted to assess it. This closed-ended approach has the advantage of maximizing variability and power by requiring all participants to make an assessment of their emotional state along the same dimensions.

However, an open-ended approach to assessing participants' responses, including their emotional responses, offers theoretical and methodological advantages. Since open-ended responses code for emotions that are voluntarily expressed by the participant, one can be sure that the emotion is in fact salient to him or her. The open-ended approach also allows emotions to be coded in parallel with other, more cognitive, less emotion-laden responses, which helps permit the comparison of emotional versus less-emotional responses. Finally, utilizing the open-ended approach, we also assess the effects of sadness, which has not been previously explored in this context. Sadness, we believe, may be particularly relevant as a response to news that (so often) reports on the misfortunes of others, and merits closer research attention.

Sadness

Empathetic sadness, or sadness evoked in response to the misfortunes of others, is less frequently studied in this literature, perhaps because of the inherent complexity of the emotion. In certain respects, sadness is conceptually similar to anger because it also has a negative valence; and it is an approach rather than an avoidance response (Averill, 1983; Ekman, 2003). However, unlike anger, the approach response is not hostility directed at a perpetrator or an irresponsible person. Rather, the approach response is compassionate and directed at victims of misfortune (in this case, the victim or the victim's family members). As such, the sadness felt is a connecting and caring emotion that can motivate empathetic, sympathetic and altruistic behaviors (Eisenberg & Fabes, 1998; Eisenberg & Strayer, 1987).

Furthermore, the cognitive reappraisal associated with sadness (Rivers, et al., 2007) has been linked to strengthening social bonds by encouraging more careful, systematic processing (Bodenhausen, et al., 1994). Sadness can signal a need to reflect on the situation that instigated the sadness in order to help come to terms with it, and to help avoid repeat occurrences of a similar situation in the future (Bodenhausen, et al., 1994; Ekman, 2003; Izard & Ackerman, 2000; Lerner & Keltner, 2001; Schwarz, 1990). Similar to fear, sadness can be associated with a perceived lack of situational control and higher perceptions of risk, which both motivate central processing (Lerner & Keltner, 2001). Recognizing the similarities and differences between the discrete emotions of anger, fear, and sadness, we wish to explore how they may differentially influence support for alcohol-control public policies.

Relative Concern as an Explanatory Mechanism

Related to emotions in that it is inherently affective, relative concern is a term that provides a summary assessment about the significance of a risk relative to other sources of concern in one's life (see Slater, Hayes, & Ford, 2007). After all, concern implies a degree of worry or emotional unease. We have found that attention to entertainment shows about health and

safety and to news stories about accidents and crime influences alcohol control policy support via concern about alcohol-related risks (Jain & Slater, 2011). We use the term “relative concern” to emphasize that concerns do not exist in a vacuum; the willingness to act on a concern is a function of its perceived importance relative to other competing concerns. Focusing on concerns relative to other potentially competing concerns parallels the agenda-setting research approach (McCombs & Shaw, 1972; 1993). Agenda-setting highlights that an issue’s news coverage can increase perceived issue importance or agenda salience. Agenda salience is typically measured by providing a list of current issues to rate for importance, with the target issue or issues assessed by controlling for the mean of the list (e.g., Althaus & Tewksbery, 2002). New public policies are unlikely to be enacted unless they are salient to the public and thus on legislative agendas (Cook et al., 1983).

We focus on concern instead of simple ratings of agenda salience for several reasons. Concern has an inherently affective evaluative component, which is appropriate given our interest in personal risk. Research on risk perceptions emphasize that these perceptions, which are driven by dimensions such as dread and catastrophicness, as well as more cognitive assessments such as likelihood, are as much affective as cognitive in nature (Fischhoff, 1995; Slovic, 1987). Indeed, we have found that concern is a more effective mediator of media exposure influences than the more cognitive estimates of prevalence (Slater et al., 2007). Therefore, we suggest that relative concern about alcohol-related risks would mediate the influence of emotions in response to a news story on alcohol-control policy support.

