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What is This?

Testing a Dual-Process Theory of Supportive Communication Outcomes: How Multiple Factors Influence Outcomes in Support Situations

Amanda J. Holmstrom[1], Graham D. Bodie[2], Brant R. Burleson[3,†], Jennifer D. McCullough[4], Jessica J. Rack[5], Lisa K. Hanasono[6], and Jennifer G. Rosier[7]

Abstract

To test a recently proposed dual-process theory of supportive communication outcomes, participants (*N* = 328) assumed they had experienced a mildly or moderately problematic situation. They then evaluated supportive messages varying in person centeredness, purportedly provided by either an acquaintance or a friend. Participants' perceived support availability (PSA) was also assessed. As predicted, the recipient factor (PSA) individually and in conjunction with the contextual factor (problem severity) moderated the effect of the message factor (message person centeredness) on helpfulness evaluations. Modest support was observed for the hypothesis that the source factor (friend vs. acquaintance) influences evaluations when messages are processed less extensively. Implications for the dual-process theory of supportive communication outcomes are discussed.

Keywords

comforting, emotional support, message processing, perceived support availability, social support

[1]Michigan State University, East Lansing, MI, USA
[2]Louisiana State University, Baton Rouge, LA, USA
[3]Purdue University, West Lafayette, IN, USA
[4]Saginaw Valley State University, University Center, MI, USA
[5]University of Cincinnati, Cincinnati, OH, USA
[6]Bowling Green State University, Bowling Green, OH, USA
[7]James Madison University, Harrisonburg, VA, USA
[†]This article is published posthumously in Brant Burleson's name

Corresponding Author:
Amanda J. Holmstrom, Department of Communication, Michigan State University, 404 Wilson Road, East Lansing, MI 48824, USA.
Email: holmstr6@msu.edu

Considerable research indicates that some types of supportive messages do a better job of providing comfort and emotional support than do other types of messages (see review by MacGeorge, 2009). For example, messages that exhibit an emotion-focused, approach orientation (Cunningham & Barbee, 2000; Vangelisti, 2009), high person centeredness (Burleson, 1994), and face support (Goldsmith, 1994) are regularly experienced as more sensitive, helpful, and effective than messages that lack these attributes. Although some types of supportive messages generally result in more desirable outcomes than other message types, extensive empirical work has found that the effects of supportive message constructs are often moderated by a host of source, contextual, recipient, and other message factors (e.g., Clark, MacGeorge, & Robinson, 2008; Clark et al., 1998; Jones & Guerrero, 2001; Lakey, Orehek, Hain, & VanVleet, 2010). Understanding why variations in message outcomes occur is important, both theoretically and pragmatically (see Bodie & Burleson, 2008).

Bodie and Burleson (2008) proposed a dual-process theory of supportive communication outcomes (see also Burleson, 2009, 2010) that seeks to explain when and why various factors influence outcomes of support interactions. The present article reports a study that tests several hypotheses derived from this dual-process theory; our results demonstrate how complex interactions among source, message, contextual, and recipient constructs can be predicted and interpreted through this theory.

A Dual-Process Theory of Supportive Communication Outcomes

Research indicates that a variety of message, source, recipient, and contextual factors influence the outcomes of supportive interactions (for a review, see Bodie & Burleson, 2008). Not only do individual factors influence the outcomes of supportive interactions, but these factors also work together to produce effects—"combining, qualifying, and moderating each other's influence" (Burleson, 2009, p. 27). Furthermore, a single factor (e.g., message source) may serve multiple roles in a supportive interaction. Thus, the supportive communication interaction is complex.

However, most research tends to consider a narrow set of factors that may influence the effects of supportive messages. Furthermore, little theoretical explanation for these factors' influence is offered, and when such mechanisms are posited, they are limited to the specific features of interest in a given study (see Bodie & Burleson, 2008). To better understand why supportive interactions have the effects that they do, a comprehensive, parsimonious theory is needed to explain, in a coherent fashion, these various findings and to make new predictions (Bodie & Burleson, 2008; Burleson, 2009). A dual-process theory of supportive communication outcomes has been proposed to serve this function, and recent research has offered support for the theory's tenets (e.g., Bodie, 2011, 2012; Bodie, Burleson et al., 2011; Bodie, Burleson, & Jones, 2012; Bodie, McCullough et al., 2011; Burleson et al., 2011; Rack, Burleson, Bodie, Holmstrom, & Servaty-Seib, 2008). Pragmatically, an integrative theory is important, as it may aid in identifying the best forms of support given the complexities of individual situations. Theoretically, it is important to understand the mechanisms by which supportive interactions lead to various outcomes.

The dual-process theory of supportive communication outcomes applies the general logic of dual-process thinking to social interactions that are focused on the provision of varied forms of support, including everyday emotional support (Bodie, 2011; Bodie et al., 2012; Bodie, McCullough et al., 2011), informational support (Feng & MacGeorge, 2010), and support for task-related stressors (Bodie, 2012) and grief management (Bodie, Burleson et al., 2011, Study 2; Rack et al., 2008). The dual-process theory of supportive communication outcomes aims to explain why messages and other elements of supportive interactions have the effects they do with particular others on specific occasions. Our theory posits that the elements of supportive interactions produce their effects as a joint function of the inherent properties of these elements (e.g., the sophistication of supportive messages) and the extent to which recipients cognitively process those elements.

