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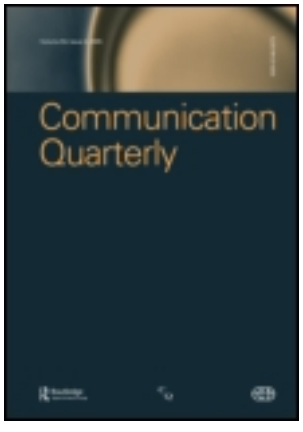

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Are Gender Differences in Responses to Supportive Communication a Matter of Ability, Motivation, or Both? Reading Patterns of Situation Effects Through the Lens of a Dual-Process Theory

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Women process information about support situations and messages more extensively than men, but little is known about whether these gender differences reflect underlying differences in processing ability, motivation, or both. Two studies examined information processing by men and women in both relatively less serious and more serious situations. Participants in Study 1 responded to more and less serious experimental scenarios, whereas participants in Study 2 reported on a recent bereavement situation. In both studies, the pattern of observed gender differences was most consistent with women

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possessing both greater ability and greater motivation to process information about support situations and messages.

Keywords: Comforting; Emotional Support; Grief; Sex Differences; Social Support

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Supportive communication plays an important role in the lives of both men and women, helping members of both genders to cope with various life difficulties, manage distressed feelings, and address problem situations. Consistent with this, considerable research indicates that both men and women highly value the supportive communication skills of their friends, romantic partners, and spouses (Burleson, Kunkel, Samter, & Werking, 1996; MacGeorge, Feng, & Butler, 2003). Additional research demonstrates the health benefits of social support for both men and women (Seeman et al., 1993). However, a growing body of evidence suggests that men and women differ somewhat in how they think about support situations and the messages they receive from helpers in these situations. In particular, accumulating evidence suggests that, on average, women appear to think more deeply about support situations and the messages they receive in these situations than do men (Burleson & Hanasono, 2010). These gender differences in cognitive responses to support situations are important, because they may help explain well-documented gender differences in the effects of social support on health and other aspects of well-being (see review by Uchino, 2004).

Why do men and women differ characteristically in the extent to which they process support situations and messages? Do these gender differences stem primarily from underlying differences in the *ability* to process information about supportive messages and situations or do they stem primarily from underlying differences in the *motivation* to process information about support messages and situations? Or, do these gender differences reflect underlying differences in *both* ability and motivation? Answers to these questions should deepen our understanding about how supportive messages have their effects, why men and women differentially benefit from the support they receive, and what educators might be able to do to enhance people's responsiveness to the support efforts of helpers.

This article reports two studies designed to determine whether gender differences in the processing of support situations and messages reflect underlying differences in motivational orientations or in cognitive abilities. We begin by reviewing research documenting gender differences in responses to support situations and suggest that these differences can be understood through the lens of a recently developed dual-process theory of supportive communication outcomes. This dual-process theory maintains that conclusions about processing ability and motivation can be inferred from how people respond to certain features of support situations. We then report two studies testing hypotheses derived from our dual-process analysis; in one study participants thought about and evaluated comforting messages relevant to a realistic, but hypothetical everyday emotional upset, whereas in the second study participants recalled a recent bereavement experience and evaluated the quality of

different supportive messages intended to help them cope with their grief. In both studies, analyses centered on the extent to which the pattern of gender effects exhibited in different types of support situations suggest underlying differences in processing ability, processing motivation, or both ability and motivation.

Gender Differences in Responses to Support Situations and Messages

Although both men and women clearly value and benefit from support they receive from others (Goldsmith, 2004), they also respond at least somewhat differently to various types of social support. Numerous studies have found that women are less satisfied with the support they receive than are men, but may also benefit more from supportive interactions than do men (e.g., Acitelli & Antonucci, 1994). Moreover, women's satisfaction with supportive interactions appears to be more influenced than men's by the quality of a helper's supportive messages (e.g., Cutrona & Suhr, 1994). In particular, studies have detected gender differences in responses to comforting messages that vary in *person centeredness* (see review by Burleson & Kunkel, 2006).

Person centeredness pertains to the extent to which messages explicitly acknowledge, elaborate, legitimize, and contextualize the feelings and perspective of a distressed other (Burleson, 1994). Thus, messages that exhibit low person centeredness (LPC) deny the other's feelings and perspective by criticizing or challenging their legitimacy, or by telling the other how he or she should act and feel. Moderately person-centered (MPC) comforting messages afford an implicit recognition of the other's feelings by attempting to distract the other's attention from the troubling situation, offering expressions of sympathy and condolence, or presenting explanations of the situation that are intended to reduce the other's distress. Highly person-centered (HPC) comforting messages explicitly recognize and legitimize the other's feelings, and articulate, elaborate, and explore how those feelings fit within a broader context.

Extensive research shows that HPC comforting messages produce more desirable outcomes than messages lower in person centeredness (see review by Burleson, 2003). In particular, both men and women evaluate and respond more positively to HPC comforting messages than to LPC messages (see Burleson & Kunkel, 2006). However, numerous studies indicate that women respond somewhat more favorably to HPC messages than do men, whereas men respond more favorably to LPC messages than do women (e.g., Burleson & Samter, 1985; Jones & Burleson, 1997; Kunkel & Burleson, 1999; MacGeorge, Graves, Feng, Gillihan, & Burleson, 2004). This particular gender difference appears to be both stable and widespread, having been found in samples of children and adolescents (Clark, MacGeorge, & Robinson, 2008; Servaty-Seib & Burleson, 2007), as well as adults (e.g., Burleson, Holmstrom, & Gilstrap, 2005, Study 1; Rack, Burleson, Bodie, Holmstrom, & Servaty-Seib, 2008), in multiple ethnic groups in the United States (Samter, Whaley, Mortenson, & Burleson, 1997), and in samples of both Americans and Chinese (Burleson, Liu, Liu, & Mortenson, 2006; Burleson & Mortenson, 2003). Given the documented

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contributions of emotional support to multiple aspects of well-being (Wills & Fegan, 2001), there is substantial pragmatic justification for understanding how gender influences responses to and outcomes of supportive messages.