Relative concern, emotion, and responses to news stories with alcohol mentioned as a causal factor in crime and unintended injuries

To say that the influence of emotions on public policy support will be mediated by relative concern is only part of the story. We are also interested in the effects of breaking news stories on these emotions, and in particular, the effect of mentioning alcohol’s role in violent crimes and accidents. It is necessary, then, to specify the impact of alcohol-mention in the causal sequence.

We know from prior research using closed-end items (Goodall, Slater, & Myers, 2013) that crime and accident news stories mentioning alcohol as a causative factor tends to inspire anger. Since sadness is also an approach emotion with a negative emotional valence, and stories often describe victims of serious crime and unintended injuries, we propose a similar pattern for stories that inspire anger and/or sadness. In other words, crime or accident stories eliciting these emotions may increase concern about alcohol-related risks, which may increase support for alcohol control policies. This should primarily be the case when participants are exposed to a news story in which alcohol is a causative factor. Mentioning alcohol as a causative factor is likely to increase empathetic sadness. Someone’s intoxication suggests the incident might have been readily preventable, which is likely to result in anger directed at the behavior of the responsible party, and sadness for the tragic impact of all concerned. If effects on participants’ anger and sadness are as robust for news stories in which alcohol is not mentioned as for stories in which it is mentioned, such emotions may simply be the outcome of exposure to news stories about violent crime and accidents.

However, if the effect is primarily found for the alcohol stories, it becomes more plausible that these stories influence relative concern about alcohol risks (an agenda-setting type of effect) and indirectly influence support for alcohol control public policy:

H1: Relative concern mediates effects of anger on increasing alcohol-control policy support when news stories about violent crime, crashes, or other accidents mention alcohol as a causative factor; this effect will be modest or non-existent when stories do not mention alcohol.

H2: Relative concern mediates effects of sadness on increasing alcohol-control policy support when news stories about violent crime, crashes, or other accidents mention alcohol as a causative factor; this effect will be modest or non-existent when stories do not mention alcohol.

There are some complexities to consider when making predictions about fear responses to the news stories. First, Goodall et al. (2013) found that inclusion of alcohol as a causative factor is likely to increase anger responses, but not fear responses to violent crime and accident news stories (using closed-ended self-reports of emotion). Therefore, unlike anger and sadness, the effects of fear are not likely to be contingent on exposure to crime and accident news stories where alcohol is mentioned as a causative factor. Second, since we examine concern and support for alcohol-control policies, and we expect that fear will be elicited by both stories that do and do not mention alcohol as a causative factor; it is unclear what to expect with respect to fear. For example, fear about violent crime or serious accidents in general may increase concern about alcohol-related risks as one possible contributor to crime and accidents, or it may not. Similarly, such fear might increase support for alcohol-control policies as one way to reduce crime/accident risks in general, or it may not. Therefore, we pose the question:

RQ1: What is the effect of fear elicited by crime and accident news stories on concern about alcohol-related risks and alcohol control policies?

Concern, cognitive elaboration, and policy support

The Elaboration Likelihood Model (Petty & Cacioppo, 1986) posits that thoughts elaborating the arguments in a persuasive message lead to attitude change consistent with that message. Although breaking news stories are not overtly persuasive messages, Slater (2002), in the Extended Elaboration Likelihood Model argues that ELM principles should hold for the persuasive effects of news coverage as well, as long as the stories are more than just very casually scanned. Support for alcohol-control policies can be considered a persuasive outcome of these news stories (especially the stories highlighting the role of alcohol, as our previous research has found), as such policies are likely to reduce risk of motor vehicle accidents, crime, or other unintended injuries. It is unclear what the relationship of cognitive elaboration will be to policy support once emotion is controlled. Therefore, we ask:

RQ2: Will greater cognitive elaboration of the message influence concern about alcohol-related risks and alcohol control policy support? How does this influence compare to the influence of the emotion variables?

Methods

Design

This study analyzed data from an experimental design in which participants were randomly assigned to receive a crime, motor vehicle accident, or other unintended injury news story manipulated to contain or not contain reference to alcohol-use as a causative factor in the death or injury.

