Sharing Matters of the Heart:

The Importance of Emotional Disclosure for Cardiac Patients and their Spouses

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Previous research has suggested that emotional expression is important for psychological adjustment to disease (e.g., Stanton et al., 2000). Indeed, experimentally prescribed emotional disclosure (traditionally, expressive writing) in the context of illness has been shown to provide benefits for mental and physical health (Pennebaker, 1993). However, the experimentally prescribed disclosure in previous research has typically been asocial, akin to writing in a diary. In contrast, the present research, by experimentally manipulating the intended audience of one's disclosure, examined the effect of addressing one's emotional disclosure to specific types of listener, namely a therapist or one's spouse. Cardiac couples in which one partner had a recent cardiac event took part in the current study. First, partners completed pre-study characteristics questionnaires. Next, in a lab session, partners (in separate rooms) were randomly assigned to one of three conditions: (1) they disclosed their thoughts and feelings about the cardiac event as though speaking to their partner; (2) they disclosed their thoughts and feelings about the event as though speaking to a therapist; or (3) in a non-disclosure, control condition, they spoke about a neutral topic. Partners then engaged in a dyadic discussion about each partner's experiences, thoughts and feelings about the cardiac event. Finally, a one-month follow-up measure assessed their relational outcomes since participation.

It was hypothesized that the partner-oriented condition would lead to better outcomes than the therapist-oriented condition, and that disclosing overall would be more beneficial than non-disclosure. The study also examined the influence of pre-study characteristics on in-lab and follow-up outcomes, with the hypothesis being that participants doing less well initially (i.e., higher on psychological distress, Type D personality, emotional suppression, and lower on mindfulness, cognitive reappraisal, relationship satisfaction, and perceived social support) would experience relatively more benefits from participation than those initially doing well. In addition, the study investigated whether type of event (unexpected and sudden vs. planned and more gradual) would differentially influence measures throughout the study, with the hypothesis being that couples who experienced a sudden event (MI) would be more distressed and therefore benefit more from participation than those who went through a planned procedure.

Hypotheses were partially supported. Although the manipulation of disclosing to one's partner vs. a therapist did not elicit many differences, one important and novel finding emerged regarding the orientation of disclosures: partner-disclosures yielded a more communal orientation whereas therapist-disclosures yielded a more self-focused orientation. The importance of patients' disclosure orientation (me vs. we) was revealed when it emerged that greater *communal* focus led to better outcomes for both partners, but greater *self*-focus led to less positive outcomes for spouses. Compared to non-disclosure, disclosure generally was found to provide greater benefits for relational communication as well as marital satisfaction at follow-up. Consistent with predictions, participants who seemed most in need at pre-study (i.e., greater distress, Type D personality, emotional suppression, and less marital satisfaction and perceived support) experienced better outcomes than those who were initially well. Finally, couples who went through a sudden event were found to be more in need and benefited more than those whose event was planned, and this was especially pronounced in the effects on the spouses.

Directions for future research and implications for clinical practice were discussed. For example, in addition to highlighting the value of emotional disclosure in the context of serious illness, the findings identified characteristics of cardiac couples who may be more in need of communication interventions and drew attention to important, relatively unmet needs in the patients' spouses.

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Dedication

I dedicate this thesis to my big, wonderful family. To my parents, Simon and Cindy, and to my sisters, Colleen and Carmen: I am where I am today because of your unconditional love and belief in me throughout my life. My values and persistence were shaped by the examples you have all set. Thank you to each of you for always being there for me, looking out for me and supporting me from the very beginning.

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Introduction

By our very nature, humans are social creatures. We depend on our interpersonal connections for support and safety, particularly when faced with a crisis. Turning to and opening up to others is vital not just for developing and maintaining bonds but also for coping with negative emotions that come up in stressful times. The reverse, inhibiting one’s emotions, has been shown to be associated with poorer well-being and increased psychological distress both generally (Barry & Mizrahi, 2005; Zech, de Ree, Berenschot, & Stroebe, 2006) as well as specifically in the context of experiencing a cardiac event (So & La Guardia, 2011).

The current study aims to understand the role of emotional disclosure and sharing for the cardiac patient and his/her spouse as they navigate the aftermath of a recent cardiac event. Focusing the current study on an examination of the cardiac population is particularly important, as the World Health Organization (WHO, 2013) reports that cardiovascular diseases are the primary cause of mortality worldwide, accounting for approximately 30% of deaths globally. However, with improved medical interventions for cardiac patients, there have also been increasing survival rates, and subsequently, an increase in physical disability, impaired health related quality of life (HRQOL), and elevated psychosocial distress in cardiac survivors (Rozansky, Blumenthal, Davidson, Saab, & Kubzanksy, 2006).

Not only are patients impacted by a cardiac crisis, but the event often causes equal or greater distress for the romantic partner (Azoulay et al., 2003; Moser & Dracup, 2004; Randall, Molloy, & Steptoe, 2009) and the coping process is largely dyadic. To begin, I explore the value of sharing one’s emotions and the potential detriments of inhibiting one’s emotions. I next provide a discussion of the literature on the function of expressing emotions in the development and maintenance of intimacy in romantic partnerships, and how breakdowns in this interpersonal process of communication may occur in times of crisis. Turning to an examination of the effects of a specific crisis context— having a cardiac event—I elucidate the impact of emotional stressors on cardiac patients, their spouses, and the romantic relationship itself. I then describe what is currently known about the ways in which partners provide one another emotional support during illness. Finally, I outline the goals of the current dissertation study.

Benefits of Emotional Disclosure and Consequences of Inhibition

There is a broadly held belief that it is important to “let out” or release negative feelings, and conversely that “holding in” or “bottling up” one’s emotions can be problematic. Increasingly, attention has been paid to the idea that opening up about one’s stressful experiences is important for well-being (Reynolds et al., 2000; Stanton, 2011). Emotional disclosure may aid in the effective management of stressors that arise (Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008; Stanton & Low, 2012).

A broad emotional disclosure literature spanning over 25 years has been founded on a classic emotional expression paradigm (Pennebaker & Beall, 1986). The paradigm has participants engage in expressive writing— writing about stressful experiences (disclosure) or neutral (control) topics for 15-20 minutes daily on three or more occasions. Variants of the paradigm have included asking participants to express emotions aloud by making audio recordings of their verbal disclosures. Differences in changes across time between disclosure and control groups are compared to understand the effects of emotional expression. Studies in this body of research have focused on a range of populations including healthy young adults, those with unresolved stressors or traumas, and those with medical conditions including cancer and fibromyalgia. Across the range of populations examined, it has been shown that disclosure of emotions by writing or speaking exerts mild to moderate positive effects on outcomes such as psychological and psychosocial functioning, perceived well-being, and physical health outcomes such as improved immune function and, for health patients, fewer medical visits (Berry & Pennebaker, 1993; Frattaroli, 2006; Lutgendorf & Antoni, 1999; Pennebaker, 1997; Pennebaker & Chung, 2011; Sloan, Marx, & Epstein, 2005; Smyth & Arigo, 2009).

There is also considerable evidence that the failure to recognize or acknowledge emotions is associated with negative outcomes, such as decreased psychological well-being and the development of different disorders (Gross & Levenson, 1997; Singer, 1990). Unexpressed chronic emotional distress, as experienced by those with Type D personality—the tendency to experience greater negative affect (e.g., be chronically dysphoric, worried, irritable) coupled with non-expression of those emotions in social situations—is associated with lower quality of life, increased risk of cardiovascular disease, and early mortality (Denollet, Pedersen, Vrints, & Conraads, 2006; Denollet, Sys, & Brutsaert, 1995; Denollet, Vaes, & Brutsaert, 2000; Schiffer, Pavan, Pederesen, Gremigni, & Sommaruga et al., 2006). Further, those with Type D personality have been shown to be at risk for being less responsive to medical treatments for coronary heart disease (Denollet et al., 2000).

Although keeping one's negative emotions inside poses potential detriments, many people still avoid expression of their emotions. As found by McPherson, Smith-Lovin and Brashears (2006), the size of one's close network of confidants has declined across two decades from an average of three confidants in 1985 to two confidants in 2004. Further, compared to those assessed in 1985, in 2004 there was a three-fold increase in the number of respondents who reported confiding in no one at all.

Disclosure of Emotions for Intimacy in Relationships

In addition to providing individual benefits, sharing emotions with close others serves to create and deepen bonds between partners **(**Laurenceau, Rivera, Schaffer, & Pietromonaco, 2004; Laurenceau, Feldman Barrett, & Rovine, 2005; Perlman & Fehr, 1987**)**. According to the interpersonal process model of intimacy (Reis & Shaver, 1988), intimacy develops through a dynamic process of self-disclosure and partner responsiveness. That is, intimacy is built through mutual exchanges in which partners share personally relevant and revealing information (i.e., thoughts and feelings) and respond to each other sensitively, conveying understanding, validation, and care.

Self-disclosure refers to sharing personal aspects of oneself, such as information, thoughts or feelings through both verbal and non-verbal means of communication. Although self-disclosure of factual information provides important personal information to one's partner (e.g., "I have never been in a long-term romantic relationship"), *emotional* disclosure (e.g., "I care for you;" "I am afraid of being rejected") is particularly important for building intimacy (Laurenceau, Feldman Barrett, & Pietromonaco, 1998; Reis & Patrick, 1996) and communicating one's needs to one's partner (Clark, Fitness, & Brissette, 2001; Greenberg & Johnson, 1998).

Sharing one's inner feelings, thoughts, and needs with a willing other serves to cultivate liking, caring, trust, and closeness in relationships. Indeed, the more partners self-disclose, the more they feel close, connected, and satisfied in their relationship (Laurenceau, Feldman Barrett, & Rovine, 2005; Lippert & Prager, 2001; Parks & Floyd, 1996; Reis & Shaver, 1988; Hansen & Schuldt, 1984; Rosenfeld & Bowen, 1991). Moreover, when relationships are distressed, disclosures promote positive change by increasing connection and affiliative behaviour (Greenberg, Ford, Alden, & Johnson, 1993).

To be responsive, a partner must convey understanding, validation and care (Maisel, Gable, & Strachman, 2008; Reis & Patrick, 1996; Reis & Shaver, 1988). Understanding involves accurately capturing a partner's perspective and being able to effectively reflect knowledge of a partner's thoughts or feelings. Validation involves expressing acceptance, respect, and value for a partner, as well as for his or her feelings and experience. Finally, showing care involves the expression of warmth, concern and affection for a partner. Miller and Berg (1984) conceptualized responsiveness similarly, describing partners as responsive when their expressions address the communications, needs, wishes, or actions of the speaker who shared the initial disclosure.

Interestingly, the importance of partner responsiveness is not solely a function of objective responsiveness, but rather relies on one's *perception* that a partner is responding in an understanding, validating, and caring way. Longitudinal studies examining daily interactions of romantic partnerships have found that the more a partner is perceived to be caring, understanding and validating of one's disclosures, the more intimate, close, and satisfied one feels toward that partner (Berg & Archer, 1982; Gottman, 1994; Laurenceau et al., 1998; Laurenceau et al., 2005; Prager & Buhrmester, 1998; Waring, Tillman, Frelick, Russell, & Weisz, 1980). Importantly, perceived responsiveness provides relational benefits, such as deepening intimacy, over and above the influence of disclosure alone (Laurenceau et al., 1998; Manne, Ostroff, Rini, Fox, Goldstein, & Grana, 2004; Reis, Clark, & Holmes, 2004).

In summary, being able to share emotions with a partner allows the opportunity for that partner to validate and express care. Repeated exchanges of disclosure and responsiveness between partners serve to deepen connectedness and intimacy in relationships. However, when either disclosure or responsiveness fails to occur in couples’ communication, negative outcomes for the individual and the relationship may ensue. In the following section, I describe ways in which there may be a breakdown in healthy communication in terms of ineffective or absent disclosure, and lack of understanding, care and validation by a partner.

When Disclosure-Responsiveness Exchanges Go Awry

The process of mutually disclosing and providing validation, care and understanding may fail at two key aspects of the exchange. First, partners may not clearly disclose their personal feelings or thoughts. It may be that partners lack awareness or insight into their own emotions or needs, and thus are unable to share these with their partner. Another possibility is that partners may not have the skills to effectively verbalize their needs, despite trying to do so. Still another possibility is that partners, voluntarily or involuntarily, inhibit or suppress their emotions when with each other. Regardless of the underlying reason, if one’s thoughts, feelings and needs are not expressed to one’s partner, there is less opportunity for the partner to respond to the emotions and meet the other person’s needs.

Another way the disclosure-responsiveness exchange may break down is that the partner receiving the disclosure fails to convey understanding, validation, and care. Partners may respond ineffectively to their partner in a number of ways. One such example is when a partner invalidates his or her partner’s thoughts or feelings by being critical, insulting, or discounting the partner’s feelings. Partners may also fail to show understanding by ignoring the partner’s feelings or being unempathic (e.g., minimizing, blaming, or otherwise disregarding the partner’s expressed emotions). Further, partners may not be able to provide effective support and understanding if they are encumbered by their own emotional distress and difficulties in regulating their own emotions. Whether intentional or automatic, when individuals are unable to make their partner feel understood, validated, or cared for, the partner's needs may be left unsatisfied.

Problems in disclosure or responsiveness have significant consequences for the relationship. For example, a wide body of research suggests that inhibiting or suppressing the expression of one's emotions has important consequences for relational functioning (e.g., Butler, Egloff, Wilhelm, Smith, Erickson, & Gross, 2003; Gross & John, 2003; Gross & Levenson, 1997; Pennebaker, 1997). Specifically, Butler and colleagues (2003) showed that emotional suppression decreases rapport-building, social bonding, and causes physiological arousal (i.e., increased blood pressure) for both partners in the interaction. Gross and John (2003) also found that when people suppress their emotions, they experience more negative emotions, decreased well-being, and utilize less social support to cope with their negative emotions. Moreover, those who suppress their emotions provide poorer social support to others. Specific to responsiveness, Clements, Stanley, and Markman (2004) observed that couples were more likely to divorce if their responses to each other's communications tended to be emotionally unsupportive or invalidating (e.g., insulting, making negative comments about the relationship or partner, being sarcastic), rather than supportive (understanding, caring and validating). Other research has also shown that lacking empathy or being invalidating and unsupportive of a partner's thoughts and feelings is related to greater distress in the partnership (Clements, Cordova, Markman, & Laurenceau, 1997; Gottman, 1994). Further, newly married partners who perceived their partner as declining in responsiveness reported experiencing less love for their partner and were more likely to divorce than those who did not experience such declines (Huston, Caughlin, Houts, Smith, & George, 2001).

In summary, relationship exchanges may break down because partners do not effectively disclose their thoughts, feelings, and needs, and/or they are not responsive to each other. In addition, this breakdown in the disclosure-responsiveness exchange has negative implications for relationships.

Although it may be normative for the quality of couples' communication to vary somewhat over time, even couples who are skilled in disclosure and responsiveness may find their healthy communication skills strained in the face of an emotionally evocative event. An acute health crisis of a romantic partner is one such event. In the wake of an acute health crisis, the lives of patients as well as their closest others are changed quite dramatically. Using the example of a cardiac crisis, I now turn to a discussion of the emotional challenges posed by cardiac events, and provide a summary of the research that shows how emotional disclosure and responsiveness are specifically challenged in illness.

Stressors Posed by a Cardiac Event: For Patients, Spouses, and the Relationship

A cardiac event, as defined in the current study, includes experiencing a myocardial infarction (MI), coronary artery bypass graft (CABG) surgery, and/or a percutaneous coronary intervention (PCI; such as angioplasty / stent). Research has documented a variety of stressors that emerge for patients following cardiac events (Al-Hassan & Sagr, 2002; Condon, & McCarthy, 2006; Kristofferzon, Lofmark, & Carlsson, 2007). Normatively, patients report greater fears of death (i.e. mortality salience), fears of recurrent cardiac events, and worries about their future health. Patients report challenges in attempting to make necessary lifestyle changes (e.g., altering diet, increasing physical activity, quitting smoking, taking medications), and are often overwhelmed, anxious, and stressed about making or sustaining such changes (Daly et al., 2000; Kristofferzon et al., 2007; Stewart, Davidson, Meade, Hirth, & Makrides, 2000). Further, patients experience frustration with the physical limitations resulting from their cardiac event, yearning for a return to pre-morbid functioning (Stewart et al., 2000; Thompson, Ersser, & Webster, 1995). They are also distressed by changes in their relationships (e.g., role shifts, needing their partner to become a caregiver in recovery) due to their illness (Moser & Dracup, 2004; Stewart, Davidson, Meade, & Hirth, 2001; Stewart et al., 2000). In addition, for some patients, emotional difficulties such as depression, anxiety, and post-traumatic stress symptoms persist beyond the initial recovery period following a cardiac event (Gardner & Worwood, 1997; Havik & Maeland, 1990; Kaptein, De Jonge, Van Den Brink, & Korf, 2006; Lane, Carroll, Ring, Beevers, & Lip, 2002; Moore, 1994; Shemesh, Koren-Michowitz, Yehuda, Milo-Cotter, Murdock, Vered et al., 2006).

Cardiac events are emotionally evocative not only for the patient, but for the spouse or romantic partner as well (Artinian 1991, 1992; Moser & Dracup, 2004). In being witness to the acute cardiac event, partners have had to endure uncertainty about whether patients will live or die, and during recovery, additional worries about patients' treatment, recovery, and long-term prognosis become extraordinarily salient (Stewart, Davidson, Meade, Hirth, & Makrides, 2000; Stolarik, Lindsay, Sherrard, & Woodend, 2000; Theobald, 1997; O'Farrell, Murray, & Hotz, 2000). Upon patients' discharge from the hospital, partners are typically thrust into the role of primary caregiver. This role shift is often very stressful for partners, as they feel overwhelmed by the patients' own distress and helplessness and become exhausted by the added caretaking responsibilities (thereby experiencing "caregiver burden") (Christakis & Allison, 2006; Halm, Treat-Jacobson, Lindquist, & Savik, 2007; Knoll & Johnson, 2000; Stolarik et al., 2000). A gender difference has also been documented such that caregiving wives report greater perceived burden, psychological fatigue, and negative affect than do caregiving husbands (Barusch &

Spaid, 1989; Luttik, Lesman-Leegte, & Jaarsma, 2009). For spouses as well, having a partner suffer a cardiac event is associated with increased psychological distress, including depression and anxiety (Chung, Moser, Lennie, & Rayens, 2009; Dew, Myaskovsky, Dimartini, Switzer, Schulberg, & Kormos, 2004; Moser & Dracup, 2004;

Given the numerous stressors patients and their partners must navigate post-event, how might these difficulties impact the functioning of the romantic partnership itself? A review by Dalteg, Benzein, Fridlund and Malm (2011) synthesized literature across a decade (from 1999 to 2009) and found that cardiac events impacted negatively on relationships in numerous ways, including deficiency in communicating about emotions post-event and difficulty adjusting to the implications of cardiac disease as a couple. With respect to poor communication, findings included partners' failure to discuss the cardiac illness and its implications (Webster, Thompson, & Mayou, 2002), inhibiting emotions as an act of "protective buffering" in an attempt to shield one's partner from their own distress (Dougherty, Pyper, & Benoliel, 2004), and disengaging from their partner, which exacerbated their own anxiety (Bennett & Connell, 1999). Importantly, marital quality seems to play a factor in couples' adjustment to cardiac disease, based on literature showing that better relationship quality was predictive of better relational and psychosocial adjustment for partners and vice versa in a "rich getting richer, poor getting poorer" pattern (Brecht, Moser, Dracup, & Riegel, 1994; Waltz, 1986). In other words, it seemed that cardiac illness exerted a greater strain for those in poorer quality relationships, whereas those in stronger partnerships were better able to weather the storms presented by cardiac disease.

Possible Protective Factors: Considering Mindfulness and Social Support

In addition to a strong relationship, what other protective factors might act as a buffer against the strain posed by illness? Two factors examined in the current study were mindfulness and social support, both of which have been associated with positive coping in stressful contexts.

A substantial body of literature has focused on the benefits of mindfulness, which involves awareness, regulation of one's attention, and orientation to the present experience with an open, accepting, and non-judgmental attitude (Baer, 2003; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Grossman, Niemann, Schmidt, & Walach, 2004). When dealing with distressing situations, being mindful has been associated with showing flexibility, awareness of one's emotions, and the ability to self-soothe, as well as better psychological health (Adair, Berman, & Block-Lerner, 2005; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; McPhail, Walker, Clara, Graff, Feldman, & Bernstein, 2005). Among cardiac patients, research has demonstrated greater mindfulness to be associated with reduced anxiety and depression (Salmoirago-Blotcher, Crawford, Carmody, Rosenthal, & Ockene, 2011). Mindfulness has also been linked with better quality of communication between romantic partners (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). In light of the extant literature, it seems that those higher on mindfulness would be likely to experience better adjustment post-cardiac event, including better communication within the romantic partnership as well as better psychological adjustment (less depression and anxiety in the aftermath of the event).

Decades of research have examined the benefits of social support for both physical and psychological outcomes. Social support has been shown to have a buffering effect on the potential negative effects of stress on both mental and physical health (Cohen & Wills, 1985; Gallagher, Luttik, & Jaarsma, 2011; Frasure-Smith, Lespérance, Gravel, Masson, Juneau, Talajic et al., 2000). Greater perception of social support in general populations has been directly linked with decreased levels of depression and anxiety (Zimet, Dahlem, Zimet, & Farley, 1988). In health populations such as breast cancer patients, perceived social support has been linked with greater quality of life and psychological well-being (Sammarco, 2001). Specific to cardiac populations, the more social support perceived to be available within one's social network, the better physical and psychological health for patients (Brummett, Mark, Siegler, Williams, Babyak, Clapp-Channing, et al., 2005; Cohen, Kaplan, & Manuck, 1994; Shen, McCreary, & Myers, 2003). Furthermore, high levels of social support have even shown to improve depressive symptoms in patients following myocardial infarction (Frasure-Smith et al., 2000).

Beyond such protective factors, it is also important to consider ways that cardiac patients and their partners may optimally cope in the aftermath of a cardiac event. Coping individually as well as dyadically within the partnership may be helpful for navigating recovery and cardiac rehabilitation. I now turn to a discussion of the ways in which partners have been found to emotionally navigate the recovery process post-event.

Emotional Disclosure and Inhibition in Illness

In light of the stressors that arise following a cardiac event, how can patients and their partners optimally adjust to life with cardiac illness? Similar to how emotional disclosure was described above as generally beneficial for individual well-being, there is an abundance of literature indicating it is also critical for psychological adjustment to disease (e.g., Classen, Koopman, Angell, & Spiegel, 1996; Cordova et al., 2003; Friedman & Booth-Kewley, 1987; Gross, 1989; Stanton et al., 2000). In the cancer literature for example, Classen and colleagues (1996) found that cancer patients who were more emotionally expressive experienced healthier adjustment and less distress. Similarly, Cordova and colleagues (2003) showed that the less cancer patients suppressed or tried to ignore their emotions, the more well-being and less distress they experienced. Stanton and colleagues (2000) found that compared to those low in emotional expression, cancer patients who were more disclosing about how their disease made them feel had fewer cancer-related medical visits, better physical health and increased vigour, as well as lower levels of distress when assessed three months following treatment. By contrast, suppression of emotions across a variety of chronic illnesses has been associated with negative outcomes, including higher levels of psychological distress and poorer physical health outcomes (Friedman & Booth-Kewley, 1987; Panagopoulou, Kersbergen, & Maes, 2002). This is particularly concerning because, as mentioned earlier, research suggests people have fewer closer others in which to confide about their stresses compared to two decades ago (McPherson, Smith-Lovin, & Brashears, 2006).

More specifically, consequences of emotional suppression have also been found in the literature on cardiac patients. For example, male cardiac patients who showed a greater tendency to hide or deny worries about their myocardial infarction experienced higher psychological distress and lower marital satisfaction, which increased over time, thus showing cumulative effects of earlier denial of emotional experiences (Suls, Green, Rose, Lounsbury, and Gordon, 1997). Further, Helgeson (1991) assessed patients' perceptions of the extent to which they felt they could have an open discussion with their partner (i.e. disclose to their partner) during recovery from a myocardial infarction. Patients who reported being less able to disclose to their partner experienced more severe chest pain, were more likely to be re-hospitalized, and reported decreased health one year later. Finally, So and La Guardia (2011) showed that the more patients inhibited their emotions about their cardiac event, the more psychologically distressed they were and the less close and satisfied they reported feeling within their relationship. In contrast, the more patients shared their feelings about their event with their partner, the closer they felt to their partner.

More recently, researchers have begun to study cardiac patients utilizing Pennebaker's expressive writing paradigm to examine the effects of emotional expression following a myocardial infarction (MI). For example, Willmott, Harris, Gellaitry, Cooper, and Horne (2011) found that myocardial infarction patients in the expressive writing intervention condition reported relatively better quality of life, greater attendance of cardiac rehabilitation sessions, fewer cardiac symptoms, and lower blood pressure at follow-up (5 months post intervention) compared to controls. In another study using the expressive writing paradigm, Hevey, Wilczkiewicz and Horgan (2012) looked at Type D personality as a moderator of the effects of emotional disclosure on health-related quality of life post-myocardial infarction. They found that those in the expressive writing condition had significantly higher health-related quality of life scores three months following the intervention compared to those in the control group. This effect was moderated by Type D personality such that those higher on Type D personality (high levels of negative affect and emotional inhibition of those emotions) experienced greater benefits from the expressive writing intervention. These studies suggest that the benefits of emotional expression hold true for cardiac patients, and perhaps even more so for those who have a trait-like tendency to suppress negative affect.