A Dual-Process Account of Gender Differences in Responses to Supportive Communication

Bodie and Burleson (2008) recently proposed a comprehensive explanation for gender differences in responses to supportive messages. In their dual-process theory of supportive communication outcomes (also see Burleson, 2009a, 2009b), these authors suggested that demographic, personality, and situational differences in responses to support are a function of how extensively supportive messages are processed by different people on different occasions.

The dual-process theory of supportive communication outcomes applies the general logic of dual-process thinking to the processing and outcomes of social interactions focused on the provision of varied forms of support, including informational support (Feng & MacGeorge, 2010), everyday emotional support (Bodie et al., 2010), and grief management (Rack et al., 2008). The theory aims to explain why messages and other elements of supportive interactions have the effects they do with particular others on specific occasions. The core thesis of this theory is that the elements of supportive interactions produce certain effects as a joint function of the intrinsic properties of these elements (e.g., the sophistication of supportive messages) and how these elements are processed cognitively by their recipients (e.g., systematically vs. superficially).

Although dual-process models have been developed and applied to numerous aspects of individual and social functioning (see Chaiken & Trope, 1999), communication scholars are most familiar with applications of dual-process thinking to persuasive communication; Petty and Cacioppo's (1986) Elaboration Likelihood Model (ELM) and Chaiken's (1980) Heuristic–Systematic Model (HSM) are the best-known variants of these models. Dual-process models of persuasion are richly suggestive, but the ELM and HSM cannot be directly applied to supportive communication and its outcomes. For example, the outcomes of interest are different in persuasion and support situations (e.g., attitude change vs. affect change), as are the mechanisms through which these outcomes are influenced, the message contents that seek to affect outcomes, the aspects of the interactional environment that happen to influence outcomes, and the factors that influence processing ability and motivation. This means that, although the general logic of the dual-process approach provides a valuable abstract framework for a theory of supportive communication outcomes, and extant dual-process theories (such as the ELM and HSM) contribute helpful concepts and analogies, a specific theory pertaining to the processing and outcomes of supportive communication cannot be "imported" from these sources, but rather must be developed carefully in a manner that respects the distinctive qualities of supportive communication.

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In general, dual-process accounts of message outcomes maintain that: (a) the effects of messages and other elements of support situations (e.g., source characteristics) vary as a function of the amount of scrutiny or elaboration they are given by recipients, with message content having the strongest effect on outcomes when messages are scrutinized extensively; and (b) multiple factors influence the amount of scrutiny or thought that people give to the messages they receive on particular occasions (Moskowitz, Skurnik, & Galinsky, 1999). Specifically with regard to gender differences, Bodie and Burleson (2008) speculated that women typically process support situations and supportive messages more extensively (i.e., elaborately, thoughtfully) than do men, with this greater processing resulting in women discriminating more sharply than men among better and worse message forms (e.g., LPC vs. HPC comforting messages).

If women generally process supportive messages more extensively than men, they do so, according to the logic of dual-process theories, because they are chronically more able or more motivated to think about support situations and messages than men—that is, dual-process theories maintain that processing depth is a function of the individual's capacity (ability) to think systematically about relevant information, as well as the individual's desire (motivation) to think about that information (see Moskowitz et al., 1999). Although processing ability and motivation vary as a function of situational factors (e.g., the severity or perceived seriousness of a particular situation, the presence of distracting environmental stimuli), gender differences in responses to supportive communication are quite stable, suggesting that these differences stem from underlying individual differences in processing ability, motivation, or both.

Although suggestive, Bodie and Burleson's (2008) account of gender differences did not specify whether these differences result from underlying gender differences in processing ability, processing motivation, or both processing ability and motivation. In an effort to address this issue, Burleson et al. (2009) recently examined whether gender differences in the processing of support situations and messages were mediated by individual differences in processing ability (i.e., level of interpersonal cognitive complexity), by individual differences in processing motivation (i.e., expressive orientation), or by individual differences in both processing ability and motivation. These researchers found that gender differences in the processing of support situations and comforting messages were equally mediated by individual differences in processing ability and motivation. These findings, along with those of other recent studies examining individual-difference mediators of gender differences in supportive communication (e.g., Kunkel, 2002; MacGeorge et al., 2004), suggest that women may think about support situations more deeply than men, and get more out of the supportive messages they receive in these situations, because they are both better able and more motivated than men to process information about these situations and messages.

The effort to explain gender differences in terms of underlying individual differences provides important insights, but also suffers from some significant limitations. In particular, most individual-difference variables examined with regard to communication

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behaviors cannot be viewed as exclusive or "pure" assessments of ability or motivation. For example, interpersonal cognitive complexity and expressive orientation (the ability and motivational mediators examined by Burleson et al., 2009) each may arguably tap aspects of both processing ability and motivation.[1] Thus, several researchers suggested that better (or at least complementary) insights about the factors underlying gender differences can be gleaned from experimental studies that examine how men and women respond to carefully manipulated situations (e.g., Eagly & Koenig, 2006; Sagrestano, Heavey, & Christensen, 2006). For example, based on the pattern of gender differences in the types of comforting messages used in response to carefully manipulated stimulus situations, MacGeorge, Gillihan, Samter, and Clark (2003) were able to conclude that women were somewhat more able than men to construct HPC comforting messages. Burleson et al. (2005) extended these findings, showing that on the basis of patterns of situational differences across four studies, men were both less able and less motivated than women when it came to producing HPC comforting messages.

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Focus of These Studies: Inferring Processing Ability and Motivation From Situational Differences in Responses to Supportive Situations

Previous efforts to explain gender differences in responses to supportive messages are limited by only examining the gender-mediating effects of individual-difference variables. Thus, these studies sought to determine whether gender differences in the processing of support messages and situations stem from underlying differences in ability or motivation by examining how men and women differentially react to carefully manipulated support situations.

The dual-process theory of supportive communication outcomes maintains that the severity of a problem situation influences how deeply people, in general, process support situations and messages, with processing increasing as a function of greater problem severity (Bodie & Burleson, 2008). Specifically, as the severity of a problem situation increases (up to some limit), people should be increasingly motivated to attend to that situation and the supportive messages they receive from others. In particular, people should have more thoughts about relatively serious problems than they do about less serious problems; further, if they more thoughtfully process the supportive messages they receive as a function of increasing problem severity, they should discriminate more sharply between better and worse versions of those messages when confronting more *versus* less serious problems.