Stimuli—We previously randomly sampled over 1000 U.S. newspapers, and reliably identified the violent crime, motor vehicle accident, and other unintended injury stories in these newspaper issues (see Citation withheld for details regarding sampling and coding). From this pool we randomly selected 20 motor vehicle accident, non-motor vehicle injury, violent crime stories each, or 60 stories total. We manipulated these 60 stories into versions that either mentioned or did not mention alcohol as a causal factor (see Slater, Goodall, & Hayes, 2009, for details), for a total of 120 stimuli. Participants received one of these 120 story versions at random.

Participants—We recruited participants through the Knowledge Networks, Inc. (KN) online panel. KN recruits panelists via a U.S. population random sample and can provide internet access and/or web TVs to reduce selection bias. Approximately 21% of the people contacted by KN agree to participate in the panel. Of the panelists invited, 66% agreed to participate. Participants were offered an additional \$5 incentive in addition to the incentives normally offered by KN for taking part in a study.

A total of 843 individuals participated. Of these, 49 participants were excluded from analyses because they raced through the study in less than 8 minutes—reading and answering the items as fast as we could in pilot tests took us a minimum of 8 minutes. Forty-three participants skipped the open-ended responses, and had to be excluded because no exogenous variables could be coded. Three additional participants did not respond to any outcome variables and were dropped from analyses. That left 748 participants in the final analysis (89% of the initial sample). Participants were 50% female, with a mean age of 48.58 ($SD = 16.42$). Participants self-identified as 80.1% White, 8.3% Black, 8.3% Hispanic, and 7% selected other or multiple races. There were no demographic differences across conditions, and no gender or ethnicity differences among retained and discarded cases. There was a significant difference in age, however, with younger participants ($M_{age} = 42.76$) being more likely to be excluded than older participants ($M_{age} = 48.58$), $t(841) = 3.23, p < .001$.

Procedure—Panel members responding to KN's email were presented with a consent form and then continued on to the study if consent was obtained. Participants were presented with one of the 120 story stimuli and read their assigned story twice to ensure comprehension in this unfamiliar context. Thought listings immediately followed the conclusion of participants' news article reading, followed by closed-ended measures.

Coding Open-ended Cognitive Responses for Emotion and Cognitive Elaboration

Subjects were instructed to specify the thoughts they had while reading the news article. Five lines of spaces were provided, which allowed subjects to self-define a single thought unit. Respondents averaged 3.25 thoughts ($SD = 1.35$). The coding process (below) labeled each thought as either peripheral or central, and identified whether the respondent communicated anger, fear or sadness.

Two students coded these thought listings. The first step for both coders was what Charmaz (2006) calls initial coding, and Creswell (2007) calls open coding. Here, the coders remained open to all the theoretical possibilities that may emerge from the data, while they read responses. Both coders met to discuss their provisional codes, and the various archetype comments that were read. After discussing the provisional codes and reviewing the data once more, the coders met again for focused coding. Focused coding is used to identify the “most significant and/or frequent” (Charmaz, 2006, p. 57) codes from the open coding stage. The goal was to synthesize a scheme that judiciously and completely categorized the data. A codebook was created from the focused coding stage, which was approved by the research project team.

A thought was deemed emotional if the respondent wrote an emotional word clearly linked to a discrete emotion. We took a conservative approach to coding emotion, to minimize interpretation on the part of the coders, accepting reduced variance in exchange for greater validity and reliability. A thought was fearful, if it contained the word “fear” or “worry.” Thoughts received anger designation when they contained “angry” or “hate.” Sadness was coded when respondents wrote “sad,” “helpless” or “sympathy.” Helpless was included as an indicator of empathetic sadness under the assumption that the desire to help was an expression of sympathy. Derivatives of those quoted words were also included (e.g., angers, saddens, etc). Each variable was also quantized as dichotomous, regardless of how many times the emotion is mentioned in each thought and the amount of thoughts. Dichotomous coding was used to address concerns about skew for variables that appear infrequently in the data.

The other major category was elaboration focus, which was operationalized using an elaboration likelihood model (ELM) approach. Each thought was identified as either a peripheral or central thought. The coding principles were to categorize thoughts about presentation, writing quality, and global emotional comments without a specific referent (e.g., I felt angry) as peripheral, and categorize thoughts specific to the article they read as central, whether or not it included emotional language.