Support from One's Partner in Illness

As Coan (2008) has proposed, negative emotions that arise in the context of illness need not be borne by the ill person alone, because regulation of such affect can be shared by one's partner. Indeed, responsiveness is critically important in relationships affected by illness. For example, Manne and colleagues (2004) tested perceived partner responsiveness as a mediator of the relationship between disclosure and intimacy in breast cancer patients and their partners. For both patients and their non-ill partners, the more each perceived their partner to be understanding, validating, and caring, the more intimate they each felt in the relationship. Other studies have shown that breast cancer patients who receive greater emotional support from spouses, such as acceptance, empathy and affirmation, experience less depression and report greater quality of marriage (e.g., Primomo, Yates, & Woods, 1990). In a sample of cardiac patients, Seeman and Syme (1987) found that a greater sense of feeling loved and supported by one's partner was associated with less atherosclerosis (the narrowing of arteries due to fatty build-up on arterial walls). Further, it has been shown that couples taking a communal orientation (i.e., focusing on the "we"-ness of their experience) yields benefits for both partners relative to taking an individualistic (i.e., self-focused) approach in managing illness (Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008; Simmons, Gordon, & Chambless, 2005).

When spouses are not able to effectively support the patient, the patient's well-being may suffer. Studies have looked at some maladaptive ways that partners may respond to patients, such as avoiding or pulling back from the patient, being critical about the patient's coping, or exerting control over the patient's choices and behaviors (De Ruiter, De Haes, & Tempelaar, 1993; Franks et al., 2006; Manne, Taylor, Dougherty, & Kemeny, 1997). When a partner pulls away from the patient, the patient then fails to receive necessary support (instrumental or emotional) in managing his or her illness. Being critical of how a patient is managing his or her illness may cause the patient to feel undervalued, unsupported, and create a negative relational context. Being controlling of patients may communicate disapproval of the patients' decisions as well as constrain his or her freedom. In fact, such unsupportive behaviours have been found to negatively impact cancer patients, as evidenced by their greater psychological distress and poorer well-being (Manne et al., 1997), as well as patients with multiple sclerosis, as evidenced by their poorer psychological functioning (Schwartz & Kraft, 1999). Specific to cardiac patients, when partners exert control by pushing patients towards healthier behaviours (regardless of the patient's preference), patients show decreased adherence to cardiac rehabilitation behaviours (diet, exercise, stress management), as well as poorer mental health (Franks et al., 2006). Thus, partners' negative behaviours in response to patients exact great costs for patient well-being.

As documented earlier, spouses experience their own unique stressors in supporting a partner through a cardiac event. It has broadly been documented that spouses experience caregiver burden or "burnout", have lower levels of self-care, suffer from elevated levels of stress, and show higher levels of depression compared to non-caregivers (Moser & Dracup, 2004; O'Farrell, Murray, & Hotz, 2000; Stewart et al., 2000; Stoller & Pugliesi, 1989). A relatively under-researched area is how cardiac spouses cope with the distress associated with caring for an ill partner. A particularly important and helpful aspect of coping for spouses is the availability of social support (Stewart, et al., 2001; Stolarik et al., 2000).

As I have documented the difficulties that often arise for individuals and couples post-cardiac event, it is important to note that many are able to navigate the aftermath of cardiac illness effectively, whereas others find it more of a struggle. One possibility is that for those partners who perceive being under-supported emotionally, effective adjustment post-event seems less within reach. Other possibilities include the importance of relationship satisfaction pre-morbidly, or the extent to which the cardiac event was unexpected and traumatic as compared to a planned and elective procedure. The current study explored the characteristics of couples experiencing difficulty adjusting post-event and which couples may experience greater benefit from an emotional disclosure intervention. Identifying couples most in need of clinical interventions is an important endeavor, as in a time when health care spending is always limited, spending budgets for psychosocial interventions must be allocated strategically in a way that targets those most in need. Next, I provide a more detailed description of the current research project.

Dissertation Study

As reviewed earlier, disclosure is generally beneficial for individual and relational outcomes, and in healthy relationships, intimacy is maintained through the process of mutually sharing emotions and responding in an understanding, validating and caring way (Maisel, Gable, & Strachman, 2008; Reis & Patrick, 1996; Reis & Shaver, 1988). This process may become challenged for distressed couples going through a time of crisis. When couples have to navigate a cardiac illness of one partner, both partners are faced with numerous stressors. If they become emotionally overwhelmed by these stressors, their ability to disclose or to be responsive may be compromised. Although there are some couples in which partners support each other readily and effectively, there are other couples who struggle with this process.

Because communication may become challenging following a cardiac event, my dissertation study aimed to examine the nature of disclosure and responsiveness between patients and their spouses, as well as the benefits of emotional disclosure for cardiac couples. Further, I wanted to understand which characteristics of couples differentiated those who most benefited from emotional disclosure interventions from those who did not derive benefit. I also wanted to add a novel aspect to the emotional disclosure literature (largely pioneered by Pennebaker) by introducing a social component to the task—in a more ‘real-world’ examination of some processes that may underlie the effects of expressive writing, I asked cardiac patients and their spouses to express their experiences and emotions in a video with a particular listener in mind, specifically their partner or a therapist. By manipulating the target audience of the disclosure, I did a preliminary exploration of whether it mattered to whom the disclosure was shared.

Specifically, the study was conducted in three phases. The first phase asked both partners of the cardiac couple to complete a set of pre-study questionnaires at home. These questionnaires were returned when couples attended the in-lab (second) phase of the study. The in-lab phase involved five parts: 1) completing initial questionnaires, 2) engaging (separately) in an emotional disclosure (or control) task, 3) completing another set of questionnaires, 4) engaging in a dyadic discussion as a couple about the cardiac event, and 5) completing another set of questionnaires. The third and final phase of the study involved asking partners to complete a brief set of follow-up questions approximately one month following participation in the in-lab portion of the study.

To explore the benefits of emotional disclosure in this study, I used an adapted version of Pennebaker's emotional expression paradigm. Rather than asking participants to express their emotions through repeated episodes of writing, they were instead asked to engage in a single session disclosure, speaking toward a camera to make a video-recording of their disclosure. I randomized couples into three conditions, two intervention (disclosure) groups and one non-intervention group (in which as the "control" group, rather than disclose their emotions about the cardiac event, they were asked to describe the factual events of the previous day). Typically, Pennebaker's expressive writing task asks participants to share their emotions on paper or into an audio recorder with no particular audience or "listener" in mind. Rather, it is a purely personal activity akin to writing in a journal or diary. Given that a wide body of research supports the value of social sharing of emotions (Pasupathi, 2003; Rime, Finkenauer, Luminet, Zech, & Philippot, 1998), the current study aimed to add a novel social aspect to the emotional expression paradigm by adding and experimentally manipulating the intended audience of the emotional disclosure. Participants in the two disclosure conditions were instructed to speak to the camera as though they were 1) talking to their spouse about their thoughts and feelings about the cardiac event, or 2) talking to a therapist or mental health professional about their thoughts and feelings about the cardiac event. Although participants were speaking to a video camera rather than the actual "target" of their disclosure, this audience-related instruction introduced a social component while preserving the personal aspect of the disclosure paradigm. The rationale for adding an audience was to link the benefits of the emotional disclosure paradigm with the benefits of sharing emotions in close relationships, such as those in a romantic partnership or in a client-therapist relationship. The partner and a therapist were chosen as the two targets because they represented feasible options for providing clinical interventions for partners post-event. That is, intervention could either 1) encourage and educate both partners about how to support each other in the recovery process, or 2) connect patients and spouses with psychological supports available within the healthcare team, such as a therapist. Given that many cardiac rehabilitation programs utilize a multidisciplinary team approach, therapists may include psychologists, social workers, psychiatric nurses, or counsellors for provision of emotional support for those most in need. By exploring whether there may be differential benefits of sharing with either a partner or a therapist in this experimental design, the findings offered the potential to inform such clinical interventions in the future.

In addition, I aimed to examine the nature of the disclosure-responsiveness process between romantic partners discussing a recent cardiac event. In a paper based on my master's research, I found that patients who expressed their emotional distress related to an event with their partner felt closer in their relationship than those who inhibited expression of their emotions (So & La Guardia, 2011). However, increased sharing of emotions also correlated with greater symptoms of psychological distress (depression, anxiety, and trauma), which was an unexpected finding and may have reflected “venting” of emotions rather than productive processing through communication. In the current study, then, I aimed to better delineate what the disclosures and subsequent responsiveness (or lack thereof) looked like through a video-recorded discussion between partners. Thus, following the individual disclosures each partner completed, they were asked to engage in a recorded dyadic discussion task (alone in the room as a couple without experimenters present). The 15-minute discussion task was divided into two halves. One half focused on the patient’s perspective, thoughts, and feelings, and the spouse provided his/her reactions; in the other half, the spouse’s thoughts and feelings were the focus of discussion and the patient provided his/her reactions. I also wanted to examine whether the experimental conditions (i.e., the audience manipulation) impacted the discussion between partners.

Further, I wanted to study the role of individual-difference characteristics, including personality (Type D personality and mindfulness), psychological health (symptoms of anxiety, stress, depression, and trauma), and interpersonal factors (relationship satisfaction, perceived availability of social support), to see whether they influenced likelihood of benefiting from an emotional disclosure intervention.

A final exploratory aim of the current research was to examine whether the nature of the cardiac event—namely, a relatively unexpected, sudden, traumatic event (as in an MI) versus a relatively more expectable, less traumatic event (as in elective, planned procedures)— would impact the degree to which couples would benefit from emotional disclosures in the study. As there is little documenting the specific differences in psychological and relational outcomes for patients and their spouses based on expected or unexpected cardiac events, I wanted to analyze for differences through including a breadth of types of cardiac events in this study.

Dissertation Goals

Below, I summarize the goals and predictions for my dissertation study:

Goal 1: An exploratory goal was to understand how directing the disclosures toward different audiences—partner vs. therapist—might affect the *content* of disclosures and their *benefits*.

While this goal was relatively exploratory in nature, I speculated that the content of disclosures might differ in ways such as degree of self-disclosure (how revealing they were), emotional richness, and focus of the discussion in a "we" or "me" frame. The literature on "protective buffering" suggests that partners keep their emotions inside in an attempt to shield one another from their own distress. For those directing their disclosure toward a therapist, I predicted that they would take the opportunity to focus on their own needs which may have been suppressed (due to "protective buffering"), leading to a more emotionally rich and self-focused disclosure. For those in the partner condition, I predicted that they would be relatively less disclosing, lower in emotional richness, and more relationally focused. It has been demonstrated that taking a relational perspective ("we") when discussing a health issue in couples has positive benefits compared to taking a non-communal ("me") perspective (Rohrbaugh et al., 2008). As such, I predicted that those in the partner-disclosure condition would derive greater relational benefits in the dyadic interaction (greater self-disclosure and responsiveness) as well as at follow-up (e.g., greater increase in communication with their partner about the event and a more positive impact for the partnership).

Goal 2: To examine the effects of emotional disclosure during the individual videos, compared to non-disclosure, on subsequent outcomes.

I hypothesized that compared to couples in the non-disclosure condition those who disclosed during the individual-video phase of the study would experience greater benefits:

a) Disclosure in the individual-video phase would lead to being more self-disclosing in the subsequent dyadic discussion task, as participants would have already practiced or "role-played" disclosing in the initial video.

b) Both partners' disclosures in the individual-video phase would lead to being more supportive of one another in the subsequent discussion (thereby exhibiting more responsive behaviours, less non-responsive behaviours, and reporting greater perceived responsiveness) compared to the non-disclosure couples.

c) Disclosure in the individual-video phase would lead to experiencing more positive impacts from participation in the study at follow-up, including increased communication with their partner about the event and a greater positive impact of participation compared to the non-disclosure couples.

Goal 3: How might psychological distress, personality, and interpersonal factors influence the degree to which participants benefit from participation in the study? Further, how might the experiences during the in-lab phase of the study affect outcomes at follow-up?

Psychological distress:

a) Given that high levels of distress may interfere with couples' communication and provision of support, I predicted that partners reporting greater psychological distress (more depression, anxiety, stress, and post-traumatic stress symptoms) would derive greater benefits from the study as it would encourage increased communication for both partners.

Personality factors:

b) As previous research has shown that individuals with Type D personality experienced more benefits from expressive writing interventions, I predicted that those with Type D personality would be more likely to benefit from the disclosure and communication tasks in the current study.

c) Further, as mindfulness has been established as a positive mental orientation for managing stressful contexts, I predicted that those lower on mindfulness would derive greater benefits from the current study.

d) Given that emotional suppression has been found to have negative consequences, and that cognitive reappraisal is considered a healthy form of emotion regulation, I predicted those who generally engage in greater suppression and less reappraisal would experience greater benefits from study participation.

Interpersonal Factors

e) As positive relationship satisfaction has also been considered protective in dealing with illness, I predicted that those reporting lower couple satisfaction would derive greater benefit from the study (as emotional self-disclosure increases connection and promotes affiliative behaviour in distressed couples).

f) Further, given that perceived social support is a protective factor in times of distress, I predicted that those who reported having less perceived social support would derive greater benefits from the study, such that the opportunity to talk about their emotions with their partner would open up lines of communication and perceived support.

In-lab Study Session

g) With respect to the outcomes from Phase II of the study, I predicted that couples who were more self-disclosing and shared more emotions during the individual video, and were more self-disclosing as well as more responsive to each other during the dyadic discussion would experience more positive outcomes at follow-up.

Goal 4: Finally, an exploratory goal was to examine if the nature of the event—relatively unexpected and sudden events (e.g., myocardial infarction (MI)), versus relatively more expected and less sudden (planned; e.g., elective procedures)—might affect the *degree* to which couples benefit from emotional disclosures in the study.

There has been a lack of research comparing the emotional experiences of different types of cardiac events. In an unpublished part of my Master's Thesis (So, 2008), I found that cardiac patients who had a planned cardiac procedure were significantly better off compared to those who had a sudden cardiac crisis. Specifically, patients who had a planned procedure were significantly less depressed and had fewer trauma symptoms than those who went through an MI. Based on these findings and further speculation about how a sudden, unexpected event may impact couples differently than planned events, I predicted those who went through an MI would be in greater need of communication interventions; thereby allowing them to derive greater benefit from participation.

Method

Participants

Forty-eight couples in which one partner had experienced a first-time cardiac event within the past six months were recruited for participation in this study. Couples were recruited from cardiac rehabilitation orientation and education sessions at two rehabilitation facilities: the Cardiac Rehabilitation and Secondary Prevention Program at the Toronto Rehabilitation Institute (TRI) in Toronto, and the Cardiac Rehabilitation Program at St. Mary's Hospital in Kitchener-Waterloo.

Couples were deemed to be eligible for inclusion in the study if they 1) experienced a first-time myocardial infarction (MI), coronary artery bypass graft (CABG) surgery, and/or percutaneous coronary intervention (PCI, including angioplasty and stent); 2) were within 6 months of the event; and 3) were married or common-law, co-habiting for at least one year prior to the cardiac event. The cardiac events included were MI, CABG surgery, and/or PCI, as each of these events involve significant blockage of arteries, are considered emotionally evocative experiences, and are relatively common cardiac events. Selecting these three events as inclusion criteria allowed for sampling a breadth of event types (and combinations of event types). Further, it was a pragmatic decision to allow for achieving a feasible sample size for the current dissertation study. The six-month time limit was implemented in order to understand the acute period of adjustment and recovery following the cardiac crises for patients, and the initial adjustment to caretaking responsibilities for the partner. Finally, couples were required to have been co-habiting for the past year in order to specifically capture the challenges of post-event adjustment that arise for established couples, rather than the challenges accompanying the initial transition of recently moving in together. Couples were excluded from participation in the study if 1) either partner had any major complicating illnesses (e.g., cancer) and 2) either partner was unable to speak and read English.

Participants in the patient role ranged from 36 to 84 years old (*M* = 62.58 years, *SD* = 10.37), and their romantic partners ranged in age from 32 to 80 years old (*M* = 60.13 years, *SD* = 9.91 years). Approximately nine out of ten participants self-identified as Caucasian (*N* = 86; 89.6%), and approximately 10% as another ethnic background (Asian, *N* = 4; Jewish, *N* = 3; Native Canadian, *N* = 2; and Black, *N* = 1). Approximately two-thirds of the participants were employed (N = 65, 67.7%) and one-third of participants were retired or not currently working (N = 31, 32.3%). Nearly two-thirds (N = 62, 64.6%) of the sample had a household annual income greater than $75 000. As well, two-thirds of patients (*N* = 32, 66.7%) and just over 60% of spouses (*N* = 30) completed at least post-secondary education, or post-graduate studies as well. Forty-three of the participants occupying the patient role were male (89.6%) and five were female (10.4%). While couples of all sexual orientations were eligible to participate, only heterosexual couples participated in the study.

With respect to the patients' cardiac events, five of the patients had an MI only (10.4%), 14 patients underwent CABG surgery only (29.2%), 7 patients received a PCI procedure only (14.6%), 15 patients had an MI followed by a PCI (31.3%), and 7 patients had an MI followed by CABG surgery (14.6%). Of the patients who underwent CABG surgery (with or without a preceding MI), the average number of bypasses performed in the operation was 3.50 (*SD* = 1.10, range = 1 to 6 bypasses). Of the 27 patients who experienced an MI (with or without a subsequent procedure), 14 were considered mild (51.9%), 6 were moderate (22.2%), and 7 were severe (25.9%). The average time since the cardiac event was 4.15 months (*SD* = 1.28 months, range = 1 to 6 months). Forty-two of the couples were married (87.5%) and 6 of the couples were in a common-law relationship (12.5%). The average length of relationship was 30.81 years (*SD* = 16.07 years, range = 2.67 to 54 years)

Procedure

The study was completed in three phases. First, once couples were deemed eligible for this study and indicated their agreement to participate, they were mailed separate pre-study questionnaire packages to complete at home prior to attending the in-lab participation session. These pre-study questionnaires included published measures that assessed symptoms of psychological distress (stress, depression, anxiety, and trauma), personality-type features (Type D personality, mindfulness, and the emotion regulation styles of suppression and reappraisal), and interpersonal factors (relationship satisfaction and perceived social support). Couples returned the Phase I pre-study measures to the study investigators when they attended the second phase of the study in person. All 48 patient participants returned their Phase I pre-study measures packet; however, one of the spouse participants did not complete her pre-study questionnaire, and as such, only 47 spouses' data are included in analyses for Phase I measures.

The in-lab, Phase II portion of the study was run by two experimenters. Couples met with the experimenters at the Toronto Rehabilitation Institute (for those recruited from Toronto at TRI) or at the University of Waterloo (for those recruited in Kitchener-Waterloo from St. Mary's Cardiac Rehabilitation Program).[1] To begin, couples were informed about the details of the study procedure and informed consent was obtained. Partners were then taken to separate rooms where they were each asked to complete a paper and pencil measure of their current mood (Positive and Negative Affect Scale; PANAS; Watson, Clark, & Tellegen, 1988). Then, couples were

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[1] Two-thirds of the current sample (n = 32 dyads) were recruited from the Toronto Rehabilitation Institute and one-third of participants (n = 16 dyads) were recruited from St. Mary's Cardiac Rehabilitation Program.

randomly assigned to one of three experimental conditions, asking them to: 1) disclose their thoughts and feelings about their experience of the event to *their partner*, 2) disclose their thoughts and feelings about their experience of the event to *a therapist*, or 3) describe the factual details of their previous day in the non-disclosure (control) condition. In the two disclosure conditions, sharing with their spouse or sharing with a therapist, the experimenter guided their disclosure using a semi-structured interview to gather a detailed recollection of their thoughts, feelings, and experiences of the event and the recovery period. Participants were positioned facing the camera with the experimenter behind them (out of sight). In the disclosure conditions, they were told to speak toward the camera as if they were speaking directly to their partner or to a therapist; for the control condition, they were simply asked to face the camera as they described their previous day. They were informed that their disclosures were being video-recorded for later coding. For those in the partner disclosure condition, they understood that although they were sharing their experiences and emotions as if talking directly to their partner, their partner would not actually be seeing the disclosure video. This may have allowed them to simulate how they might describe their thoughts and feelings about the experience to their partner with the freedom of not actually being heard. The semi-structured interview questions guiding the disclosures asked about patients' experiences of: learning about the arterial blockage and need for intervention (in the cases of those who had pre-planned CABG surgery or percutaneous coronary intervention), the cardiac event itself, the time spent in hospital, and their return home as well as the early period of recovery (please see Appendix A for the semi-structured interview scripts).

Following the recording of the individual videos (disclosure or control), partners were asked to complete brief questionnaires while still in separate rooms. They were asked to complete the PANAS (Watson, Clark, & Tellegen, 1988) again. They were also asked about the degree to which they had previously discussed the feelings shared in their video within their relationship, the degree to which their partner was already aware of the content shared, how representative their disclosure was of the way they usually discussed this topic. They were further asked about the extent to which they tried to inhibit their emotions during the disclosure (see Appendix B to view these questions).

Next, partners were brought back together in the same room in which they had begun the in-lab session. The experimenters instructed them on the next study task, which was to have a private 15-minute discussion with each other about the cardiac event. For the first 7.5 minutes, the patient was instructed to share his/her thoughts and feelings about the event and the recovery period, and the partner was asked to provide his/her reactions to what the patient shared. At the half-way point (when a timer had been set to ring, cuing the time to switch), partners were asked to switch roles such that the spouse shared his/her thoughts about the cardiac event and recovery period, and the patient provided his/her reactions to what the spouse shared. Partners were told that they would each be videotaped during this discussion for later coding. After the instructions for the discussion task were clear to both partners, the experimenters set up the video recorders and timer and then left them alone in the room to engage in their discussion.

When the couple’s discussion was finished, each partner was asked to independently complete a final set of questionnaires, including the PANAS and a brief three item measure of how responsive (understanding, validating, and caring) they perceived their partner to be during the discussion. Both partners also completed a brief set of questions assessing the degree to which they had previously known about and discussed the thoughts and feelings shared, how representative their discussion was of the way they usually talk about the event, and the degree to which the participant tried to inhibit negative emotions during the discussion (see Appendix C to view these questions).

Finally, couples had a chance to debrief with experimenters about the study, at which time they were invited to ask questions and received remuneration in appreciation for their participation. Couples received $60 total for their participation in the first two phases of the study. They were informed that after completion of a brief follow-up phone call four weeks after Phase II participation, they would also be mailed a pair of free movie passes in appreciation for their time. As all 48 couples completed their participation in the in-lab session, there are no missing video or questionnaire data from Phase II.

Phase III, the follow-up portion of the study completed approximately one month following the in-lab session, involved a brief set of questions. At the time of follow-up, partners were phoned and asked to complete the questionnaire in private so their partner would be unable to hear their responses. The follow-up questions assessed if partners felt similarly, worse, or better about themselves, their event, and their relationship since participating in the study; whether the frequency with which they talked about the event with their partner had increased, decreased, or had not changed since participating; how meaningful and/or helpful they found the individual disclosure and couple discussion tasks; and finally a one-item measure of their current relationship satisfaction taken from the Couples Satisfaction Index (Funk & Rogge, 2007; see Appendix D to view the follow-up questionnaire). When participants completed Phase III of the study, they were mailed a thank you letter as well as two free movie passes. Of the 48 couples who participated in the initial study phases, five couples were unable to be reached to complete the Phase III follow-up questions. As such, the data for the follow-up outcomes are comprised of 43 dyads.

Phase I (Pre-Study) Measures

State-Psychological Distress Measures

Depression, Anxiety, and Stress. A short version of the Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) was used to examine these symptoms in the current sample. The DASS-21 was developed to assess depression, anxiety, and stress in adult populations. The 21-item scale assesses how distressed respondents have been in the past week, and items are rated on a 4-point Likert type scale ranging from 0 (never) to 4 (almost always). Sample items include "I felt down-hearted and blue" (depression), "I felt I was close to panic" (anxiety), and "I found it difficult to relax" (stress). For the spouse sample, the internal consistency of each subscale was good (depression, $\alpha = .87$; anxiety, $\alpha = .76$; stress, $\alpha = .84$). The internal consistency for the depression and stress subscales were good for patients (depression $\alpha = .83$; stress $\alpha = .80$). However, the internal consistency for the anxiety subscale in the patient sample was poor ($\alpha = .49$). This low internal consistency appeared to be the result of the items on this subscale often referring to physiological signs that could have alternative meanings for patients (e.g., heart symptoms or side-effects of mediation). When the subscale was restricted to the two items that did not involve this problem (items #10 and #21), the reliability was .69, and so this is the anxiety measure that was used for the patients.

Trauma. The 22-item revised Impact of Event Scale (IES-R; Weiss & Marmar, 1997) assesses current subjective distress after a significant life event, with items designed to tap the three clusters of symptoms found in the DSM-IV criteria for post-traumatic stress disorder. These include seven items assessing intrusive thoughts about the traumatic event (e.g., "Other things kept making me think about it"), seven items assessing hyperarousal (e.g., "I was jumpy and easily startled”), and eight items assessing attempts to avoid being reminded of the event (e.g., “I stayed away from reminders about it”). Items are rated on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very true/very much). The mean of the 22 items comprises the total subjective stress IES-R score, with higher scores reflecting greater post-traumatic stress from the cardiac event. The overall IES-R scale showed good internal consistency for both patients (α = .86) and spouses (α = .91) in the current sample.

Personality-Type Factors

Type D Personality. The Type D Scale-14 (DS14; Denollet, 2005) assesses trait-like tendencies to experience negative affect and to be socially inhibited. This scale includes 7 items to measure the tendency to experience negative affect (e.g., “I take a gloomy view of things”) and 7 items to measure the tendency towards social inhibition (e.g., “I am a closed kind of person”). All items are rated on a 5-point Likert scale ranging from 0 (false) to 4 (true). The sum of the 7 items within each category comprises the scale scores for each component personality trait. A score of 10 or higher on *both* the negative affectivity and social inhibition subscales indicates the presence of a type D personality. The DS14 subscales showed good reliability for both patients (negative affectivity α = .90; social inhibition α = .89) and spouses (negative affectivity α = .88; social inhibition α = .91) in the current sample.