In general, dual-process theories hypothesize that multiple factors influence how much people think about aspects of their interactions. These aspects may include features of the source, recipient, message, or context. These theories also indicate that elements of the communication situation may have varying effects on outcomes, depending upon the degree to which these elements are processed by recipients (Fiske, Kitayama, Markus, & Nisbett, 1998; Moskowitz, Skurnik, & Galinsky, 1999). A key hypothesis of dual-process theories of message outcomes is that message content has the strongest potential effect on outcomes when recipients process that content systematically and extensively. When recipients think little about message content, other elements of the situation can trigger heuristics that may then influence recipient outcomes. A final proposition of dual-process theories is that recipients are more likely to extensively process content when they possess both the motivation and the ability to do so (Petty & Cacioppo, 1986; Todorov, Chaiken, & Henderson, 2002).

Dual-process theories have been developed and applied to numerous aspects of individual and social functioning (Chaiken & Trope, 1999; for recent applications see Kim & Paek, 2010; Koh & Sundar, 2010), though communication scholars are likely most familiar with models of dual-process thinking in the context of persuasive communication, such as research motivated by Chaiken's (1980) heuristic-systematic model (HSM) and Petty and Cacioppo's (1986) elaboration likelihood model (ELM). Such theories have, however, only recently been applied to supportive interactions, which focus on different outcomes and operate through different mechanisms. In addition, the character of message content, aspects of the interactional environment that influence outcomes, and the factors that influence processing ability and motivation differ in supportive and persuasion contexts (see Bodie, 2013). Thus, we propose a dual-process theory of supportive communication, which applies the general tenets of dual-process theories to the supportive communication context.

Dual-process thinking maintains that the fundamental elements that compose communication situations (source, message, context, and recipient factors[1]) can play multiple functions or roles with respect to the outcomes of communication (see Moskowitz et al., 1999; Petty & Cacioppo, 1986; Todorov et al., 2002). Specifically, source, message, contextual, and recipient constructs may (a) serve as message content (which is processed more or less extensively as a function of the recipient's ability and motivation), (b) influence the ability and motivation to process elements of the supportive interaction, or

(c) operate as environmental cues that activate decisional heuristics or other low-elaboration processes (e.g., association).

Importantly, dual-process models maintain that the same construct can serve different functions or roles in different circumstances, typically through distinctive mechanisms. Indeed, this feature of the general dual-process framework is simultaneously one of its greatest strengths and weaknesses. As critics of specific dual-process theories have noted, specifying in advance the particular ways in which such constructs operate has been the proverbial thorn in the dual-process side (Boster, Stiff, & Reynolds, 1985; Eagly, 1987; O'Keefe, 2013; Petty & Cacioppo, 1986). Consequently, in what follows, we further describe these three functions, identify specific constructs that may serve each of these roles in the context of supportive interactions, and propose specific hypotheses about how these factors and their interactions influence the processing and outcomes of supportive episodes.

Supportive Message Content

A variable may function as *message content* by presenting ideas, information, perspectives, or arguments. Message content has the potential to affect outcomes most strongly when it is processed relatively extensively by the recipient (Petty & Cacioppo, 1986; Todorov et al., 2002). Verbal statements are the most common form of message content, although other elements of the message (e.g., paraverbal and nonverbal behaviors) and situation (e.g., attributes of the source) can function as message content in certain circumstances (Kruglanski & Thompson, 1999; Wegener & Claypool, 1999). In the context of research on the communication of emotional support, the person-centered quality of comforting message content has been found to strongly influence message evaluations and outcomes (MacGeorge, Feng, & Burleson, 2011).

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 his or her 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 non–feeling-centered explanations of the situation. 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; in particular, HPC messages are evaluated more positively and do a better job of reducing distress than LPC and MPC messages (for a review see High & Dillard, 2012). However, research indicates that the influence of message person centeredness on outcomes may be moderated by characteristics of the source, recipient, and interactional context (Bodie & Burleson, 2008).

The dual-process theory of supportive communication outcomes suggests that supportive messages will vary in their effects as a function of how extensively they are processed

by recipients. Thus, differences in outcomes generated by messages exhibiting varying degrees of person centeredness should be especially large when these messages receive greater elaboration by recipients. In contrast, differences in the outcomes of better and worse messages should be smaller when these messages receive minimal elaboration.

Individual and Situational Differences in the Motivation to Process Supportive Messages

A second way that aspects of the communicative situation may influence outcomes of supportive communication is by functioning as determinants of the recipient's ability and motivation to systematically think about (i.e., elaborate on) features of the communicative situation, especially message content. Consistent with the dual-process framework, the current theory suggests that recipients elaborate on supportive messages only when they are able and motivated to do so. Although both the ability and motivation to process supportive messages are projected to be influenced by multiple recipient and contextual factors (see Bodie & Burleson, 2008), research is only beginning to examine how constructs influencing the extent of processing of supportive messages actually affect the outcomes of these messages (Bodie, Burleson et al., 2011; Bodie, McCullough et al., 2011; Burleson et al., 2011; Feng & MacGeorge, 2010; Rack et al., 2008).