Reliability—Initial training was conducted over 10 hours and three sessions, where the conceptual and operational definitions were reviewed for each coded variable. The training complemented the review with practice through mutual coding. Each coder was then required to independently code 150 thoughts, and then discuss their designations together. Resolving their disagreement and a supplemental review took an additional six hours of training in a single session.

After training, slightly more than 10% of the subjects ($n = 85$) were selected to attain initial coder agreement. Both coders independently coded each of the selected subjects' thoughts. Krippendorff's alphas were used to evaluate agreement, calculated with an SPSS macro (Hayes & Krippendorff, 2007), with $\alpha = 0.83$ for the central versus peripheral coding and $\alpha = 0.97$ for the emotion codes. Next, the coders separated to independently code half of the remaining participants' thought listings. Inter-coder agreement was again measured midway through coding, due to the survey's sample size and the possibility of drift; reliabilities in fact improved, to $\alpha = 0.89$ for central versus peripheral coding and $\alpha = 1.00$ for the emotion coding.

Coded variables—Fear ($M = .02$, $SD = .14$), anger ($M = .05$, $SD = .21$) and sadness ($M = .24$, $SD = .43$) were dichotomized as present or absent for each participant; few participants ($< 2\%$) had two thoughts in the same emotive category. Overall, 26.7% of respondents expressed a coded emotion, and 3.7% expressed two distinct coded emotions. Cognitive elaboration was also operationalized by summing respondents' total number of central thoughts ($M = 2.37$, $SD = 1.49$). Counter-argument thoughts were removed from the sum because they were inconsistent with persuasive intent due to the news article, so that total amount of central thoughts could be used to predict persuasive outcomes; only 2.6% of all central thoughts were counterarguments to the news articles.

Un-confounding emotion and central versus peripheral responses—We found in our initial, exploratory coding that expressions of emotion and cognition were often not readily severable, which we addressed by permitting a response to be coded separately as central versus peripheral, and as expressing emotion or not expressing emotion. This has important analytical advantages. When variables for “emotions expressed” and “number of central thoughts” were included in the model together, we were able to un-confound effects of emotion versus amount of central thoughts. The presence of total cognitive elaboration thoughts in the model removed the effect of such elaboration from assessment of the effects of the emotions, and vice versa.

Measured Variables

Items and indices used as the mediator and dependent variable—As our theoretical argument describes a causal process differing between groups, we used structural equation modeling as our analytic approach. To be consistent with our other research that used the same items, we took indices used to distinguish dimensions of concern and policy, and used them to create latent variables, which are described below. Studying dimensionality in concern and policy support was not of theoretical interest in the present study.

Alcohol-control policy support: In our earlier study we extensively pretested items derived from Wagenaar, Harwood, Toomey, Denk, and Zander (2000) concerning alcohol-control policy support (Slater, Goodall, & Hayes, 2009). Policy support was measured on a 0 (strongly oppose) to 10 (strongly support) scale. The items assessed participants' support for stricter enforcement of laws prohibiting serving alcohol to intoxicated individuals, underage drinking, and having open alcohol containers in vehicles, as well as support for policies

limiting the number of bars and liquor stores in a community, banning alcohol billboard advertising, and making servers liable if an intoxicated person causes a crime or accident. In our prior research (e.g., citation withheld), we created two indices, based on exploratory factor analyses, with the first three items on the enforcement of existing laws creating one index ($\alpha = 0.87$) and the other four on the creation of new laws ($\alpha = 0.87$) creating the second index. These (which were correlated at .60) were used as indicators of a latent variable of alcohol-control policy support; use of the indices rather than individual variables served to simplify a complex analysis and to maintain consistency with earlier work.

Relative concern: We asked participants how concerned they were about motor vehicle accidents, other unintended injuries (e.g. falls and drowning), or violent crime (the target varied according to the story topic received) in “your community” and in “the United States” on a 0 (*just a minor concern*) to 10 (*one of my biggest concerns*) scale. Participants were also asked to express how concerned they were about “a driver” (for those in the motor vehicle condition) or “a person” (for all other participants) under the influence of alcohol causing a fatal accident involving “a close friend or relative,” or the participant. The same 0 to 10 response scale was used. A principal axis factor analysis ($n = 740$) using a parallel analysis to assess dimensionality, followed by an oblique rotation to aid interpretation revealed a two-factor solution, which we labeled “social concern” (the “United States” and “your community”) and “personal concern” (a “close friend or relative,” or “you”). Scores for social and personal concern were created by averaging responses within each factor (social concern: = 0.78; personal concern: = 0.90, correlated at $r = 0.46$, $p < .001$). For the same reasons discussed for our public policy measures above, we used these two indices as indicators of relative concern as a latent variable.