Emotion Regulation. Gross and John’s (2003) Emotion Regulation Questionnaire (ERQ) was used to assess the tendency to use two emotion regulatory strategies: cognitive reappraisal of one’s emotions (6 items) and suppressing the expression of one’s emotions (4 items). Examples of the items include “I control my emotions by *changing the way I* think about the situation I’m in” (cognitive reappraisal) and “I control my emotions by not expressing them” (expressive suppression). The items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to

7 (strongly agree). The total score involves taking the mean of each subscale, with higher scores representing a greater tendency to reappraise and to suppress emotions. In the present study, the two emotion regulation subscales showed good internal consistency for both patients (reappraisal α = .86; expressive suppression α = .81) and spouses (reappraisal α = .86; expressive suppression α = .79).

Mindfulness. To better understand a protective characteristic that may bode well for regulating emotional distress, the Cognitive and Affective Mindfulness Scale (CAMS-R; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007) was used as a brief self-report measure of mindfulness. The scale consists of 12 items written in everyday language covering the breath of mindfulness as a construct. Sample items include "I am able to accept the thoughts and feelings I have" and "I am able to focus on the present moment". Items are rated on a 4-point Likert scale ranging from 1 (rarely / not at all) to 4 (almost always). Responses are summed for a total scale score, with a maximum possible score of 48. In the present study, the mindfulness scale showed good internal consistency for both patients (α = .80) and spouses (α = .86).

Interpersonal Factors

Relationship satisfaction. The 16-item version of the Couples' Satisfaction Index (CSI-16; Funk & Rogge, 2007) was used to assess satisfaction in the relationship. To develop this scale, the authors began with 180 items from various well-validated self-report measures used to measure relational satisfaction, including the Marital Adjustment Test (MAT; Locke & Wallace, 1959) and the Dyadic Adjustment Scale (DAS; Spanier, 1976). They conducted an Item Response Theory analysis on these 180 items to develop a more precise 16-item measure of relationship satisfaction, compared to the other well-validated measures. Ten items on the CSI-16 are rated on Likert scales, including "In general, how often do you think that things between your partner are going well?” and “How well does your partner meet your needs?” Additionally, six items of the scale are semantic differential items (paired adjective items) that the person uses to rate the quality of their interactions with their partner, including “enjoyable to miserable” and “interesting to boring”. The satisfaction score is derived by summing the total of all the items, with higher scores indicating greater satisfaction. In the present study, the CSI showed extremely high internal consistency for both patients (α = .94) and spouses (α = .98).

Social support. The MOS Social Support Survey (MOS-SS; Sherbourne & Stewart, 1991) is a 19-item measure of functional social support within one’s social network. It asks about one’s close friends and close relatives available for support on a number of sub-dimensions, including emotional, instrumental, informational, and affectionate support, and positive social interaction. Items are rated on a 5-point Likert scale from 0 (none of the time) to 4 (all of the time), assessing the frequency with which respondents perceive having others available for various forms of support, including “Someone to give you good advice about a crisis”, “Someone to share your most private worries and fears with”, and “Someone to do something enjoyable with”. Sub-dimensions of the scale may be interpreted separately, and scores averaged across all items on the MOS-SS provide an overall indicator of perceived availability of social support. For the purposes of this study, only the total MOS-SS score was used in the analyses. Higher scores reflect the perception of having greater social support. The MOS-SS scale showed extremely high internal consistency for both patients (α = .96) and spouses (α = .97) in the current sample.

Phase II (In-lab) Measures

Mood measure. Participants’ mood states were assessed at the beginning, middle, and end of the in-lab phase of the study using the 20-item Positive and Negative Affect Scale (PANAS;

Watson, Clark, & Tellegen, 1988). The measure is comprised of two mood scales, positive and negative affect, with 10 items in each scale. Examples of positive items are “excited” and “determined” and negative items are “nervous” and “irritable”. Items are rated on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). The total score is determined by summing the items, with a maximum score of 50 for each subscale. The positive and negative affect subscales of the PANAS showed strong internal consistency across the three time points for both patients and spouses (ranging from $\alpha = .87$ to $\alpha = .93$). As an additional measure of emotional regulation, participants were also asked about the extent to which they actively tried to inhibit negative emotions during the two main tasks of the in-lab session. This single item was asked at two time points, once in reference to the degree they felt they tried to inhibit negative emotions during the disclosure task, and once during the discussion task.

Representativeness of the Individual Disclosure. Three items were used to assess the degree to which the individual disclosure was relevant (or ecologically valid) to the couple’s everyday life. Items asked about how much the thoughts and feelings disclosed had already been discussed with the partner, how much one’s partner was previously aware of the thoughts and feelings disclosed, and how much the way the participant disclosed was representative of his/her usual way of discussing the thoughts and feelings about the event. Taken together, these items showed good internal consistency for patients ($\alpha = .74$) and spouses ($\alpha = .81$) in the current sample.

Representativeness of the Dyadic Discussion. To complement the aforementioned items used to assess the relevance of the individual disclosures to the couple’s daily life, items were also created to assess the ecological validity of the dyadic discussion task. That is, partners were asked to report on how representative the way their partner addressed thoughts and feelings about the event was of their regular life. Specifically, the were asked about how much they had previously discussed the thoughts and feelings their partner shared during the discussion, how aware the participant had been of the thoughts and feelings disclosed by their partner, and the extent to which the way the partner spoke about his/her feelings was typical / representative of how they usually talk about these things. Taken together, these items showed good reliability for patients (α = .87) and spouses (α = .73) in the current sample.

Perceived Responsiveness. Three statements devised by Maisel and Gable (2009) were used to assess the degree to which participants felt understood, validated and cared for by their partner. The items are "My partner understood me," "My partner made me feel like he/she valued my thoughts and feelings," and "My partner made me feel cared for". These items were rated on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much). The total perceived responsiveness score was formed by averaging the three items together, with higher scores reflecting greater perceived responsiveness from the partner. The three-item responsiveness measure showed strong internal consistency for patients (α = .94) and spouses (α = .94) in the current sample.

Behavioural Coding of Phase II (In-Lab) Videos

Two independent coders were trained to make the following ratings of the individual disclosure videos as well as the dyadic interaction videos. Training continued until an adequate level of inter-rater reliability was reached (at least .90). After initial inter-rater reliability was established, the coders continued to rate the videos independently. The reliability of the raters' coding were checked periodically and remained high (ranging from α = .76 to α = .97) for the full sample of individual disclosure (see Appendix E for interrater reliabilities) and dyadic discussion videos (see Appendix F for interrater reliabilities). Scores for each item were computed by taking the means across the two coders.

Disclosure Video Coding

Independent raters assessed the individual disclosure videos on a number of dimensions. All of the following items were rated on a 5-point Likert scale ranging from 1 (not at all) to 5 (a great deal).

A single item rating of *overall quality of disclosure* was adapted from a disclosure coding system developed previously in our lab (Pansera & La Guardia, 2012). Quality of disclosure was defined as how well the person conveyed their thoughts and feelings about the event, providing an understandable and coherent narrative of the experience of the event and its consequences. Good inter-rater reliability was achieved for this item for both patients (α = .87) and spouses (α = .90).

A coding system was also developed to assess the *emotional content* of the disclosure. Disclosures were rated on degree of *emotional richness and intensity*, and seven emotions were specifically rated for how much they were expressed during the disclosures related to two time periods (both early on and more recently in recovery). Positive emotions that were coded were “happiness” and “relief/gratitude”, and negative emotions included “sadness” and “fear/worry”. All items had strong inter-rater reliability in the current sample (ranging from α = .87 to α = .97), with the exception of the item “shame,” for which reliability could not be computed for the spouse sample, as there was no variance (i.e., all spouses were given the minimum rating in their expression of shame in their disclosures). As will be later reported in the results, the distributions for “shame” and “anger” were found to have problematic skew and kurtosis. An examination of the distributions showed very little variability as most participants were rated near or at the bottom of the scale. Given this, a negative-emotion composite for subsequent analyses was created by averaging ratings only for “fear / worry” and “sadness”. This composite showed good internal consistency for patients (α = .96) and for spouses (α = .89). A positive-emotion composite was also created by averaging the ratings for “happy”, “relief / gratitude”, and “hopefulness”. The positive emotion-composite likewise had strong internal-consistency for patients (α = .95) and spouses (α = .96).

The disclosure was also coded on its degree of *focus* on each of three foci: *self*, *relationship,* and *other individuals* (e.g., children, health care professionals, etc.). Ratings of focus on the self, relationship, or other were not mutually exclusive; that is, participants could be rated high on multiple foci of their disclosure. Inter-rater reliability was high for these items in the current sample (ranging from α = .76 to α = .97).

The disclosure was also rated on the *overall degree of self-disclosure*. This dimension was rated to capture individual differences in degree of revealing personal information, which is considered important for emotional disclosures to foster connection and intimacy. Inter-rater reliability was high for both patients (α =.95) and spouses (α =.95) in the current sample.

Finally, as a *manipulation check*, participants were additionally rated on how well they enacted the prescribed experimental manipulation (that is, sharing with a therapist, sharing with one’s partner, or telling about the previous day). Inter-rater reliability for this item was high for patients (α = .96) and spouses (α = .98) in the present study. (See Appendix G to view the coding scheme for the individual disclosure videos.)

Dyadic Discussion Coding

Responsiveness. I adapted Maisel, Gable & Strachman’s (2008) three-item empirically derived coding system to measure the degree to which partners showed each other understanding, validation, and care in their discussions with each other (see Appendix H). Understanding assesses the extent to which the person listens attentively, "get the facts straight" about the event, summarizes or paraphrases his or her partner's perspective, and demonstrates that he or she comprehended the partner's feelings about the event. Validation measures the extent to which the person expresses understanding of the significance of the event to his or her partner and communicates that he or she values, respects, and accepts the partner's feelings about the event. Finally, care measures the extent to which the person is warm and expresses care and concern towards his or her partner. Ratings on each item are made on a 5-point Likert scale ranging from 1 (not at all) to 5 (a great deal), with higher scores indicating higher quality of partner responsiveness. Inter-rater reliability was strong for all of the responsiveness items for both patients and spouses (Cronbach's alphas ranging from α = .93 to α = .96). As the items were also highly intercorrelated (Pearson correlations ranging from r = .80 to r = .91), the three items were collapsed together to form one overall score of responsiveness.

Non-Responsiveness. In addition to capturing responsive behaviours during the dyadic discussion task, I also wanted to examine the degree to which partners displayed non-responsive behaviours. As such, three non-responsiveness items mirroring the responsive items were created to assess the degree to which participants exhibited unresponsive behaviours toward their partner during the discussion. The items assessed lack of understanding, invalidation, and hostility or uncaring. Examples of non-responsive behaviours included "blaming the partner", "rejecting or minimizing the partner's feelings", or "failing to listen" to one's partner during the discussion. Ratings on each item were made on a 5-point Likert type scale ranging from 1 (not at all) to 5 (a great deal). Inter-rater reliability was good for non-responsiveness items in the current sample (ranging from α = .94 to α = .98). As the items were also highly intercorrelated (Pearson correlations ranging from r = .72 to r = .97), the three items were collapsed together to form one overall score of non-responsiveness. (See Appendix H to view the dyadic discussion coding scheme).

Phase III (Follow-Up) Measure

Impact of participation. A follow-up questionnaire was created to assess a number of areas intended to tap into whether couples experienced a lasting impact from participating in the study. A single item asked participants whether the *frequency of talking with their partner about the event* had changed since participating in the study (more, less, or no change). One open-ended question asked participants to share ways in which they felt participating in the study may have had a *lasting impact* over the past few weeks. Independent raters later coded responses to this item for degree of positive impact the study had using a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much). There was strong inter-rater reliability for the coding of this item (α = .96 for both patients and spouses). Three items were created to rate how participation may have *changed how they felt* about: *the cardiac event, themselves, and their romantic relationship.* Responses were rated on a 7-point Likert-type scale ranging from 1 (much worse) to 4 (neutral) to 7 (much better). A number of items were also created to assess *how meaningful the experience of the individual disclosure* and the *dyadic discussion task* were for participants. The degree of meaning derived from each of those tasks included items asking to what extent the experience was meaningful, helped the participant *cope with the event, change his/her perception of the event,* and *help to make sense of the event.* These items were rated on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much). Finally, a single-item measure of relationship satisfaction was included from the Couple Satisfaction Index, which was also given in the pre-study questionnaire (Funk & Rogge, 2007). (Please see Appendix D to view the follow-up questionnaire.)

To index the positive effects of participation in the study, a positive-effect composite was formed by combining nine follow-up items that had consistently positive intercorrelations for both patients (r = .30 to .67) and spouses (r = .33 to r = .88). These items were the change in frequency of communication about the event; the meaningfulness of the discussion; the degree to which the discussion helped participants cope with the event, changed their perception of the event, and helped make sense of the event; change in how participants felt about themselves, their relationship, and the cardiac event; and the benefit of sharing emotions. Given that the items were rated on different scales (and had unequal standard deviations), items were standardized across the entire sample so that each was weighted equally when the items were averaged. These composite scores had strong internal-consistency reliability for both patients (α = .87) and spouses (α = .85).

Results

Checking for Normality of Distributions

The data were evaluated for non-normality and possible outliers by looking at the skew and kurtosis of each of the predictor and outcome variables. Skew greater than 3.00 and kurtosis greater than 10.00 were considered to be potentially problematic (Kline, 2011). According to these guidelines, all of the study variables in Phase I (pre-study questionnaires) and Phase III (phone follow-up questions) exhibited reasonably normal distributions. The great majority of measures from Phase II of the study were also within acceptable limits for skew and kurtosis, except for a handful of measures described below.

Self-Report measures at Phase II

With respect to the *self-report* measures, the patients' reported negative affect (measured by the PANAS) seemed to be particularly skewed following the individual video (at time 2; Skew = 3.33, Kurtosis = 14.16) and following the couple discussion (time 3; Skew = 3.50, Kurtosis = 15.25). An examination of the distribution of these variables revealed one outlier; when this couple was excluded from the analysis, the distributions for patient negative affect at time 2 (Skew = 1.83, Kurtosis = 2.91) and time 3 (Skew = 2.01, Kurtosis = 3.34) became within acceptable limits. As such, the scores of this couple were not included for analyses using the negative affect subscale of the PANAS.

Coded measures from individual disclosure videos

Of the distributions for the coded measures from the individual disclosure videos, two measures tended to show problematic distributions: anger and shame. For example, the patients' anger reported early in recovery showed somewhat problematic skewness (2.98) and kurtosis (8.59), and spouses' shame early in recovery showed problematic skewness (5.57) and kurtosis

(31.00). Examining the distributions for anger and shame, there was very little variability, with most participants rated near the bottom of the scale. Therefore, the negative emotion composite used for subsequent analyses only included “fear/worry” and “sadness”. The distributions for the positive emotions, “happiness”, “relief/gratitude”, and “hopefulness” were reasonably normal. As such, the positive emotion composite included all three variables in subsequent analyses.

Coded measures from dyadic discussion videos

With respect to *coded* measures from the dyadic discussion, all variables showed reasonably normal distributions except for the non-responsive behaviours coded for both patients (Skew = 3.42, Kurtosis = 12.45) and spouses (Skew = 3.98, Kurtosis = 16.00). An examination of the distribution of these variables revealed two outliers. When excluded from the sample, the distribution became non-problematic (for patients, skew = 2.50, kurtosis = 6.56; for spouses, skew = 2.35, kurtosis = 5.16). The two outliers identified on these variables were excluded from any analyses involving non-responsiveness for patients and spouses.

Significance Level of Analyses

The current study involves a number of comparisons to address study goals. It has been argued statistically that alpha levels for significance should be adjusted according to the number of comparisons being made in order to avoid familywise error (e.g., Rosenthal & Rosnow, 1985). On the other hand, others have argued numerous reasons against such practices, such as that adjusting alpha levels may be counterproductive (i.e., making valuable studies of modest sample size appear not to show much) and that doing so reduces statistical power (O’Keefe, 2003; Schmidt, 1992). In this case, in light of the exploratory goals of the current study, it was decided that potentially overlooking promising findings (Type II error) that may be further explored in future clinical research would be of greater detriment than potentially encountering spurious findings (Type I error). Therefore, fairly liberal, unadjusted significance criteria were utilized for the potential discovery of promising leads for future research, although it was also recognized that firm inferences should not be made in the current study when using such liberal alpha levels.

Descriptive Statistics

Phase I Measures

Table 1 presents the means and standard deviations of individual characteristics measured in the pre-study questionnaire package including psychological distress, personality factors, and interpersonal measures. Because participants were randomly assigned to conditions, it would be expected that they would not significantly differ on any pre-study characteristics based on experimental group. To ensure this was the case, I compared the means of the three groups using One-Way ANOVAs for patients and for spouses. As predicted, no differences emerged between the three experimental conditions on any of the pre-study measures. For the measures tapping *psychological distress* (depression, anxiety, stress, and trauma symptoms), both patients' and spouses' mean scores fell within the normal range compared to previous samples using these scales (Lovibond & Lovibond, 1995; Weiss & Marmar, 1997). Additionally, the mean scores for patients and spouses did not significantly differ on any of the distress measures.

Likewise, on the measures tapping *personality factors* (mindfulness, emotional reappraisal, and emotional suppression), patients' and spouses' scores fell within normal limits (Feldman et al., 2006; Gross & John, 2003). Approximately 20.8% of the current sample (for both patients and spouses) met criteria for Type D personality. For patients, this is somewhat lower than the proportion typically found in cardiac samples previously studied (which has been found to be between 27% to 31%; Denollet, 2005; Denollet, Sys, & Brutsaert, 1995; Denollet, Sys, Stroobant, Rombouts, Gillebert, & Brutsaert, 1996; Denollet, Vaes, & Brutsaert, 2000). Both patients' and spouses' scores on the social inhibition subscale of the Type D measure fell within the normal range compared to previous samples (Denollet, 2005). However, patients' and spouses' scores on the negative affectivity scale of the Type D measure fell within the above-average range (Denollet, 2005). Although the mean scores for patients and spouses did not significantly differ on most of the personality measures, they did differ on the emotional reappraisal subscale of the Emotion Regulation Questionnaire. That is, spouses reported reappraising their emotions significantly more than patients.

Regarding *interpersonal factors*, participants reported levels of perceived social support and relationship satisfaction that were comparable to the norms reported in other samples utilizing these scales (Funk & Rogge, 2007; Sherbourne & Stewart, 1991). The mean scores for patients and spouses significantly differed on both of these scales, such that patients reported being more satisfied in their romantic partnership, $t(46) = 3.23$, $p = .002$, and reported perceiving greater availability of support within their social network, $t(46) = 2.47$, $p = .017$. These differences suggest that being in the patient role is associated with having one's emotional needs relatively better met than being the healthy spouse of an ill partner.

Given that the current project recruited both male and female cardiac patients, I also wanted to examine whether patients differed on the pre-study characteristics by gender. However, the current patient sample consisted of very few females (five females consisting of 10.4% of the patient sample). Independent sample *t*-tests were performed to evaluate the possibility of gender differences, and none emerged on any of the distress, personality, or interpersonal variables. That patients were more relationally satisfied and perceived having more support in their social network than spouses may have been a function of role (patient vs. spouse) or of gender (male vs. female), but given the lack of balanced gender representation in the patient and spouse roles, it is difficult to discern the underlying characteristic of the differences found. Although the *t*-tests lack statistical power, no gender differences were found in the current sample; as such, for subsequent analyses in which role differences are found, they will be described as representative of role differences.

Relations amongst Study Variables across Three Phases

To examine whether variables in the present study related in expected ways, I obtained and examined intercorrelations for patients and for spouses at Phase I (pre-study), Phase II (in-lab study), and Phase III (follow-up). All available data were utilized (48 patients and 47 spouses at pre-study, 48 patients and spouses in the in-lab session, and 43 patients and spouses at follow-up), with the exception of excluding outliers on relevant variables identified previously.

Phase I (Pre-Study) Measures. The intercorrelations for the pre-study measures are presented in Table 2a for patients and in Table 2b for spouses. For both patients and spouses, measures assessing distress (depression, anxiety, stress, and trauma symptoms) were positively intercorrelated. For both patients and spouses, greater distress tended to be associated with lower mindfulness and lower relationship satisfaction. For spouses, greater distress was also associated with lower perceived social support. In patients, those who met criteria for Type D personality experienced greater psychological distress (depression, stress, and trauma symptoms); however, these relations were less evident in spouses. Consistent with the hypothesis that reappraisal of one’s emotions is a healthy style of emotion regulation, the more patients reported engaging in reappraisal, the lower their reported stress, the more mindful they were, the greater their relationship satisfaction, and the more they felt supported in their social network. For spouses, their reappraisal was unrelated to distress measures, but was positively related to their degree of mindfulness. Further, in line with the hypothesis that emotional suppression is a maladaptive form of regulation, the more spouses reported suppressing negative emotions, the greater their depression and the less satisfied they felt in their relationship.

Phase II: Coded Individual Disclosure Variables. The intercorrelations for the coded disclosure variables are presented for patients in Table 3a and for spouses in Table 3b. With respect to emotional content disclosed during the videos, positive emotions expressed about the event at two periods of time (early and recently in recovery) were highly related for both patients and spouses, and the same held true for the negative emotions Thus, in subsequent analyses using the positive and negative emotions shared in the disclosure videos, the two time points were collapsed into an overall positive emotion composite and negative emotion composite reflecting emotional experiences across the recovery period since the event.

As also shown in Tables 3a and 3b, for both patients and spouses, more self-disclosure was associated with more positive and negative emotions in recovery. Finally, the more spouses focused on their partner, the more they expressed positive and negative emotions, whereas for patients, the more they focused on themselves, the more emotions they expressed (both positive and negative). It seemed that for both partners, the more disclosures focused on the patient, the more emotional content was shared.

Phase II: Coded Dyadic Discussion Variables. The intercorrelations for the coded dyadic discussion variables for patients and spouses are presented in Table 4. For both patients and spouses, those who showed more responsive behaviours also tended to show fewer non-responsive behaviours. Further, patient and spouse behaviours were highly interrelated such that greater patient responsiveness was associated with greater spouse responsiveness, and greater non-responsiveness by one partner with greater non-responsiveness in the other. Being more self-disclosing in the interaction was also associated with being more responsive to one’s partner.

Additionally, the overall quality of discussion was better when partners were more responsive, less non-responsive, and more open (self-disclosing) in the communication.

Phase III: Follow-up Outcomes. The intercorrelations for the follow-up measures for patients are presented in Table 5a and for spouses in Table 5b. Surprisingly, patients' responses on the follow-up questionnaire were not significantly interrelated (the items used to comprise the positive-effect composite score were correlated, but the composite was not related to other outcomes). Spouses who experienced greater positive lasting impact of the study also noted significantly greater positive-effects of study participation in the composite measure.

Change in Emotional Experiences across the Recovery Period. To determine if there was a significant change in emotional experience from the initial recovery to more recent times, paired *t*-tests were conducted. Indeed, for both patients and for spouses, their experience of positive emotions significantly increased from early to recently: for patients, *M (SD)* = 2.99 (0.57) vs. 3.52 (0.60), *t* (1, 30) = -5.76, *p* < .001; for spouses, *M (SD)* = 3.09 (0.74) vs. 3.33 (0.84)), *t* (1, 30) = -2.78, *p* = .009. The opposite trend was found for negative emotions, which significantly decreased from early to recently: for patients, *M (SD)* = 2.35 (0.99) vs. 1.94 (0.84), *t* (1, 30) = 3.51, *p* = .001; for spouses, *M (SD)* = 3.08 (0.90) vs. 2.50 (1.09), *t* (1, 30) = 3.97, *p* < .001. These findings were interesting in that both partners' emotional experiences were evolving over time. They experienced declining distress and increasingly positive emotions around the experience of the event with time, lending support to the notion that "time heals".

Correlations between Perceived and Coded Responsiveness (and Non-Responsiveness)

As presented in Table 6, the responsiveness behaviours of one partner as perceived by the other partner and as observed by coders were not found to be correlated. This seems to indicate that romantic partners perceive something in their partner's behaviour that outsiders (i.e., objective observers) are not able to detect, a finding which makes sense given the intimate, private connection partners can have within a marriage. Additionally, patients' and spouses' ratings of their partner's responsiveness were not significantly correlated; that is, partner A's perception of partner B's responsiveness was unrelated to the partner B's perception of partner A's responsiveness.

However, perceived responsiveness did correlate with coded ratings of non-responsiveness. For example, spouses' perceptions of patient responsiveness were inversely associated with both partners' non-responsive behaviours; in other words, the more responsive spouses found the patients, the less they and the patients were rated as non-responsive by coders. Also, the more responsive spouses perceived the patient to be, the more the spouse was coded as responsive. It seemed the support the spouse felt from the patient was reflected in the spouse's own behaviour. For both patients and their spouses, perceptions of partner responsiveness were consistent with coder ratings of non-responsiveness, such that the more participants felt their partners were responsive, the less coders rated the partners as non-responsive.

Effect of Experimental Conditions on Mood

In the in-lab phase of the current project, participants were asked to complete a mood measure (PANAS; Watson, Clark, & Tellegen, 1988) across three time points: at the very start of the session (prior to assignment to experimental condition); following the individual videos in which they enacted the partner disclosure, therapist disclosure, or control (non-disclosure) condition; and following the dyadic discussion task completed by couples in all three groups. It may have been reasonable to expect that for those discussing their cardiac event, they would experience more negative affect compared to those discussing a neutral control topic.

