The Effects of Social Context on the Therapeutic Benefits of Emotion Sharing

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Abstract

The purpose of the study was to analyze the different contexts in which the social sharing of emotion occurs and the comparative benefits associated with two different contexts of emotion sharing. Previous research has differentiated between two general modes of emotion sharing: socio-affective sharing, which occurs when the listener responds to the sharer sympathetically to validate the sharer's emotional experience and provide social support, and cognitive sharing, which occurs when the listener responds to the sharer in a way that prompts cognitive work, for example, encouraging the sharer to reappraise the situation or reorganize their goals and expectations. In laboratory settings, socio-affective sharing has been found to be associated with increased perception of social support and decreased reported loneliness, while cognitive sharing has been found to be associated with increased emotional resolution and tangible therapeutic benefits. Expanding on previous research findings in the laboratory, the findings of the present research generalize the contexts and benefits of emotion sharing found in the laboratory through secondhand emotion elicitation to real-world instances of firsthand emotional experiences. Participants (n=147) were asked to complete a survey providing details on one specific emotional experience as well as several other measures including self-reported degree of socio-affective emotion sharing, cognitive emotion sharing, and outcome satisfaction in the described interaction, as well as self-reported measures of loneliness, gratitude, perceived social support, perceived stress, satisfaction with life and depression over the last two weeks. Participant responses were analyzed and coded to evaluate instances of emotion sharing, more specifically identifying the context of emotion sharing and the correlation with overall emotional resolution and problem resolution. Survey data

was analyzed in conjunction with emotion sharing data to determine if the therapeutic

benefits of emotion sharing observed in the laboratory could be generalized to firsthand

emotional experiences in the real world. The results of the study supported previous

research findings that socio-affective emotion sharing is associated with increased social

support while cognitive emotion sharing is associated with overall resolution, offering

potential strategies to improve interpersonal social relationships through effective

response to emotion sharing.

The Effects of Social Context on the Therapeutic Benefits of Emotion Sharing

I. Introduction

Following exposure to emotional stimuli, people invariably tend to share emotional experiences with those around them. In fact, 88 to 96 percent of emotional instances are socially shared, regardless of the type of emotion experienced or the sharer's gender, age, education, or culture. (Rimé et al., 1991; Singh-Manoux & Finkenaurer, 2001). Emotion sharing is not, however, simply a passive, after-the-fact consequence of experiencing emotion. The process of interpersonal emotion sharing is an integral component in the understanding and cognitive processing of both simple and complex emotions, actively constructing and reconstructing the way individuals experience and appraise emotional stimuli. The power of emotion sharing in shaping how individuals perceive and cope with emotional experiences is widely accepted and practiced by both mental health professionals and laypersons (Kennedy-Moore & Watson, 2001). For example, the basis of various psychotherapeutic interventions is grounded in collaborative, open dialogue encouraging the patient to disclose emotions to the therapist in order to work through emotional struggles (Barrett & Berman, 2001). Additionally, popular colloquialisms, such as "getting it off your chest," refer to the intrinsic relief embedded in the process of emotion sharing. Supporting these commonly held beliefs in the therapeutic power of emotion sharing, previous research has shown that the act of emotion sharing leads to enhanced emotional, physiological, and cognitive coping abilities (Lepore & Smyth, 2002; Pennebaker & Beall, 1986, Rimé et al., 1991; Lepore et al., 2004).

While the positive effects of emotion sharing are recognized and accepted, the mechanism by which emotion sharing provides therapeutic benefits in the context of

everyday stressors is not well understood. The purpose of the proposed research is to investigate the real-life context of interpersonal emotion sharing to elucidate the mechanism by which emotion sharing provides therapeutic benefits to the sharer. By identifying contexts of and motivation for the social sharing of emotion, the findings of the proposed study could offer strategies to improve both interpersonal social relationships through constructive listening skills and personal wellbeing through productive methods of expressing and sharing emotion.

II. Background

Communication of emotional experiences is advantageous both to physical and mental wellbeing. Previous experimental studies have found that, in relation to nondisclosure, disclosure of emotions following traumatic experiences results in increased immune system functioning, decreased instances of both minor and major illnesses, and fewer visits to health centers (Pennebaker, Kiecolt-Glaser & Glaser, 1988). Additionally, interpersonal emotional expression has been linked to decreased individual subjective and objective stress levels (Pennebaker & Beall, 1986) as well as enhanced ability to cope with subsequent re-exposure to both original stimuli and exposure to new stressful stimuli (Mendolia & Kleck, 1993). Previous research also shows that the beneficial effects of emotion sharing can be directly attributed to the social aspect of the emotion sharing process. Interpersonal emotional expression (sharing emotion with another person) was found to be significantly more beneficial than intrapersonal emotional expression (i.e. expressive writing, prayer, speaking into a tape recorder) for both positive (Gable et al., 2004) and negative (Finkenauer & Rimé, 1998) emotional experiences. Although some

forms of intrapersonal emotion expression, namely expressive writing, resulted in some

beneficial outcomes (Pennebaker & Beall, 1986), the mere act of putting emotions into

words did not ameliorate stressful emotional experiences to the same degree as

interpersonal emotion sharing. The proposed research aims to further analyze specific

social aspects contributing to the advantageous effects of interpersonal emotion sharing.

According to the appraisal theory of emotion, which states that emotional

experiences and responses are derived from subjective evaluations, or appraisals, that lead

to distinct reactions depending on the individual appraisal (Smith & Lazarus, 1990),

emotion sharing in which the sharer is prompted to cognitively shift his or her emotional

appraisal would elicit the greatest therapeutic benefits. Emotion sharing in which the

listener offers a response to promote the sharer to engage in cognitive work would

encourage the sharer to reappraise the emotional situation. Emotion appraisal occurs when

an individual assesses his or her own *perceived* circumstances in order to evaluate the

scenario (Smith & Lazarus, 1990). In an instance of emotion sharing, if the listener's

response shifts the way the sharer perceives the circumstances, then the emotional

appraisal changes, consequently changing the way the sharer responds to the emotion. For

example, if Bob and Mary break up because Bob suddenly stops having feelings for Mary,

then following the breakup Bob may primarily feel guilt because he feels badly for hurting

Mary. However, when Bob expresses his feelings of guilt to his friend Steve, Steve reminds

Bob of all the times Mary treated him poorly, and Bob's appraisal shifts from guilt to anger.

The shift from a self-blaming emotion, guilt, to an other-blaming emotion, anger, is

associated with decreased feelings of emotional distress (Finkenauer & Rimé, 1998),

therefore Bob feels the therapeutic effects of emotion sharing.