Confirmatory factor analysis on concern and policy support latent variables: Concern and policy support were measured as latent variables. Personal and societal concerns were the two observed variables for concern; and policy support’s observed variables were its enforcement and new policy dimensions. The CFA model allowed the latent variables to correlate, and the factor loadings of community concern and enforcement support were fixed at one. The observed variables were found to have significant factor loadings on their respective latent variables, $p < .001$. The correlation between the latent variables was also significant, $p < .001$. The CFA also had good model fit (Hooper, Coughlan, & Mullen, 2008). The Chi-Square statistic for the global model was insignificant, $\chi^2 = 2.16$, $df = 1$, $p = .14$; the root mean square error of approximation (RMSEA) was .04, 90% C.I. [.001, .11], with $p = .46$ the RMSEA less than .05; the comparative fit index (CFI) was 1.00 and non-normed fit index (NNFI).99; and the standardized root mean square residual (SRMR) was .01.

Results

We examined hypotheses and research questions using a structural equation modeling (SEM) approach, as our intention was to better understand the causal mechanisms explaining how reading crime and accident news stories might influence alcohol-control policies. We used multi-group SEMs (Byrne, 2011), in which one group consisted of the participants exposed to the news stories containing mention of alcohol as a causal factor, and

another group consisted of participants exposed to stories without such mention. Measurement models were constrained to be equal between groups for all SEM analyses. A single initial structural equation multi-group model captured all the relations that were the subjects of our hypotheses and research questions. We confirmed the utility of the multi-group model by comparing the fit of a model in which path coefficients were constrained to be equal between groups (a one-group model), to one in which they were free to vary (a two-group model). The multi-group model significantly improved fit compared to the single-group model ($\chi^2 = 19.78$, $df = 9$, $p = .02$).

Relationships and Fit in the SEMs

Modeling hypotheses and research questions—Our principal hypotheses focused on mediation of anger and sadness, and perhaps fear and cognitive elaboration, by relative concern in the alcohol-as-causal-factor experimental condition. Figure 1 illustrates the SEM, which reflects all relationships posited by the mediation hypotheses and research questions, and the path coefficients found, in the multi-group model. Direct paths from the emotions and cognitive elaboration to policy support were also included, as they were necessary to test the mediation (Preacher, Rucker & Hayes, 2007). The relative concern to policy path was fixed between groups, as an additional analysis showed no improvement in model fit by allowing the path to vary between groups ($\chi^2 = .08$, $df = 1$, $p = .78$).

The model fit was very good. The RMSEA was .04, 90% C.I. [.01, .06], with $p = .74$ that RMSEA was less than .05, which was within stringent bounds (Steiger, 2007). The CFI was .98, SRMR = .96 and NNFI = .02, all of which were within desired thresholds. The Chi-Square statistic was significant, $\chi^2 = 36.65$, $df = 23$, $p = .04$, given the large sample size (see Steiger, 2007). The ratio between df and the chi-square statistic was less than two, consistent with good fit (Hooper, Coughlan & Mullen, 2008). The good model fit was encouraging with respect to our overall theoretical picture, but specific hypothesis tests of course depend on the significance of predicted direct and mediated paths.

As seen in Figure 1, the predicted relationship of relative concern on policy support, one of the building blocks of the mediation hypotheses, was highly significant. In the alcohol condition, sadness and anger (marginally) predicted relative concern, but they did not do so in the non-alcohol condition, consistent with H1 and H2. Per RQ1, fear was unrelated to concern in both conditions, though it had a direct relationship to policy support in the non-alcohol condition. An unexpected finding, though only at marginally significant levels, was that sadness had a negative direct relationship to policy support in the alcohol-mention condition. This marginal relationship became non-significant ($p < .2$) when concern was not included in the model, suggesting that consistent with H2, the positive influence of sadness on policy support is explained by the relationship of sad responses to relative concern about alcohol-related risks.