To explore whether the experimental manipulations may have impacted the affect reported by patients and spouses across time points in the study session, a 2 (Role: patient vs. spouse) x 3 (Condition) x 3 (Time) Mixed Model ANOVA was performed. However, this did not yield any significant main effects or interactions. It appears that participants did not find talking about their cardiac event distressing, as its impact on their mood did not appear to be statistically different from talking about a neutral topic. As well, participants' affect did not seem to shift significantly from baseline (at Time 1) in any of the experimental conditions. Given that the affect measures were uninfluenced by the experimental manipulations, they were not included in any further analysis including conditions as a predictor variable.

Means and standard deviations of the Phase II and Phase III variables for each of the three experimental conditions are provided in Tables 7a to 7d.

Manipulation Check

To assess how well participants enacted the prescribed experimental manipulations in their individual disclosure tasks, a Mixed Model ANOVA was run to compare the three groups on coders' ratings of the single-item manipulation check measure. Neither the main effect of role (patient vs. spouse) nor the interaction between role and condition were significant, $F(1, 45) = 0.76$, *ns*, and $F(2, 45) = 0.40$, *ns*, respectively. However, a main effect of condition did emerge, $F(2, 45) = 8.60$, $p = .001$, $\eta_p^2 = .28$. Specifically, couples in the therapist disclosure condition (for patients, $M = 4.60$, $SD = 0.42$; for spouses, $M = 4.83$, $SD = 0.35$) and control condition (for patients, $M = 4.75$, $SD = 0.46$; for spouses, $M = 4.74$, $SD = 0.44$) enacted their individual disclosure tasks significantly better than those in the partner disclosure condition (for patients, $M = 3.94$, $SD = 1.00$; for spouses, $M = 4.02$, $SD = 1.16$). Participants in the partner group were asked to speak to the camera as though they were speaking directly to their partner (in first person), which required a mental flexibility some may have found challenging. Further, as the investigator was in the room (out of sight) during the taping of the disclosure, it may have been easy for participants to lapse into speaking to the investigator and referring to their partner in the third person. However, many of the participants in the partner disclosure group were able to follow the instruction of talking directly to their partner quite effectively. Importantly, it should be noted that all three means were quite high overall (with the lowest mean at 3.94 out of 5.00), indicating that overall couples enacted the various conditions well.

Main Analyses

Goal 1: An exploratory goal was to understand how directing the disclosures toward different audiences—partner vs. therapist—might affect the *content* of disclosures and their *benefits*.

Coded Individual Disclosure Outcomes. To explore whether directing one's disclosure toward different audiences (partner vs. therapist) impacted the content expressed about the cardiac event, 2 (Role: patient vs. spouse) x 2 (Condition) Mixed Model ANOVAs were performed.[2] Given that participants in the control (non-disclosure) group spoke about a neutral topic rather than about their cardiac event, their data were not relevant to the current goal and therefore were excluded from these analyses. A summary of the Mixed Model ANOVA *F*-values and effect sizes (η_p^2) is presented in Table 8.

Contrary to my speculative predictions, many of the individual disclosure outcomes (overall quality, emotional richness, positive emotions in recovery, degree negative emotions were inhibited during the disclosure, and degree of self-disclosure) did not show significant main

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[2] The power of the *F* tests can be increased slightly by including the control group in the computation of the error term. However, doing this did not change the statistical significance of any of the results for Goal 1 analyses.

effects of role, condition, or an interaction between role and condition. However, the *foci of disclosures* revealed significant main effects of role and of condition (see Table 7b for the means). Specifically, patients were found to be significantly more self-focused in their self-disclosures than were spouses, and, consistent with study predictions, participants in the therapist condition were found to be significantly more self-focused compared to those in the partner condition. However, when assessing the extent to which the disclosure was *relationally focused* (“we” orientation), a main effect of role was found such that spouses spoke significantly more about the relationship and their partner compared to patients. Additionally, the main effect of condition revealed that couples in the partner condition took a relational frame in their disclosure significantly more than those in the therapist condition, which was in line with study hypotheses. In other words, when participants were asked to share their thoughts and feelings as though speaking to a therapist, they were able to be more self-focused in what they expressed, whereas when they were addressing their partner, they tended to focus more on the relational aspect of the event and recovery experience.

With respect to *negative emotions experienced in recovery*, a main effect of role was found such that spouses reported experiencing significantly greater levels of negative emotion in the recovery process relative to the patients. This finding lends support to the notion that spouses can often be equally if not more distressed in the face of the patient’s cardiac event.

Coded Dyadic Discussion Outcomes. Again, 2 (Role) x 2 (Condition) Mixed Model ANOVAs were performed to explore whether the different disclosure targets (partner vs. therapist) exerted effects on the subsequent discussion between partners. The summary of findings from these analyses is presented in Table 8. A significant main effect of condition emerged for the degree to which participants reported *inhibiting negative emotions during their* *discussion*; that is, couples in the partner condition reported suppressing negative emotions during the dyadic interaction significantly more than those in the therapist condition (see Table 7c for the means). It appears that there may have been potential benefit of directing one's disclosure toward a therapist when compared with sharing with one's partner.

Although no other main effects of condition emerged, main effects of role were found for the *coded responsiveness* and *perceived responsiveness* measures. Specifically, spouses were coded by observers as significantly more responsive than patients; likewise, the patients also perceived the spouses to be significantly more responsive than the spouses perceived the patients to be. These results provide converging evidence that spouses were overall more responsive than patients. To assess whether the responsiveness differences by role may have been accounted for by gender, I ran independent sample *t*-tests to compare women and men on levels of coded and perceived responsiveness. Gender differences were not found for either outcome; however, as there was low statistical power for these analyses (90% male, 10% female patients; and the reverse for spouses), the gender analyses should be interpreted cautiously.

Outcomes at Follow-Up. Finally, to explore whether the manipulation of disclosure target influenced how much participants reported benefiting from participation in the study at follow-up, the same Mixed Model ANOVAs were performed. As can be seen in Table 9, when assessing the *positive lasting impact* couples felt from participation in the study, a trend towards a main effect of condition emerged, in which couples in the partner condition derived marginally greater benefit from the study compared to those in the therapist condition. Although this pattern did not quite reach statistical significance, it supported my speculation that those in the partner condition would derive more benefit compared to those in the therapist condition.

Goal 1: Summary of Findings about Disclosure Audience. Although a number of my predictions about the influence of intended audience were not supported, two findings in line with my predictions were that disclosing to a therapist would yield a relatively more self-focused ("me") disclosure, and that disclosing to one's partner would yield a relatively more relationally focused ("we") disclosure. In addition, those disclosing to their partner engaged in greater inhibition of negative emotions in the subsequent dyadic discussion than those disclosing to a therapist. This seems to suggest some sort of benefit to disclosing to a therapist such that one would suppress negative emotion less in communication with one's partner. However, at follow-up, it was conversely found that couples in the partner condition reported marginally greater positive lasting impact of participation, perhaps lending support to the notion that disclosing to one's partner had more enduring benefits than sharing with a therapist.

Beyond exploring the effects of manipulating intended listeners of disclosures, I additionally wanted to explore the benefit of disclosing one's emotions about the cardiac event in the individual videos, as compared to not disclosing (in the control condition). I now turn to these findings.

Goal 2: To examine the effects of emotional disclosure during the individual videos, compared to non-disclosure, on subsequent outcomes.

For this next set of analyses, I combined the two disclosure conditions for comparisons with the control condition, yielding an $N = 31$ for the disclosure group versus an $N = 17$ for the control group. Essentially, this strategy can be thought of as employing a planned contrast of the disclosure conditions with the control (non-disclosure) condition.

Dyadic Discussion Outcomes. To evaluate the impact of sharing one's emotions about the cardiac event during the individual video on the subsequent couple interaction, 2 (Role) x 2

(Condition) Mixed Model ANOVAs were conducted. The summary of results for these outcomes is presented in Table 10 (see Table 7c for the relevant means). When assessing *degree of self-disclosure* (how self-disclosing partners were during their interaction), a significant main effect of condition emerged, such that participants in the disclosure group were significantly more self-disclosing in the subsequent discussion with their partner about the event compared to those in the non-disclosure group. It appeared that having a chance to ‘role-play’ disclosure during the initial part of the session (regardless of audience) led to opening up more to one’s partner during the subsequent discussion. This finding supports the process of emotional expression as beneficial for relationships, in that having an opportunity to talk about one’s emotions about the event seemed to lead to being more open and disclosing when communicating with one’s partner shortly thereafter. A main effect of role was also found for degree of self-disclosure; patients were found to be significantly more self-disclosing than spouses during the dyadic discussion.

With respect to *coded responsiveness*, there was a marginally significant trend emerging in which participants in the disclosure conditions were rated as more responsive during the discussion compared to participants in the control condition, suggesting that those who had an opportunity to express their thoughts and feelings about the event initially were able to be more responsive when interacting with their partner shortly thereafter. However, a main effect of condition was not found for *perceived responsiveness* as rated by the participants. Instead, there was a significant main effect of role, such that patients consistently reported experiencing greater responsiveness from their spouse than spouses did from the patients.

With respect to *coded non-responsiveness*, marginally significant main effects of condition and role emerged. Those who had previously disclosed in the individual video tended to be rated slightly lower on non-responsive behaviours than those in the control condition. This finding suggests another relational benefit of disclosure, such that having a chance to express one's feelings about the event led to fewer unsupportive behaviours in subsequent communication with one's partner. Spouses tended to show slightly more non-responsive behaviour than patients as well.

Regarding the degree to which participants *inhibited negative emotions during the dyadic discussion*, a significant main effect of role emerged, as well as a marginally significant role by condition interaction. Overall, spouses reported inhibiting negative emotions during the discussion more than did patients. More specifically, although condition did not influence patients' inhibition of emotions during the discussion, spouses tended to report inhibiting their emotions particularly in the control condition. This result suggests that when spouses had the opportunity to share their emotional experience of the cardiac event, they benefited in subsequent communication with their partner by needing to suppress negative emotions less than those who did not have the opportunity to disclose initially.

Outcomes at Follow-Up. To assess for the impact of sharing one's emotions about the cardiac event on outcome measures assessed at follow-up, 2 (Role) x 2 (Condition) Mixed Model ANOVAs were again conducted. The summary of results for the follow-up outcomes is presented in Table 11 (see Table 7d for the relevant means). A significant role by condition interaction emerged for *the positive-effect composite*. Specifically, disclosing vs. not disclosing appeared to affect patients and spouses in a different pattern. Spouses in the disclosure group experienced a significantly greater positive effect at follow-up than spouses who were in the control group; the opposite pattern emerged for patients, such that those in the disclosure group experienced less of a positive effect of participation compared to patients in the control group.

Although the pattern of effect for spouses was consistent with study predictions, the pattern of effect for patients was surprising and contrary to hypotheses.

When evaluating relationship satisfaction at follow-up, I controlled for pre-existing couple satisfaction measured in the pre-study phase by including the couple satisfaction measures for both patients and spouses as covariates in the Mixed Model ANOVA. A significant effect of condition was found, which revealed that couples in the disclosure condition were significantly more satisfied in their relationship at follow-up compared to those in the control condition. The adjusted means of relationship satisfaction after controlling for pre-existing marital satisfaction were $M = 4.50$ for those in the disclosure group and $M = 4.04$ for those in the control group. This finding supported my prediction that those in the disclosure group would derive greater benefit at follow-up, in this case in the form of significantly greater satisfaction within their relationship.

Goal 2: Summary of Findings about Disclosure. When disclosure conditions were collapsed into one group and compared to the control group, a number of interesting findings emerged. Specifically, it seemed that having the opportunity to disclose one's feelings about the cardiac event led to being significantly more open (self-disclosing) in the dyadic interaction; perhaps being more responsive to one another when communicating about the event; exhibiting fewer non-responsive behaviours with one's partner; and for spouses, perhaps inhibiting negative emotions less when talking to the patient about the event. At follow-up, disclosure led to a greater positive-effect of study participation for spouses; and, for both members of the couple, significantly higher marital satisfaction at follow-up. In summary, it appears that couples in the disclosure condition generally derived greater benefits during the study (relatively healthier communication patterns in the discussion); further, greater positive impacts of the study appeared to be present weeks later at follow-up for couples who disclosed about their event in the individual disclosure task.

As the manipulation of experimental condition was only one main aspect of my dissertation study, I was also interested in looking at the entire sample to understand how key variables at Phases I and II may have influenced outcomes at Phase III. For the remaining analyses, I collapsed across experimental condition to look at the sample as a whole.

Goal 3: How might psychological distress, personality, and interpersonal factors influence the degree to which participants benefit from participation in the study? Further, how might the experiences during the in-lab session (Phase II) affect outcomes at follow-up?

In order to examine the influences of pre-study characteristics and in-lab variables on the degree to which patients and spouses benefited from participation in the study, I utilized the Actor-Partner Interdependence Model (APIM) using Amos (Arbuckle, 2011). Please see Figure 1 for a depiction of the APIM model. This model was chosen because it handles dependencies within the dyad correctly, as the relationship between patient and spouse implies that partners' behaviours are interrelated and mutually influence each other. Additionally, the cardiac couple is a distinguishable type of dyad, based on the unique role of the patient and the spouse-caregiver. APIM distinguishes "actor effects", which can be thought of as *intrapersonal* effects (e.g., the effect of a patient characteristic on a patient outcome) from "partner effects", which can be thought of as *interpersonal* effects (e.g., the effect of a patient characteristic on a spouse outcome).

Outcome: Positive Lasting Impact (Coded Item)

Pre-Study Measures as APIM Predictors. The pre-study characteristics measured at Phase I were utilized as predictors in the APIM models for the positive lasting impact outcome (based on the coders' rating of the participants' responses to an open-ended question). The summary of actor and partner effects is presented in Table 12. A number of state-psychological distress measures appeared to exert an influence on the degree to which participants perceived experiencing a positive lasting impact from participating in the study. Supporting my predictions, the more patients reported *depressive symptoms*, the more they perceived benefiting from the study (significant actor effect) and the more their spouses reported benefiting from the study as well (significant partner effect). Spouses' distress at pre-study exerted a significant partner effect on patients as well; that is, the more spouses reported experiencing symptoms of *stress, anxiety*, and *trauma*, the more the patient perceived a positive lasting impact of the study. Additionally, the more spouses experienced trauma symptoms, the more they themselves benefited from the study as well (spouse actor effects on the spouse).

Patients' experience of lasting benefits from participation appeared to be particularly influenced by their own and their spouses' presence of *Type D personality* (patient actor effects on patient, and spouse partner effects on patient). That is, the patients who were particularly able to benefit from participation were those who had Type D personality, and those whose spouses also showed Type D personality features, consistent with study hypotheses. Participants' tendencies toward *emotional suppression* exerted significant effects on their partner's outcomes: the more patients suppressed emotions at pre-study, the more the spouse experienced positive impact of participation, and, likewise, greater spouse suppression of emotions predicted greater impact for the patient. There also was a marginal spouse partner effect on patient outcome; the less spouses were *mindful* at pre-study, perhaps the more of a lasting impact the patient experienced from study participation at follow-up.

With respect to *interpersonal measures,* significant patient actor effects were found, revealing that the less *relationally satisfied* patients were and the less *perceived social support* they felt was available at pre-study, the more positive impact the study had on them. These findings were in line with study predictions. Poorer patient marital satisfaction was also marginally associated with greater study benefit for the spouse. Lower spouse marital satisfaction at pre-study was also marginally predictive of greater patient benefit from study participation.

Phase II Variables as APIM Predictors. Some of the individual-disclosure variables had significant actor and partner effects on the spouses' outcomes. Spouses' own disclosures appeared to be beneficial for the positive lasting impact of study participation on them; the more *positive* and *negative emotions* expressed in their disclosures, and the greater their overall *quality of disclosure*, the more they felt they had derived positive impact at follow-up. Interestingly, when patients expressed greater positive and negative emotions in their disclosures, spouses derived *fewer* positive benefits at follow-up. Also, the greater patients' *relationship focus* and the less they were *self-focused* in the disclosure videos, the better both spouse and patient outcomes at follow-up, indicating it was beneficial for both partners when patients attended more to the relationship than to themselves. A marginally significant trend which emerged was that greater *emotional inhibition* by spouses during Phase II may have led to better patient outcomes at follow-up. Finally, when looking at variables from the dyadic interaction, only *degree of self-disclosure in the discussion* exerted a significant effect. Consistent with my hypotheses, the more self-disclosing patients were in discussion with their partner, the greater positive impact the study had on them at follow-up. A marginal finding also emerged in which greater patient responsiveness perhaps predicted greater positive lasting impact for spouses at follow-up.

Outcome: Relationship Satisfaction at Follow-Up

Pre-Study Measures as APIM Predictors. When evaluating various predictors of relationship satisfaction at follow-up, patient and spouse marital satisfaction scores at pre-study were included in the APIM model to control for pre-existing satisfaction in the romantic partnership. To view the summary of actor and partner effects on relationship satisfaction at Phase III, please see Table 13.

None of the *distress* measures were predictive of patient or spouse relationship satisfaction, nor were most of the *personality* factors. However, spouse's *mindfulness* and *perceived social support* were positively associated with their relationship satisfaction at follow-up. There was a marginal trend for patient's perceived social support to be inversely related to their relationship satisfaction at follow-up, the opposite to the corresponding finding for spouses.

Phase II Variables as APIM Predictors. When assessing the influence of the individual disclosure variables on relational satisfaction, primarily actor effects emerged. The more patients described *positive emotions* during recovery in their disclosures, the higher their satisfaction in their relationship at follow-up. Further, the more spouses described *negative emotions* during recovery in their disclosures, the more satisfied they were in their relationship at Phase III. As well, the less spouses *inhibited negative emotions* during their disclosure videos, the greater their marital happiness at follow-up (spouse actor effects). An interesting, significant partner effect that emerged was greater spouse relational satisfaction at follow-up when patients were more relationally focused in their disclosure video, adding further support to the notion that patients' attention to the couples' perspective about the event was important and beneficial for spouses. When considering dyadic discussion variables, greater spouse *responsiveness* and less *non-responsiveness* during the partner interaction were predictive of higher patient relationship satisfaction at follow-up. Finally, spouses' follow-up relational satisfaction appeared to be significantly impacted by both patients' and spouses' degree of *inhibiting negative emotions during the discussion*. Interestingly, the *less* spouses inhibited negative emotions in the discussion and the *more* patients inhibited negative emotions in the discussion, the more spouses were satisfied in their marriage at follow-up. It appears that spouses benefited from patient inhibition and their own non-inhibition of negative emotions when communicating with their partner during the discussion task.

Outcome: Follow-Up Composite Measure.

Pre-Study Characteristics as APIM Predictors. The composite measure created to capture degree of benefit from participation was related to a number of predictors in APIM analyses. To view the summary of the actor and partner effects, please see Table 14.

Only spouse actor effects emerged for *psychological distress* and *personality* variables predicting positive-effects at follow-up. Higher spouses' anxiety and trauma at pre-study as well as greater presence of Type D were associated with their own greater positive effects from study participation. Next, *interpersonal* factors appeared to play important roles for both partners. The less relationally satisfied patients were at pre-study, the more spouses seemed to benefit from participation (patient partner effect on spouse). Similarly, the less patients perceived having social support available, the greater their benefit from participation, and, to a marginally significant extent, the more their partners may have benefited as well (patient actor and partner effects). Spouse perceptions of social support were influential in the opposite direction; the less they felt they had social support available at pre-study, the less benefit they experienced from the study and, to a marginally significant extent, the less patients may have benefited from participation (spouse actor and partner effects).

Phase II Variables as APIM Predictors. Turning to analyses with variables from the disclosure videos predicting positive-effect outcomes, the patient's *positive emotions* and *overall quality of disclosure* were related to spouses' positive-effect outcomes. Specifically, the more positive emotion patients expressed in their disclosure and the better their overall quality of disclosure, the more their partners benefited from participation. Spouses' overall quality of disclosure exerted a marginally significant positive influence on patient outcomes as well. In addition, patients' greater relational focus in their disclosures was predictive of their own greater benefit from participation. Spouse responsiveness during the dyadic interaction task was important for both patient and spouse outcomes; the more spouses exhibited responsive support for the patients, the more the patients and they themselves derived benefit from participation.

Goal 3: Summary of Findings. Overall, patient and spouse characteristics not only affected their own outcomes, but interdependence between partners in the relationship was seen as they also influenced each other's outcomes significantly. Participants' distress seemed to most saliently influence both partners' open-ended evaluations of the positive-lasting impact of the study, but seemed to exert fewer effects on follow-up relational satisfaction and the positive-effect composite. When spouses and patients were more psychologically distressed at pre-study, this seemed to reflect being more in need of (and better able to experience lasting impact from) participation in a study addressing communication about their cardiac event. Patients and spouses higher on Type D personality also seemed better able to benefit from the study. Greater spouse and partner emotional suppression appeared to be predictive of greater lasting impact of the study for patients, but did not influence other outcomes for patients or spouses. Cognitive reappraisal of emotions was not found to be predictive in any of the APIM models. When spouses were more mindful, they seemed to be able to benefit more from the study (experiencing significantly greater marital satisfaction at follow-up). Patients' levels of relational satisfaction seemed important for both patient and spouse benefits, with maritally distressed couples appearing to benefit more from what the study could offer.

In Phase II, participants who expressed more emotions, both positive and negative, and had higher overall quality of disclosures reported more positive outcomes of participation in the study. Looking at the dyadic discussion variables, the level of spouses' responsiveness toward patients was consistently predictive of patient outcomes (better relational satisfaction and greater positive effects) and predictive of spouses' own positive effects of the study. Further, greater patient responsiveness was found to marginally predict greater spouse positive lasting impact. Surprisingly, perceived responsiveness did not influence outcomes for either partner. I had predicted that the more participants saw their partners as being responsive in the session, the more they would experience later benefits. However, perceived responsiveness scores seemed to be uniformly high (approaching the ceiling of the measure), so there may not have been enough variability to allow partner or actor effects to emerge.

Goal 4: Finally, an exploratory goal was to examine if the nature of the event—relatively unexpected and sudden (e.g., myocardial infarction), versus relatively more expected and less sudden (planned; e.g., elective procedures)— might affect the *degree* to which couples benefit from participation in the study.

Importantly, couples in the current study experienced differing types of cardiac events. While some expected their event and had time to prepare for going through a CABG surgery or percutaneous coronary intervention (PCI), others were unable to prepare for the unexpected and sudden nature of suffering a myocardial infarction (MI). I wanted to explore whether the relatively traumatic or non-traumatic nature of types of events suffered would impact not only pre-study characteristics, but couples' experiences during the in-lab phase and afterwards at follow-up.

To begin analyses with the sudden vs. predicted nature of the cardiac event in mind, I collapsed the type of event into two categories: (1) those including a myocardial infarction (MI); whether alone or in conjunction with a subsequent percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG surgery); and (2) those which were planned (PCI or CABG surgery). I first attempted to assess whether type of event interacted with condition across a number of variables. I conducted 2 (Role) x 3 (Condition) x 2 (Cardiac Event Type) Mixed Model ANOVAs for Phase II and Phase III outcomes. However, none of the main effects or interactions involving condition reached significance in these analyses. As such, I chose to collapse across experimental conditions and proceed with 2 (Role) x 2 (Cardiac Event Type) Mixed Model ANOVAs for the remainder of analyses within this goal. As significant main effects of role have previously been reported in analyses for earlier study goals, findings presented in this section will focus on main effects of event type or role by event type interactions.

Phase I characteristics. To understand if type of cardiac event interacted with role in predicting pre-study characteristics of the current sample, 2 (Role) x 2 (Cardiac Event Type) Mixed Model ANOVAs were performed. To view the summary of results for these analyses, please see Table 15. Of note, significant interactions of role by type of event emerged for three pre-study characteristics: depression, perceived availability of social support, and marital satisfaction. With regard to *depression*, for patients, those whose event included an MI (N = 26) were significantly less depressed (M = 1.58, SD = 1.88) than patients who had a planned procedure (N = 21, M = 3.10, SD = 3.08). The opposite pattern was true for spouses, as those whose partner suffered an MI were significantly more depressed (*M* = 3.04, *SD* = 3.84) compared to spouses whose partner underwent a planned procedure (*M* = 0.90, *SD* = 1.30). These findings suggest that partners are impacted in quite different ways depending on whether the cardiac event was relatively expected and planned or unexpected and sudden. To view the interaction of role by event type on depression, please see Figure 2.

With regard to *perceived availability of social support*, couples in which the patients underwent a planned procedure reported similar levels of social support (for patients, *M* = 3.29, *SD* = 0.91; for spouses, *M* = 3.33, *SD* = 0.79). However, for couples in which the patient suffered a sudden and unexpected (involving MI) event, spouses (*M* = 2.82, *SD* = 0.76) perceived having significantly less social support than patients (*M* = 3.50, *SD* = 0.78). This seems to indicate that those within the patients' support network mobilize to meet the patient's needs when he/she suffers a traumatic health crisis, whereas spouses appear to feel potentially left behind and under-supported as the non-ill partner. To view the interaction of role by event type on perceived social support, please see Figure 3.

With regard to *marital satisfaction*, although type of event was unrelated to patients' relational satisfaction (for planned events, *M* = 56.76, *SD* = 7.06; for unexpected events, *M* = 57.11, *SD* = 6.89), it appeared to significantly impact spouses; specifically, for spouses whose partner suffered a relatively sudden event (*M* = 48.25, *SD* = 12.30), their marital satisfaction was significantly lower than for spouses whose partner's event was planned in nature (*M* = 55.14, *SD* = 7.39). It appears that for patients, whether their event was sudden or expected, they have a readily available support network reaching out to meet their needs; in contrast, it seems that spouses' needs are more at risk of being neglected when the partner's event is unexpected. This speaks to the importance of checking in with cardiac spouses after patients suffer an MI to ensure they are adequately supported in the adjustment period following their partner's health crisis. To view the interaction of role by event type on relationship satisfaction, please see Figure 4.