Bernard Rimé (2009) distinguishes two general modes of interpersonal emotion sharing: the cognitive mode and the socio-affective mode, each with their own unique benefits. The cognitive mode of social emotion sharing occurs when the listener responds to the sharer in a way that prompts cognitive work, for example, encouraging the sharer to reappraise the situation or reorganize their goals and expectations. In contrast, the socio-affective mode of social emotion sharing occurs when the listener responds to the sharer sympathetically to validate the sharer's emotional experience and provide social support (Rimé, 2009). In accordance with the appraisal theory of emotion, the cognitive mode of emotion sharing results in a greater degree of overall emotional recovery; however, the socio-affective mode of emotion sharing also interestingly results in significant positive outcomes in the context of social support (Nils & Rimé, 2008; Lepore et al., 2004).

To evaluate the most effective contexts of emotion sharing, Lepore and colleagues (2004) examined how emotional expression of an acute stressor influenced emotional coping and cognitive adjustment. In the study, participants were exposed to a graphic scene from the movie, *The Accused,* in which a woman is gang raped in a bar. Immediately afterward, the participants were randomly assigned to one of four conditions: no talk, talk, validate, or challenge. The no talk condition served as a control condition, and the talk condition represented a form of intrapersonal emotion expression since the participant was prompted to express his or her emotions out loud, but not to another person. The validate condition corresponds to Rimé's (2009) socio-affective mode of emotion sharing, in which the listener would support and validate the feelings expressed by the participant, whereas the challenge condition corresponds to the cognitive mode of emotion sharing, in which the listener would respond to challenge the feelings expressed by the participant,

provide the participant with alternate perspectives on the emotional scene. The study

found that participants in the challenge condition experienced the greatest emotional

adjustment, demonstrated through lowered pulse rate activity during re-exposure to the

movie clip and decreased level of intrusive thoughts in the week following the intervention

(Lepore et al., 2004). While participants in the validate condition experienced some

benefits in relation to the talk and no-talk conditions, the challenge condition clearly had a

greater impact on emotional adjustment to acute stressors, supporting the cognitive

reappraisal hypothesis embedded in the appraisal theory of emotion. However, in relation

to the challenging listener, the validating listener was rated by participants as friendlier,

more empathetic, and more similar to the participant, indicating that the validating context

of emotion sharing elicits greater perceived social support.

In a similar study, Nils and Rimé (2008) demonstrated the difference between the

socio-affective and cognitive modes of social emotion sharing in both immediate and long-

term outcomes by showing participants a negative emotion-eliciting clip and randomly

assigning participants to either a socio-affective emotion sharing condition or cognitive

work emotion sharing condition. Unlike the study by Lepore and colleagues (2004), in this

study the "listener" in the study was not an unfamiliar experimenter, but a friend of the

"sharer" who was instructed to respond with either an empathetic and validating attitude,

corresponding to a socio-affective response, a positive reframing response, corresponding

to the cognitive response, or a neutral attitude, corresponding to the control condition.

Since emotion sharing occurs most frequently between close friends or significant others

(Rimé et al., 1994), the use of a friend as the "listener" in the experimental manipulation

better represented real-life instances of emotion sharing and social support. In accordance

with appraisal theory, participants in the cognitive work response condition showed

significantly lower emotional distress related to the clip than both the socio-affective and

control conditions, demonstrating that positive reframing, one method of influencing the

"sharer" to engage in cognitive work, is most beneficial in stimulating emotional recovery.

Participants in the socio-affective response condition, however, reported significantly

lower scores of loneliness, demonstrating that support and validation in response to

emotion sharing offers the "sharer" more social support (Nils & Rime, 2008).

Overview of the Present Research

The cognitive, emotional, and physiological impacts of emotion sharing have been

extensively investigated through previous studies in the laboratory, but there is a lack of

research on the context and benefits of emotion sharing in real life scenarios. Previous

studies utilized emotion-eliciting clips to instigate emotion in participants, but emotional

response to hypothetical scenarios would likely differ greatly from emotional distress

experienced personally. The appraisal theory of emotions is grounded mainly in *individual*

differences in perceived circumstances – the wide range of emotional experiences exists

due to differing subjective knowledge, beliefs, and evaluations of cost and harm (Smith &

Lazarus, 1990). Therefore, the appraisal and coping of firsthand emotions may differ

significantly from the appraisal and coping of invoked secondhand emotion. The present

research aims to analyze instances of emotion sharing in the context of real-life stressors

and social relationships to determine if the benefits of emotion sharing observed through

laboratory simulation experiments hold true for real-life emotional experiences.

Consistent with the findings of previous research, I hypothesized that patterns of

emotion sharing in the laboratory would generalize to patterns of emotion sharing

detected in real-world participant responses. Specifically, my primary hypothesis was that

responses coded for higher degrees of socio-affective interpersonal emotion sharing would

be more highly correlated with emotional resolution, whereas cognitive interpersonal

emotion sharing would be more highly correlated with problem resolution. Based on the

theory of emotional appraisal and previous findings on the differing contexts of emotion

sharing, real-life instances of emotion sharing are often sought out by the sharer due to a

desire for empathy, validation, and/or support. Therefore, I hypothesized that participant

responses that report higher degrees of socio-affective emotion sharing would be

correlated with lower loneliness and higher perceived social support. However, because

cognitive reframing has been demonstrated to lead to positive emotional reappraisals, I

hypothesized that participants who engage most frequently in cognitive reframing would

experience greater overall problem resolution in comparison to participants who engaged

predominantly in socio-affective emotion sharing.

III. Methods

Participants

A total of 147 participants (78.9% female) completed the survey. The participants'

ages ranges from 17-28, with an average age of 20.60 (SD = 2.61). The vast majority of

participants (96.6%) were Caucasian (72.8%), Asian (17%), or African American (6.8%).

Participants were recruited in one of two ways. Internal participants (53.7%) accessed the

survey on the Vanderbilt SONA system, through which undergraduate students complete

studies for course credit requirements. External participants (46.3%) accessed the survey

through a variety of online psychology experiment boards for interested volunteers. Of the

87 internal participants beginning the Emotional Experience Survey, 79 participants

provided complete data sets (90.8% completion rate). Of the 222 external participants

beginning the Emotional Experience Survey, only 68 participants provided complete data

sets (30.6% completion rate). However, of the 68 complete external data sets, 25 of the

writing prompt responses were coded as 0 across all 7 measures of emotion sharing,

indicating that a large portion of the external writing responses did not follow the prompt

directions and were irrelevant to the research question; therefore only 11.2% of the 222

external survey responses provided meaningful data for content coding.