For cognitively-focused elaboration, per RQ2, central thoughts (after controlling for emotional thoughts) had a significant relationship with both policy support and concern, only in the non-alcohol condition. Those relationships were insignificant when alcohol was mentioned. The findings regarding cognitively-focused central elaboration's influence as compared to that of the emotion variables (RQ2) were provocative. When alcohol was

mentioned, there was little evidence for the impact of cognitively-focused elaboration above and beyond the effect of emotional thoughts. However, when participants read the crime and accident stories in which the causal role of alcohol was not mentioned, cognitively-focused thoughts after controlling for emotion had a highly significant effect on policy support and concern. The no-alcohol mention condition also revealed a somewhat more modest effect of fear, and there was no evidence of anger or sadness influence.

We note that when we dropped all non-hypothesized, non-significant research question paths, the model fit improved, moving to a non-significant test, which is unusual for a sample of this size. This is particularly supportive of our arguments because the non-hypothesized paths did not add to fit. We report the more complete model to provide more complete statistical controls and a more complete summary of the path coefficients found.

Testing the Mediation Hypotheses

We postulated that relative concern mediates anger (H1) and sadness (H2) on policy support, when alcohol is mentioned as a causal factor. The hypotheses were examined through two methods: the Sobel test (1982) and bootstrapped intervals (Preacher, Rucker & Hayes, 2008). Both methods test the indirect effect, which is the product of relative concern on the exogenous variable coefficient (e.g., anger or sadness) and the path coefficient for policy support on concern. This SEM was estimated with 5000 bootstrap samples to create the confidence intervals for the mediation tests.

Concern mediated anger's relationship with policy support when participants were exposed to news stories with alcohol mentioned as a causative factor, as the indirect effect was significantly different from zero, indirect effect = .37, SE = .17, $p = .03$, bootstrapped 95% CI [.10, .79], supporting H1. Some may argue, however, that anger's effect on policy support through concern was not supported because anger only marginally affected concern or policy support (e.g., Baron & Kenny, 1986). In fact, an indirect effect may be significant, even in the absence of evidence of significant mediated paths (see Hayes, 2009). H2 was also supported because sadness had a significant mediated effect on policy support, indirect effect = .29, SE = .11, $p = .01$, bootstrapped 95% CI [.10, .55]. No such mediation effects were found in the no alcohol-mention group, consistent with H1 and H2.

We also speculated about possible fear (RQ1) and central thoughts (RQ2) effects on policy support through relative concern. Those speculations were not supported. The Sobel and bootstrapped interval tests were insignificant for central thought mediation in both groups (RQ2). A separate model was estimated to evaluate fear's mediation, which was the same as the predicted model, except the necessary fear paths were included. Similarly, fear's indirect effects on policy support produced insignificant Sobel and bootstrapped interval tests (RQ1).

Discussion

The findings of this study provide considerable insight into how breaking news stories may influence public policy support. When news stories included alcohol as a causal factor in violent crime, motor vehicle accidents, and other unintended injuries, anger and sadness elicited by these stories increased concern about alcohol-related risks (relative to other

concerns of the respondent). This increased relative concern, as one would expect from an agenda-setting perspective (e.g. McCombs, 2004), increased support for alcohol control policies. Moreover, this path of influence was clearly a better explanation for the influence of such stories than the influence of cognitively-focused elaboration, when controlling for thoughts with an emotional component.

Our findings are generally consistent with Goodall et al. (2013) with respect to the importance of discrete emotional responses to news stories in explaining public policy support, while using freely-expressed indicators of emotion instead of forced closed-end responses. The present study also highlights the important role of sadness, unstudied in prior work. In addition, this analysis demonstrates the utility on relative concern about the issue in mediating effects of emotion on public policy support, as one might expect from an agenda-setting perspective.