Gender differences in the extent of situation and message processing in more and less serious problem situations can provide a basis for inferring whether these differences arise from underlying gender differences in processing motivation, processing ability, or both processing motivation and ability. Specifically, if differences between men and women are observed only in "high motivation" circumstances where everyone is presumably working to capacity (such as when confronting a relatively severe problem), this would suggest that gender differences in the processing of situations and messages primarily stem from underlying differences in ability—that is, if

women ''outperform'' men only when both are working to capacity, this implies that women, on average, have greater ability than men to process support messages and situations. In contrast, if differences between men and women are only observed in ''low motivation'' circumstances where people presumably work according to their spontaneous inclinations (such as when confronting a less serious problem), this would suggest that gender variations in responses to support situations and messages stem from underlying differences in baseline levels of motivation—that is, if women outperform men when neither gender has an especially strong motivation to process information, this implies that, on average, women generally have a greater inclination (baseline level of motivation) to process supportive messages and situations than do men. Finally, if gender differences are observed in both low and high motivation conditions (i.e., are observed when people respond to both less serious and more serious problem situations), this implies that gender variations in processing stem from underlying differences in both motivation and ability.

Based on Burleson et al.'s (2009) findings that gender differences in message and situation processing were mediated by individual differences in both processing ability and processing motivation, we anticipated that women would exhibit deeper processing of support situations and messages in both more and less serious problem situations. Specifically, we expected that both men and women would process information more deeply when confronting more serious problem situations. Further, we expected that women would exhibit deeper processing of these situations and the messages used in them than would men. More critically, we anticipated that the severity of the problem situation would not moderate gender differences in the extent of message and situation processing. Thus, we hypothesized the following:

H1: Men and women will exhibit deeper processing of support situations and messages when responding to more serious problem situations than when responding to less serious problem situations.

H2: Women will exhibit deeper processing of support situations and messages than men when responding to both more and less serious problem situations (i.e., problem severity will not moderate gender differences).

We evaluated these predictions in two different studies. Study 1 utilized a prospective design that examined everyday comforting contexts; here, men and women were asked to indicate how they would respond to supportive messages intended to help them cope with one of several common sources of emotional upset. Study 2 focused on retrospective self-reports about a recently experienced bereavement context; here, men and women were asked to indicate how they responded to grief management messages intended to help them cope with the recent death of a member of their social network.

Study 1

Substantial evidence indicates that both the mild and more serious hassles, disappointments, and hurts people routinely experience are important determinants of

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mood and psychological well-being (e.g., DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Eckenrode, 1984). These findings have motivated research on the comforting strategies that help to reduce the distress stemming from everyday hurts (Barbee & Cunningham, 1995; Burleson, 2003). A popular paradigm for examining people's responses to different comforting messages has participants read about realistic, but hypothetical everyday stressors and then evaluate different comforting messages relevant to these stressors for their perceived helpfulness (see discussion of the "message perception paradigm" by Burleson & MacGeorge, 2002). College students routinely encounter a broad range of stressors (Murphy & Archer, 1996) and frequently are the recipients of comforting efforts by friends (Samter, 2003). Thus, Study 1 had male and female college students imagine that they were experiencing either a mildly or moderately upsetting stressor; they then evaluated the helpfulness of several different comforting messages that varied in degree of person centeredness.

Method

Participants

Participants were 207 college students (72 men and 135 women) attending a large, Midwestern university (74.8% White, 73.3% upperclassman, and mean age = 20 years, 2 months). Most were majoring in liberal arts, consumer and family sciences, or education (61.8%); with science, engineering, technology, and agriculture majors representing 29.0%; business majors representing 8.2%; and health and sciences and veterinary medicine majors representing 1%.

Procedure and measures

Participants were randomly assigned to read one of eight scenarios and imagine that they were actually experiencing it; the scenarios consisted of four problem situations that are common sources of everyday emotional upset for college students (academic disappointments, dating problems, job-related problems, and parking fines).[2] Multiple situations were employed to enhance generalizability of the results. The four situations employed in this study were selected from a larger pool of situations based on pilot data indicating their realism and relevance to the population examined. Each of the four situations was manipulated to create a mildly severe scenario (e.g., receiving a $20 parking ticket) and a moderately severe scenario (e.g., getting one's car booted and having to pay $350 in fines and fees to get the car released).

Immediately after reading the problem scenario to which they had been randomly assigned, participants completed a thought-listing procedure that provided a measure of *depth of processing for the support situation.* Participants were given $2\frac{1}{2}$ min to list everything they "were thinking about while reading the problem situation." They were encouraged to list all the thoughts they had when they finished reading the problem scenario, including positive, negative, and irrelevant ideas. They entered their thoughts into "12, 8-inch horizontal lines, each about 1 inch (2.54 cm) from the one above it" (Cacioppo & Petty, 1981, p. 318). Three judges, blind to all hypotheses,

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coded the number of relevant thoughts listed by participants. These judges (graduate students at a large Midwestern university) had been trained in thought unit coding by an experienced coder following the procedures detailed by Cacioppo and Petty. A thought unit was defined as one stated idea, whether grammatically correct or not. Relevant thoughts were defined as those units directly related to the problem situation and the experience of that situation. The average interrater reliability for number of relevant thoughts, as assessed by intraclass correlation, was $r = .90$. The distribution for number of relevant thoughts was approximately normal (skew = 0.78; kurtosis = 0.87).