In the present study, we examined the effects of two constructs anticipated to influence the motivation to process supportive messages: an aspect of the recipient, the general belief that support is available, and a feature of the context, the severity of the problem faced by the message recipient.

Perceived support availability (PSA) is the global perception that support will be available when needed. Lakey and Cassady (1990) propose that PSA "operates in part as a cognitive personality construct that influences how supportive transactions with others will be interpreted and remembered" (p. 341). Recent studies of both bereaved adolescents (Rack et al., 2008) and adults (Servaty & Burleson, 2007) found that those high in PSA evaluated HPC grief management messages more positively, and LPC messages more negatively, than did those low in PSA. This suggests that those high in PSA are more motivated to think extensively about the support messages they receive than those low in PSA.

Petty and Wegener (1998) claim that by varying the quality of experimental messages and assessing the size of the message quality effect on dependent variables, researchers can assess the extent to which those messages are cognitively processed (or elaborated upon) by recipients; larger message effects signal more extensive processing. As such, in research on supportive messages, larger effects for the factor of person centeredness (i.e., message quality) on evaluations of message helpfulness signal more extensive processing of those messages. Thus, in the current study we hypothesized:

> *Hypothesis 1 (H1)*: The person-centered quality of comforting messages exerts a stronger linear effect on evaluations of message helpfulness for recipients high in PSA than recipients low in PSA.

A second factor likely to influence the motivation to process supportive messages is an aspect of the context—the severity of the problem confronted. Presumably, persons confronting more severe problems will be more upset than those confronting less severe problems; this greater upset should more strongly motivate them to elaborate on the content of helpers' supportive messages. Consistent with this reasoning, studies have found that message recipients facing more serious difficulties distinguish more sharply between better and worse message forms than those facing less serious difficulties in several types of problem situations, including when coping with everyday emotional upsets (Burleson, 2008, Study 3), cancer (Hagedoorn et al., 2000), and bereavement (Rack et al., 2008). Thus, in the current study we hypothesized:

> *Hypothesis 2 (H2)*: The person-centered quality of comforting messages exerts a stronger linear effect on evaluations of message helpfulness for recipients confronting a moderately severe problem than recipients confronting a mildly severe problem.

It is likely that people will be more motivated to process supportive message content when influenced by *both* situational and dispositional factors (i.e., by both states and traits). To date, however, no research has tested this claim. Thus, we examined how the recipient factor of PSA and the contextual factor of problem severity jointly influenced the motivation to process supportive messages. Given that persons high in PSA are more sensitive than those low in PSA both to the features of support situations (such as the severity of problems encountered) and to the quality of supportive messages, we hypothesized:

> *Hypothesis 3 (H3)*: The effects of (a) problem severity and (b) the interaction between problem severity and message person centeredness on evaluations of message helpfulness are stronger for persons high in PSA than for persons low in PSA.

Environmental Cues That Activate Decisional Heuristics

A third way in which aspects of the communicative situation may influence outcomes is by functioning as *environmental cues* that activate low-elaboration processes (e.g., decisional heuristics, association). Constructs are most likely to serve this function when elaboration of message content is low and when there are heuristics or associations available in memory that can be triggered by the cue (Moskowitz, 2005). Various aspects of the source (e.g., gender, attractiveness) may serve as such cues, but so may certain noncontent features of the message (e.g., message length). For example, it appears that many people generally hold that women provide more helpful emotional support than do men (Barbee et al., 1993; Prentice & Carranza, 2002), so gender of the message source may function as a cue that triggers a "women provide good emotional support" heuristic. This heuristic has been found to influence the evaluation of supportive messages (Glynn, Christenfeld, & Gerin, 1999; Samter, Burleson, & Murphy, 1987), especially when elaboration of message content is low (Burleson, 2008, Study 3).

In the present study, we examined whether an aspect of the message source, relationship status with the recipient (acquaintance vs. close friend), functioned as a cue influencing message evaluations under low-motivation conditions. Several studies have found that supportive messages from close relationship partners are more effective and/or are evaluated more positively than messages from more distant network members (e.g., Christenfeld et al., 1997; Uno, Uchino, & Smith, 2002). For example, Clark et al. (1998) found that recipients perceived identical supportive messages as more helpful and comforting when attributed to a source who was a close friend rather than a casual acquaintance. In addition, numerous studies have found that satisfaction with support efforts is greater when attributed to sources whom the recipient perceives as particularly intimate or close than when the source is more distal, even when the support effort is the same (Cutrona, Cohen, & Igram, 1990; Frazier, Tix, & Barnett, 2003).

Collectively, these findings suggest that many people have a heuristic available in memory that holds that "close others provide good emotional support." Environmental cues that indicate that the source of a supportive message is an intimate may trigger this heuristic, especially when the elaboration of message content is comparatively low, such as when the recipient is coping with a mildly severe problem. Thus, we hypothesized:

> *Hypothesis 4 (H4)*: Problem severity moderates the effect of the source's relationship type on message evaluations such that (a) participants confronting a mildly severe problem evaluate comforting messages as more helpful when attributed to a close friend than to an acquaintance, whereas (b) participants confronting a moderately severe problem do not differentially evaluate comforting messages as a function of the source's relationship type.