Phase II Disclosure Variables. Mixed Model ANOVAs were also performed on the individual disclosure variables. To view the summary of results for these analyses, please see Table 16. For most individual disclosure measures, no main effects of event type or role by event type interaction emerged, with the exception of the degree to which participants were self-focused in their disclosures. Couples who went through a sudden event (for patients, *M* = 4.18, *SD* = 0.38; for spouses, *M* = 3.97, *SD* = 0.49) were significantly more self-focused in what they disclosed compared to those whose events were planned (for patients, *M* = 4.00, *SD* = 0.44; for spouses, *M* = 3.61, *SD* = 0.46). This may suggest that when patients and spouses suffer a relatively unpredictable crisis such as an MI, they have a greater need to express their own thoughts, feelings and experiences. Further, couples whose event involved an MI inhibited negative emotions during their disclosure video (for patients, *M* = 1.20, *SD* = 0.39; for spouses, *M* = 1.63, *SD* = 0.97) significantly more than those whose events were planned (for patients, *M* = 1.05, *SD* = 0.21; for spouses, *M* = 1.19, *SD* = 0.51).

Phase II Dyadic Discussion Variables. To view the summary of results of Mixed Model ANOVAs evaluating the relation of event type to discussion outcomes, please see Table 17. There were marginally significant interactions of role by event type for responsiveness (see Figure 5) and non-responsiveness (see Figure 6) behaviours observed by coders. Though event type did not influence patient responsiveness (for planned events, *M* = 3.07, *SD* = 0.40; for unexpected events, *M* = 3.01, *SD* = 0.46) or non-responsiveness (for planned events, *M* = 1.12, *SD* = 0.24; for unexpected events, *M* = 1.13, *SD* = 0.26), spouses whose partners' events were planned and expected were marginally more responsive (*M* = 3.25, *SD* = 0.52) and less non-responsive (*M* = 1.17, *SD* = 0.51) in the discussion compared to spouses whose partners had an MI (for responsiveness, *M* = 3.08, *SD* = 0.47; for non-responsiveness, *M* = 1.25, *SD* = 0.47). In other words, it seemed that the spouses of MI survivors were less responsive and more non-responsive in communication with their partner, suggesting that supporting one's partner through a cardiac crisis may impact one's own ability to be responsive. Further, there was a trend towards a main effect of event type on perceived responsiveness; consistent with other findings already reported, couples who suffered a sudden event (for patients, *M* = 4.50, *SD* = 0.59; for spouses, *M* = 4.06, *SD* = 0.84) perceived their partners to be marginally less responsive compared to couples who experienced a predicted cardiac event (for patients, *M* = 4.77, *SD* = 0.41; for spouses, *M* = 4.38, *SD* = 0.89). Finally, couples who went through an MI (for patients, *M* = 1.37, *SD* = 0.56; for spouses, *M* = 1.63, *SD* = 0.88) also reported marginally greater inhibition of negative emotions during the discussion task compared to couples whose event was predicted (for patients, *M* = 1.14, *SD* = 0.36; for spouses, *M* = 1.33, *SD* = 0.73). While these results for the discussion outcomes were marginal in significance, there is a consistency to the direction of findings suggestive that going through a relatively traumatic cardiac event negatively influences partners' abilities to be responsive as observed not only by coders but also by each other, and leading to inhibition of negative emotions during communication about the event. These results also suggest that couples who have experienced an MI are at greater risk for relatively poorer communication and may be more in need of interventions aimed at healthy communication regarding the health crisis.

Phase III Outcomes. Finally, to view the summary of results of Mixed Model ANOVAs evaluating the relation of event type to follow-up outcomes, please see Table 18. Although event type did not predict the positive-lasting impact measure or scores on the positive-effect composite measure, there was a significant main effect of event type on follow-up marital satisfaction. When controlling for pre-existing marital happiness, the adjusted mean of relationship satisfaction for those who went through an MI was $M = 4.14$, significantly less than the adjusted mean for couples who went through an expected procedure, $M = 4.54$. This finding indicates that couples who went through a sudden event were significantly less relationally satisfied at follow-up than couples who experienced a planned procedure.

Goal 4: Summary of Findings about Cardiac Event Type. Overall, these findings seem to reflect a disadvantage for couples in which the cardiac patient experienced an MI, and the disadvantage seemed to be especially pronounced for spouses. Although *patients*' levels of perceived social support and marital satisfaction were unaffected by the suddenness of event, *spouses* were significantly less satisfied in their marriage and felt less supported in their close social network when their partner had suffered an unexpected cardiac crisis. Spouses were also more depressed when their partner had an MI; surprisingly, patients who had a non-traumatic event were more depressed than those who suffered an MI.

In the disclosure videos, couples who went through an unexpected event were significantly more self-focused in what they shared, and they also inhibited negative emotions during the disclosure significantly more than couples who experienced a planned procedure. In the dyadic interaction, marginally significant interactions emerged. Consistent with earlier findings, patients did not seem to be impacted by event type in their responsive and non-responsive behaviours, but spouses showed less responsive and more non-responsive behaviours when their partner had suffered an MI than when their partner had an elective procedure. For both patients' and spouses' perceptions of partner responsiveness, experiencing a sudden cardiac event was marginally associated with lower perceived responsiveness compared to experiencing a planned event. Also, for couples who experienced a relatively unexpected event, they reported marginally greater inhibition of negative emotions when communicating with each other about the event. At follow-up, when controlling for pre-existing relationship satisfaction, couples who experienced an MI reported significantly lower marital happiness than couples who had an expected event.

Taken together, these findings suggest that patients and spouses who went through the experience of a relatively unexpected cardiac crisis experience poorer outcomes and may be most in need of interventions— and this seemed to be especially true for the caregiver.

Qualitative Reports of Lasting Impact of Participation

In the Phase III follow-up outcomes questionnaire, one open-ended response item inquired about patients' and spouses' perceptions of the lasting impact the study may have had on them. To conduct a post-hoc qualitative analysis, responses were examined for common themes and then separated into categories reflecting those themes.

Five common threads were identified among the responses from patients and spouses. All of the responses were either neutral in valence (no impact) or they reflected a positive impact. For those who did not experience any sustained effect from participation, the first category was called "No Benefit". A somewhat different theme also reflected lack of perceived benefit, but provided a commonly stated reason for the lack of study impact; that is, those participants reported having already shared open communication about the event prior to their participation in the study. As such, they felt that the study addressed what they were already comfortable with, and therefore believed there was little benefit to be had for them. Responses fitting this theme were categorized as "Strong Pre-existing Communication".

The next three categories summarized responses speaking to positive perceived impacts the study had on participants and their relationships. These categories of positive impact appeared to be relatively hierarchical and are described here in order of increasing benefit. “Change in Perspective” was a common experience in which participants spoke about the study eliciting new realizations or ways of making sense of their cardiac experience (e.g., being grateful for a second chance at life). The next category involved responses expressing a positive impact on the romantic partnership, or “Relationship Benefit”, such as discovering information about one’s partner and thereby acquiring a better understanding of each other. The last category included responses that reflected “Increased Communication” about the event between partners. That is, responses noted greater communication about the event as a result of study participation, including being more open with one another, listening more attentively and asking about the partner’s feelings, and generally feeling more comfortable addressing the cardiac event with each other as a discussion topic.

Two independent raters coded the patient responses and the spouse responses separately. To maintain the five themes as mutually exclusive categories, if the response reflected two or more themes, the “most beneficial” theme was assigned to that response.

To estimate inter-rater reliability, first the proportion of agreement ($Pr(a)$) between raters was calculated: $Pr(a) = .84$ for patients; and $Pr(a) = .81$ for spouses. Next, Cohen’s Kappa (κ), was computed as a less biased estimate of the inter-rater reliability. Kappa was found to be acceptable for both partners: $\kappa = .79$ for patients; and $\kappa = .76$ for spouses.

Below I provide the proportion of patients’ and spouses’ responses fitting into each category, and I provide examples of responses from both patients and spouses.

No benefit. Approximately one-quarter of the patients and the spouses (25.6%; $N = 11$ for both partners) indicated at follow-up that they had not experienced any benefits from participation. Sample responses from this category include the following:

Patients

"It was interesting to take part in, but hasn't changed too much."

"The study wasn't emotionally difficult for me."

Spouses

"I don't think much has changed. We talked about it on the way home, but I think everything is pretty much the same."

"Not much has changed."

Strong Pre-existing Communication. Some of the patients (14.05%; $N = 6$) and spouses (9.3%; $N = 4$) reported that they had already been openly communicative about the event prior to participation in the study and did not require any assistance or intervention. Sample items from this category include the following:

Patients

"We openly communicate and so there were no barriers to begin with. My guess is that for most people, having gone through this study would open up communication. But you can't open a pipeline wider than wide open."

"I can't say it had an impact on me; it was just a routine conversation with [partner's name]. We were already very open with each other, so there was nothing unusual about it."

Spouses

"We are very open with one another so it was easy. It was probably useful for others, but we were already open."

"My husband and I communicate all the time so it was just another day for us."

Change in perspective: Approximately one-fifth of patients (20.9%; N = 9) and one-tenth of spouses (9.3%; N = 4) described gaining a new perspective as a result of study participation. The new perspectives tended to include realizing a need to communicate with their partner more (but not necessarily stating they had been doing this), making sense of the event or seeing it in a new light, and feeling blessed to be alive. Sample items from this category include the following:

Patients

"For me, it was a good experience because I've never really sat down and tried to express how I feel or how things are going for me. I usually keep it to myself. I realize I have to start sharing things more with my wife. The experience opened my eyes."

"The study reminded me I am so blessed to have the opportunity to continue this life and a responsibility to make the most of it with my wife."

"I think it clarified a lot of loose ends. I think it gave a more balanced way of thinking about and dealing with the event as it goes into the past, and how to deal with it in the future."

Spouses

"It made me ponder how unpredictable life can be and grateful we have it together."

"I have been thinking more about what's happening for him and how he is feeling."

"I was reminded to savour every moment with each other and don't be afraid to talk."

Relationship Benefit. Approximately one-fifth of patient (20.9%; *N* = 9) and one-quarter of spouse participants (25.6%; *N* = 11) felt their marital relationship benefited from taking part in the study. They often alluded to a greater understanding between partners in the marriage by discovering each other's thoughts and feelings during the study (but not necessarily a continuing of such discussions following the study). Sample responses from this category include the following:

<u>Patients</u>

"It reinforced the benefits of sharing things with your wife, and that was helpful to me to feel understood and helpful to her in terms of knowing what's going on."

"Doing the study was a very positive experience for me – it made me think about things and verbalize my thoughts and feelings in a way that I hadn't done before. The study also made us realize how much we mean to each other and how grateful we are to still be alive together."

"It helped me better understand how my wife was affected, since I didn't know before that she was emotionally impacted."

"It made a change in our lifestyle to be more aware of each other and our feelings."

<u>Spouses</u>

"The study brought the reality of how precious life is with a partner that you may have once taken for granted. It made us realize that we're best friends, that we do everything together, and makes you realize the importance of that and wanting to keep it going."

"What I walked away with was knowledge about how [partner's name] was feeling – that it was causing him to feel unsure of himself and what he can do. Even making decisions was hard – very helpful to know this so I can be there for him."

"I feel like we are on the same page more, even though we were to begin with. We're on the same paragraph now."

"I learned I am so lucky to still have my husband and we have to appreciate our life together, especially because we met later in life. I tell him this more now."

Increased communication. Finally, approximately one-fifth of patients (18.6%; N = 8) and one-third of spouses (30.2%; N = 13) reported greater communication about their thoughts and feelings about the event since they participated in the study. These responses reflected the highest degree of positive impact, as partners were grateful to be more open to talk about their feelings about the event now that the topic was more comfortable to address. Sample responses from this category include the following:

Patients

"It will always be there, so now I try and speak positively about the event, and not hide it or be ashamed of it. It may impact how I live my life, but now I won't let it restrict it and I can be open about it with her."

"It encouraged us to have an open dialogue on a daily basis. Constant and continuous dialogue."

"I found it emotionally difficult to discuss my event, but I persisted and I am glad I did. I try to still talk about it with her sometimes. I think the work that you're doing is very important."

"The study made me more aware of my feelings and whether or not I'm sharing them with [partner's name]. It's made me try harder to share more of my feelings with her and to hear her feelings too."

Spouses

"I guess it really has opened a door to an easier conversation because now we have done it once, and have done it again. The subject is more open now."

"I think we have always shared our feelings with each other. That's just been a hallmark of our relationship. So, it's not as if it started then, and didn't exist before – it's always been the case. However, I think it did increase the number of times we talk about our feelings, and makes us more sympathetic to each other's viewpoints."

"I am now more aware of my husband's feelings about the event and ask him more about it."

"I think it was good to share our feelings. The study was like a key opening the door. The heart attack was very traumatic, and it's good we can talk about it more now."

"It has made it easier to open up about it. I think what I've learned from this whole thing is that heart surgery is a blessing, not a tragedy. If we hadn't become aware of needing surgery, we could have lost each other. We remind each other of that fact all the time now."

In summary, approximately 60% of the patient sample and 65% of the spouse sample felt they experienced some positive impact from participation, whether a changed perspective, a benefit for their marriage, or greater communication about the event between partners.

Discussion

The present study explored patients' and spouses' disclosures about their thoughts and feelings following a recent cardiac event, as well as how partners communicate (share and respond) with each other about the event. To extend the body of literature (largely pioneered by J. W. Pennebaker) about the benefits of emotional disclosure, I investigated the effect of disclosing about a cardiac event to different intended audiences-- to one's partner or to a therapist. Rather than the typical asocial written expression task used in Pennebaker-type studies, I adapted the task by asking partners to verbalize their disclosures aloud as though sharing their thoughts and feelings about the event directly with their partner or a therapist. The study also explored the general benefit of disclosing about the cardiac event individually, compared to not disclosing, on dyadic communication outcomes (i.e., degree of self-disclosure and responsiveness) and at follow-up. It further examined the ways in which partners' communication patterns and outcomes at follow-up were impacted by pre-existing characteristics (i.e., psychological distress, personality, and interpersonal factors). The study also explored whether differences in measures across Phases I, II and III emerged based on the type of cardiac event suffered (i.e., relatively sudden and unexpected, as in MI, compared to relatively expected and planned procedures, as in CABG and PCI). Finally, although the study did not seek to determine role (patient vs. spouse) differences in the experience of the cardiac event across the three phases, various findings presented interesting differences that emerged as a function of the partner's role in the cardiac patient-spouse dyad.

Before discussing each of these main goals of the study in turn, I will first provide a discussion of the findings from the preliminary analyses. Although a priori predictions had not been made about role (patient vs. spouse) differences in the pre-study characteristics, some did emerge. It appeared that spouses and patients perceived their *interpersonal* circumstances quite differently; spouses perceived having less social support in their close network than patients, and were relatively less satisfied in their romantic partnership as well. That spouses felt under-supported compared to patients is consistent with the existing literature on couples and illness, which has found that spouses of patients have reported a general lack of support (Lim & Zebrack, 2004; Northouse, Mood, Templin, Mellon, & George, 2000), possibly because health professionals and others in their social network focus primarily on the needs of the patients and often overlook the support needs of the spouse. Further, that spouses were less relationally satisfied may be a reflection of their sense of feeling less supported, which was seen in the relatively high positive association between spouse relational satisfaction and spouse perception of social support. It may also be the case that the relationship dynamics had recently shifted (on average, couples had gone through the event just over 4 months ago), from both partners being relatively healthy and in a sort of "dyadic equilibrium", to one partner taking on the patient role with greater health care needs and the spouse taking on the caregiver role providing support and likely experiencing a decrease in support from the patient. Such a shift in relational dynamics understandably may influence spouses' sense of satisfaction in the partnership (Burman & Margolin, 1992).

With respect to *emotion regulation* styles, spouses engaged in levels of emotional suppression that were comparable to those of patients, but were found to engage significantly more in cognitive reappraisal. It may be that patients, being more satisfied in their marriage and feeling greater support within their social network, had less need for reappraisal; whereas, spouses, as the caregiving partner with their relatively lower availability of social supports and lower degree of marital happiness, needed to engage more in adaptive emotion regulation. When considering the role differences in interpersonal and emotion regulation measures, it is important to note that the *relative* differences observed between those in the patient and spouse role occurred within a sample of couples in which both partners were generally non-distressed (i.e., normative levels of depression, anxiety, stress, and trauma at pre-study), satisfied in their relationship, and feeling well supported overall (i.e., although statistically different, both patient and spouse means fell within the normative range for relational satisfaction and perceived social support).

Patients' and spouses' emotional experiences evolved across time (as described in their individual disclosure videos): their negative emotions decreased and positive emotions increased. Over the recovery period, patients and spouses were able to adjust to their distress about the event and engage in an emotional "healing" process. Indeed, as seen in the pre-study measures, the sample as a whole seemed to be generally non-distressed, unlike the significant distress that has been observed in cardiac patients and their spouses shortly after an event (Al-Hassan & Sagr, 2002; Condon & McCarthy, 2006; Moser & Dracup, 2004; Randall et al., 2009).

In assessing mood (using the PANAS) at three time points the in-lab session, I wondered if the experimental conditions would exert different effects on patient and spouse mood over time. I had expected that there would be differences in mood based on whether participants disclosed about their cardiac event or spoke about a neutral topic (in the non-disclosure group). Surprisingly, condition was not found to elicit any differences in the mood measures across the in-lab session. For both partners, it seemed that the talking about the cardiac event (individually) was no more distressing than talking about a neutral topic, nor was discussing the cardiac event between partners an emotionally evocative task (positive and negative mood did not change across time from the initial baseline measure). A reasonable explanation underlying this lack of mood differences across time or by condition may be that both patients and spouses were generally non-distressed about their event by the time they came in for study participation. As it had been on average just over 4 months since couples experienced the cardiac event, they seemed to have had time to adjust to the initial distress of the experience. Therefore, by the time of the in-lab session, discussing the event did not seem to evoke any significant positive or negative emotions. Indeed, in open-ended responses provided at follow-up (in response to a question asking about the lasting impact study participation may have had), participants often said that they did not find the study to be difficult because at the time of the study they had already become relatively emotionally unaffected by the event A further discussion of couples' seeming lack of distress about the event will be provided in the exploration of study limitations and future directions at the end of this section.

Having discussed the findings of the preliminary analyses, I now turn to a discussion of the findings for each of the main study goals. Within consideration of each goal, I also discuss related findings for role (patient vs. spouse).

Goal 1: To understand how directing disclosures toward different audiences (partner vs. therapist) might affect the content of the disclosures and their subsequent benefits for dyadic communication and outcomes at follow-up.

First, how did the manipulation of target audience (partner vs. therapist) influence Phase II measures, including what participants shared in their disclosures and how couples communicated during the subsequent interaction? The standard paradigm evaluating the benefit of expressing emotions has typically involved asocial disclosures, such that participants write or speak into an audio recorder about a negative event without the intention of being "heard" (Berry & Pennebaker, 1993; Pennebaker & Beall, 1986; Pennebaker & Chung, 2011).

Introducing a social component (a “listener”) and experimentally manipulating the intended audience of the disclosure have not been done in previous studies. Although the current goal was primarily exploratory, I expected that disclosing to one’s partner or to a therapist might elicit different content being shared about the cardiac event with respect to degree of self-disclosure, emotional richness, and how much the disclosure focused on oneself (“me” orientation) or the relationship (“we” orientation).

Contrary to my speculative hypotheses, the manipulation of disclosure targets did not influence many of the *individual disclosure* variables. Differences in quality or emotional richness of their disclosure, amount of positive and negative emotions expressed in recovery, degree of self-disclosure, and inhibition of negative emotions during their disclosure did not seem to vary according to the prescribed audience. However, in line with hypotheses, the focus of the disclosure significantly differed according to the intended audience—when disclosing to a therapist, participants were significantly more self-focused than when disclosing to one’s partner; further, when disclosing to one’s partner, couples were significantly more relationally-focused than when disclosing to a therapist. In other words, orienting one’s disclosure for the ears of a therapist elicited a “me” framework in which participants primarily addressed their own thoughts and feelings. In contrast, orienting one’s disclosure toward sharing with one’s partner, a more communal orientation emerged in which participants focused on the relationship rather than on oneself. An individual therapy session is intended to be a time when clients can focus on and process their own experiences and emotions without needing to feel like they are burdening a close other in their family and friends network. Thus, it makes sense that participants in the therapist-oriented condition would be more focused on their personal experience. On the other hand, addressing one’s spouse about the experience may naturally elicit a relational focus, particularly because the cardiac event impacts both partners in a marriage.

In addition, overall differences by role were found: patients were significantly more self-focused than spouses, and spouses were significantly more relationally-focused than patients. Being in the cardiac patient role probably elicits a self-focused perspective around taking care of one’s own physical health and recovery. Being in the spouse-caregiver role, however, may require spouses’ own needs to take a backseat while they attend to the patient’s needs in the recovery process. Consistent with pre-study measures reflecting that spouses were doing relatively less well than patients (lower marital satisfaction and less perceived social support), spouses’ disclosures revealed significantly greater negative emotions in the recovery period compared to patients; that is, they seemed to be more distressed about the partner’s event than the patients themselves were. This is consistent with previous research showing that patients’ events affect the spouse often equally, or perhaps even more than the patients themselves (Azoulay et al., 2003; Moser & Dracup, 2004; Randall et al., 2009).

With respect to outcomes from the *dyadic interaction*, the only significant influence of disclosure condition revealed that couples in the partner condition inhibited negative emotions during the couple discussion significantly more than couples in the therapist condition. This finding ran contrary to study predictions, as I expected that those in the partner condition would have relatively better outcomes than those in the therapist condition. Perhaps because couples in the partner condition were more relationally focused during their disclosures, they were taking into account their partner’s perspective and emotional experience more than were participants in the therapist group. This may have caused participants to be more attentive to the distress their partner may experience, resulting in greater “protective buffering”, or shielding each other from their own negative emotions about the event.

Some main effects of role (patient vs. spouse) also emerged in the dyadic interaction. Spouses were found to be significantly more responsive than patients both by outside observers (coded responsiveness) as well as by the patients themselves (patient’s perceived responsiveness from spouse).[3] Spouses have been in the caregiver role since the patient’s event (and perhaps prior to the event, in the case of planned procedures) and therefore would likely be more practiced in supporting the patient. Conversely, as being in the patient role is a more self-focused experience, they may have become less versed in attending to the spouse’s needs over time. That spouses were more responsive overall than patients may reflect an ongoing pattern in which the spouses’ needs are relatively overlooked following the health event. Clinical implications of this role difference will be explored later in the discussion.

Second, how did the manipulation of target audience (partner vs. therapist) influence Phase III outcomes? Regarding outcomes at follow-up, differences by condition or role were not seen for *relationship satisfaction* or the *positive-effects composite*. However, there was a trend towards couples in the partner condition reporting marginally greater *positive lasting impact* from study participation (their open-ended response about the lasting impact of the study, later coded for degree of positive impact) than those in the therapist condition. Although the finding did not reach statistical significance, it is in the expected direction and speaks to the possibility that disclosing to one’s partner may be more beneficial than expressing one’s

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[3] As the majority of patients were male (89.6%) and the majority of spouses were female (89.6%), it was possible this finding was confounded by gender. Independent samples *t*-tests were conducted to examine for gender differences in perceived and coded responsiveness. As the *t*-tests did not yield any differences by gender, it seems reasonable to interpret the main effect of role as indeed a reflection of role (patient vs. spouse) differences in responsiveness.

thoughts and feelings about the event to a therapist. One possibility to understand this trend relates to the value of taking a “we” vs. “me” framework in discussing the cardiac event. It was found that the greater relational-focus patients took in their disclosure video, the more the spouse experienced a positive lasting impact of study participation, and conversely, the more patients took a self-focused orientation in their disclosure video, the less spouses experienced a positive lasting impact of the study. It may be possible that couples in the partner condition experienced a marginally more positive impact of the study because the partner-disclosure instruction encouraged a significantly greater communal orientation, making salient the dyadic aspect of conquering recovery (e.g., “we’re in this together” vs. “I’m in this alone”). Lending support to this interpretation, it has been shown that “we talk” is beneficial in health contexts; specifically, Rohrbaugh and colleagues (2008) found that when cardiac couples showed a more communal orientation in discussing a cardiac illness with their spouse, the patient experienced greater health benefits (better cardiac health measures) at six-month follow-up compared to those who engaged in more “me talk”.

Goal 2: To examine the effects of emotional disclosure during the individual videos, compared to non-disclosure, on subsequent outcomes.

First, how did the disclosure vs. non-disclosure manipulation in the individual video influence communication patterns observed in the couple’s discussion about the cardiac event? I had hypothesized that couples in the disclosure condition would experience greater benefits from study participation compared to non-disclosure couples. When disclosure conditions were collapsed to form one large disclosure group for comparison against the non-disclosure group, a number of benefits of emerged for those who disclosed about their feelings in the individual video.

Consistent with study hypotheses, couples who shared their thoughts and feelings about the event in their individual video were significantly more open (*self-disclosing*) in the dyadic interaction task than couples in the non-disclosure group. This finding suggests that having the opportunities to open up about one's emotions fosters greater openness with one's partner in subsequent communications. This is relationally beneficial, as willingness to self-disclose in couple communication has been found to be a positive behaviour that has benefits for relational functioning, in part because it may deepen intimacy by giving the partner an opportunity to respond in understanding, validating, and caring ways (Laurenceau et al., 1998; Reis & Patrick, 1996). With respect to differences by role, it was also found that patients were significantly more self-disclosing than spouses in the couple discussion. Perhaps this finding reflects the nature of being in the "sick" role for the patient, who may have become versed in expressing his/her feelings, experiences, and needs; in contrast, the spouse may not share as readily as the patient, given they may have become accustomed to being in the caregiving role, putting their own needs aside to care for the ill partner.