After completing the thought-list procedure, participants were asked to imagine they ran into a peer helper (either a male or female acquaintance) with whom they discussed the upsetting situation; they subsequently read six different messages that this helper might use "to make you feel better." The messages varied in level of person-centeredness (2 instances each of low, moderate, and high). For example, one of the LPC messages used with the dating problem situation stated, "Look, nobody is worth getting so worked up about. I mean, it's just not that big a deal. You have other things to worry about. Face the fact that worrying isn't worth your trouble and stop being so depressed about the whole thing"; one of the HPC messages for this situation stated, "Well, I understand that you feel down right now. You have every right to feel upset. I mean, disagreeing with someone you care about is always hard. I sure hope that you two will work it out."[3] To assess *perceived message helpfulness* participants rated each message on four, 5-point bipolar scales (*helpful–unhelpful, appropriate–inappropriate, sensitive–insensitive,* and *effective–ineffective*); higher scores indicate more positive message evaluations. Across message instances and problem situations, helpfulness ratings exhibited good internal consistency for each level of person centeredness: For LPC messages, average $\alpha = .87$; for MPC messages, average $\alpha = .84$; and for HPC messages, average $\alpha = .79$.

Participants then completed a questionnaire that assessed perceptions of several aspects of the scenario that they had read, including two items that assessed the *realism* of the problem scenario (*not at all realistic–very realistic* and *not at all believable–very believable*; $\alpha = .68$), and three items that assessed the *perceived seriousness* of the problem scenario (e.g., *not at all serious–very serious; not at all severe–very severe,* and *not at all upsetting–very upsetting*; $\alpha = .87$); responses to all items were on 5-point scales. Finally, participants completed several other questionnaires that are not germane to this study.[4]

Manipulation checks and preliminary analyses

Perceived realism of the problem situations. The mean realism ratings for the four situations ranged from 3.80 to 4.03, indicating moderately high realism, and perceived realism did not vary significantly as a function of situation, $F(3, 202) = 0.63$, $p > .59$; participant gender, $F(1, 202) = 0.32$, $p > .57$; or the Situation × Gender interaction, $F(3, 202) = 0.30$, $p > .87$.

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Perceived seriousness of the problem scenarios. The problem severity manipulation plays a crucial role in this study because the manipulation of this situational variable is hypothesized to influence the motivation to process information about support situations and messages. Thus, it was necessary to ensure that the stimulus scenarios were perceived as intended by the participants (i.e., the low severity scenarios were seen as less serious than the high severity scenarios for each of the four situations) while ensuring that men and women did not systematically differ in their perceptions of the seriousness of these scenarios. Means and standard deviations for the perceived seriousness of the scenarios, broken down by problem severity and gender, are reported in Table 1. A 2 (Problem Severity) × 2 (Gender) × 4 (Situation) analysis of variance (ANOVA) on perceived seriousness detected the expected main effect for problem severity, $F(1, 191) = 186.20$, $p < .001$ ($\eta^2 = .49$); the low severity scenarios were perceived as less serious ($M = 2.45$, $SD = 0.86$) than the high severity scenarios of the problem situations ($M = 3.96$, $SD = 0.72$). In addition, there was a significant interaction between problem severity and situation, $F(3, 191) = 5.44$, $p < .001$ ($\eta^2 = .08$). Decomposition of this interaction showed that difference in perceived seriousness for the low and high severity scenarios of the "test" situation was greater than the difference between the low and high severity scenario of the other three situations (see Table 1). More important, however, the low severity scenarios for all four situations were perceived as significantly less serious than the corresponding high severity scenarios of these situations (all ps $< .05$). Moreover, means for perceived seriousness for all of the low severity scenarios were below the scale midpoint of 3.0 (ranging from 1.69–2.76) whereas means for perceived seriousness for all the

Table 1 Means and Standard Deviations for Perceived Seriousness of the Problem Scenarios Used in Study 1

	Rated Seriousness of Problem Scenario			
	Men		Women	
Problem Situation and Severity Level	*M*	*SD*	*M*	*SD*
Test situation				
Low severity	1.69	0.66	2.20	0.64
High severity	4.44	0.62	4.08	0.76
Romance situation				
Low severity	2.76	1.12	2.54	0.86
High severity	4.30	0.66	4.02	0.62
Job loss situation				
Low severity	2.63	0.76	2.70	0.69
High severity	3.80	0.77	3.81	0.68
Parking situation				
Low severity	2.29	1.02	2.73	0.86
High severity	3.70	0.64	3.78	0.74

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high severity scenarios were well above the scale midpoint (ranging from 3.70–4.44; see Table 1).

Particularly important, participant gender did not have a main effect on perceptions of problem seriousness, $F(1, 191) = 0.08$, $p > .78$—nor did gender qualify the effects of problem severity, $F(1, 191) = 2.18$, $p > .14$; situation, $F(3, 191) = 0.84$, $p > .47$; or their interaction, $F(3, 191) = 0.71$, $p > .54$. These data indicate that the manipulation of problem severity was successful; the low severity scenarios were seen as less serious than the higher severity scenarios, and men and women did not systematically differ in their perceptions of the seriousness of these scenarios.

Depth of message processing. Preliminary analyses indicated no gender differences in evaluations of MPC messages, $t(205) = 0.85$, $p > .39$; hence, evaluations of these messages were eliminated from future analyses.[5] Preliminary analyses also indicated, as expected, that women evaluated HPC messages as more helpful than did men, $t(205) = 2.07$, $p < .05$ ($r^2 = .02$); and further evaluated LPC messages as less helpful than did men, $t(205) = 3.07$, $p < .001$ ($r^2 = .04$; see means and standard deviations in Table 2). Consistent with the recommendations of Petty and Wegener (1998), we assessed depth of message processing by creating a *message quality discrimination index*; this index reflects the extent to which participants thought about or elaborated on the messages they read. This index was generated for participants by subtracting their mean LPC message evaluation score from their mean HPC message evaluation score. The resulting score could range from −4.0 to +4.0; actual scores ranged from −1.88 to 4.00, with $M = 1.82$, $SD = 1.10$, skewness = −0.48, and kurtosis = −0.02. Only 6.5% of participants had scores below zero; these few individuals evaluated LPC messages more favorably than HPC messages. Scores in excess of zero, obtained by 93.5% of participants, indicated that HPC messages were evaluated more positively than LPC messages; the higher the score, the greater the discrimination between HPC and LPC messages.