Measures

        Overview. Participants completed the 'Emotional Experience Survey' which was

designed to take approximately one hour. The first component of the survey is a writing

prompt asking the participant to provide detailed information on one specific stressful

experience that occurred in the last two weeks. After completing the writing portion of the

survey, participants were presented with 81 multiple choice questions gathering

background information on the participant and the nature of the stressful experience

described in the writing prompt. Measures incorporated into the survey included:

Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffen, 1985), Perceived Social

Support Scale (Smith & Wallston, 1992), Perceived Stress Scale (Cohen, Kamarck &

Mermelstein, 1994), Loneliness (Russell, 1996), Depression Scale, and a Gratitude Scale.

        Writing Prompt. The writing prompt contained three general components. First,

participants were prompted to describe a stress-inducing circumstance, explain why the

circumstance was stressful, and provide details on their emotional response to the stressor.

Secondly, participants were prompted to elaborate on the interpersonal emotion sharing

interaction, providing details about how the other person responded and how the

conversation or interaction impacted the participant's thoughts or emotions surrounding

the event. Finally, participants were asked to indicate if the situation was satisfactorily

resolved and if and how the interaction was meaningful. The writing prompt can be found

in Appendix A for reference.

Perceived Stress Scale. The Perceived Stress Scale (Cohen, Kamarck & Mermelstein,

1983) is a 14-item scale measuring the degree to which participants perceived life

situations over the past month as stressful. Ratings were made on a five-point scale (0 =

never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often). Items were

designed to identify how unpredictable, uncontrollable, and overloaded participants found

their lives over the last month. For the current study, the perceived stress scale

demonstrated a Cronbach's alpha value of 0.89.

Satisfaction With Life Scale. The Satisfaction With Life Scale (SWLS) (Diener et al.,

1985) is a measure of subjective well-being, specifically assessing global life satisfaction.

Ratings were made on a seven-point scale (0 = strongly disagree, 1 = disagree, 2 =

somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = agree, 6 =

strongly agree) for the 5 items in the scale (α= 0.87).

Depression Scale. The Patient Reported Outcomes Measurement Information System

(PROMIS) instrument for Emotional Distress: Depression Short Form 8a was used as an

abbreviated measure to assess participant depression. Ratings were made on a five-point

scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). In the present sample this

measure provided evidence of good reliability (α = 0.92).

Perceived Social Support Scale. The Perceived Social Support Scale used in the

present study was adapted from a scale used by Smith and Wallston (1992) in a study on

adaptation in patients with chronic Rheumatoid Arthritis . The scale consisted of a total of

13 items with an overall reliability of α = 0.78. The scale was composed of four distinct

components. The first component consisted of 3-items measuring the participant's

perceived quantity of social support on a 5-point scale (1 = none, 2 = 1-2, 3 = 3-5, 4 = 6-9, 5

= 10+). The second component was derived from the "strong ties" measure of social

support (Dean & Lin, 1977), consisting of a 4-item scale measuring perceived quality of

emotional support on a 5-point scale (1 = never, 2 = rarely, 3 = sometimes, 4 = quite often,

5 = very often). The third component was a 3-item scale measuring availability of

instrumental support (Strogatz, 1983) on a 5-point scale (1 = definitely yes, 2 = probably

yes, 3 = maybe, 4 = probably not, 5 = definitely not). The final component consisted of 3

items measuring the degree to which participants experienced social support over the last

two weeks on a 5-pont scale (1 = not at all, 2 = a little, 3 = moderately, 4 = a lot, 5 =

extremely much) (Smith & Wallston, 1992).

     Loneliness. The Loneliness Scale used in this study was adapted from Version 3 of

the UCLA Loneliness Scale, consisting of 6 items designed to measure how lonely

individuals describe their experience on a 5-point scale (1 = not at all, 2 = a little, 3 =

moderately, 4 = a lot, 5 = extremely much). In the present sample this measure provided

evidence of good reliability (α = 0.84).

     Gratitude Scale. The Gratitude Scale used in the survey was developed for the

purposes of the study to measure the degree to which participants felt grateful in relation

to the circumstance described in the writing prompt. The scale consisted of 3 items

measured on a 5-point scale (1 = not at all, 2 = a little, 3 = moderately, 4 = a lot, 5 =

extremely much). In the present sample this measure did not provide evidence of high

reliability (α = 0.58).

     Content Coding of Participant Responses. Participant writing responses were

content-coded by two independent coders from the laboratory. The content coding scheme

was developed based on the two general modes of interpersonal emotion sharing: the

cognitive mode and the socio-affective mode (Rimé, 2009). Participant responses were

coded in terms of three major categories, each of which incorporate several subcategories.

Instances of socio-affective emotion sharing (1) was identified and classified based on the

degree of (i) understanding, (ii) validation, (iii) empathy, and (iv) sympathy expressed in

the writing. Instances of cognitive emotion sharing (2) was identified in terms of (i) advice

given, (ii) articulation, and (iii) changing perspective. The degree of resolution (3) was

classified based on the degree of (i) problem resolution and (ii) emotional resolution. Each

item (9 total) was scored on a scale of 0-3 with 0 representing no expression and 3

representing strong expression (see Appendix B for in depth descriptions of 0-3 ratings).

Inter-rater reliability measured with Cohen's Kappa was high among all 9 coding measures

with an overall kappa coefficient of κ = 0.920.

Table 1: *Cohen's Kappa for Inter-Rater Reliability*

Coding Measure	Cohen's Kappa coefficient (κ)
Understanding	0.911
Validation	0.903
Empathy	0.887
Sympathy	0.903
Advice	0.932
Perspective	0.928
Articulation	0.922
Problem Resolution	0.894
Emotion Resolution	0.930
TOTAL	**0.920**

IV. Results

Overview of Analyses

Ratings were averaged overall for socio-affective sharing versus cognitive sharing to quantify the degree of each mode of interpersonal emotion sharing in relation to problem resolution and emotional resolution. Individual components of each coding category were analyzed independently within each response to identify if one component of emotion sharing contributed more significantly to various emotional outcomes. Individual and overall ratings were also analyzed for correlations between one specific mode of emotion sharing and other measures incorporated in the survey (satisfaction with life, perceived stress, perceived social support, loneliness, gratitude and depression). Pearson correlation coefficients were the major form of analyses used to determine correlations between type of emotion sharing and outcome variables. Median splits and t-test analyses was used to determine the significance of correlations within each type of emotion sharing, comparing instances categorized as high emotion sharing to instances categorized as low emotion sharing, and self-reported measures of satisfaction with life, perceived stress, perceived social support, loneliness, gratitude and depression.