In a direction consistent with study predictions, disclosure in the individual videos was also associated with a trend towards more observer-coded *responsiveness* and less *non-responsiveness* during the dyadic interaction. Although these were only marginally significant findings, they are suggestive that having the opportunity for disclosure about one's emotions (perhaps in a "pre-processing" fashion, thinking through one's thoughts and feelings prior to discussing them with one's partner) can be beneficial for being more supportive during subsequent relational communication. However, an impact of disclosure compared to non-disclosure on *perceived responsiveness* was not found. It may be that the criteria by which participants perceived responsiveness from their partner differed from what objective coders observed to make their responsiveness ratings.

As mentioned earlier, in the dyadic interaction spouses generally reported experiencing less responsiveness from their spouses than did patients from spouses. Spouses also reported significantly greater *inhibition of negative emotions during the discussion* than patients. Further, there was a trend for spouses in the control condition to inhibit their emotions during the discussion marginally more than spouses in the disclosure condition. This trend lends some tentative support to the view that spouses have seemed to fare relatively less well than patients following the cardiac event— especially when they did not have an opportunity to disclose their thoughts and feelings before the couple communication task.

Second, how did the disclosure vs. non-disclosure manipulation in the individual video influence participants' outcomes at follow-up? Further support for study predictions was found in that, compared to the non-disclosure group, disclosure in the individual video led to greater benefits in Phase III. An interaction of role by condition emerged when predicting the positive-effect composite measure. The effect of disclosure vs. non-disclosure differed by partner; the spouse pattern was consistent with hypotheses, such that spouses in the disclosure group experienced significantly greater positive effects of study participation at follow-up compared to spouses in the control condition. Surprisingly, the opposite finding was seen for patients; patients in the disclosure condition experienced less positive effects of study participation compared to patients in the control condition. Perhaps the predicted direction of effect emerged for spouses because they came into the study in relatively greater need of the communication intervention than patients. Given that they were feeling relatively less satisfied in their marriage and perceived less availability of social support, it may be that the study's focus on expression of emotions about the event was especially helpful. It is puzzling that patients in the control condition reported greater positive effects at follow-up than those in the disclosure condition, as it conflicts with the general pattern of findings that disclosure about one's event in the video emerged as a positive experience for both partners.

Importantly, couples who disclosed their thoughts and feelings about the cardiac event in the individual video were significantly more relationally satisfied at follow-up compared to those who did not disclose in the individual video. This finding supported my hypothesis that those who expressed their thoughts and feelings regarding the cardiac event in the individual video would experience significant benefits at follow-up compared to those in the control group.

Overall, study hypotheses were partially supported as a handful of positive relational outcomes were found in support of emotional disclosure as adaptive, including: greater openness in subsequent relational communication; perhaps being more responsive and less non-responsive in communicating with one's partner; for spouses, inhibiting negative emotions in couple communication less and greater positive-effect of study participation at follow-up; and for both partners, significantly greater relational satisfaction weeks after participation. These findings provide additional support to the literature documenting that emotional disclosure leads to better outcomes for the relationship (Laurenceau et al., 1998; Laurenceau et al., 2005; Reis & Patrick, 1996; Reis & Shaver, 1988).

In the first two main study goals, I explored the effects disclosing about one's event to one's partner or to a therapist, as well as the benefits of disclosure as compared to non-disclosure. Though the strength of findings was modest regarding the manipulated disclosure audience, the direction of results signified a benefit for disclosing to one's partner over disclosing to a therapist. Stronger support was seen with regard to the benefits of disclosure versus not disclosing about the event in the individual video. Looking beyond the effects of emotional disclosure, I was further interested in understanding how individual characteristics, including psychological distress, personality, and interpersonal factors, affected outcomes at Phases II and III, to which we turn now.

Goal 3: How might pre-existing patient and spouse characteristics (as assessed in the pre-study phase) influence the degree to which participants benefit from participation in the study? Further, how might the outcomes from the in-lab phase of the study affect outcomes at follow-up?

For this study goal, I was no longer interested in the specific effects of disclosure or disclosure target; as such, I collapsed across experimental condition to look at the broader sample as a whole. Overall, different patterns of benefit were found with respect to the three main follow-up outcomes assessed. As the outcomes generally were not significantly correlated for either partner (with the exception of positive-effects and lasting impact being correlated for spouses), it appears the three follow-up outcomes were tapping relatively unrelated constructs. It may seem reasonable that marital satisfaction was distinct from specific benefits of the study, but it is somewhat surprising that the positive lasting impact outcome was distinct from the positive-effects composite measure for patients. This might reflect that patients perceived benefits from the study they were able to express in the open-ended lasting impact item that were not otherwise measured by the items rated as part of the positive-effects composite measure.

First, how might patients' and spouses' psychological distress at Phase I impact their degree of benefit from study participation at Phase III? I had predicted that the more patients and spouses were psychologically distressed (i.e., depression, anxiety, trauma, and stress), the more they would be in need of interventions aimed at couple communication about the cardiac event and therefore the greater their benefit from participation. Results partially supported this hypothesis. Both partners' levels of psychological distress were generally predictive of responses to the open-ended lasting impact item, but not of follow-up relational satisfaction or patients' positive-effects composite, and only minimally predictive of the positive-effects composite measure for spouses.

It was found that both partners experienced greater positive lasting impact of the study when the cardiac patient initially had greater symptoms of *depression*; that is, patient depression seemed to put the couple more "in need" of such an intervention focused on communication about the cardiac event. Similarly, couples in which the spouse experienced greater *trauma* also seemed to be in greater need, as both partners experienced greater positive lasting impact from participation. Further, greater spousal anxiety and stress were associated with better post-study outcomes for both patients and spouses. That each partner's distress was influential not only for their own outcomes but also for the partners' outcomes lends support to the existing literature on the interdependence of effects in cardiac couples (Chung, Moser, Lennie, & Rayens, 2009; Halm et al., 2007; Ruiz, Matthews, & Scheier, 2006; Thomson, Molloy, & Chung, 2012).

Second, how might patients' and spouses' personality factors relate to their degree of benefit from study participation at Phase III? Given that Type D personality is a risk factor for poorer outcomes for cardiac patients (Denollet, 2005), and suppression of emotions is seen as a maladaptive emotion regulation style (Gross & John, 2003), I hypothesized that partners who were higher on these two factors would be in greater need of a study eliciting emotional expression about the event and thereby would experience more positive outcomes at follow-up. On the other hand, as mindfulness is seen as beneficial for managing challenging events (Adair et al., 2005; Baer et al., 2006; McPhail et al., 2005) and cognitive reappraisal is viewed as a healthy emotion regulatory style (Gross & John, 2003), I predicted that partners high on these constructs would benefit relatively less than those who were less mindful and engaged in reappraisal less. Again, results partially supported these hypotheses.

Consistent with study hypotheses and the existing literature, when patients tended towards having *Type D personality* (negative affectivity while also being socially inhibited), they especially stood to gain benefits from the study (greater positive lasting impact). Greater presence of Type D in spouses was also predictive of greater outcomes for patients (greater positive lasting impact), and marginally for their own degree of positive-effects from the study. Those who are distressed as well as inhibited socially are likely in greater need of processing their emotions with their partner compared to those who are more naturally and readily able to discuss their distress with close others

Another interesting finding was that greater *emotional suppression* by either member of the couple at pre-study was predictive of greater positive lasting impact at follow-up for their partner but not for themselves. The direction of this finding was consistent with my predictions (although I had not predicted specifically that the effect would mainly be on one's partner). The finding suggests that suppressing one's own emotions may exact greater costs for one's partner than for oneself, and when suppressers are encouraged to communicate about their feelings about the event, the partner benefits.

Contrary to predictions, *cognitive reappraisal* was not found to exert any effects on the follow-up outcomes. Also contrary to study hypotheses, greater spouse *mindfulness* appeared to predict greater spouse relationship satisfaction at follow-up. I had initially predicted that, because mindfulness is considered a protective factor in managing emotional challenges, those higher on mindfulness might not have as much to gain from the current study. However, for spouses, it may actually be the case that being more mindful allowed them to gain more from study participation in a “rich getting richer” fashion.

Third, how might patients’ and spouses’ interpersonal factors relate to their degree of benefit from study participation at Phase III? I had predicted that less relationally satisfied participants and those who perceived having less social support available would experience greater impacts of the study at follow-up, as they would have been most in need of what the study could offer. Findings from the study generally supported these hypotheses.

Participants’ pre-existing *marital satisfaction* was important for both patient and spouse outcomes; the less patients were satisfied in their relationship, the more patients and spouses experienced positive lasting impact of the study, and the greater spouses rated positive-effects from the study. As well, the less spouses were satisfied in their marriage, marginally the more patients reported positive lasting impact from the study. The direction of these findings consistently supported my prediction that couples with poorer pre-existing marital happiness would most benefit from study participation. The findings also speak to the dyadic effects partners’ marital happiness have on each other; not only do their satisfaction levels matter for personal outcomes, but for their partner’s outcomes also (Brecht et al., 1994; Kiecolt-Glaser & Newton, 2001).

Patients’ *perceived social support* was important for both partners’ outcomes in the direction hypothesized, especially their own outcomes. The less availability of social support patients perceived at pre-study, the greater positive lasting impact the study had on them, the more positive-effects they reported experiencing, perhaps the greater their relational satisfaction at follow-up, and perhaps the more spouses experienced positive-effects as reflected in the follow-up composite measure. It seemed that when patients felt relatively less supported, it put both partners in greater need of benefits the current study could provide. However, spouses' perceptions of social support predicted their own and patient outcomes in the direction opposite to study predictions, with the exception of one outcome— lower spouse perceived social support was marginally predictive of greater patient report of lasting positive impact. Otherwise, greater spouse perception of social support was positively predictive of their own relationship satisfaction at follow-up, greater positive-effects as reflected in the composite and marginally greater positive-effects for the patient. Perhaps when spouses felt more supported, it put both partners in a position to benefit more from the study, again in the "rich getting richer" direction.

And fourth, how might patients' and spouses' experiences during the Phase II in-lab session impact their degree of benefit from study participation at Phase III? I hypothesized that greater self-disclosure in the individual videos and healthier relational communication patterns during the interaction task (greater self-disclosure and responsiveness, and less non-responsiveness) would be predictive of more positive outcomes at follow-up. Findings partially supported these hypotheses.

With respect to the *individual disclosure videos*, generally patients and spouses who were more expressive of *positive* and *negative emotions* in their individual video and had higher overall *quality of disclosures* experienced greater outcomes at follow-up. Spouse outcomes were influenced by both patient and spouse disclosure content, but patients were only influenced by their own disclosures (no spouse partner effects on patient). Greater emotions expressed in the videos and higher quality disclosures resulted in greater marital satisfaction for both partners (controlling for pre-existing marital happiness), and greater positive lasting impact and positive-effects for the spouse. These findings supported my hypothesis that individual disclosures about the event would be more beneficial the more open participants could be (expressing more emotions, both positive and negative).

Interestingly, the more patients were *relationally focused* (communal orientation) and the less they were *self-focused* in their individual disclosures, the better were spouses' outcomes at follow-up (greater reported positive lasting impact, and greater marital satisfaction). Further, the more of a communal orientation patients took in their disclosure, the more they experienced their own positive-effects at follow-up. The direction of these findings supported study predictions, although I did not make a specific prediction that the effects would be driven solely by the patients' disclosures. These findings suggest that it was particularly beneficial for the partnership when patients were encouraged to focus on the relationship and less on their own experiences and needs.

Consistent with hypotheses, the *dyadic discussion* variables also exerted significant actor and partner effects on follow-up outcomes. Patients derived significantly greater benefit (positive lasting impact) when they were more open (greater *self-disclosure*) in talking to their partner about their emotions about the event. Spouses' level of *coded responsiveness* toward patients was consistently predictive of more positive outcomes for both partners, and especially so for patients (greater relational satisfaction as well as greater positive-effects of study participation). Greater spouse responsiveness was predictive of their own greater positive-effects at follow-up. Although patient coded responsiveness did not significantly impact any outcomes, a marginal finding emerged in which the more patients were coded as responsive toward spouses in the dyadic discussion, the more spouses reported positive lasting impact at follow-up. A surprising finding was that *perceived responsiveness* from either partner was not found to predict study outcomes. I had predicted that the more participants saw their partners as being responsive in the session, the more they would experience later benefits. However, an examination of the perceived responsiveness scores showed the means for both partners were approaching the ceiling of the measure, so it is possible there may not have been sufficient variability to find significant effects on either partner.

Finally, spouses' marital happiness at follow-up was significantly influenced by both partners' degree of inhibiting negative emotions in the dyadic interaction. Interestingly, *greater* patient inhibition of negative emotions and *less* spouse inhibition of negative emotions in the discussion were predictive of greater relational happiness for spouses. Possibly spouses had been suppressing negative emotions too greatly while providing care for the patient in a way that made them in need of what the study could offer. On the other hand, patients may have been more readily expressing their emotions across their recovery, and inhibiting them to some degree in the study may have been helpful for the spouses' happiness in the marriage. The pattern of findings for spouses is consistent with the existing literature that emotional suppression is maladaptive, whereas less suppression of emotions has benefits for relational well-being (Butler et al., 2003; Gross & John, 2003; Pennebaker, 1997).

Goal 4: Finally, an exploratory goal was to examine if the nature of the cardiac event—relatively unexpected and sudden (e.g., MI), versus relatively more expected and less sudden (planned; e.g., elective procedures)— might affect the *degree* to which couples benefit from emotional disclosures in the study. As little research has compared the emotional experiences of patients and spouses who went through unexpected vs. predicted events, I wanted to explore whether differences emerged by type of event. Findings from my unpublished Master's Thesis (So, 2008) suggested that cardiac patients who went through a planned procedure fared better than those who experienced a sudden, unexpected event (MI), such that they had lower overall levels of depression and trauma. I hypothesized that cardiac couples who experienced a sudden event would be worse off compared to those who experienced a planned procedure, and therefore might experience greater benefit from participation in the current study.

Interestingly, three significant role by event type interactions emerged in the prediction of patient and spouse scores on **pre-study measures**. Looking at *depression,* spouses whose partner suffered a sudden cardiac crisis were more depressed than those whose partner had a planned procedure. This was consistent with study predictions. However, the opposite pattern emerged for patients; those who suffered an unexpected event were less depressed than patients who went through a planned procedure. Clearly, these findings reveal that partners are affected uniquely depending on their role. Although I would have expected couples who went through a sudden event would have significantly greater *trauma* scores than those who went through a planned procedure, this was not the case; no differences in trauma scores were seen, suggesting that any other differences by event type found were not due to experiencing the event as traumatic, but rather something else. In interpreting the pattern of findings for patient depression, I posit that perhaps mortality salience played a part this outcome. That is, when patients suffered a heart attack, surviving their “brush with death” may have sparked a sense of gratefulness for life and feeling as if they were given a second chance. This might explain why they were less depressed, as they would be thinking more positively and making an effort to appreciate life more than those who went through an event that they had been expecting beforehand.

The next role by event type interaction emerged for *perceived availability of social support*. For patients, their sense of support was not affected by type of event, but for spouses, those whose partner suffered a sudden event perceived significantly less social support availability than those whose partner had a planned procedure. The same pattern was seen for *marital satisfaction*; patients' relational happiness was not influenced by event type, but for spouses, they were significantly less satisfied in their marriage when their partner went through a sudden cardiac crisis than when the event was expected. In line with hypotheses, these findings, in conjunction with the depression findings, suggest that spouses find it particularly emotionally jarring when their partner suffers a sudden, unexpected MI, and these spouses may be most in need of support in the aftermath of the cardiac crisis.

Looking at **individual disclosure outcomes**, only two measures were affected by cardiac event type: *self-focus* and *degree of negative emotions inhibited in the disclosure*. Both results were consistent with study hypotheses: couples who suffered a sudden cardiac crisis were more self-focused in their disclosures, and inhibited negative emotions in their disclosures significantly more than couples who went through a planned event.

Similarly, although only marginally significant, **dyadic interaction** outcomes showed a pattern consistent with study predictions. Patient *responsiveness* and *non-responsiveness* behaviours were uninfluenced by cardiac event type, but spouses perhaps displayed less responsive behaviours and more non-responsive behaviours toward the patient when the event was sudden compared to when the event was expected. These findings are suggestive that the jarring nature of having a partner suffer an MI impacts the spouse's own ability to be effective in providing support, another piece of evidence that they are worse off after an unexpected cardiac crisis. Furthermore, the *perceived responsiveness* of both partners who went through an MI was marginally less than those who went through a planned event, which is consistent with findings on coded responsiveness and non-responsiveness. Finally, it was also found that both partners *inhibited negative emotions during the discussion* marginally more when they went through an MI. Despite none of the dyadic discussion findings reaching statistical significance, the direction of these trends lends support to the finding that couples who suffered a sudden event fare worse than those who were aware of their procedure beforehand.

Finally, looking at **follow-up outcomes**, one important and statistically significant finding emerged. When controlling for pre-existing *marital happiness*, both patients and partners who suffered an unexpected MI were significantly less satisfied in their marriage at follow-up than those who experienced a planned procedure. This is a key finding bolstering the argument that suffering an MI leaves couples more vulnerable to poorer outcomes, and in greater need of intervention. At all three time points of the current study—pre-study, the in-lab session, and at follow-up approximately 4 weeks later—couples who suffered an MI appeared to be at a disadvantage when compared to couples who experienced a predicted event. In addition, spouses were consistently found to be particularly at risk of poor outcomes relative to patients.

Clinical Implications

As the current study was conducted with a clinical sample of cardiac patients and their spouses, I will now provide a discussion of the implications of my study findings for clinical practice. First, although relatively few differences were found for manipulated disclosure audience (patient vs. therapist), an important difference that was seen was how the focus of participants' disclosure changed depending on to whom they were sharing their thoughts and feelings about the event. When orienting one's disclosure as though speaking to the romantic partner, a communal orientation was taken which later was found to positively influence follow-up outcomes (including greater spouse relational satisfaction, greater positive impact of the study for spouses, and greater positive-effects of the study for patients). Given the emergence of "we talk" benefits for patients and spouses, it would be useful to encourage patients and their spouses to focus on coping in recovery as a dyad (i.e., taking a "we're in this together" approach).

Considering the findings from the planned contrast between disclosure and non-disclosure groups, relatively consistent support was found for the benefits of disclosing in the individual video. Even though the patients and partners were not actually speaking to their partner or to a therapist,[4] benefits may have been experienced simply by processing their thoughts and feelings out loud in the semi-structured interview. Hence, it may be clinically beneficial to encourage both cardiac patients and their partners to express their thoughts and feelings about the cardiac event, whether to each other or even out loud on their own. It would also be important to educate patients and spouses on the value of emotional disclosure as contrasted with the potential consequences of emotional suppression to encourage them to feel more open to share, tantamount to “prescribing” emotional disclosure as a way to treat emotional difficulties that sometimes follow a cardiac event.

Several findings provide some insight into the characteristics of patients and spouses who may be in the best position to benefit from interventions directed at expressing emotions related to the cardiac event. With regard to pre-study characteristics, it appeared that couples in which partners had more psychological distress (greater depression, trauma, anxiety, and stress) experienced greater benefits from the study at follow-up. Further, those who had partners higher on Type D personality, engaged in more emotional suppression, perceived having less social support available, and were less satisfied in their relationship also experienced greater outcomes at follow-up. Overall, these constructs seem to reflect couples who are more vulnerable (more distress, lower perception of social support and relational happiness, and more inhibition of emotions). Therefore, it may be important to screen patients and their spouses for presence of

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[4] It is possible that because an experimenter was present in the room for the disclosure, the participant may have felt like they were disclosing to a therapist. However, the experimenter was positioned behind the participant out of their line of sight in an attempt to avoid being seen as the therapist. The experimenter also focused on asking the semi-structured interview questions, rather than responding as though in a therapy session.

these vulnerable characteristics to identify those in greater need of interventions targeting communication about the event. Given that many patients and partners are able to navigate the emotional challenges of a cardiac event without intervention, and as trim healthcare budgets seem to be the rule, it would be helpful to have ways to identify and target vulnerable populations most at risk of poor outcomes and therefore in greatest need of intervention.

It was also found that patients and partners who went through a sudden event (MI) were experiencing poorer outcomes than those who had a planned procedure. Additionally, spouses consistently emerged as faring worse than patients. Therefore, it would be prudent to target couples following an MI, and especially to provide interventions for the spouses of MI survivors, who may otherwise lack adequate support during the patient's recovery process.

Study Limitations and Future Directions

There were a number of limitations in the current study that can be improved in future work that would serve to clarify the findings presented. First, despite the efforts made by those responsible for recruitment to include as broad a demographic sample as possible, several aspects of the current sample are limited. The sample was primarily male (in the patient role), ethnically homogenous, well-educated, and relatively affluent. The low proportion of female patients and male spouses limited my ability to pursue gender comparisons of the current findings. Although I tended to interpret the findings for role as a reflection of patient vs. spouse differences (given that comparisons of gender means did not yield significant differences), it remains possible that the differences are a reflection of differences by gender (which could not be adequately assessed due to lack of balanced gender samples). Future research should continue the effort to recruit a more balanced gender sample of cardiac patients and spouses in order to better tease apart the influence of role vs. gender on differences seen in the current study. Further, it would be important to recruit more female patients in future studies given that cardiovascular disease is the number one cause of mortality and disability for women in Canada (Heart & Stroke Foundation, 2013). Future research should also endeavor to recruit a more balanced sample of minority populations as well as couples from lower socioeconomic statuses to present as unbiased a representation as possible of the cardiac illness experience. Although same-sex couples were included in recruitment, only heterosexual couples participated in the current study; in the future it would be important to examine these processes in same-sex couples as well. It would also be helpful to study couples from other cardiac populations, including heart failure and heart transplant populations, to determine whether the current findings are demonstrated in other types of cardiac illness experienced. Furthermore, as the present study focused solely on romantic dyads, it would be helpful to examine other forms of support relationships, including adult children caregivers for older adult cardiac patients.

Another limitation of the current sample was that participants were generally emotionally non-distressed. As I was only able to access the current sample through cardiac rehabilitation classes, this may have led to an over-representation of patients and spouses managing the illness well. It has been found that compared to attenders of cardiac rehabilitation programs, non-attenders experience greater emotional distress (Morro, 1990; Whitmarsh, Koutantji, & Sidell, 2003). Unfortunately, while the emotional state of non-attenders may place them in greater need of rehabilitation, they are the ones who are not taking advantage of the benefits afforded by rehabilitation programs. Further, there may have been a self-selection bias in which those doing better emotionally in the cardiac rehabilitation classes chose to take part in the study more than those who were in greater distress, who did not feel able to take on additional commitments such as voluntary research participation. Some of the participants in the current sample cited their strong pre-existing communication skills in their relationship as the reason why they were unable to benefit from what the current study offered, further suggesting that the current sample seemed to represent couples who were doing well. One patient said it best when he reported “We openly communicate and so there were no barriers to begin with… you can’t open a pipeline wider than wide open.”

The relative lack of distress in the current sample limited the utility of the study to serve as a sort of “communication intervention” for couples who may have been in need. It is possible that future studies accessing more distressed couples would be able to better test the differential impacts of disclosure to either a partner or a therapist. To capture cardiac couples in greater distress in future research, it would be useful to recruit patients and their spouses shortly following the cardiac event while they are still admitted as an inpatient, or shortly after discharge from the hospital. The timing of emotional disclosure as an intervention relative to the event can impact its usefulness; studies on emotional disclosure have shown that emotional expression is most likely to bolster outcomes when the event is recent (Frattaroli, 2006). Indeed, participants often stated in their open-ended responses about lasting impact that it would have been more useful to have such a study available early on after the event initially occurred. As the current study was conducted from an institution without an affiliated hospital or medical school, it was logistically difficult to access a cardiac sample other than by requesting access from neighboring cardiac rehabilitation programs.

Findings from this study provided consistent evidence for the benefits of emotional disclosure, yet the underlying mechanism is not illuminated in the current study. Nor is the mechanism more broadly understood for the effectiveness of experimental disclosure, although possibilities have been suggested. The social integration model (Pennebaker & Graybeal, 2001) has proposed that experimental disclosure impacts the social behaviour of participants in their interpersonal contexts, which then serves to influence well-being. An example of a study used to support this model was conducted by Kovac and Range (2000) who found that those in the experimental disclosure group were more likely than those in the control group to discuss their negative experience with others even months after the study. Another explanatory theory has argued that the expression of emotions about a traumatic event allow disclosers the opportunity to discover a coherence to the event, or to better understand the experience (Pennebaker & Chung, 2011). In a similar vein, Rimé, Paez, Kanyangara, and Yzerbyt (2011) have suggested that emotional disclosure in social situations elicits a cascade of events, such as cognitive reappraisal and discovering meaning of the event, which in turn influences well-being positively. Future research should endeavor to test for possible mechanisms underlying the benefits of emotional disclosure, including longitudinally measuring the change in frequency of socially discussing the negative event (as in the social integration model), evaluating the degree to which disclosers perceive greater coherence of their stressful experience via their disclosure, and assessing how much cognitive reappraisal or meaning-making have occurred through their emotional expression.

Looking at methodological considerations of the current study, it was decided to conduct a single session of emotional disclosure for pragmatic reasons. For the scope of the current study, it was only reasonable to have three phases of the study (the pre-study questionnaire, the in-lab experimental condition session, and the follow-up measures four weeks later). Introducing a second and third emotional disclosure session would not have been feasible given the time constraints and purpose of the current study, which was to engage in a preliminary exploration of the potential influence of manipulating disclosure audience. Future research should include repeated experimental disclosure sessions, as in the traditional Pennebaker paradigm which asks participants to attend three to five written expression sessions across multiple days or weeks (e.g., Pennebaker & Beall, 1986). Other possibilities to increase the number of disclosure sessions for future research include providing couples with hand held video recorders and instructing them to privately record disclosure sessions every few days. However, experimental control might be challenging, as it would rely on participants adhering to the instructions reliably.