Results

H1 predicted that men and women would exhibit deeper processing of support situations and messages when responding to more serious problem situations than when

Table 2 Means and Standard Deviations by Participant Gender for Evaluations of Message Helpfulness as a Function of Message Person Centeredness in Study 1

	Men		Women	
Level of Message Person Centeredness	*M*	*SD*	*M*	*SD*
LPC message evaluation	2.42	0.82	2.06	0.81
MPC message evaluation	2.95	0.60	2.85	0.80
HPC message evaluation	3.91	0.56	4.08	0.55

Note. Evaluations of messages were made on 5-point scales ranging from 1 (*unhelpful*) to and 5 (*helpful*). LPC = low person-centered; MPC = moderately person–centered; HPC = highly person-centered.

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responding to less serious problem situations. *H2* predicted that women would exhibit deeper processing of support situations and messages than men when responding to both more and less serious problem situations (i.e., that problem severity would not moderate gender differences). Preliminary analyses did not find any significant main or interaction effects for the factor of problem situation (i.e., the 4 different problem situations); thus, this factor was dropped from subsequent analyses to enhance clarity and conserve space.[6] This resulted in a design in which, with $N = 207$ and $\alpha = .05$, power to detect a significant effect was .30 for small effects ($f = .10$), .94 for medium effects ($f = .25$), and in excess of .99 for large effects ($f = .40$).

The study's hypotheses were initially evaluated with a 2 (Problem Severity) × 2 (Gender) multivariate analysis of variance (MANOVA) on the dependent variables of depth of situation processing (i.e., degree of elaboration about the support situation) and depth of message processing (i.e., degree of discrimination between LPC and HPC messages). Means and standard deviations relevant to this analysis are displayed in Table 3. Consistent with predictions, the MANOVA detected a significant main effect for the factor of problem severity (Wilks's $\Lambda = .947$), $F(2, 202) = 5.65$, $p < .004$; and a significant main effect for the factor of participant gender (Wilks's $\Lambda = .920$), $F(2, 202) = 8.82$, $p < .001$. However, the Severity × Gender interaction was not significant (Wilks's $\Lambda = .991$), $F(2, 202) = 0.89$ $p > .42$.

Given the significant differences detected by the MANOVA, univariate analyses were conducted on each dependent variable. The 2 (Problem Severity) × 2 (Gender) ANOVA on depth of situation processing detected significant main effects for problem severity, $F(1, 203) = 8.65$, $p < .004$ ($\eta^2 = .04$); and gender, $F(1, 203) = 7.09$, $p < .01$ ($\eta^2 = .03$). However, the interaction between these two factors was not significant, $F(1, 203) = 1.72$, $p > .19$. Depth of situation processing was greater in the high severity scenarios ($M = 6.26$, $SD = 2.65$) than the low severity scenarios ($M = 5.35$, $SD = 2.38$), as predicted by *H1*. Depth of situation processing was greater by women ($M = 6.13$, $SD = 2.62$) than by men ($M = 5.15$, $SD = 2.30$), as predicted by *H2*.

Table 3 Means and Standard Deviations for Extent of Situation Processing and Extent of Message Processing in Study 1

	Problem Severity			
	Low Severity		High Severity	
Dependent Variable	Men	Women	Men	Women
Extent of situation processing				
M	4.41	5.84	5.94	6.43
SD	2.01	2.43	2.35	2.81
Extent of message processing				
M	1.33	1.91	1.66	2.14
SD	1.09	1.16	1.04	0.95

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A 2 (Problem Severity) × 2 (Gender) ANOVA on depth of message processing detected a near significant main effect for problem severity, $F(1, 203) = 3.32$, $p < .07$ ($\eta^2 = .02$); and a significant main effect for gender, $F(1, 203) = 11.67$, $p < .001$ ($\eta^2 = .05$). The interaction between problem severity and gender was not significant, $F(1, 203) = 0.11$, $p > .73$. Depth of message processing was marginally greater in the high severity scenarios ($M = 1.98$, $SD = 1.00$) than the low severity scenarios ($M = 1.71$, $SD = 1.17$), as predicted by *H1*. Depth of message processing was significantly greater by women ($M = 2.02$, $SD = 1.07$) than by men ($M = 1.49$, $SD = 1.08$), as predicted by *H2*.

Brief Discussion

Study 1 found: (a) that women generated more thoughts than men about support situations; and (b) that women discriminated more sharply than did men between better and worse comforting messages. Consistent with the notion that women possess both greater ability and greater motivation than do men when it comes to processing support situations and comforting messages, neither of these gender differences was moderated by the severity of support situation. Women exhibited deeper processing than men of both situations and messages in relatively serious problem situations where members of both genders could be assumed to be motivated to process information; this result is consistent with women possessing greater processing ability than do men. In addition, women exhibited deeper processing than men of both situations and messages in less serious problem situations where differences in processing depth could be assumed to arise from the inclination to process information; this result is consistent with women possessing greater processing motivation than do men.

Study 2

Study 2 was conducted in an effort to extend the results of Study 1 in a different support context (bereavement vs. everyday comforting). Bereavement is generally a more intense emotional experience than the everyday upsets examined in Study 1; however, the intensity of the grief experience following a death loss varies as a function of numerous factors, including age of the deceased, health status of the deceased, amount and quality of contact with the deceased, and the suddenness or unexpectedness of the death, among others (Stroebe & Schut, 2001). This means that the grief experience following some losses will be relatively intense, but will be relatively mild following other losses. Applying the logic of the dual-process model for supportive communication outcomes, we anticipated that depth of processing for bereavement situations and grief management messages would increase as a function of grief intensity. Thus, in Study 2, we tested a somewhat modified version of *H1:*

> *H1: Men and women will exhibit deeper processing of bereavement situations and grief management messages when responding to more intense grief situations than when responding to less intense grief situations.*

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Recent studies of both adolescents and adults (Knight, Elfenbein, & Messina-Soares, 1998; Servaty-Seib & Burleson, 2007) indicate that there are gender differences in evaluations of grief management strategies, with women appearing to discriminate among better and worse messages to a greater extent than do men. Our dual-process model suggests these differences stem from underlying differences in the degree to which men and women process bereavement situations and grief management messages. Thus, Study 2 sought to determine whether gender differences in responses to bereavement situations and grief management messages are most consistent with underlying gender differences in processing ability, gender differences in processing motivation, or gender differences in both processing ability and motivation. Consistent with the findings of Study 1, we hypothesized the following:

> *H2: Women will exhibit deeper processing of bereavement situations and grief management messages than men when responding to both more and less intense grief situations (i.e., grief intensity will not moderate gender differences).*

Study 2 employed a research design that differed from that used in Study 1 in several respects. Most important, Study 2 obtained retrospective reports about an actual event *versus* the prospective reports about a hypothetical event in Study 1. Having participants evaluate messages with regard to a recalled, actual event may generate more ecologically valid results than having them respond prospectively to a hypothetical situation (Burleson & MacGeorge, 2002). Further, Study 2 utilized a different set of supportive messages from those used in Study 1; consistent with its bereavement context, Study 2 employed sets of *grief management* messages rather than *everyday comforting* messages. Finally, because participants in Study 2 reported about actual events that naturally varied in the intensity of the grief experience (as opposed to responding to manipulated situations as in Study 1), we utilized regression procedures in the data analyses.