Averaging the self-reported socio-affective measures gave the composite socio-affective score, or the self-reported SA while averaging the cognitive-work measures gave the composite cognitive-work score, or the self-reported CW. Pearson correlation coefficient analysis was used to determine the correlation between socio-affective emotion sharing experiences and outcome measures (gratitude, loneliness, perceived stress, perceived social support, satisfaction with life, depression, and overall outcome satisfaction) in comparison to the correlation between cognitive-work emotion sharing

experiences and outcome measures. Tables 2 summarizes the results. All correlations were

found to be significant. Of note, self-reported SA was more significantly correlated with

gratitude, perceived social support and inversely correlated with loneliness, supporting the

hypothesis that socio-affective responses to emotion sharing result in stronger

interpersonal bonding. Self-reported CW was more significantly correlated with

satisfaction with life and outcome satisfaction and inversely correlated with perceived

stress and depression, supporting the hypothesis that cognitive-work responses to emotion

sharing result in greater problem resolution.

Table 2: Pearson Correlation Coefficients of Self Reported SA and CW and Outcome Measures

Measurement	Socio-Affective	Cognitive-Work
Gratitude	.580 **	.416 **
Loneliness	-.741 **	-.386 **
Perceived Stress	-.164 **	-.390 **
Perceived Social Support	.497 **	.389 **
Satisfaction with Life	.379 **	.393 **
Depression	-.232 **	-.390 **
Outcome Satisfaction	.455 **	.485**

** Correlation is significant at 0.01 level
* Correlation is significant at 0.05 level

For the content coded responses, the four socio-affective measures (understanding,

validation, sympathy and empathy) were averaged to give the overall socio-affective type

of emotion sharing described in the response, or coded SA. The three cognitive-work

measures (advice given, perspective change, and articulation) were averaged to give the

overall cognitive-work type of emotion sharing described in the response, or coded CW.

Individually, coded SA and coded CW were evaluated based on correlations with problem

resolution (PR) and emotion resolution (ER). Differences in outcome resolution between

SA and CW were compared based on Pearson correlation coefficients with the results

summarized in Table 3. Cognitive response to emotion sharing was more significantly

correlated with problem resolution, as hypothesized. Contrary to previous research,

however, cognitive-work responses to emotion sharing were also more significantly

correlated with emotion resolution.

Table 3: Comparison of Pearson Correlation Coefficients of Resolution between SA and CW

Resolution	Socio-Affective	Cognitive-Work
Problem Resolution	.304 **	.389 **
Emotion Resolution	.524 **	.716 **

** Correlation is significant at 0.01 level

Relative differences between coded SA and coded CW outcome measures were

compared by performing a median split of the data and conducting t-tests. Because of the

higher quality of data from internal participants in comparison to external participants

addressed in the discussion section, median splits were conducted on both internal sample

only (n = 79; see Appendix C) and on the sample as a whole (n = 147). The median split

data was used to compare outcome measurements between high coded SA responses

versus low coded SA responses and high coded CW responses versus low coded CW

responses. For the median split by SA, 82 participants were categorized in the 'below

median' group, and 65 participants were categorized in the 'above median group'. For the

median split by CW, 54 participants were categorized in the 'below median' group, and 93

participants were categorized in the 'above median' group. Both median splits counted the

median upward into the 'above median' group. Data from the mean split analysis is

summarized in tables 4 and 5.

Table 4: Median Split by coded SA

Measure	Mean Difference	DF	t	Significance
Emotion Resolution	0.965	145	6.593	< 0.001 **
Problem Resolution	0.457	145	3.324	< 0.001 **
Outcome Satisfaction	0.636	145	2.861	0.005 **
Gratitude	0.606	145	3.877	< 0.001**
Loneliness	-0.475	145	-2.806	0.006 **
Perceived Stress	-0.065	145	-0.626	0.532
Perceived Social Support	0.185	145	1.789	0.076
Satisfaction With Life	0.413	145	1.626	0.106
Depression	- 0.026	145	-0.178	0.859

Note. DF indicates the degree of freedom used for t-test for equality of means, with non-integral DF indicating non-equality of variance between groups tested according to Levene's test.

Table 5: Median Split by coded CW

Measure	Mean Difference	DF	t	Significance
Emotion Resolution	1.346	139.524	12.266	< 0.001 **
Problem Resolution	0.814	145	6.249	< 0.001 **
Outcome Satisfaction	0.972	145	4.400	< 0.001 **
Gratitude	0.743	145	4.718	< 0.001**
Loneliness	-0.722	145	-4.280	< 0.001 **
Perceived Stress	-0.065	145	-0.830	0.408
Perceived Social Support	0.430	145	4.231	< 0.001 **
Satisfaction With Life	0.712	145	2.766	0.006 **
Depression	- 0.220	145	-1.483	0.140

Note. DF indicates the degree of freedom used for t-test for equality of means, with non-integral DF indicating non-equality of variance between groups tested according to Levene's test.

Median split analysis of SA responses shows a significant difference between participant responses with high SA scores in comparison to participant responses with low SA scores in emotion resolution (p < 0.001), problem resolution (p < 0.001), outcome satisfaction (p = 0.005), gratitude (p < 0.001) and loneliness (p = 0.006), indicating that higher degrees of socio-affective emotion sharing correlated with more emotional and

problem resolution, greater self-reported outcome satisfaction and gratitude, and lower

self-reported loneliness. The larger significant mean difference between high and low SA_A

participants in emotion resolution (ER) (MD = 0.965; p < 0.001) versus problem resolution

(PR) (MD = 0.457; p < 0.001) is consistent with the hypothesis that socio-affective emotion

sharing would have a larger impact on emotion resolution than problem resolution. The

difference between high and low SA participants in emotion resolution in comparison to

problem resolution is summarized in Figure 1. Contrary to the hypothesis, no significant

difference was observed between high SA and low SA participants in relation to perceived

social support (MD = 0.185; p = 0.076).

Figure 1: Median Split by coded SA showing mean difference in ER and PR.
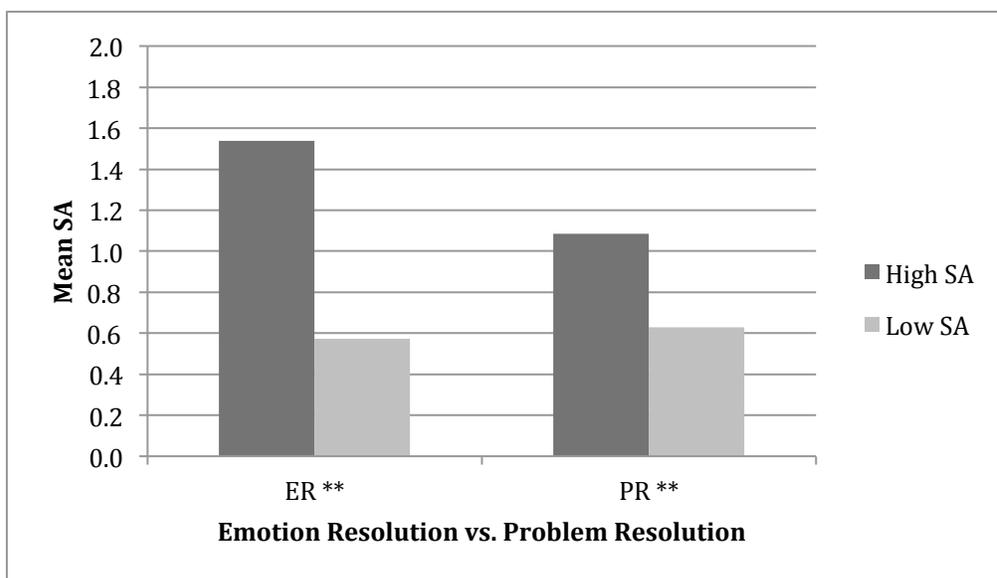
Similarly, median split analysis of coded CW responses also shows a significant