Method

Participants

Participants included 328 college students attending a large Midwestern university (64% female, 75.9% white, mean age = 20.17). Most participants were majoring in liberal arts, consumer and family sciences, or education (59.8%), with science, engineering, technology, and agriculture majors representing 28.7%, business majors representing 7.6%, and health and sciences and veterinary medicine majors representing less than 1% each.

Procedure

Participants attended a 1-hour data collection session. Following completion of informed consent, they received a questionnaire packet. They were randomly assigned to read one of 12 scenarios, each of which asked them to assume that they were involved in an upsetting circumstance. The scenarios consisted of six problem situations, each of which was manipulated to represent a mildly severe situation (e.g., receiving a US$20 parking ticket) and a moderately severe situation (e.g., getting one's car booted and having to pay US$350

in fines and fees to get the car released); participants read either the mildly or the moderately severe version of their scenario. Immediately after reading the problem scenario, participants completed a thought-listing procedure that provided a measure of depth of processing for the support situation.

Participants were then asked to imagine that they ran into a peer helper (either a recent acquaintance or a close friend) with whom they discussed the upsetting situation; they subsequently read six different messages[2] this helper might use, which operated to manipulate level of person centeredness (two instances each of low, moderate, and high). All participants rated each message for its perceived helpfulness.[3]

Participants then completed a questionnaire that assessed perceptions of several aspects of the scenario they had read, including items assessing the realism of the problem scenario, the severity of the problem scenario, and the closeness of the relationship with the helper. Finally, participants completed several other questionnaires, including a measure of PSA (the remaining questionnaires are not germane to the present study).

Instrumentation

Depth of processing for the support situation. The thought-listing procedure gave participants two-and-a-half minutes 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, coded the number of relevant thoughts listed by participants. These judges (undergraduate students at the same university) had been trained in thought unit coding by the second author 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 = .78, kurtosis = .87).

Perceived message helpfulness. Participants rated each message for perceived helpfulness on four, 5-point semantic differential 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 $\alpha = .79$. An index for perceived message helpfulness was thus computed by averaging the scores for the items for each level of person centeredness. A series of paired-samples t tests confirmed that the LPC messages ($M = 2.17$, $SD = 0.81$) were perceived as less helpful than MPC messages ($M = 2.87$, $SD = 0.75$), $t(327) = 13.80$, $p < .001$, $r^2 = .17$, or HPC messages ($M = 3.97$, $SD = 0.60$), $t(327) = 30.10$, $p < .001$, $r^2 = .62$; MPC and HPC messages also differed from each other in the expected direction, $t(327) = 20.19$, $p < .001$, $r^2 = .40$.

PSA. Participants completed the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) to assess the extent to which they generally perceive social support as available when needed. The MSPSS provides assessments of PSA for three sources: family, friends, and "special persons." Extensive research provides validity evidence for the MSPSS as a measure of PSA (e.g., Canty-Mitchell & Zimet, 2000; Zimet et al., 1988). Participants responded to 12 items (5-point Likert scaling), which tap the extent to which they see support as available from these sources; higher scores indicate greater levels of perceived social support. To increase the scale's internal consistency, one "family source" item was removed from the scale ($\alpha = .84$). Scores were then averaged across the retained 11 items to generate an overall index for PSA.

Manipulation Checks and Preliminary Analyses

Perceived realism of the problem situations. Participants evaluated the realism of the problem situation to which they had been assigned on three, 5-point semantic differential scales, one of which was dropped for its low internal interitem relationships. The other two items (*not at all realistic-very realistic; not at all believable-very believable*) formed a reliable scale, $r = .69$, and scores on these two items were averaged. The mean realism ratings for the six problem situations ranged from 3.57 to 3.96, indicating moderately high realism; perceived realism did not vary significantly as a function of situation, $F(5, 322) = 0.48$, $p = .79$.

Relationship type manipulation. To measure their perceived closeness to the message source, participants responded to three items: "How much of a friend would you consider your close friend/recent acquaintance?" ($1 = $ *distant acquaintance* to $5 = $ *best friend*), "How close are you to your close friend/recent acquaintance?" ($1 = $ *not at all close* to $5 = $ *very close*), and "How strong is your relationship with your close friend/recent acquaintance?" ($1 = $ *very weak* to $5 = $ *very strong*). The resultant three-item scale achieved excellent reliability, $\alpha = .93$; higher scores mean that the respondent felt the relationship with the message source was closer.