Method

Participants

Participants were 34 male and 69 female college students attending a large, Midwestern university (77.1% White; mean age = 20.3 years), who had experienced a death loss in the previous 2 years. College students are appropriate to examine for responses to grief management strategies, because considerable research indicates that they frequently experience death losses and benefit from helpful responses to their grief (Balk, 1997, 2001).

Procedure and measures

Participants attended a data collection session, were initially asked if they had experienced a death loss within the previous two years and, if so, whether they were willing to think about the loss and complete questionnaires regarding the experience. (If attendees had not experienced a death loss or were not comfortable thinking about

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the loss, they were given the opportunity to participate in an alternative study.) Participants completed questionnaires providing assessments of: (a) demographic variables (i.e., participant age, gender, ethnicity, and academic major); (b) background factors related to the deceased (e.g., cause of death and time since death) and the loss (e.g., the intensity grief experienced as a result of the loss); (c) the extent of elaboration (amount of thought) engaged in while answering questions about the decedent and his or her death; (d) evaluations of the helpfulness of grief management messages that varied in person centeredness; and (e) several other constructs unrelated to this study.[7]

Intensity of grief. Participants initially completed a Loss Experience Survey (LES) composed of 18 items that assessed details surrounding the death of their network member and their bereavement experience. Type of loss included extended family members (e.g., grandparent or cousin; 59%), peers (e.g., friends or classmates; 26.7%), immediate family members (e.g., mother, brother, or spouse; 6.7%), very close friends or romantic partners (4.8%), and those not fitting the aforementioned categories (2.9%). To assess intensity of their grief, participants responded to four 5-point items that tapped the nature and intensity of the feelings they experienced as a result of the death: "How upset were you at the time of the death?," ranging from 1 (*not at all upset*) to 5 (*very strongly upset*); "How intense were your feelings after the loss?," ranging from 1 (*not at all intense*) to 5 (*very strongly intense*); "After this person died, I found it difficult to pay attention at school or work," ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); and "How disruptive was the death to your daily functioning?" ranging from 1 (*not at all disruptive*) to 5 (*very strongly disruptive*). This scale possesses face validity and exhibited good internal consistency (Cronbach's $\alpha = .85$). More important, the intensity of the grief reported by men ($M = 3.43$, $SD = 1.01$) and women ($M = 3.68$, $SD = 0.91$) did not significantly differ, $t(101) = 1.28$, $p > .20$.

Depth of processing about the bereavement situation. A modified version of the Cacioppo and Petty (1981) thought-listing procedure used in Study 1 to assess depth of processing about the problem scenario was employed in Study 2. Immediately after completing the 18-item LES, participants were given 2½, min to list everything they "were thinking about while completing the Loss Experience Survey." Participants were encouraged to list pleasant, unpleasant, and irrelevant thoughts, and to "simply list what it was that you were thinking." When instructed to begin, participants entered their thoughts into 12, 8-inch. horizontal lines, listing one thought per box.

Relevant thoughts, defined as idea units directly related to the bereavement experience (e.g., "I just thought about the moment when I found out she had passed"), the deceased (e.g., "I wish he was still here"), or other aspects of the relationship between the deceased and the bereaved (e.g., "We were really close") were coded by one of three coders. High interrater reliability was obtained for this scoring, 89.8%. The number of relevant thoughts about the bereavement experience served as the measure of the depth of processing about the bereavement situation; the distribution for this measure was near normal (skew = 0.71; kurtosis = 0.92).

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Depth of processing for grief management messages. Participants next responded to a modified version of Marwit and Carusa's (1998) Support-Intended Statements Scale (SISS) to obtain their evaluations of grief management messages to which they may have been exposed. The version of the SISS employed in this study consisted of 64 items that described brief grief management messages; these messages are described in detail elsewhere (Rack et al., 2008). Participants rated each message for helpfulness on a 5-point scale ranging from 1 (*very harmful*), 3 (*neither*), to 5 (*very helpful*). The 64 items were written to represent 16 support strategies, with 4 items instantiating each strategy. Internal consistency analyses were performed for each of the 16 sets of four items; after deleting one item from the "advice" set, alphas ranged from .70 to .92, and averaged .80 across the 16 strategies. Scores for the items for each strategy were averaged to generate a mean helpfulness rating for each strategy.

Subsequently, each of the 16 strategies was coded for its degree of person centeredness. Two coders were provided with the four (unlabeled) items representing each strategy and were instructed to identify the level of person centeredness exhibited by the strategy. The coders (advanced graduate students trained by Brant R. Burleson) used the nine-level hierarchy of comforting messages developed by Applegate (1980; Rack et al., 2008), which consists of three major levels with three sublevels within each major level. Intercoder reliability was assessed by computing the intraclass correlation coefficient between the strategy ratings by the two coders; coding reliability was .92, $p < .001$. Prior to analysis, disagreements were resolved by consensus. Coding indicated that the SISS included four HPC strategies, 10 MPC strategies, and two LPC strategies.