Surprisingly, we found that while the predicted effects of sadness in response to news stories increased public policy support through concern, the same models also showed a direct, albeit marginally significant, negative relationship between sadness and policy support in the alcohol-as-causal-factor condition. One possible explanation might be that sadness is a co-active state, exhibiting both approach and avoidance tendencies. Sadness may include an empathetic component that can mobilize a willingness to protect others from the same harm, and/or a component that might be described as a resigned but sympathetic reaction to the misfortune of some individual. This latter reaction may not motivate support of social action. If so, when the effect of concern about alcohol risks is statistically controlled for, as in this model, the empathetic component of sadness would predominate, producing the marginally-significant negative direct effect. When we reran the model after removing concern about alcohol-related risks as a control, the negative direct relationship between sadness and policy support became non-significant, consistent with the above explanation. Future research might do well to explore the unique dimensions of sadness (notably what aspects are mobilizing or demobilizing, if our post-hoc explanation is correct), what leads to different dimensions being evoked by a message or a situation, and the attitudinal and behavioral outcomes of evoking such dimensions.

The unexpected findings in the no-alcohol-mention condition are also provocative, but perhaps unsurprising in retrospect. We found that fear and cognitively-focused elaboration directly predicted public policy support, but only when participants read the crime and accident news stories that did not include alcohol as a causal factor. There are several reasons that might explain this pattern. First, we know from prior research (citation withheld, in press) that, at least with closed-ended emotion assessments, such stories are more likely to result in a fear response, attributable to the lack of a clear explanation for the tragic occurrence. Omitting mention of alcohol may have removed participants' ability to identify a controllable factor that could be blamed and possibly prevented. Fear is a typical response to such uncontrollable risks (Lerner & Keltner, 2001). Such causative uncertainty leads not only to fear, but to increased central processing, in an attempt to better understand and perhaps better anticipate and control the source of threat (Bodenhausen et al., 1994). Sadness was also linked to central processing by Bodenhausen and colleagues (1994), but perhaps in this case sadness in the context of alcohol use provided a clear target for blame,

which helped reduce uncertainty and the need to engage in central processing apart from emotionally responding to the story. Of course, there is no reason to expect such an influence via concerns about alcohol-related risks when alcohol was not mentioned in the news story.

The strengths of the study include a diverse participant pool from the general public and the use of a wide variety of crime and accident stories obtained from a systematic random sample of U.S. newspapers (citation withheld). However, as mentioned above, only 21% of the persons contacted by KN agree to become panel members, suggesting that generalizing the findings beyond the population of panel members can be problematic. However, panel members' responses in test studies closely parallel responses from samples obtained using conventional random sampling (Dennis, 2001; Krosnick & Chang, 2001). Certainly, at worst, this is a much more representative sample than one typically finds in an experimental design. At best, it may be deemed reasonably representative of the U.S. population. It also should be noted that, while our sample of stimuli is based on a random sample of news stories, we averaged across the effects of these articles and have not incorporated and tested random effects due to variability between articles, as it was not feasible to do so while running these relatively complex SEMs. Therefore, we cannot statistically generalize to the population from which the news stories were selected, though the large number and diversity of stories provides us relative confidence in our results. Finally, we note that our models are based on correlational data (except for the experimentally manipulated distinction between stories with and without alcohol as a causative factor in the crime or accident), and are therefore subject to possible third variable explanations.

From a substantive vantage point, the willingness of journalists and editors to note when relevant the role of alcohol in the crimes and accidents they report, (and the readiness of public health and law enforcement officials to encourage and provide needed information to reporters) may have a noteworthy impact on a community's willingness to take action to control alcohol-related risks. From a theoretical perspective, we introduce a model for linking emotional responses to news stories to public policy support via increased concern about the issue that gave rise to the emotional response. Moreover, these findings suggest this model is likely to operate via anger and empathetic sadness when the risk is controllable, in that there is someone to blame or something that might clearly be done. When the risk is diffuse, blame is unclear, and protective action uncertain, fear is a more likely response, and systematic, central thoughts about the issue leading to support for public action is the more likely route of influence.

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Figure 1.

Multigroup structural equation model of discrete emotions through relative concern about alcohol-related risks on alcohol-control policy support when alcohol is or is not mentioned as a causal factor in crime and accident news stories. *Notes.* ^ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.