To assess the validity of the relationship type manipulation, a 2 (relationship type: recent acquaintance vs. close friend) x 6 (problem situation) mixed-model ANOVA was conducted; relationship type was treated as a fixed effect, problem situation was treated as a random effect, and the dependent variable was relationship closeness. The ANOVA detected a significant effect for relationship type, $F(1, 5) = 1325.40$, $p < .001$, partial $\eta^2 = .99$, with the friend perceived as much closer ($M = 4.21$, $SD = 0.71$) than the acquaintance ($M = 2.79$, $SD = 0.86$). The main effect for situation was only marginally significant, $F(5, 5) = 4.19$, $p = .07$, partial $\eta^2 = .81$, and the Relationship Type x Situation interaction did not approach significance, $F(5, 315) = 0.20$, $p = .96$. These results clearly support the successful manipulation of relationship closeness.

Problem severity manipulation. Participants responded to three 5-point items that assessed the perceived severity of their problem scenario (*not at all serious-very serious; not at all severe-very severe; not at all upsetting-very upsetting*; $\alpha = .87$). Scores on these three items were averaged to form the measure of perceived problem severity.

To assess the validity of the problem severity manipulation, a 2 (problem severity: mild vs. moderate) x 6 (problem situation) mixed-model ANOVA was conducted; the problem severity manipulation was treated as a fixed effect, problem situation was treated as a random effect, and the dependent variable was perceived problem severity. The ANOVA detected significant effects for problem severity, $F(1, 5) = 45.79$, $p < .001$, partial $\eta^2 = .90$, with moderately severe situations ($M = 4.12$, $SD = 0.73$) seen as significantly more severe than mildly severe situations ($M = 2.78$, $SD = 0.95$). The Severity x Situation interaction was significant, $F(5, 316) = 5.56$, $p < .001$, partial $\eta^2 = .08$; the main effect for problem situation was not significant, $F(5, 5) = 2.48$, $p = .17$. Decomposition of the interaction with t tests indicated that, for all six situations, the moderately severe version of the problem situation generated significantly greater anticipated upset than the mildly severe version; however, the magnitude of this difference varied somewhat across the problem situations.[4] Thus, the manipulation of problem severity was deemed successful.[5]

More severe problem scenarios were expected to result in greater thinking about or elaboration of the situation than less severe problem scenarios. To evaluate the validity of this assumption, we compared the depth of processing (degree of elaboration) elicited by the mild and moderately severe problem scenario. As expected, an independent-samples t test revealed that participants reported more relevant thoughts about moderately severe problems ($M = 6.29$, $SD = 2.53$) than about mildly severe problems ($M = 5.54$, $SD = 2.39$), $t(325) = 2.78$, $p < .01$, $r^2 = .02$. This result provides further corroboration for the validity of the problem severity manipulation as producing variability in potential for thinking about message content.

Results

To facilitate the evaluation of hypotheses H1 to H4, we constructed a median split on the PSA variable. Participants scoring above 4.0 on the MSPSS were considered high in PSA ($n = 163$, 49.7%), whereas those scoring 4.0 or below on the MSPSS were considered low in PSA ($n = 165$, 50.3%). ANOVA techniques were utilized in evaluating H1 to H4; in these analyses, PSA (low vs. high), problem severity (mild vs. moderate), and the source's relationship type (recent acquaintance vs. close friend) served as two-level between-groups factors, and message person centeredness served as a three-level repeated measure (low vs. moderate vs. high); the dependent measure was evaluation of message helpfulness. Given our sample size and an $\alpha = .05$, power for tests of the between-groups factors was .60 for small effects ($f = .10$) and in excess of .99 for medium effects ($f = .25$) and large effects ($f = .40$). For tests of the repeated factor, power was .98 for small effects and in excess of .99 for medium and large effects. For tests of interactions between the between-groups and repeated factors, power was .93 for small effects and in excess of .99 for medium and large effects.

H1 predicted that the person centeredness of comforting messages exhibits a stronger linear effect on evaluations of message helpfulness for recipients high in PSA than recipients low in PSA. A 2 (PSA level) x 3 (message person-centeredness level) repeated-measures ANOVA utilizing trend analysis (polynomial regression) indicated that, as expected,

Table 1. Mean Evaluations of Supportive Messages as a Function of Message Person Centeredness, Recipient Perceived Support Availability, and Problem Severity

Message person centeredness	Low perceived support availability			High perceived support availability		
	Problem severity			Problem severity		
	Mild (N = 86)	Moderate (N = 79)	Total (N = 165)	Mild (N = 81)	Moderate (N = 82)	Total (N = 163)
Low person centeredness	2.32 (0.77)	2.24 (0.82)	2.28 (0.79)	2.15 (0.88)	1.95 (0.75)	2.06 (0.82)
Moderate person centeredness	3.01 (0.63)	2.93 (0.67)	2.97 (0.65)	3.01 (0.69)	2.54 (0.81)	2.78 (0.78)
High person centeredness	3.92 (0.65)	3.96 (0.52)	3.94 (0.59)	4.03 (0.63)	3.98 (0.52)	4.00 (0.61)
Linear effect of person centeredness	$\eta^2_p = .66$	$\eta^2_p = .74$	$\eta^2_p = .69$	$\eta^2_p = .74$	$\eta^2_p = .81$	$\eta^2_p = .78$

Note: Coefficients in parentheses are standard deviations.