As in Study 1, preliminary analyses detected no gender differences in evaluations of MPC messages; hence, evaluations of these messages were eliminated from future analyses.[8] Preliminary analyses also indicated, as expected, that women evaluated HPC messages as more helpful than did men, $t(101) = 2.59$, $p < .02$ ($r^2 = .07$); and further evaluated LPC messages as less helpful than did men, $t(101) = 3.04$, $p < .003$ ($r^2 = .09$; see means and standard deviations in Table 4). To generate a single score reflecting the *depth of processing for the grief management messages* by the participant, we created a message quality discrimination index by subtracting for each participant

Table 4 Means and Standard Deviations by Participant Gender for Evaluations of Message Helpfulness as a Function of Message Person Centeredness in Study 2

	Men		Women	
Level of Message Person Centeredness	*M*	*SD*	*M*	*SD*
LPC message evaluation	2.02	0.53	1.71	0.44
MPC message evaluation	3.11	0.48	3.12	0.44
HPC message evaluation	3.46	0.49	3.71	0.45

Note. Evaluations of messages were made on 5-point scales ranging from 1 (*very harmful*) to and 5 (*very helpful*). LPC = low person-centered; MPC = moderately person–centered; HPC = highly person-centered.

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the mean for LPC message evaluations from the mean for HPC message evaluations. The resulting scores ranged from −1.13 to 3.19, with $M = 1.82$, $SD = 0.76$, skewness = −1.35, and kurtosis = 3.32. Only 3.8% of participants had scores below zero; these few individuals evaluated LPC messages more favorably than HPC messages. Scores in excess of zero, obtained by 96.2% of participants, indicated that HPC messages were evaluated more positively than LPC messages; the higher the score, the greater the discrimination between HPC and LPC messages, which, in turn, implies deeper cognitive processing of these messages.

Results

Table 5 reports the means, standard deviations, and intercorrelations among the variables included in Study 2. Because the intensity of the grief reported by the participants was distributed continuously, regression procedures were used in analyzing the data. Following the recommendations of Cohen, Cohen, West, and Aiken (2003), participant gender was dummy coded (men = 0, women = 1) and the index of grief intensity was centered by subtracting the mean score for this variable from each participant's individual score. A product term carrying the interaction between participant gender and grief intensity was formed by multiplying these two variables. With $N = 103$ and $\alpha = .05$, power to detect significant main effects of the predictors was .23 for small effects ($f^2 = .02$), .94 for medium effects ($f^2 = .15$), and in excess of .99 for large effects ($f^2 = .35$). Power to detect a significant interaction between gender and grief intensity was .30 for small effects ($f^2 = .02$), .97 for medium effects ($f^2 = .15$), and in excess of .99 for large effects ($f^2 = .35$).

H1 predicted that men and women would exhibit deeper processing of bereavement situations and grief management messages when responding to more intense grief situations than when responding to less intense grief situations. *H2* predicted that women would exhibit deeper processing of bereavement situations and grief management messages than men when responding to both more and less intense grief

Table 5 Means, Standard Deviations, and Intercorrelations Among the Variables in Study 2

			Intercorrelations			
Variable	*M*	*SD*	Participant Gender	Grief Intensity	Situation Processing	Message Processing
Participant gender	0.67	0.47	—			
Grief intensity	3.59	0.95	.13	—		
Extent of situation processing	6.22	6.22	.23*	.23*	—	
Extent of message processing	1.82	0.76	.34***	.27**	.22*	—

Note. $N = 103$.
* $p < .05$. ** $p < .01$. *** $p < .001$.

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situations (i.e., grief intensity would not moderate gender differences). The main effects of grief intensity and participant gender were assessed by simultaneously entering these two variables at the initial step of the regression analysis on depth of situation processing. These two predictors explained significant variation in depth of situation processing ($R^2 = .097$), $F(2, 99) = 5.33$, $p < .006$. Both grief intensity ($\beta = .22$, $p < .05$) and participant gender ($\beta = .20$, $p < .05$) significantly contributed to the prediction of depth of situation processing. The addition of the product term carrying the Grief Intensity × Participant Gender interaction did not significantly increase the amount of variance explained in depth of situation processing (R^2 change $= .017$), $F(1, 98) = 1.87$, $p > .17$. Thus, the results for depth of situation processing provide consistent support for both *H1* and *H2*; in particular, the significant effect for participant gender was not moderated by grief intensity.

A second regression analysis examined the effects of grief intensity and participant gender on depth of processing for the grief management messages. Grief intensity and participant gender were entered simultaneously at the initial step of the regression on depth of message processing. These two predictors jointly explained significant variation in depth of message processing ($R^2 = .168$), $F(2, 100) = 10.09$, $p < .001$. Both grief intensity ($\beta = .23$, $p < .02$) and participant gender ($\beta = .32$, $p < .001$) significantly contributed to the prediction of depth of message processing. The addition of the product term carrying the Grief Intensity × Participant Gender interaction did not significantly increase the amount of variance explained in depth of message processing (R^2change $= .005$), $F(1, 99) = 0.65$, $p > .42$. Thus, the results for depth of message processing also provide consistent support for both *H1* and *H2*; here also, the effect for participant gender was uniform over level of grief intensity.

Brief Discussion

Similar to the results for Study 1, Study 2 found that women: (a) generated more thoughts than men about their death loss experience; and (b) discriminated more sharply than did men between better and worse grief management messages. Because neither of these gender differences was moderated by the severity of the death loss, the results provide added support for the notion that women possess both greater ability and greater motivation than do men when it comes to processing support situations and comforting messages.

General Discussion

We conducted two studies that examined patterns of gender differences in depth of situation and message processing over different levels of problem severity in an effort to determine whether these gender differences should be attributed to underlying differences in processing ability, processing motivation, or both. According to the dual-process theory of supportive communication outcomes, people should process support situations and messages more deeply (i.e., elaborate on them and think about

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them more extensively) when confronting more serious and upsetting circumstances (Bodie & Burleson, 2008). This assumption received good support from the two studies reported here. In Study 1, participants processed relatively severe problem situations more deeply (i.e., had more thoughts about them) than less severe situations. The participants in Study 1 also exhibited a trend toward processing supportive messages more deeply (i.e., discriminating more sharply between better and worse messages) in more severe problem situations than in less severe situations. The participants in Study 2 processed comparatively upsetting bereavement situations more deeply than less upsetting bereavement situations and, further, processed grief management messages relevant to these situations significantly more deeply (as evidenced by discrimination between better and worse messages) when their grief was more intense. These findings are consistent with other research indicating that the quality of the support message has a larger effect in more *versus* less serious situations (Hagedoorn et al., 2000; Kuijer et al., 2000). Thus, the situational effects observed in this pair of studies provide some support for the dual-process theory of supportive communication outcomes.