Another methodological limitation was the lack of counterbalancing the role (patient vs. spouse) of the first vs. second speaker in the dyadic discussion. As the patient's experience was most proximal to the cardiac event, it seemed most natural to have the patient share his/her thoughts and feelings about the event in the first half of the discussion, and then to have the couple's attention turned to the spouse's experience in the latter half. However, it is possible that the patient's disclosure always occurring first may have influenced what the spouse felt he/she was able to disclose in the exchange. Therefore, it would be useful in future studies to counterbalance the order of partners speaking in dyadic discussions.

An important limitation of the current study was the predominant reliance on self-report measures, which can be subject to demand characteristics and social desirability bias. The current variables of interest are most readily captured through self-report (e.g., psychological distress, personality styles, marital satisfaction, degree of relational benefit perceived from participation). However, it would be useful in future studies assessing the influence of manipulated disclosure audiences to supplement self-report outcome measures with other markers of health and well-being, such as medical outcomes (e.g., frequency of subsequent medical visits, blood pressure, cortisol levels, etc.). Seeing whether disclosure about one's cardiac event to a partner vs. a therapist elicited differences in physiological biomarkers would provide stronger support for the findings.

Turning again to the issue of social desirability bias, the follow-up outcomes at Phase III may have been prone to this phenomenon; that is, participants may have been at least somewhat biased to report experiencing benefits from the study. Given that all couples, regardless of experimental condition, completed the dyadic discussion task, it would have been useful to have a control condition in which couples did not engage in the subsequent discussion task. Having a non-dyadic discussion control group would help better understand whether social desirability bias was occurring (e.g., if all participants, regardless of what they did in the study, were compelled to report benefit, or if those who engaged in the dyadic discussion would report greater benefit than those who did not discuss the event with their partner). Future studies should incorporate a non-dyadic discussion control group for this comparison. Yet, as 40% of patients and 35% of spouses in the current sample readily reported lack of study benefits, relative differences in perceived benefit were still seen despite the potential bias towards responding in a socially desirable manner.

Regarding the patient vs. therapist manipulation, a methodological limitation was the inclusion of the experimenter in the room for the semi-structured interview. For the partner condition, it was clear that the intended listener was not present for the disclosure. However, for the therapist condition, it is possible that participants kept the experimenter in the room in mind as the therapist to whom they were disclosing. To more cleanly evaluate and compare the effects of disclosure to one’s partner vs. a therapist, future studies might arrange to have individual participants alone in the room for their disclosure (providing a written semi-structured interview sheet to guide their disclosure, rather than having the experimenter in the room). This would make it consistent that the intended listener was not in the room for either condition.

Conclusions

Overall, the study provides insight into the utility of emotional disclosure for cardiac patient and spouse dyads. The study provided a novel contribution to the emotional disclosure literature by showing that experimentally manipulating the intended audiences of the disclosure can elicit different orientations—specifically, a communal orientation (“we” talk) by asking participants to disclose to one’s partner, or a self-focused orientation (“me” talk) by asking participants to disclose to a therapist. Moreover, taking a relationally-focused approach to discussing one’s event led to better study outcomes for both patients and spouses. In addition, the study contributed reasonably compelling evidence that disclosure about one’s cardiac event (regardless of intended audience) provided benefits for subsequent relational communication as well as follow-up benefits including greater relational satisfaction and a perception of positive impact on the relationship. The study also provided further support for identifying cardiac patients and spouses most in need of intervention. Specifically, those who were more psychologically distressed, had higher presence of Type D personality (tendency toward negative affectivity and social inhibition), suppressed their emotions more, were less satisfied in their romantic partnerships, and perceived having less social support available to them were found to be more vulnerable and in greater need of interventions aimed at communication about the cardiac event with one’s spouse. Finally, the study revealed additional important identifiers for which cardiac patients and spouses seem to be most in need: consistently, evidence suggested that couples who suffered an unexpected cardiac crisis (MI) were vulnerable and benefited more from the current study, relative to those who went through a planned procedure. Even more prominent was the finding that spouses of MI survivors were the more vulnerable group identified; they seemed to be especially in need of communication interventions for the cardiac dyad.

Even though the current sample was found to be relatively non-distressed, the qualitative reports of positive lasting impact experienced by patients and their spouses revealed a relatively substantial lasting impact as articulated in their open-ended responses. Approximately 40% of patients and 56% of spouses who completed the follow-up measure found the study at least provided a lasting benefit to the romantic relationship, and a fair proportion reported actually increasing the frequency with which they were talking to each other about their emotions related to the cardiac event. This was quite a promising finding, and I am left to wonder how much a relatively *more* distressed sample of cardiac couples (i.e., those in greater need) might benefit from a new and improved version of the current dissertation project.

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Appendix A: Semi-Structured Interview Scripts

Disclosure to Partner / Therapist Conditions – ***Patient*** Interview

You have likely had many of your own reactions to the cardiac event and to the changes that have occurred in your life afterwards. Sometimes, people don't get a chance to really express their thoughts and feelings about their experience. Here, you will get a chance to do so.

We find that in talking about these kinds of events, it will be helpful for you to have in mind who you are explaining your experience to. What we'd like you to do is focus on explaining your experience to [your partner] / [to a mental health professional, like a therapist] in a way that would make the most sense to him/her.

Please know that your partner will not be seeing what you share in this video. With that said, I would like you to share the thoughts and feelings you've been experiencing about your cardiac event in a way that would most help [partner's name / a therapist] understand your experience. Please feel free to say everything you feel and think; please go ahead and speak your mind so that he/she would best understand what you've been going through.

1. To begin, please talk about the event itself (when you had your heart attack / found out about the blockage in your arteries), and about the thoughts and feelings that were going on for you at that time. Remember to talk about it in a way that would best help [your partner / a therapist] to understand your experience.

2. The time spent in the hospital or going to the hospital can be frightening for some patients, as sometimes there is initial shock finding out about [what happened to your heart] / [the blockage in your arteries] and confusion about what is happening or is going to happen to help you. Please talk about your thoughts and feelings at that time, including how you got to the hospital and the time you spent there.

If bypass surgery also ask:

- The time in the hospital before the actual bypass surgery can be an uncertain and frightening time. Talk about what it was like going through tests and meeting with doctors and nurses in the hospital before the surgery itself, so [your partner / a therapist] would best understand what was going on for you.
- Describe what it was like for you just before the operation, such as saying goodbye to loved ones.
- The initial period of recovery right after the surgery can be a difficult time as well, such as coping with post-operative pain and being monitored intensively. What were you feeling and thinking immediately after the surgery and in the early days of recovery?

3. For many patients, leaving the hospital and the first days after returning home from the hospital can be filled a number of emotions, challenges, and uncertainties.
    - Describe what your first few days at home were like after your cardiac event. Share the thoughts and feelings that were most prominent for you in a way that [your partner / a therapist] would best understand what you were experiencing.

    - It is not uncommon for partners to want to take over for the patient or try to protect him/her by placing limits on what the patient does. If this was the case with your partner, talk about the thoughts and feelings you had about his/her attempts to protect you and limit what you were able to do.

4. For many patients, having [a heart attack] / [open heart surgery] / [a stent / angioplasty procedure] can evoke many **emotions, both positive and negative.** Talk about some of the strongest emotions you've faced since the event. Please remember to describe them in a way that would best help [your partner / a therapist] understand what you've been feeling.

Other specifics to ask about, if not addressed already:

We know from talking with patients that there can be a number of challenges typically faced after a cardiac event.

- Often, patients experience **fears** after a cardiac event, including greater fears of death and of leaving loved ones behind, worries about having another heart attack, or fears about their future health more generally, such as whether they'll be able to function as they used to before the cardiac event.
    - If any of these worries have come up for you, please go ahead and describe them.

- Sometimes, patients also experience reactions to having to make **lifestyle changes** (e.g., taking medications, changing diet). If you have had to make lifestyle changes following your event, please talk about them. Describe how you have felt about making these lifestyle changes.

- It is also very natural for cardiac patients to experience **frustrations about the physical limitations** resulting from their cardiac event. If this is the case for you, share the thoughts and emotions you've been having about the physical restrictions and your experience of having others help you given with these limitations.

- Further, patients may have emotional reactions about the changes or **"role shifts" in their relationships** that occur due to their illness. If this is the case for you, please share what you've been feeling about the changes that have been occurring in your relationships since the event.

Disclosure to Partner / Therapist Conditions – ***Spouse*** Interview

You have likely had many of your own reactions to the cardiac event and to the changes that have occurred in your life afterwards. Sometimes, the partners of patients don't get a chance to really express their own thoughts and feelings about their experience of the event. Here, you will get a chance to do so.

We find that in talking about these kinds of events, it will be helpful for you to have in mind who you are explaining your experience to. What we'd like you to do is focus on explaining your experience to [your partner] / [to a mental health professional, like a therapist] in a way that would make the most sense to him/her.

Please know that your partner will not be seeing what you share in this video. With that said, I would like you to share the thoughts and feelings you've been experiencing about your cardiac event in a way that would most help [partner's name / a therapist] understand your experience. Please feel free to say everything you feel and think; go ahead and speak your mind so that he/she would best understand what you've been going through.

1. To begin, please talk about what it was like for you when you found out about [your partner's heart attack / that your partner would need to have a bypass surgery / angioplasty/stent procedure], and about the thoughts and feelings that were going on for you at that time. Remember to talk about it in a way that would best help your partner to understand your experience.

2. The time spent in the hospital or going to the hospital can be frightening for the partner too, as sometimes there is initial shock finding out about [what happened to your partner's heart] / [about the blockage in your partner's arteries] and confusion about what is happening or is going to happen to help him/her. Please talk about your thoughts and feelings at that time, including how you got to the hospital and the time you spent there.

   If bypass surgery also ask:
   - The time in the hospital before the actual bypass surgery can be an uncertain and frightening time. Talk about what it was like being with your partner as he/she was going through tests and meeting with doctors and nurses in the hospital before the surgery itself, so [your partner / a therapist] would best understand what was going on for you.
   - Describe what it was like for you shortly before his/her operation, such as saying goodbye. Please talk about what it was like for you in the waiting period during his/her procedure.
   - The initial period of recovery right after the surgery can be a difficult time as well, as the patient is coping with post-operative pain and being monitored intensively. What were you feeling and thinking immediately after the surgery and in the early days of recovery?

3. For many partners, leaving the hospital and the first days at home with the patient can be filled with a number of emotions, challenges, and uncertainties.

    - Describe what your first few days at home were like after your partner's cardiac event. Share the thoughts and feelings that were most prominent for you in a way that [your partner / a therapist] would best understand what you were experiencing.
    - It is often quite common for partners to pay special attention to how the patient seems to be doing physically and/or to be quite vigilant about their partner's health. If this was true for you, please share what that was like.
    - It is also common for partners to want to take over for the patient or try to protect him/her by placing limits on what the patient does. If this was the case for you, talk about the thoughts and feelings you had about taking care of him/her.

5. For many spouses, having a partner who went through [a heart attack] / [open heart surgery] / [a stent / angioplasty procedure] can evoke many **emotions, both positive and negative.** Talk about some of the strongest emotions you've faced since the event. Please remember to describe them in a way that would best help [your partner / a therapist] understand what you've been feeling.

Other specifics to ask about, if not addressed already:

We know from talking with patients and their spouses that there can be a number of challenges typically faced after a cardiac event.

- Often, spouses experience **fears** after their partner's cardiac event, including fears about their partner's future health and fears about his / her death.
    - If any of these worries have come up for you, please go ahead and describe them.

- Sometimes, partners also experience reactions to their partner having to make **lifestyle changes** after a cardiac event (e.g., taking medications, changing diet). Spouses can often be affected by such changes, including having to cook different foods and or quitting smoking in support of the patient's attempt to quit as well. If you and your partner had to make changes in lifestyle since the event, please talk about those changes and describe how you have felt them.

- Partners often take on caretaking responsibilities (e.g., make new kinds of foods, helping to manage the patient's medications) or other responsibilities (e.g., family obligations) that may once have been shared. Although many are willing to make these changes, it can also be hard to do so.
    - If any, what have been the new responsibilities or changes you've taken on to support your partner? Please share how you have felt about adopting these responsibilities in a way that would help [your partner / a therapist] understand what you've been experiencing.

- When partners take on the caregiving role, they may also experience other worries (such as about family finances).
    - What other worries might you have experienced since your partner's cardiac event?
    - What supports do you feel you've had from others since your partner's event?

Non-Disclosure (Control) Condition – for both partners

Because most of our contact with people in the clinic is about health-related matters, we don't know as much about what the rest of people's lives are like, for example when they're at home or at work. So, we would appreciate hearing about what a typical day is like for you. In particular, we'd like you to think back to yesterday. For the next 15 minutes, you will be asked to make a video describing yesterday, starting when you got up in the morning, in as much detail as you can provide. Please describe things exactly as they occurred.

Please know that your partner will not be seeing what you share in this video. With that said, I would like you to share exactly what has happened across the last 24 hours of your life. Please feel free to say everything that happened. Go ahead and look into the camera, and describe what your last day has looked like. Please describe the objective details of what was happening – in other words, what another person, such as a friend or visitor, would have seen if they were there.

1. To begin, talk about how your day began yesterday from when you first got out of bed.
    - What else happened in the morning?
    - Follow up questions: Who was with you? What else happened? Tell me more…

2. Next, describe what your afternoon was like yesterday. Remember to please describe what someone would have seen if they were there.
    - What activities did you do?
    - Who did you see and interact with?
    - Talk about your meal times as well.

3. Please talk about what yesterday evening was like and what happened.
    - What activities did you do?
    - Follow up questions: who was there? What else happened? Tell me more about that…

4. What are some of the things that stick out in your mind the most from yesterday? Describe in as much detail what those things were.

Other specifics to ask about, if not addressed already:

5. Please talk about the meal times that you had, including information about who you ate with, what you ate, where you were, etc… Remember to give as much objective detail as you can.

6. Describe what kinds of activities you did, such as watching television or reading, or any other sort of leisure activities.

7. Talk about the time you spent interacting with others. Share who you interacted with, and how (in person, on the phone, e-mail or multi-media).
    - What did you talk about with each individual?
    - If there were group interactions, describe exactly what happened as well.

8. If you did any house hold tasks, describe what you did. Be sure to describe things that someone would have seen and noticed if they were there with you.

Appendix B **Post-Disclosure Video Questionnaire**

Please answer the following questions regarding the video you just recorded:

1. To what extent have you and your partner previously discussed the thoughts and feelings you just expressed in your video?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
2. To what degree do you think your partner is aware of the thoughts and feelings you just expressed in your video?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
3. To what extent was the way you talked your feelings about the cardiac event typical or representative of how you *usually* talk about these things with your partner?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
4. To what extent were you trying to actively suppress, inhibit or turn off your negative emotions while you were making your video?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*

Appendix C **Post-Dyadic Discussion Questionnaire and Responsiveness Measure**

Please answer the following questions about the discussion you and your partner just had:

1. To what extent have you and your partner previously discussed the thoughts and feelings he/she just shared with you during the discussion?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
2. To what degree were you aware of the thoughts and feelings your partner had about the cardiac event, which you just heard about in the discussion?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
3. To what extent was the way your partner talked about his/her feelings about the cardiac event in that discussion typical or representative of how he/she *usually* talks about these things with you?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*
4. To what extent were you trying to actively suppress, inhibit or turn off your negative emotions as you spoke to your partner in the interaction?	1 *Not at all*	2 *A little*	3 *Some-what*	4 *Quite a bit*	5 *Very much*

Now that your partner has shared his/her reactions to your thoughts and feelings you've been having about the cardiac event in that discussion, please rate ***how true you feel the following statements are for you…***

1. My partner understood me.	1 *Not at all true*	2 *A little true*	3 *Some-what true*	4 *Quite true*	5 *Very true*
2. My partner made me feel like he/she valued my thoughts and feelings.	1 *Not at all true*	2 *A little true*	3 *Some-what true*	4 *Quite true*	5 *Very true*
3. My partner made me feel cared for.	1 *Not at all true*	2 *A little true*	3 *Some-what true*	4 *Quite true*	5 *Very true*

Appendix D

Phase III (Follow-Up) Questionnaire

1) When you participated in the study, we asked you to a number of things, including sharing your feelings about the cardiac event. Thinking about it now, do any ideas come to mind about how the study experience might have had a lasting impact on you?

____

____

____

____

2) Since participating in the study, how has the frequency that you and your spouse talk to each other about your emotions about the event changed based on the following scale:

1	2	3
Less often	*No change*	*More often*

Please use the following scale for the next 3 questions:

1	*2*	*3*	*4*	*5*	*6*	*7*
much worse	*quite a bit worse*	*slightly worse*	*neutral*	*slightly better*	*quite a bit better*	*much better*

3) Rate the extent to which you feel better or more positive about the cardiac event, as a result of your participation in the study.

4) Rate the extent to which you feel better or more positive about yourself, as a result of your participation in the study.

5) Rate the extent to which you feel better or more positive about your romantic relationship, as a result of your participation in the study.

6) Since your participation in the study, rate the extent to which you have felt it is beneficial to share or express your feelings with your partner.

1	*2*	*3*	*4*	*5*
not at all	*a little bit*	*somewhat*	*quite a bit*	*very much*

Phase III (Follow-Up) Questionnaire (Continued)

Recall how you made an individual video, being asked to respond to a number of questions in an interview style:

Please use the following scale for the next 4 questions:

1 *not at all*	*2* *a little bit*	*3* *somewhat*	*4* *quite a bit*	*5* *very much*

7) To what extent was making that video meaningful to you?

8) To what extent did making that video help you to cope with the cardiac event?

9) To what extent did making that video change your perception of the cardiac event?

10) To what extent did making that video help you to make sense of the cardiac event?

Recall how you and your partner were asked to have a discussion in private, taking turns talking about each of your experiences of the cardiac event and providing one other with your thoughts and reactions. Please use this scale to respond to the following questions:

1 *not at all*	*2* *a little bit*	*3* *somewhat*	*4* *quite a bit*	*5* *very much*

11) To what extent was the discussion with your partner meaningful to you?

12) To what extent did the discussion with your partner help you to cope with the cardiac event?

13) To what extent did the discussion with your partner change your perception of the cardiac event?

14) To what extent did the discussion with your partner help you to make sense of the cardiac event?

15) Please indicate the degree of happiness, all things considered, of your relationship.

0 *extremely unhappy*	*1* *fairly unhappy*	*2* *a little unhappy*	*3* *happy*	*4* *very happy*	*5* *extremely happy*	*6* *perfect*

Appendix E. *Inter-rater Reliability of Individual Disclosure Coding Items*

Variables	Patient Cronbach’s α	Spouse Cronbach’s α
Quality of Disclosure	.87	.89
Emotional Richness	.94	.95
Peak Emotional Intensity	.93	.95
Congruence of Verbal and Non-verbal Communication	.85	.86
Degree of Self Disclosure	.94	.95
Effectiveness of Manipulation	.95	.96
Emotions Reported Early on in Recovery		
Sadness	.94	.94
Fear / Anxiety	.95	.93
Anger	.92	.95
Shame	.96	.89
Relief / Gratefulness	.96	.94
Empowerment / Hopefulness	.93	.92
Happiness	.94	.94
Emotions Reported Recently in Recovery		
Sadness	.93	.92
Fear / Anxiety	.92	.94
Anger	.96	.96
Shame	.97	*incomputable, lack of variance
Relief / Gratefulness	.95	.95
Empowerment / Hopefulness	.93	.92
Happiness	.86	.88
Relationship Focus	.94	.93
Self-focus	.76	.76
Other Focus (e.g., family, friends)	.91	.89

Appendix F. *Inter-rater Reliability of Dyadic Discussion Coding Items*

Responsiveness	Patient α	Spouse α
Understanding: To what extent did the person listen attentively, "get the facts straight" about the event, summarize or paraphrase his/her partner's perspective, and demonstrate that he/she understood the partner's feelings about the event?	.95	.92
Validation: To what extent did the person communicate that he/she appreciates the significance of the event to his/her partner, and express that he/she values, respects, and accepts the partner's thoughts and feelings about the event?	.93	.94
Caring: To what extent did the person show warmth and express care, concern, and affection towards his/her partner?	.95	.95
Non-responsiveness		
Non-understanding: To what extent did the person misunderstand his/her partner's perspective (i.e., fail to "get" what the partner was saying), or show that he/she did not accurately understand the partner's thoughts and feelings about the event?	.97	.97
Invalidation: To what extent did the person invalidate the partner's thoughts and feelings about the event? (e.g., rejecting or minimizing the partner's thoughts and feelings; telling the partner what he/she *should* be thinking or feeling; blaming the partner)	.98	.98
Disdain and uncaring: To what extent was the person showing disdain, or being cold and uncaring toward the partner? (e.g., not attending or listening to what the partner is saying / "zoning out"; showing a lack of interest in the partner's thoughts and feelings; putting down, being hostile or insulting toward the partner).	.98	.98
Degree of Self-Disclosure Overall, how self-disclosing was the person in this discussion (i.e., sharing personal thoughts, experiences, and emotions)?	.92	.92
Quality of Communication Rate the overall quality of the communication between partners in this interaction (i.e., how well they conveyed their thoughts and feelings to one another; how well they provided responsive support, understanding, validation, and care to each other).	.94	.94

Appendix G

Coding Scheme for Individual Disclosure Videos

Please use the rating scale below for the following items:

1 *not at all*	*2* *a little bit*	*3* *somewhat*	*4* *quite a bit*	*5* *a great deal*

Overall disclosure quality: How well did the person convey their thoughts and feelings about the event? (High quality disclosure provides sufficient details to create a coherent and understandable narrative of their experience and feelings about the event, and stays on topic.)

Overall emotional intensity of disclosure:
a) Overall, to what degree was the disclosure rich in emotional content?
b) How strong was the most intense emotion expressed at any time during the disclosure?

Overall, to what degree did the person express each of the following emotions about their experience **early on in recovery**?
a) Sadness
b) Fear/worry
c) Anger
d) Shame/embarrassment
e) Relief / gratitude
f) Empowerment / hopefulness
g) Happiness

Overall, to what degree did the person express each of the following emotions about their experience **more recently / later in recovery**?
a) Sadness
b) Fear/worry
c) Anger
d) Shame/embarrassment
e) Relief / gratitude
f) Empowerment / hopefulness
g) Happiness

To what degree did the disclosure focus on each of the following?
a) The relationship (using “us” and “we” pronouns)
b) The self (using “I” and “me” pronouns)
c) Other individuals (e.g., children, family, etc.)

Verbal-Non-verbal congruence/incongruence: To what degree did the non-verbal communication match the content of the verbal disclosure?

Degree of Self-Disclosure: Overall, how open and self-disclosing was the person in this video? (Greater self-disclosure involves providing one’s personal, innermost thoughts, feelings, and reflections about one’s experience.)

Manipulation check— How effectively did the person seem to enact the manipulation of [talking to their partner / talking to a therapist / control]?

Appendix H **Coding Scheme for Dyadic Discussion Videos**

1	*2*	*3*	*4*	*5*
not at all	*a little bit*	*somewhat*	*quite a bit*	*a great deal*

Coding Scheme for Responsiveness

Understanding: To what extent did the person listen attentively, summarize or paraphrase his/her partner's perspective, and demonstrate that he/she understood the partner's feelings about the event?

Validation: To what extent did the person communicate that he/she values, respects, and accepts the partner's thoughts and feelings about the event?

Caring: To what extent did the person express warmth, care and concern towards his/her partner?

Coding Scheme for Unresponsiveness

Non-understanding: To what extent did the person misunderstand his/her partner's perspective (i.e., fail to "get" what the partner was saying), or show that he/she did not accurately understand the partner's thoughts and feelings about the event?

Invalidation: To what extent did the person invalidate the partner's thoughts and feelings about the event? (e.g., rejecting or minimizing the partner's thoughts and feelings; telling the partner what he/she *should* be thinking or feeling; blaming the partner)

Disdain and uncaring: To what extent was the person showing disdain, or being cold and uncaring toward the partner? (e.g., not attending or listening to what the partner is saying / "zoning out"; showing a lack of interest in the partner's thoughts and feelings; being hostile or insulting toward the partner; putting the partner down; blaming the partner).

Self-disclosure: How self-disclosing was the person in this segment? (Greater self-disclosure involves providing one's personal, innermost thoughts, feelings, and reflections about one's experience.)

Overall quality of communication: Rate the overall quality of communication between partners in this interaction (Greater quality of communication involves exchanges between partners characterized by openly disclosing thoughts and feelings to one another, and conveying understanding, validation, and caring in response.)