PSA interacted significantly with the linear trend for message person centeredness on evaluations of message helpfulness, $F(1, 326) = 6.00$, $p < .02$, partial $\eta^2 = .02$. This interaction was decomposed by examining the linear trend for message person centeredness at each level of PSA (means and standard deviations relevant to this analysis are displayed in Table 1). As predicted, the linear trend for message person centeredness was stronger for participants high in PSA, $F(1, 162) = 559.43$, $p < .001$, partial $\eta^2 = .78$, than for participants low in PSA, $F(1, 164) = 374.94$, $p < .001$, partial $\eta^2 = .69$. To test for a significant difference between the linear trends, regression analyses were conducted separately for low PSA and high PSA participants, with message level (1-3) as the independent variable and message rating as the dependent variable. The regression of message level on message rating was significant for both low PSA, $\beta = .70$, $t(494) = 21.96$, $p < .001$, and high PSA, $\beta = .73$, $t(488) = 23.37$, $p < .001$, participants. Regression coefficients were compared for significance using a test detailed in Cohen and Cohen (1983). Results indicated a significant difference ($p < .05$) between the coefficients for low ($B = .83$, $SE = .04$) and high ($B = .97$, $SE = .04$) PSA participants, providing further support for the hypothesis that the linear trend for high PSA participants is significantly stronger.

H2 predicted that the person centeredness of comforting messages exhibits a stronger linear effect on evaluations of message helpfulness for recipients confronting a moderately severe problem than for recipients confronting a mildly severe problem. A 2 (problem severity) x 3 (message person centeredness) repeated-measures ANOVA utilizing trend analysis indicated that problem severity did not interact significantly with the linear trend for message person centeredness on evaluations of message helpfulness, $F(1, 326) = 1.22$, $p = .27$ (for mildly severe problems: LPC messages, $M = 2.24$, $SD = 0.83$; MPC messages,

M = 3.01, SD = 0.66; and HPC messages, M = 3.97, SD = 0.64. For moderately severe problems: LPC messages, M = 2.10, SD = 0.80; MPC messages, M = 2.73, SD = 0.77; and HPC messages, M = 3.97, SD = 0.55). Thus, there was no support for H2.

H3 predicted that effects of problem severity on message helpfulness as well as the Problem Severity x Message Person Centeredness interaction are stronger for persons high in PSA than for persons low in PSA. To test these predictions, simple-effects analyses were conducted to contrast the impact of problem severity and message person centeredness for the low and high PSA groups. Among low PSA participants, the effect of problem severity on message helpfulness was not significant, $F(1, 163)$ = 0.53, p = .45, nor was the interaction between problem severity and message person centeredness, $F(2, 326)$ = 0.36, p = .70. In contrast, among high PSA participants, significant effects were observed for both problem severity, $F(1, 161)$ = 11.38, p < .001, partial η^2 = .07, and the interaction between problem severity and message person centeredness, $F(2, 322)$ = 3.69, p < .03, partial η^2 = .02. In particular, the linear effect for message person centeredness was stronger for high PSA participants confronting a moderately severe problem and weaker for high PSA participants confronting a mildly severe problem (see Table 1). More specifically, problem severity marginally influenced how high PSA participants evaluated LPC messages, $t(161)$ = 1.54, p = .07, r^2 = .02 (one-tailed test), and significantly influenced how they evaluated MPC messages, $t(161)$ = 3.98, p < .001, r^2 = .27, although it did not significantly influence evaluations of HPC messages, $t(161)$ = 0.52, p = .61, r^2 = .00. In contrast, the effect of problem severity did not approach significance for evaluations of the helpfulness of any message by low PSA participants: $t(163)$ = 0.60, p = .55, r^2 = .00, for LPC messages; $t(163)$ = 0.85, p = .40, for MPC messages; and $t(163)$ = –0.34, p = .73, for HPC messages (see descriptive statistics in Table 1). Thus, the two motivation factors (PSA and problem severity) jointly (i.e., interactively) influenced responses to supportive messages.

H4 predicted that problem severity would moderate the effect of the source's relationship type on evaluations of message helpfulness; specifically, it was expected that participants confronting a mildly severe problem would rate comforting messages attributed to close friends more positively than messages attributed to recent acquaintances, but that the difference due to relationship type would disappear when participants confronted a moderately severe problem. To test this hypothesis, we conducted planned comparisons evaluating the effect of relationship type on evaluations of message helpfulness for participants confronting mildly vs. moderately severe problems. Consistent with H4, participants confronting a mildly severe problem rated HPC messages from a close friend as significantly more helpful than when these messages were attributed to a recent acquaintance, $t(165)$ = 2.04, p < .05, r^2 = .03. However, contrary to expectations, evaluations of LPC messages, $t(165)$ = 0.59, p = .56, and MPC messages, $t(165)$ = 1.11, p = .27, by those confronting a mildly severe problem did not significantly differ as a function of the source's relationship type. As expected, message evaluations by those confronting a moderately severe problem did not differ as a function of message source, $t(163)$ = 0.57, p = .57, r^2 = .00, for LPC messages; $t(165)$ = 1.70, p = .09, for MPC messages; and $t(163)$ = –1.18, p = .24, for HPC messages. Descriptive statistics for these analyses are summarized in Table 2. Overall, these results provide only modest support for H4.