difference between participants with high CW scores versus low CW scores in emotion

resolution (p < 0.001), problem resolution (p < 0.001), outcome satisfaction (p < 0.001),

gratitude (p < 0.001), and loneliness (p < 0.001). Additionally, high CW responses were

significantly different from low CF responses in relation to perceived social support (p <

0.001), and satisfaction with life (p < 0.001). Like SA median split analysis, a larger

significant difference was observed between high and low CW participants in ER (MD =

1.346; p < 0.001) versus PR (MD = 0.814; p < 0.001), which is inconsistent with the

hypothesis that the cognitive work subtype of emotion sharing would have a larger impact

on problem resolution in comparison to emotion resolution. The difference between high

and low CW participants in emotion resolution in comparison to problem resolution is

summarized in Figure 2.

Figure 2: Median Split by coded CW showing mean difference in ER and PR.
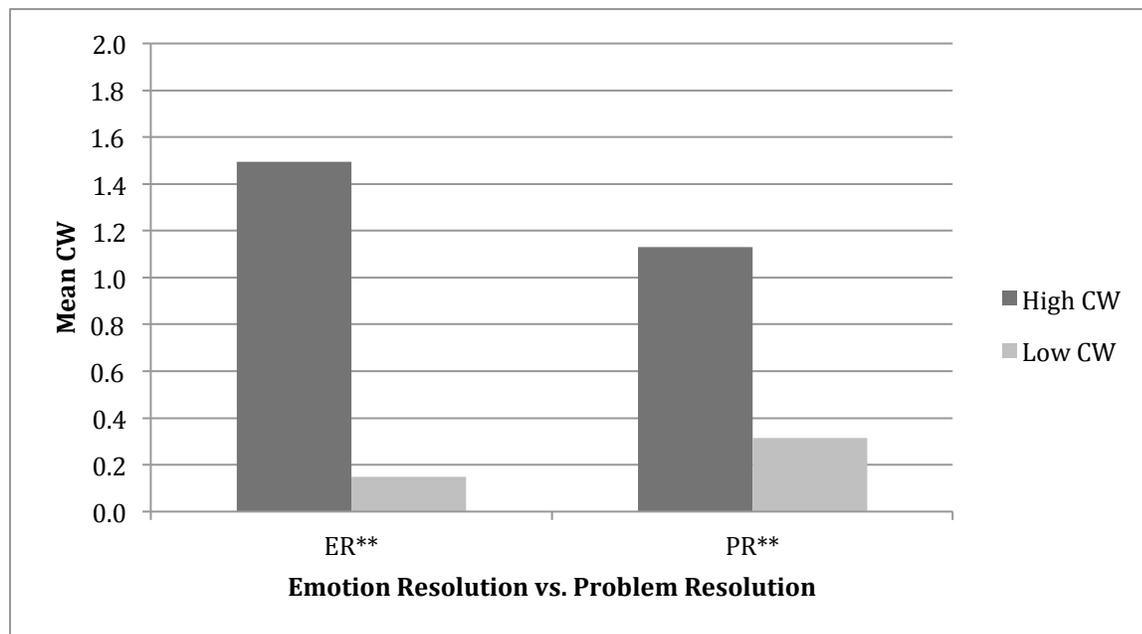
Comparing the mean difference data of median split by SA and median split by CW

(Figure 3), participants who were coded for high CW had higher degrees of coded emotion

resolution (ER) and problem resolution (PR), higher self reported outcome satisfaction

(OS), gratitude (GRAT), perceived social support (SS) and satisfaction with life (SWL), and

lower self reported loneliness (LONE), perceived stress (PS) and depression (DE) in

comparison to participants coded for high SA.

Figure 3: Mean Difference Comparison between coded SA and CF
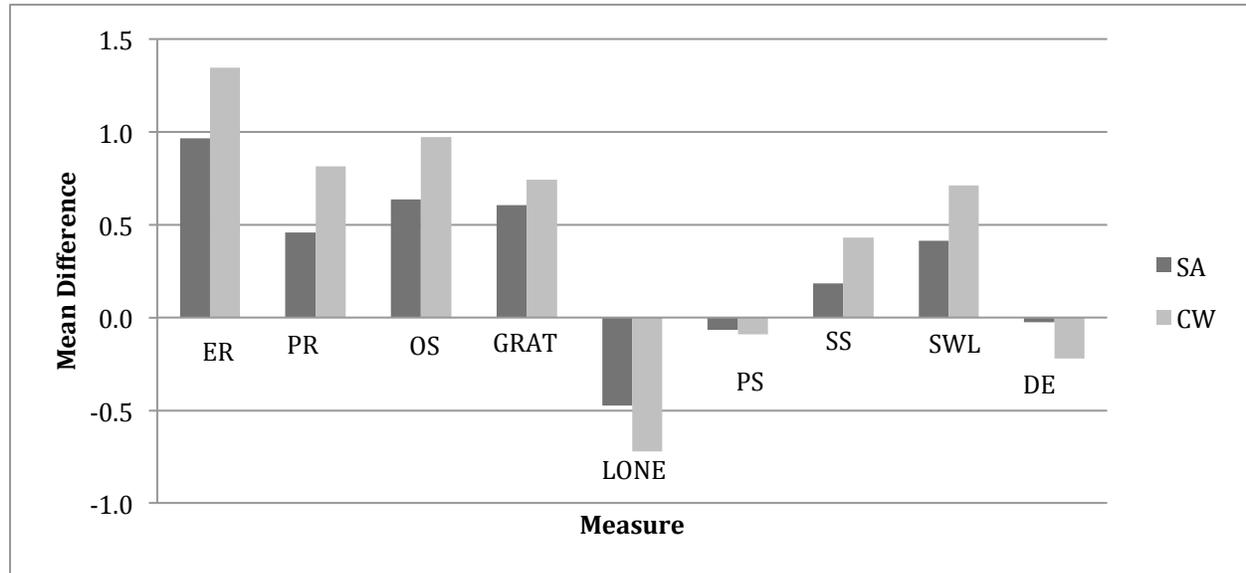
V. Discussion