We suggested that the ability and motivation to process information about support situations and messages can be inferred from the extent of processing exhibited in high demand (serious) *versus* low demand (less serious) situations. Specifically, depth of information processing in more serious situations is indicative of the *ability* to process information about support situations and messages; the relatively strong demands of serious situations should encourage individuals to perform at their maximum levels (i.e., extensively elaborate on situations and scrutinize messages). In contrast, depth of processing in less serious situations is indicative of the baseline level of *motivation* to process information about support situations and messages; the relatively low demands of less serious situations allow individuals to display their spontaneous (baseline) inclinations with regard to elaborating on support situations and scrutinizing messages.

As we predicted, in both of our studies women processed information about support situations and messages more deeply than did men, and this gender difference was not moderated by severity of the problem situation (i.e., women exhibited more extensive processing in both high-demand and low-demand contexts). This pattern of gender differences is most consistent with the claim that women are, in general, *both* more able *and* more motivated than men to process information about support situations and messages. Thus, the results of these studies both confirm and extend the findings of previous work indicating that individual differences in both ability (e.g., cognitive complexity) and motivation (e.g., expressive orientation) mediate gender differences in the processing of support situations and messages (Burleson et al., 2009). These results provide clear evidence that gender differences in processing ability and motivation *exist* in support situations; the results of previous studies examining personality and cognitive mediators of these gender differences suggest what psychosocial factors underlie and, thus, explain these gender differences (see also Kunkel, 2002; MacGeorge et al., 2004). Thus, rather than resulting from either greater ability or greater motivation, women's deeper processing of supportive

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messages and situations appears to result from having both greater ability and greater motivation than men. These findings are consistent with research on gender differences in the *use* of sophisticated comforting strategies, which indicates that women generate and use more person-centered messages than do men because they have both greater ability and motivation to do so (Burleson et al., 2005; MacGeorge, Gillihan, et al., 2003). Collectively, then, the available findings underscore that future theory and research addressing gender differences in social support, as well as other domains of communication, should examine how both ability and motivational factors influence the production, processing, and outcomes of messages.

Why do women give more attention to supportive interactions and scrutinize messages received in these interactions more extensively than do men? Following Eagly and Koenig's (2006) analysis of gender role differences in prosocial behaviors, we view women as developing abilities and motivational orientations particularly relevant to the processing of supportive messages as a function of social roles, expectations, and stereotypes; ultimately, the culturally channeled experiences of many women lead them to be, on average, more oriented to and cognizant of other's emotional needs and ways of addressing these than are men, on average. Thus, we believe that women (on average) are socialized to be chronically better able and more motivated than men (on average) to process the content of supportive messages.

It is important to note that the gender differences observed in this pair of studies were specific to the processing of support situations and messages. For example, in Study 1, although men and women significantly differed in their processing of both support situations and messages, they did not differ in their evaluations of the seriousness of the problem scenarios or the realism of the problem situations. Similarly, in Study 2, although men and women significantly differed in their processing of both support situations and messages, they did not significantly differ in the intensity of the grief they reported with regard to their bereavement situations. Clearly, then, men and women do not respond differently to any and all aspects of support situations. This makes the gender differences that were detected all the more interesting and important. Thus, for example, these studies show that, although men and women do not differ in how seriously they view everyday upsets, or how intensely they grieve bereavements, they do differ significantly in the extent to which they think about these support situations and the messages that others may use in an effort to reduce their distress. Future research should seek to explain both the similarities and differences in how men and women interpret and respond to support situations.

One limitation of Study 1 is that it had participants respond to comforting messages in hypothetical rather than actual situations. Thus, questions might be raised about how motivated participants were to process these situations and the associated messages, regardless of the severity of the stimulus situation. This is a reasonable concern. Despite this limitation, we still found the predicted pattern of effects for both support situations (*H1* received support) and gender (*H2* received support). Moreover, this limitation was addressed, in part, by Study 2, which provided a more natural, realistic context for examining our hypotheses. More important, the results of Study 2 fully and directly replicated those of Study 1.

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Beyond their theoretical contribution, our results have important practical implications. The support that people receive—and provide—is highly consequential, affecting numerous aspects of physical, psychological, and social well-being. Unfortunately, not everyone is highly skilled at producing and processing sensitive comforting messages. The results of our studies suggest that effort seeking to enhance sensitivity to supportive communication should focus on developing *both* processing abilities and motivations. Such efforts also can contribute to theory by providing a laboratory for assessing the effects of experimentally manipulated levels of ability and motivation on supportive message processing and outcomes (Gottlieb, 2000).

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Notes

[1] The Role Category Questionnaire measure of cognitive complexity employed by Burleson et al. (2009) assesses cognitive complexity by scoring the number of ''interpersonal constructs'' appearing in written interpersonal impressions; perhaps motivated individuals write longer impressions. The Personal Attributes Questionnaire measure of expressive orientation employed by Burleson et al. (2009) has been found to be associated with assessments of social–cognitive ability (e.g., empathy), suggesting that it may also tap some aspect of cognitive ability.

[2] An additional 111 participants responded to versions of two other stimulus situations (involving a roommate conflict and the loss of scholarship funds); however, data from these situations were excluded from further analyses following a preliminary assessment that showed the mildly severe versions of these situations were rated above the midpoint on the perceived seriousness scale.

[3] Detailed descriptions of the full set of messages and the eight experimental scenarios to which they pertain are available from Brant R. Burleson upon request.

[4] Details regarding these additional questionnaires are available from Brant R. Burleson upon request.

[5] Details of these analyses are available upon request from Brant R. Burleson.

[6] Reports of these analyses, which examined the situation factor as both a fixed effect and a random effect, are available upon request from Brant R. Burleson.

[7] Details regarding the additional questionnaires are available from Brant R. Burleson upon request.

[8] Details of these analyses are available upon request from Brant R. Burleson.

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