Table 2. Mean Evaluations of Supportive Messages as a Function of Message Person Centeredness, Problem Severity, and Source Relationship Type

Message person centeredness	Mild problem severity				Moderate problem severity			
	Acquaintance		Friend		Acquaintance		Friend	
	M	SD	M	SD	M	SD	M	SD
Low	2.28	0.83	2.20	0.83	2.11	0.84	2.09	0.75
Moderate	3.07	0.69	2.96	0.62	2.81	0.69	2.66	0.82
High	3.87	0.67	4.08	0.59	3.99	0.55	3.94	0.56
N	84		83		79		82	

Discussion

The present study sought to evaluate several predictions derived from a recently proposed dual-process theory of supportive communication outcomes. This theory generates a host of hypotheses about the processing and effects of supportive messages; the current study focused specifically on the prediction that judgments about the helpfulness of different comforting messages would vary as a function of constructs representing the four basic structures composing communicative situations—source, message, context, and receiver. Implementing the general logic of dual-process thinking, we identified functions potentially served by these constructs in support situations and, on this basis, made predictions about the ways in which they would influence message evaluations. Specifically, we predicted that (a) an aspect of message content, the person centeredness of comforting messages, would strongly influence evaluations of message helpfulness; (b) an aspect of the situation, problem severity, and an aspect of the recipient, PSA, would independently or jointly moderate the effect of message person centeredness on evaluations of message helpfulness by influencing the motivation of participants to elaborate message content; and (c) an aspect of the source, type of relationship with the recipient, would influence message evaluations when motivation to process was low (e.g., when situational severity and/or PSA were low). In what follows we evaluate these predictions and explore the implications of our results for a developing theory of supportive message outcomes.

Implications for a Dual-Process Theory of Supportive Communication Outcomes

As has been found in extensive prior research, message person centeredness exhibited a strong effect on ratings of message helpfulness. However, a great deal of prior research also indicates that the effects of message person centeredness are often moderated by other factors. The goal of the current project was to examine whether the joint effects of message properties and some of these other factors may be predicted and explained by the dual-process theory of supportive communication outcomes.

In line with past research, we found that an aspect of the recipient's personality, the tendency to perceive support as available, moderated the effect of message person centeredness on evaluations of message helpfulness. More specifically, participants high in PSA differentiated between high and low person-centered messages to a greater extent than did low PSA individuals. Previous research has found that PSA influences various aspects of seeking, receiving, and providing support (Cutrona, 1986; Lakey et al., 2002; Ptacek, Pierce, & Ptacek, 2002) as well as the processing of supportive messages (Rack et al., 2008). Our theory interprets this finding as an indication that PSA influences motivation to process comforting messages. It is important to note that though the difference between low and high PSA individuals' message ratings was significant, the effect was not particularly large, especially when compared to the effect of message person centeredness. However, though small, this finding is consistent with past research. As such, it warrants note, particularly since PSA interacted with another feature of the situation, problem severity. This significant interaction further points toward the complexity of the supportive interaction and the need for systematic theory to explain such findings.

Problem severity was a contextual factor that was expected to moderate the effect of message person centeredness on ratings of message helpfulness; however, it did not. Though there was no main effect of severity on message ratings, we found that problem severity interacted with PSA to moderate the effects of message person centeredness on helpfulness evaluations. As predicted by the theory, we found that evaluations of message helpfulness by persons high in PSA were significantly more influenced by problem severity, as well as the interaction between problem severity and message person centeredness, than were evaluations by persons low in PSA. Specifically, high PSA individuals rated LPC and MPC messages worse when the problem was more severe, whereas low PSA individuals' message ratings did not differ based on situational severity. Furthermore, the linear effect for message person centeredness was strongest for high PSA participants confronting a moderately severe problem and weakest for low PSA participants confronting a mildly severe problem.

Although the dual-process theory of supportive communication outcomes predicts that multiple aspects of the communication interaction (here, the contextual factor of problem severity and the recipient factor of PSA) may simultaneously influence the processing and outcomes of supportive messages, this study was the first to examine—and support—the claim. This finding parallels research on persuasion outcomes that shows that the motivation to process influence messages can be simultaneously influenced by both contextual features (e.g., the personal relevance of the situation) and recipient factors (e.g., need for cognition; see review by Petty & Cacioppo, 1986).

When participants confronted a mildly severe problem (and processing motivation was thus comparatively low), we expected that a peripheral feature of the communication situation, the source's relationship status, may activate a heuristic that would, in turn, influence message judgments. Specifically, we predicted that participants confronting mild problems would evaluate supportive messages attributed to a close friend as more helpful than messages attributed to a recent acquaintance. No effect was expected for message source when participants confronted a moderately severe problem, since they presumably would be

more focused on message content, limiting the likely use of a heuristic. Only modest support was obtained for this hypothesis. As expected, participants in the mild problem severity condition rated HPC messages attributed to a friend more positively than HPC messages attributed to an acquaintance; however, evaluations of LPC and MPC messages by participants in the mild severity condition did not vary as a function of source relationship type.