As hypothesized, self-reported degree of socio-affective response to emotion

sharing showed a significant correlation with perceived social support and a strong

inverse correlation with loneliness, consistent with previous findings that the socio-

affective mode of emotion sharing fosters social support (Nils & Rime, 2008; Lepore et al.,

2004). When the listener responded with some combination of understanding, validation,

sympathy, or empathy, the sharer indicated a greater overall level of perceived social

support and gratitude and decreased levels of loneliness. Self-reported degree of cognitive

response to emotion sharing showed a stronger negative correlation with perceived stress

and depression, and showed a significant positive correlation with satisfaction with life and

outcome satisfaction. When the listener responded to the sharer by shifting perspective,

offering advice, or assistance in productive articulation, the sharer felt more satisfied with

the outcome of the specific stressful circumstance described, in accordance with the

appraisal theory of emotion, which posits that the cognitive mode of emotion sharing

results in the greatest overall recovery due to the positive reappraisal of a stressful

situation. Participants who engaged in a greater degree of cognitive emotion sharing

reported less perceived stress and more satisfaction with life in comparison to participants

engaging in higher degrees of socio-affective emotion sharing. The decrease in perceived

stress could be directly related to the greater outcome satisfaction reported among the

participants engaging in cognitive emotion sharing.

Participants who reported a higher degree of cognitive emotion sharing indicated

higher degrees of problem resolution and emotion resolution in the writing response in

comparison to participants who reported a higher degree of socio-affective emotion

sharing. Self-reported accounts of socio-affective emotion sharing, however, had a stronger

correlation with emotion resolution in comparison to problem resolution. The observed

correlations support the hypothesis that socio-affective emotion sharing would have a

greater overall positive impact on emotion resolution in comparison to problem resolution.

Because participants experienced more social support and validation from the listener,

some of the emotions elicited from the stressful event were appeased. However, because

socio-affective emotion sharing does not always include a shift in emotional appraisal or

concrete advice from the respondent, the underlying problem causing the emotional

distress was not always addressed. Participants who engaged in cognitive-work emotion

sharing experienced higher degrees of both emotion and problem resolution, which could

be attributed to cognitive work stimulating emotional recovery through reappraisal.

The observed correlations between self-reported type of emotion sharing and resolution did not offer support for the hypothesis that cognitive work would lead to a higher degree of problem resolution in comparison to emotion resolution. Because both modes of emotion sharing are significantly more correlated with emotion resolution than problem resolution, one possible explanation lies in the nature of many of the stressful experiences described. Many of the situations described stressors that could not be immediately resolved, for example, a negative health diagnosis cannot necessarily be resolved through the process of emotion sharing. While the sharing experience could help alleviate some of the emotions that the participant felt in response to the negative diagnosis, the diagnosis itself was unchanged, corresponding with a high coded degree of emotion resolution, but a low coded degree of problem resolution. To adequately compare degrees of emotion and problem resolution in response to an emotion sharing experience, the type of 'problem' described must be standardized to be somewhat solvable.

The median split analysis data provided insights into differences within groups of socio-affective sharers versus groups of cognitive work sharers. The median split analysis was done to provide support for the Pearson correlation analysis to show the consistency between self-reported responses and coded responses. Because of the discrepancies in external versus internal data sets discussed in the limitation section, the median split data gave a more accurate depiction of the observed correlations and supported the patterns observed through Pearson correlations. The median split separated data by median socio-affective emotion sharing indicated that participants who engaged in a higher degree of socio-affective sharing had significantly higher degrees of emotion resolution, problem resolution, gratitude, and outcome satisfaction and significantly lower degrees of

loneliness. Similarly, split data by median cognitive sharing also indicated that participants who engaged in a higher degree of cognitive sharing had significantly higher degrees of emotion and problem resolution, gratitude, and outcome satisfaction and significantly lower degrees of loneliness as well as significantly increased perceived social support and satisfaction with life. The median split data demonstrates that emotion sharing, regardless of its form, has therapeutic effects for the sharer. The higher significance and larger mean difference among all categories for median split by cognitive emotion sharing supports the hypothesis that cognitive emotion sharing leads to the greatest overall resolution.

Overall, the larger and more significant correlations between cognitive emotion sharing and the various dispositional measures of general wellbeing support the hypothesis that cognitive interpersonal emotion sharing is more highly correlated with problem resolution. However, contrary to the hypothesis of the effects of socio-affective emotion sharing, cognitive sharing was also more highly correlated with emotion resolution. While socio-affective emotion sharing did correlate with many of the predicted effects, such as increased social support and gratitude and decreased loneliness, and was more highly correlated with emotion resolution than problem resolution, as hypothesized, overall socio-affective emotion sharing was less highly correlated than cognitive emotion sharing in terms of overall emotion resolution. One possible explanation could be that the re-appraisal process inherent in many instances of cognitive emotion sharing exerts a stronger influence on emotion resolution than the socio-affective effects on emotion resolution, such as validation and sympathy.

Additionally, since the writing prompt indicated that the stressful event described could have occurred anytime over the last two weeks, it is possible that the cognitive mode

of emotion sharing led to increased emotion resolution *over time* due to the shift in

emotional appraisal. Previous studies found that socio-affective emotion sharing was

associated with initial decrease in negative emotions, but the effects did not sustain over

time; whereas cognitive work was most beneficial in stimulating emotional recovery in the

long term (Lepore et al., 2004). The initial social support and decreased loneliness felt by

the socio-affective sharer during the emotion sharing experience could have alleviated

negative emotions in the moment but worn off after the sharing interaction. In contrast,

since cognitive emotion sharing is associated with a *shift* in emotional appraisal, changing

the way in which the sharer views the stressor, over time the participant may experience

more emotion resolution. To further investigate the immediate and long term effects of

interpersonal emotion sharing, future research could design a longitudinal study in which

participants are asked to journal about a stressful experience and any emotion sharing in

response to that experience directly when it happens, with a follow up journal entry on

emotion and problem resolution related to the initial stressor after a duration of time.

VI. Limitations

The most significant limitation of the study was the bias and inadequacy inherent in

self-reported measures and writing. While the writing prompt explicitly asked participants

to report several specific aspects of the stressful experience and subsequent interpersonal

exchange, many participants focused only on certain aspects of the experiences and it is

possible that the writing prompt responses did not give the full picture. Many responses

implied certain factors of emotion sharing without explicitly stating them, making the

coding of the responses somewhat subjective in some areas. The follow-up questions after

the writing prompt in the survey aimed to address this subjectivity by explicitly asking

participants to what degree they felt validated, understood, a shift in perspective, etc., but it

is still possible that some components of emotion sharing were not adequately represented

by the survey.

Due to the nature of the internal versus external platforms through which

participants accessed the survey, with internal participants mostly completing the survey

for SONA course credit and external participants completing the survey without any form

of compensation, the quality of the internal responses was significantly greater than the

quality of the external responses. Of the 87 internal participants beginning the Emotional

Experience Survey, 79 participants provided complete data sets. However, of the 222

external participants beginning the Emotional Experience Survey, only 68 participants

provided complete data sets. Of those 68 complete external data sets, 25 of the writing

prompt responses were coded as 0 across all 7 measures of emotion sharing, indicating

that a large portion of the external writing responses did not follow the prompt directions

and were irrelevant to the research question. Many of the external responses discussed a

stressful experience without elaborating on a subsequent interpersonal interaction.

However, a majority of participants responded to the follow up questions indicating that

they felt understood, validated, etc. by the experience with the listener, suggesting that an

interpersonal emotion sharing experience occurred, but the participant failed to provide

details in the writing prompt. Future research may want to consider asking participants

several shorter prompt questions separating components of the emotion sharing

experience instead of one long prompt in order to obtain more comprehensive accounts

from participants.

Because more than one third of the external responses were coded as 0 across all

emotion sharing measures, the overall totals of coded SA and CW are diluted. To assess if

significant differences between the overall data set and internal data set existed, median

split analysis was conducted on the internal sample only, with results presented in Tables 6

and 7 in Appendix C. Due to the smaller sample size of the internal sample (n = 79) in

comparison to the overall sample (n = 149), less measures were found to be significantly

different between low SA/CW and high SA/CW, respectively. However, the results do

indicate that high SA was more positively correlated with emotion resolution (MD = 0.523;

p = 0.029) and more negatively correlated with loneliness (MD = -0.525; p = 0.023) in

relation to low SA. Since emotion resolution and loneliness are two of the measures

expected to be most highly associated with socio-affective emotion sharing, the median

split analysis of internal data supports the hypothesis of socio-affective emotion sharing

effects. While problem resolution was not found to be statistically significant for either SA

(MD = 0.104, p = 0.628) or CW (MD = 0.373; p = 0.058), the p-value for CW is *nearly*

significant, which could indicate that with a larger sample size, problem resolution would

be significantly correlated with high CW. If problem resolution was found to be

significantly different for high CW versus low CW but not significantly different for high SA

versus low SA, the difference in problem resolution would support the hypothesis that

cognitive emotion sharing is superior to socio-affective emotion sharing in terms of

problem resolution. While no definitive conclusion can be drawn from the limited data of

the internal median split analysis, the preliminary results seem to suggest that a more

complete data set could have shown stronger support for the experimental hypotheses.

VII. Conclusion

While existing research has established a difference in therapeutic benefits of socio-affective versus cognitive modes of emotion sharing in response to artificially induced stressors, the present research offers insight into differences in modes of emotion sharing in real life scenarios.

Generally, the patterns of emotion-sharing detected in real-world participant responses were consistent with patterns observed in existing research. Socio-affective emotion sharing was more positively correlated with emotion resolution in comparison to problem resolution due to the cathartic yet unsubstantiated responses such as validation, understanding, empathy and sympathy that can make a participant feel better in the moment but do not impart any long term alleviating effects on the stressful experience itself. Because socio-affective emotion sharing was significantly correlated with increased perceived social support and decreased loneliness, the mechanism through which socio-affective responses alleviate negative emotions can be understood through the positive effects of interpersonal social support, supporting the hypothesis that socio-affective emotion sharing is related to enhanced social support. The significant correlations between socio-affective emotion sharing and social support and loneliness replicate the findings in laboratory settings that socio-affective response conditions result in decreased scores of loneliness, demonstrating that support and validation in response to emotion sharing offers the "sharer" more social support (Nils & Rime, 2008).

Cognitive emotion sharing was more highly correlated with problem resolution in relation to socio-affective emotion sharing, supporting the hypothesis that cognitive emotion sharing leads to more tangible benefits by engaging the sharer in a process of

cognitive work through which he or she can reappraise the situation by shifting his or her perceived circumstances. In relation to socio-affective emotion sharing, cognitive responses include more concrete changes in appraisal through giving advice, offering a new perspective, or assisting in productive articulation. Higher patterns of outcome satisfaction, emotion resolution, and problem resolution for cognitive emotion sharing support previous research findings that cognitive sharing results in the greatest degree of overall recovery in accordance with the appraisal theory of emotion (Nils & Rime, 2008; Lepore et al., 2004). In support of previous research and hypothesized outcomes, cognitive emotion sharing was significantly correlated with increased satisfaction with life, decreased perceived stress and decreased depression, suggesting that cognitive emotion sharing offers the sharer tangible therapeutic benefits over the long term. While cognitive emotion sharing itself was found to be more positively correlated with emotion resolution than problem resolution, contrary to the expectation that cognitive emotion sharing leads to the greatest overall benefit in problem resolution, it is possible that the time frame of the emotional experience in relation to the writing exercise allowed participants longer to process the experience leading to higher emotion resolution in retrospect. More research is necessary to assess the immediate and long term effects of each mode of emotion sharing and identify mediating variables.

Additional research is required to fully elucidate the various differences between modes of emotion sharing in context, however the findings of the present study generalizes several laboratory findings to the context of real world emotion sharing. While both modes of emotion sharing response offered therapeutic benefits to the sharer, cognitive sharing was found to make a greater impact in emotion and problem resolution and across various

other measures. The strong negative correlation between socio-affective emotion sharing

and loneliness suggests that when engaging in an emotion sharing interaction, the listener

should strive to understand and validate the sharer and show empathy and sympathy to

maximize the sharer's perception of their social support network. However, the findings of

the study indicate that the most meaningful method of supporting the sharer in an emotion

sharing interaction is to help the sharer engage in cognitive work to reappraise the

situation by offering constructive advice, different perspectives, or helping the sharer to

meaningfully articulate the situation to shift their internal narrative. Response to shared

emotions has shown effects in improving interpersonal social relationships through

constructive listening skills and improving personal wellbeing through problem and

emotion resolution.

APPENDIX A. **Writing Prompt**

In this writing exercise, we would like you to describe in detail a stressful event that you experienced over the past two weeks. Think of a time during the past TWO WEEKS when you experienced any stressful event and communicated your feelings and emotions about the circumstance to someone else. Describe the stress-inducing circumstance, why it was stressful, and your emotional response to it. Please elaborate on the interaction you had with the other person about the stressful experience. Describe your conversation with that person, how the person responded, and how the conversation or interaction impacted your thoughts and/or emotions surrounding the event. Indicate if the situation was satisfactorily resolved, and if so, how. Be specific about why this interaction was meaningful to you. Please describe the situation as fully as possible but do not worry about grammar, spelling, or sentence structure.