In seeking to understand this result, it is important to note that although problem severity exerted a stronger linear effect on evaluations of message helpfulness for recipients confronting a moderately severe problem than for recipients confronting a mildly severe problem, the difference was not significant. In fact, message person centeredness had a strong absolute effect on message evaluations in the mild severity condition, explaining over 65% of the variance in these evaluations. Thus, even when confronting mild problems, participants still provided evidence of processing message content. Given this, the environmental cue of relationship status, and the heuristic that it presumably activated ("friends give good support"), may be most likely to influence message outcomes when the content of the message is most evaluatively consistent with the cue (i.e., HPC messages coming from close friends). That is, our results here resemble what Todorov et al. (2002) refer to as an additivity effect; this occurs when the judgmental implications of heuristic cues and message content are consistent, leading heuristic and systematic processing to have independent and additive effects on message outcomes. Future research should explore the extent to which the additivity effect (vs. the classic attenuation effect) is present in the processing and outcomes of supportive interactions.

It is also quite possible that the relatively limited effect observed for source relationship type in the mild severity condition is a function of the paper-and-pencil methods employed in the current study. That is, it is possible that the effect of a construct such as relationship type (i.e., interacting with a close friend vs. recent acquaintance) may have a more powerful influence on message judgments when interactions occur with real people in real situations rather than with imagined others in hypothetical situations. The methods employed in this study may also explain the lack of a main effect for situational severity on message ratings—that is, in real support interactions, situational severity may affect message processing to a greater extent. Obviously, this is a general limitation of the current study, and future assessments of the dual-process theory of supportive communication outcomes will benefit from utilizing actual rather than hypothetical support situations. Of course, there are serious practical and ethical issues associated with studying actual supportive interactions (see Burleson, 2003), although it appears possible to address these issues in creative ways (e.g., Bodie, 2012; Cutrona & Suhr, 1994; Jones & Guerrero, 2001).

Conclusion

There is a need for a comprehensive theory that can predict and explain how and why myriad features of the support message and environmental cues have the effects they do on message outcomes (Burleson, 2009). In this study, we demonstrated how a dual-process theory of supportive communication outcomes may explain how aspects of the communication situation (features of the source, message, context, and receiver) can affect the

outcomes of supportive interactions (specifically, evaluations of message helpfulness) by serving a variety of roles (as message content, processing motivator, low-elaboration heuristic cue) that frequently interact with one another. Taken in conjunction with other recent findings (e.g., Bodie, Burleson et al., 2011, Study 2; Bodie, McCullough et al., 2011), the current results suggest the utility of the dual-process theory of supportive communication outcomes as well as identifying several areas where elaboration and modification of this theory is needed.

Notes

1. These four structures are loosely inspired by the four elements composing Berlo's (1960) "model of communication"—source, message, channel, and receiver (see also Fearing, 1953). As Berlo's many critics have observed, these four elements do not provide an adequate model of the dynamic process of communication; however, they do provide a useful heuristic for categorizing variables that participate in and influence the outcomes of social interactions (for a similar view, see Swanson & Delia, 1976).

2. Message order was randomized such that participants received messages in the following order: moderately person-centered message 1, high person-centered message 1, moderately person-centered message 2, low person-centered message 1, high person-centered message 2, and low person-centered message 2. As we did not randomly order the presentation of messages for each participant, we cannot rule out the possibility of an order effect. However, the findings for message person centeredness are consistent with much previous research.

3. Messages were similar to those used in multiple comforting studies (Burleson, Holmstrom, & Gilstrap, 2005; Burleson, Liu, Liu, & Mortenson, 2006). They were rated appropriately as low person-centered (LPC), moderate person-centered (MPC), or high person-centered (HPC) messages by two expert judges. Messages are available upon request from the first or second author.

4. Details for these analyses are available on request from the first author.
5. Given (a) the successful manipulation of problem severity across all six situations and (b) the focus of the present article on motivational factors that influence the processing and outcomes of supportive messages, no further analyses of the problem situation factor are reported in this article. Indeed, the potential effect of situational differences on any of the subsequently reported results is to increase the error variance associated with the test under question and, consequently, increase Type 2 error. Thus, our tests should be considered conservative.

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Author Biographies

Amanda J. Holmstrom (PhD, Purdue University) is an assistant professor in the Department of Communication at Michigan State University, East Lansing, MI.

Graham D. Bodie (PhD, Purdue University) is an assistant professor in the Department of Communication Studies at Louisiana State University, Baton Rouge, LA.

Brant R. Burleson (PhD, University of Illinois) was a professor in the Department of Communication at Purdue University, West Lafayette, IN.

Jennifer D. McCullough (PhD, Purdue University) is an assistant professor in the Department of Communication Studies at Saginaw Valley State University, University Center, MI.

Jessica J. Rack (PhD, Purdue University) is an instructor in the Department of Communication at the University of Cincinnati, Cincinnati, OH.

Lisa K. Hanasono (PhD, Purdue University) is an assistant professor in the Department of Communication at Bowling Green State University, Bowling Green, OH.

Jennifer G. Rosier (PhD, Purdue University) is an assistant professor in the School of Communication Studies at James Madison University, Harrisonburg, VA.