APPENDIX B. **Coding Scheme for Writing Responses**

Socio-Affective Response to Emotion Sharing – empathic response to shared emotions

- **a. Understanding/Listening** – to what degree did the participant express that he/she felt understood, listened to, or heard
    - **0:** Participant did not implicitly or explicitly express that they felt understood
    - **1:** Participant either implied that they were understood or explicitly mentioned it briefly but did not elaborate
        - *i.e. she listened to me*
    - **2:** Participant explicitly stated that they felt understood and that it was meaningful
        - *i.e. it meant a lot to me that she took the time to listen to what I had to say*
    - **3:** Participant explicitly stated that they felt understood and that it <u>directly</u> led to a shift in emotions, beliefs, or behaviors
        - *i.e. her understanding helped me realize that I was not alone so I felt less sad*
- **b. Validation** – to what degree did the participant express that he/she felt that their feelings were validated (feels that they have a right to feel what they are feeling) by the response to emotion sharing
    - **0:** Participant did not implicitly or explicitly express that they felt validated
    - **1:** Participant either implicitly implied that they felt validated or explicitly mentioned it briefly but did not elaborate
        - *i.e. she validated me; she told me that I was justified in feeling upset*
    - **2:** Participant explicitly stated that they felt validated and that it was meaningful
        - *i.e. she told me that I was justified in feeling upset and it reminded me what a good friend she is*
    - **3:** Participant explicitly stated that they felt understood and that it <u>directly</u> led to a shift in emotions, beliefs, or behaviors
        - *i.e. she told me that I was justified in feeling upset which made me feel relieved*
- **c. Empathy –** do what degree did the participant express that he/she felt empathized with – i.e. respondent responds by sharing a similar experience; 'wow that must have been so hard for you'; 'I'm so sorry that you experienced that'
    - **0:** Participant did not implicitly or explicitly express feeling empathized with
    - **1:** Participant either implicitly implied that they felt empathized with or explicitly mentioned it but did not elaborate
        - *i.e. she consoled me; she empathized with my situation*
    - **2:** Participant explicitly stated that they felt empathized with and that it was meaningful

i.e. she told me that she had been through something similar and knew what it felt like, which was meaningful to me

3: Participant explicitly stated that they felt empathized with and that it <u>directly</u> led to a shift in emotions, beliefs or behaviors
i.e. she told me that she had been through something similar which made me realize that it wasn't actually as big of a deal as I thought it was

Cognitive Reframing Response to Emotion Sharing – active response to shared emotions
    a. Giving Advice – to what degree did participant feel that he/she received advice from the emotion sharing interaction
        0: Participant did not implicitly or explicitly express that they received advice
        1: Participant either implicitly implied that they received advice or explicitly mentioned it briefly but did not elaborate
            i.e. 'I called her for advice' or 'she talked me through it'
        2: Participant explicitly stated that they received advice and that it was meaningful
            i.e. I was grateful that she offered me advice on how I should proceed
        3: Participant explicitly stated that they received advice and that it <u>directly</u> led to a shift in emotions, beliefs, or behaviors
            i.e. she gave me advice on what to do and it made me less stressed about the situation
    b. Change in Perspective– to what degree did participant shift their perspective about the <u>stressful event</u> due to the emotion sharing interaction
        0: Participant did not implicitly or explicitly express that their perspective changed
        1: Participant either implicitly implied that their perspective changed or explicitly mentioned it briefly but did not elaborate
            i.e. 'her response helped me to see the problem from a new perspective' or 'she reminded me that it wasn't that big of a deal'
        2: Participant explicitly stated that their perspective changed due to the response to emotion sharing and that it was meaningful
            i.e. she reminded me that I'm good at a lot of other things so failing the test wasn't so bad which meant a lot to me
        3: Participant explicitly stated that their perspective changed due to the response to emotion sharing and that this change <u>directly</u> led to a shift in emotions, beliefs, or behaviors
            i.e. she reminded me that I'm good at a lot of other things so failing the test wasn't so bad, which made me less stressed about failing the test
            i.e. she told me that it wasn't that my boyfriend didn't like me it was that all boys are stupid which made me angry instead of sad

Resolution – to what degree what the stressful event or emotional response resolved <u>overall</u>
    a. Resolution of Problem – to what degree did the participant feel that the initial problem or stressful event had been resolved due to the emotion sharing interaction
        i.e. and after talking to Bob I knew where to look to find a job
        0: Participant did not implicitly or explicitly mention that the problem was resolved
        1: Participant expressed that the problem was somewhat resolved
        2: Participant expressed that the problem was mostly resolved
        3: Participant expressed that the problem was entirely resolved
    b. Resolution of Emotions - to what degree did the participant feel that their emotions in response to the stressful event or problem had been resolved after the emotion sharing interaction

> *i.e. and after talking to Bob I did not feel as stressed about getting a job right after graduation*

- **0:** Participant did not implicitly or explicitly mention that their emotions were resolved
- **1:** Participant expressed that their emotions were somewhat resolved
- **2:** Participants expressed that their emotions were mostly resolved
- **3:** Participants expressed that their emotions were entirely resolved

Appendix C. Median Split of Internal Analysis Tables

Table 6: Median Split of Internal Data by SA

Measure	Mean Difference	DF	t	Significance
Emotion Resolution	0.523	77	2.221	0.029 **
Problem Resolution	0.104	77	0.486	0.628
Outcome Satisfaction	0.307	77	1.088	0.280
Gratitude	0.304	77	1.286	0.202
Loneliness	-0.525	77	-2.316	0.023 **
Perceived Stress	-0.039	77	-0.273	0.786
Perceived Social Support	0.008	77	0.062	0.951
Satisfaction With Life	0.340	77	1.003	0.319
Depression	-0.266	77	-1.344	0.198

Note. DF indicates the degree of freedom used for t-test for equality of means, with non-integral DF indicating non-equality of variance between groups tested according to Levene's test; median was counted upward in median split.

Table 7: Median Split of Internal Data by CW

Measure	Mean Difference	DF	t	Significance
Emotion Resolution	1.142	77	6.155	< 0.001 **
Problem Resolution	0.373	77	1.936	0.058
Outcome Satisfaction	0.400	76.125	1.527	0.122
Gratitude	0.577	73.700	2.800	0.007 **
Loneliness	-0.713	77	-3.506	0.001 **
Perceived Stress	-0.063	77	-0.478	0.634
Perceived Social Support	0.075	77	0.589	0.558
Satisfaction With Life	0.200	77	0.627	0.532
Depression	-0.078	77	-0.417	0.429

Note. DF indicates the degree of freedom used for t-test for equality of means, with non-integral DF indicating non-equality of variance between groups tested according to Levene's test. Median was counted upward in median split.

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