1	*2*	*3*	*4*	*5*	*6*
very poor	*poor*	*fair adequate*	*good*	*very good*	*excellent*

Table 1. *Phase I (Pre-Study) Descriptive Statistics*

	Patient *M (SD)*	Spouse *M (SD)*	Patient vs. Spouse *t*-test
Distress			
Depression	2.21 (2.57)	2.09 (3.15)	0.30
Anxiety	0.88 (2.23)	1.17 (1.95)	0.57
Stress	3.85 (3.14)	3.68 (2.94)	0.43
Trauma	1.51 (0.43)	1.47 (0.48)	0.47
Personality Factors			
Type D (% meeting criteria)	20.8%	20.8%	0.00
Social inhibition	10.04 (6.46)	9.11 (6.34)	0.80
Negative affectivity	7.98 (6.42)	9.06 (6.14)	-0.82
Reappraisal	4.65 (1.06)	5.23 (0.83)	-3.28^{**}
Suppression	3.52 (1.33)	3.39 (1.29)	0.48
Mindfulness	36.23 (5.30)	35.91 (6.42)	0.38
Interpersonal Factors			
Relationship Satisfaction	67.17 (9.77)	60.55 (16.67)	3.23^{**}
Perceived Social Support	3.43 (0.68)	3.05 (0.80)	2.47^{*}

Note: for patients, $N = 48$; for spouses, $N = 47$ $^{*}\ p < .05$ $^{**}\ p < .01$

Table 2a. *Patients - Pearson Correlations of Phase I (Pre-Study) Measures*

		1	2	3	4	5	6	7	8	9
1	Depression	--								
2	Anxiety	.40**	--							
3	Stress	.45***	.46***	--						
4	Trauma	.39**	.42**	.71***	--					
5	Type D	.42**	.12	.37**	.43**	--				
6	Reappraisal	-.19	-.01	-.31*	-.18	-.11	--			
7	Suppression	.20	-.01	.04	.22	.22	-.02	--		
8	Mindfulness	-.26^{t}	-.27^{t}	-.33*	-.37*	-.04	.42**	-.23	--	
9	Relationship Satisfaction	-.27^{t}	-.01	-.34*	-.28*	-.21	.33*	.15	.16	--
10	Perceived Social Support	-.17	.06	-.13	-.20	-.25^{t}	.30*	-.27^{t}	.31*	.39**

Note: $N = 48$. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 2b. *Spouses - Pearson Correlations of Phase I (Pre-Study) Measures*

		1	2	3	4	5	6	7	8	9
1	Depression	--								
2	Anxiety	.63**	--							
3	Stress	.41**	.62**	--						
4	Trauma	.30*	.46***	.54***	--					
5	Type D	.19	.28^{t}	.18	.07	--				
6	Reappraisal	-.02	-.03	.09	-.08	-.20	--			
7	Suppression	.29*	.28^{t}	.24	.25^{t}	.15	-.22	--		
8	Mindfulness	-.32*	-.39**	-.20	-.40**	-.30*	.57***	-.17	--	
9	Relationship Satisfaction	-.60***	-.49**	-.37*	-.13	-.25^{t}	.07	-.38**	.25^{t}	--
10	Perceived Social Support	-.40**	-.43**	-.36*	-.34*	-.49**	.01	-.18	.37*	.48***

Note: $N = 47$. $^{t}\,p < .10$ $^{*}\,p < .05$ $^{**}\,p < .01$ $^{***}\,p < .001$

Table 3a. *Patients - Pearson Correlations of Phase II Coded Individual Disclosure Variables*

	1	2	3	4	5	6	7	8	9
1 Quality of Disclosure	--								
2 Emotional Richness	.47**	--							
3 Negative Emotion Early	.22	.65***	--						
4 Positive Emotion Early	.16	.60***	.46**	--					
5 Negative Emotion Recent	.36*	.74***	.84***	.38**	--				
6 Positive Emotion Recent	.40**	.66***	.46**	.79***	.39**	--			
7 Relationship Focus	.08	.29*	.24^{t}	.17	.29*	.21	--		
8 Self-focus	.29*	.47**	.30*	.30*	.26^{t}	.38**	.13	--	
9 Other Focus	.14	.23	.02	-.17	.15	.05	-.30*	.39**	--
10 Degree of Self-Disclosure	.46**	.83***	.57***	.51***	.69***	.61***	.21	.38**	.16

Note: $N = 48$. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 3b. *Spouses - Pearson Correlations of Phase II Coded Individual Disclosure Variables*

		1	2	3	4	5	6	7	8	9
1	Quality of Disclosure	--								
2	Emotional Richness	.09	--							
3	Negative Emotion Early	.06	$.90^{***}$	--						
4	Positive Emotion Early	.20	$.79^{***}$	$.79^{***}$	--					
5	Negative Emotion Recent	.11	$.88^{***}$	$.80^{***}$	$.53^{***}$	--				
6	Positive Emotion Recent	$.30^{*}$	$.66^{***}$	$.69^{***}$	$.90^{***}$	$.41^{**}$	--			
7	Relationship Focus	-.02	$.72^{***}$	$.65^{***}$	$.60^{***}$	$.54^{***}$	$.51^{***}$	--		
8	Self-focus	.21	-.10	.14	$-.35^{*}$	.17	$-.27^{t}$	$-.32^{*}$	--	
9	Other Focus	$.51^{***}$	.14	.17	-.11	-.07	.00	$-.25^{t}$	.15	--
10	Degree of Self-Disclosure	.13	$.81^{***}$	$.74^{***}$	$.54^{***}$	$.85^{***}$	$.45^{**}$	$.50^{**}$	.17	.11

Note: $N = 48$. $^{t}\ p < .10$ $^{*}\ p < .05$ $^{**}\ p < .01$ $^{***}\ p < .001$

Table 4. *Pearson Correlations of Phase II Patient and Spouse Coded Dyadic Discussion Variables*

		1	2	3	4	5	6
1	Patient Coded Responsiveness	--					
2	Spouse Coded Responsiveness	$.61^{***}$	--				
3	Patient Coded Non-Responsiveness[1]	$-.42^{**}$	$-.51^{**}$	--			
4	Spouse Coded Non-Responsiveness[1]	$-.35^{*}$	$-.49^{***}$	$.46^{**}$	--		
5	Patient Self-Disclosure	$.46^{**}$	$.35^{*}$	-.13	.16	--	
6	Spouse Self-Disclosure	$.25^{t}$	$.52^{***}$	.16	-.10	$.34^{*}$	--
7	Overall Quality of Discussion	$.79^{***}$	$.81^{***}$	-.20	$-.50^{**}$	$.57^{***}$	$.42^{**}$

Note: [1] $N = 46$; for all others, $N = 48$. $^{t}\ p < .10$ $^{*}\ p < .05$ $^{**}\ p < .01$ $^{***}\ p < .001$

Table 5a. *Patients - Pearson Correlations of Phase* III *(Follow-Up) Responses*

		1	2	3
1	Lasting Impact	--		
2	Relationship Satisfaction	-.03	--	
3	Positive-Effect Composite	.21	.03	--

Note: *N* = 43. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 5b. *Spouses - Pearson Correlations of Phase* III *(Follow-Up) Responses*

		1	2	3
1	Lasting Impact	--		
2	Relationship Satisfaction	.11	--	
3	Positive-Effect Composite	$.40^{*}$	.00	--

Note: *N* = 43. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 6. *Correlations between Patient and Spouse Perceived and Coded Responsiveness and Non-Responsiveness*

		Patient Behaviours			*Spouse Behaviours*	
		1	2	3	4	5
Patient Behaviours						
1	Spouse Perception of Patient's Responsiveness	--				
2	Coded Responsiveness	.16	--			
3	Coded Non-Responsiveness[1]	$-.37^{*}$	$-.42^{**}$	--		
Spouse Behaviours						
4	Patient Perception of Spouse's Responsiveness	.21	-.02	-.19	--	
5	Coded Responsiveness	$.35^{*}$	$.61^{***}$	$-.51^{**}$	.14	--
6	Coded Non-Responsiveness[1]	$-.45^{*}$	$-.35^{*}$	$.46^{**}$	$-.47^{**}$	$-.49^{**}$

Note: [1]*N* = 46; for all others, *N* = 48. $^{t}\, p < .10$ $^{*}\, p < .05$ $^{**}\, p < .01$ $^{***}\, p < .001$

Table 7a. *Descriptive Statistics for Phase II Self-Reported Affect (PANAS) by Experimental Condition*

Dependent Variable		**Partner Condition**	**Therapist Condition**	**Control Condition**
Self-Report Affect				
Time 1 Positive Affect	Patient	33.69^{a} (9.98)	32.13^{a} (5.15)	35.71^{a} (5.75)
	Spouse	34.00^{a} (6.43)	31.07^{a} (6.99)	32.29^{a} (7.56)
Time 2 Positive Affect	Patient	34.38^{a} (10.89)	32.80^{a} (6.16)	35.00^{a} (6.98)
	Spouse	33.19^{a} (9.02)	30.53^{a} (7.95)	31.41^{a} (9.21)
Time 3 Positive Affect	Patient	34.50^{a} (10.52)	33.27^{a} (7.18)	36.82^{a} (5.47)
	Spouse	33.81^{a} (9.74)	32.80^{a} (8.37)	33.59^{a} (7.31)
Time 1 Negative Affect[1]	Patient	12.38^{a} (4.24)	11.20^{a} (1.70)	12.63^{a} (4.06)
	Spouse	13.56^{a} (6.20)	11.40^{a} (2.16)	12.94^{a} (3.32)
Time 2 Negative Affect[1]	Patient	12.06^{a} (3.13)	10.47^{a} (0.83)	11.56^{a} (1.93)
	Spouse	14.56^{a} (7.49)	11.93^{a} (2.81)	13.13^{a} (3.69)
Time 3 Negative Affect[1]	Patient	11.63^{a} (2.70)	10.40^{a} (0.74)	11.75^{a} (2.70)
	Spouse	13.13^{a} (5.64)	11.13^{a} (2.56)	12.88^{a} (5.12)

Note: [1] N = 47; for all others, N = 48. Superscripts denote significantly different means at the $p < .05$ level.

Table 7b. *Descriptive Statistics for Phase II Individual Disclosure Variables by Experimental Condition*

Dependent Variable		**Partner Condition**	**Therapist Condition**	**Control Condition**
Disclosure Video Variables				
Quality of disclosure	Patient	3.94^a (0.64)	4.15^a (0.54)	3.79^a (0.57)
	Spouse	3.91^a (0.80)	4.20^a (0.50)	4.13^a (0.59)
Emotional Richness	Patient	3.27^a (0.86)	3.27^a (0.74)	1.60^b (0.53)
	Spouse	3.31^a (0.78)	3.62^a (0.73)	1.24^b (0.45)
Positive Emotion Composite	Patient	3.22^a (0.45)	3.29^a (0.61)	1.54^b (0.52)
	Spouse	3.08^a (0.90)	3.35^a (0.55)	1.41^b (0.24)
Negative Emotion Composite	Patient	2.17^a (0.98)	2.13^a (0.75)	1.02^b (0.09)
	Spouse	2.60^a (0.91)	2.99^a (0.90)	1.06^b (0.20)
Self-focus	Patient	3.97^a (0.44)	4.40^b (0.30)	3.93^a (0.32)
	Spouse	3.45^a (0.48)	3.85^b (0.35)	4.15^b (0.42)
Relationship Focus	Patient	3.20^a (0.90)	2.58^b (0.56)	2.57^b (0.87)
	Spouse	4.45^a (0.40)	4.12^a (0.60)	2.88^b (0.79)
Degree Inhibited Negative Emotions in Disclosure	Patient	1.25^a (0.45)	1.07^a (0.26)	1.06^a (0.24)
	Spouse	1.38^a (0.62)	1.20^a (0.56)	1.71^a (1.10)

Note: *N* = 48; superscripts denote significantly different means at the *p* < .05 level.

Table 7c. *Descriptive Statistics for Phase II Dyadic Discussion Variables by Experimental Condition*

Dependent Variable		**Partner Condition**	**Therapist Condition**	**Control Condition**
Coded Responsiveness	Patient	3.03^{a} (0.46)	3.16^{a} (0.44)	2.95^{a} (0.37)
	Spouse	3.15^{a} (0.58)	3.40^{a} (0.34)	2.97^{a} (0.50)
Coded Non-responsiveness[1]	Patient	1.05^{a} (0.07)	1.07^{a} (0.09)	1.12^{a} (0.17)
	Spouse	1.07^{a} (0.07)	1.07^{a} (0.05)	1.20^{a} (0.26)
Degree of Self-disclosure	Patient	3.18^{a} (0.31)	3.11^{a} (0.57)	2.90^{a} (0.47)
	Spouse	2.96^{a} (0.56)	2.94^{a} (0.52)	2.71^{a} (0.49)
Perceived Responsiveness	Patient	4.50^{a} (0.56)	4.62^{a} (0.47)	4.71^{a} (0.56)
	Spouse	4.19^{a} (0.93)	4.29^{a} (0.69)	4.14^{a} (1.00)
Degree Inhibited Negative Emotions in Discussion	Patient	1.38^{a} (0.62)	1.20^{a} (0.41)	1.24^{a} (0.44)
	Spouse	1.63^{a} (0.89)	1.07^{b} (0.26)	1.76^{a} (0.97)

Note: [1]$N = 46$; for all others, $N = 48$; superscripts denote significantly different means at the $p < .05$ level.

Table 7d. *Descriptive Statistics for Phase III Follow-Up Outcomes by Experimental Condition*

Dependent Variable		**Partner Condition**	**Therapist Condition**	**Control Condition**
Follow-Up Measures				
Lasting Impact	Patient	2.58^{a} (1.02)	1.91^{a} (1.12)	2.12^{a} (0.75)
	Spouse	2.52^{a} (1.19)	1.80^{a} (0.99)	2.39^{a} (0.85)
Relationship Satisfaction	Patient	4.43^{a} (1.02)	4.54^{a} (0.75)	4.37^{a} (0.93)
	Spouse	4.36^{a} (1.28)	4.43^{a} (0.85)	3.93^{a} (1.22)
Positive-Effect Composite	Patient	4.09^{a} (0.71)	4.05^{a} (0.74)	4.31^{b} (0.49)
	Spouse	4.16^{a} (0.76)	4.26^{a} (0.73)	3.95^{b} (0.61)

Note: $N = 43$; superscripts denote significantly different means at the $p < .05$ level.

Table 8. *Mixed ANOVA Tests for Main Effects of Role, Condition (Therapist vs. Partner as Audience), and Role x Condition Interaction on Coded Disclosure and Coded Discussion Variables*

	Role Main Effect		**Therapist vs. Partner Main Effect**		**Role x Condition Interaction**	
Dependent Variable	***F***	η_p^2	***F***	η_p^2	***F***	η_p^2
Coded Disclosure Variables						
Overall Quality	0.01	.00	1.64	.05	0.13	.00
Emotional Richness	1.27	.04	0.48	.02	0.74	.03
Positive Emotion Composite	0.06	.00	0.95	.03	0.37	.01
Negative Emotion Composite	9.71^{**}	.25	0.50	.02	1.10	.04
Self-focus	33.62^{***}	.54	4.20^{***}	.33	0.04	.00
Relationship Focus	63.87^{***}	.69	9.77^{**}	.25	0.66	.02
Degree of Self-disclosure	0.64	.02	0.64	.01	0.91	.03
Degree Inhibited Negative Emotions in Disclosure	0.86	.03	2.70	.09	.00	.00
Coded Discussion Variables						
Coded Responsiveness	4.92^{*}	.15	1.67	.06	0.58	.02
Coded Non-Responsiveness	1.90	.06	1.79	.06	2.34	.08
Degree of Self-disclosure	2.83	.09	0.10	.00	0.05	.00
Perceived Responsiveness	4.61^{*}	.14	0.32	.01	0.01	.00
Degree Inhibited Negative Emotions in Discussion	0.12	.00	7.13^{*}	.20	1.33	.04

Note: df = 1, 29. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 9. *Mixed ANOVA Tests for Main Effects of Role, Condition (Therapist vs. Partner as Audience), and Interaction between Role x Condition on Phase III (Follow-up) Measures*

	Role Main Effect		**Therapist vs. Partner Main Effect**		**Role x Condition Interaction**	
Dependent Variable	F	η_p^2	F	η_p^2	F	η_p^2
Lasting Impact	0.02	.00	3.14^t	.11	0.17	.01
Positive-Effect Composite	1.65	.05	0.01	.00	0.41	.01
Relationship Satisfaction[5]	0.58	.02	0.00	.00	0.00	.00

Note: df = 1, 25; $^t p < .10$ $^* p < .05$ $^{**} p < .01$ $^{***} p < .001$

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[5] This analysis evaluating therapist vs. partner conditions as predictors of relationship satisfaction at follow-up controlled for pre-existing relational satisfaction (measured at pre-study) by including patient and partner Phase I couple satisfaction scores as covariates in the Mixed Model ANOVA.

Table 10. *Mixed ANOVA Tests for Main Effects of Role, Condition (Disclosure vs. Non-Disclosure), and Interaction between Role x Condition on Dyadic Discussion Variables*

	Role Main Effect		**Disclosure vs. Non-Disclosure Main Effect**		**Role x Condition Interaction**	
Dependent Variable	F	η_p^2	F	η_p^2	F	η_p^2
Coded Responsiveness	2.41	.05	3.15^t	.06	1.45	.03
Coded Non-responsiveness	2.80^t	.06	3.13^t	.07	2.55	.06
Degree of Self-disclosure	4.72^*	.09	4.18^*	.08	0.00	.00
Perceived Responsiveness	10.18^{**}	.18	0.02	.00	0.78	.02
Degree Inhibited Negative Emotions in Discussion	4.68^*	.09	1.41	.03	2.86^t	.06

Note: N = 48. $^t p < .10$ $^* p < .05$ $^{**} p < .01$ $^{***} p < .001$

Table 11. *Mixed ANOVA Tests for Main Effects of Role, Condition (Disclosure vs. Non-Disclosure), and Interaction between Role x Condition on Phase III (Follow-Up) Measures*

	Role Main Effect		**Disclosure vs. Non-Disclosure Main Effect**		**Role x Condition Interaction**	
Dependent Variable	F	η_p^2	F	η_p^2	F	η_p^2
Lasting Impact	0.45	.01	0.01	.00	0.72	.02
Positive Effect Composite	1.22	.03	0.00	.00	6.47^*	.14
Relationship Satisfaction[6]	0.58	.02	6.95^*	.16	1.24	.03

Note: *N = 43.* $^t p < .10$ $^* p < .05$ $^{**} p < .01$ $^{***} p < .001$

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[6] This analysis evaluating disclosure vs. non-disclosure conditions as predictors of relationship satisfaction at follow-up controlled for pre-existing relational satisfaction (measured at pre-study) by including patient and partner Phase I couple satisfaction scores as covariates in the Mixed Model ANOVA.

Table 12. *Actor-Partner Interdependence Models (APIM): Actor and Partner Effects on the Degree of Positive Lasting Impact of Participation (Standardized path coefficients)*

	Type of Effect			
Predictor	**Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Pre-Study Measures				
Stress	.15	$.29^{t}$	.15	$.52^{***}$
Depression	$.31^{*}$	$.34^{*}$	-.22	.19
Anxiety	-.10	$.27^{t}$	.19	$.45^{**}$
Trauma	.11	.21	$.43^{**}$	$.45^{**}$
Type D Personality	$.37^{**}$	.03	.13	$.31^{*}$
Mindfulness	-.01	.09	-.08	$-.27^{t}$
Reappraisal	.23	.12	.15	.11
Suppression	.18	$.35^{*}$	-.03	$.32^{*}$
Couples Satisfaction	$-.41^{**}$	$-.29^{t}$	.21	.03
Perceived Social Support	$-.45^{**}$	-.01	-.16	$-.25^{t}$

Predictor	**Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Individual Disclosure Variables				
Overall Quality	.16	.13	$.38^{*}$	.10
Positive Emotion Composite	-.18	$-.45^{*}$	$.48^{*}$	.23
Negative Emotion Composite	-.06	$-.34^{t}$	$.44^{*}$	.19
Self-focus	.14	$-.34^{*}$	.18	.21
Relationship Focus	.16	$.31^{*}$	.09	.14
Emotional Inhibition in Disclosure	.02	-.17	.14	$.27^{t}$
Dyadic Discussion Variables				
Coded Responsiveness	-.06	$.29^{t}$	-.05	.26
Coded Non-Responsiveness	.19	-.18	.01	-.20
Degree of Self Disclosure	$.31^{*}$	.17	.17	.13
Perceived Responsiveness	.01	-.03	.11	-.11
Emotional Inhibition in Discussion	.14	.03	-.05	.17

Note: $N = 43$ dyads. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 13. *Actor-Partner Interdependence Models (APIM): Actor and Partner Effects on the Degree of Relationship Satisfaction at Follow-up (Standardized path coefficients, controlling for patient and spouse marital satisfaction scores at pre-study)*

	Type of Effect			
Predictor	**Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Pre-Study Measures				
Stress	-.05	-.07	-.02	.04
Depression	.06	.13	-.07	-.12
Anxiety	.01	.11	.00	-.05
Trauma	-.09	.02	-.01	-.11
Type D Personality	-.06	-.12	-.13	.09
Mindfulness	-.11	-.04	.28**	.20
Reappraisal	.09	.00	.13	.02
Suppression	.08	-.03	-.06	-.08
Perceived Social Support	-.23^{t}	.09	.30**	.18

Predictor	**Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Individual Disclosure Variables				
Overall Quality of Disclosure	.12	-.04	.04	.00
Positive Emotion Composite	$.37^{*}$	.14	.16	-.22
Negative Emotion Composite	.06	.03	$.24^{*}$	-.01
Self-focus	-.09	-.03	-.21	-.02
Partner Focus	.16	$.31^{*}$	-.01	-.09
Degree Inhibited Emotions in Disclosure	.06	.07	$-.20^{*}$	-.18
Dyadic Discussion Variables				
Coded Responsiveness	-.09	.05	.09	$.31^{*}$
Coded Non-Responsiveness	.14	.07	-.18	$-.26^{t}$
Degree of Self Disclosure	.07	.08	.16	.14
Perceived Responsiveness	-.01	-.08	.18	.19
Degree Inhibited Negative Emotions during Discussion	.06	$.21^{*}$	$-.35^{***}$	-.12

Note: *N* = 43 dyads. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 14. *Actor-Partner Interdependence Models (APIM): Actor and Partner Effects on the Positive-Effect Composite (Standardized path coefficients)*

Predictor	**Type of Effect** **Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Pre-Study Measures				
Stress	.18	.22	-.11	-.14
Depression	-.20	.11	-.15	-.03
Anxiety	-.16	-.18	.31*	-.19
Trauma	-.03	.06	.29*	.17
Type D Personality	.07	-.08	.27^{t}	.07
Mindfulness	.09	.03	.04	.10
Reappraisal	-.02	.10	-.10	.13
Suppression	.09	.08	.14	.10
Couples Satisfaction	-.20	-.32*	.06	.11
Perceived Social Support	-.29*	-.26^{t}	.29*	.25^{t}

Predictor	**Patient Characteristic on Patient Outcome**	**Patient Characteristic on Spouse Outcome**	**Spouse Characteristic on Spouse Outcome**	**Spouse Characteristic on Patient Outcome**
Individual Disclosure Variables				
Overall Quality of Disclosure	.11	.39*	.10	.28^{t}
Positive Emotion Composite	-.11	.37*	.06	.15
Negative Emotion Composite	.08	.09	-.08	-.18
Self-focus	.19	.23	-.01	.21
Partner Focus	.33*	.16	-.15	-.21
Degree Inhibited Emotions in Disclosure	.10	.01	-.30*	-.03
Dyadic Discussion Variables				
Coded Responsiveness	-.26	-.19	.47**	.37*
Coded Non-Responsiveness	-.20	-.15	-.10	-.01
Degree of Self Disclosure	.13	.22	.18	.07
Perceived Responsiveness	.08	.04	.16	.09
Degree Inhibited Negative Emotions during Discussion	.13	.00	-.19	-.21

Note: N = 43 dyads. ^{t} $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 15. *Mixed ANOVA Tests for Main Effect of Event Type and Interaction between Role x Event Type on Pre-Study Measures*

	Event Type Main Effect		**Role x Event Type Interaction**	
Dependent Variable	***F***	η_p^2	***F***	η_p^2
Distress				
Depression	0.25	.00	12.55^{**}	.22
Anxiety	1.36	.03	0.17	.00
Stress	0.82	.02	0.06	.00
Trauma Symptoms	0.02	.00	0.28	.00
Personality Factors				
Type D Personality	0.22	.01	0.00	.00
Emotional Reappraisal	0.00	.00	0.86	.02
Emotional Suppression	0.23	.01	1.28	.03
Mindfulness	0.18	.00	1.47	.03
Interpersonal Factors				
Relationship Satisfaction	2.03	.04	3.93^{*}	.09
Perceived Social Support	0.67	.02	6.58^{*}	.13

Note: N = 48 dyads. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 16. *Mixed ANOVA Tests for Main Effect of Event Type and Interaction between Role x Event Type on Coded Individual Disclosure Measures in Phase II Session*

	Event Type Main Effect		**Role x Event Type Interaction**	
Dependent Variable	***F***	η_p^2	***F***	η_p^2
Overall quality of disclosure	0.00	.00	0.28	.01
Emotional richness	0.04	.00	0.01	.00
Positive emotion composite	1.71	.04	0.95	.02
Negative emotion composite	0.00	.00	0.10	.00
Self-focus	6.98*	.13	1.24	.03
Relationship focus	0.98	.02	0.01	.00
Degree Inhibited Negative Emotions in Disclosure	5.09*	.10	0.06	.00

Note: *N* = 48 dyads. $^t p < .10$ $^* p < .05$ $^{**} p < .01$ $^{***} p < .001$

Table 17. *Mixed ANOVA Tests for Main Effect of Event Type and Interaction between Role x Event Type on Coded Dyadic Discussion Measures in Phase II Session*

	Event Type Main Effect		**Role x Event Type Interaction**	
Dependent Variable	F	η_p^2	F	η_p^2
Coded Responsiveness	0.16	.00	2.98^t	.06
Coded Non-responsiveness	0.11	.00	2.85^t	.06
Degree Self-Disclosure	1.07	.02	0.62	.01
Perceived Responsiveness	3.12^t	.06	.09	.00
Degree inhibited negative emotions during discussion	3.47^t	.07	.06	.00

Note: $N = 48$ dyads. $^t p < .10$ $^* p < .05$ $^{**} p < .01$ $^{***} p < .001$

Table 18. *Mixed ANOVA Tests for Main Effect of Event Type and Interaction between Role x Event Type on Follow-Up Outcomes at Phase III*

	Event Type Main Effect		**Role x Event Type Interaction**	
Dependent Variable	F	η_p^2	F	η_p^2
Lasting Impact	0.79	.02	0.01	.00
Positive-Effect Composite	0.12	.00	0.14	.00
Relationship Satisfaction[7]	3.99^{*}	.11	0.00	.00

Note: $N = 48$ dyads. $^{t}p < .10$ $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

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[7] This analysis evaluating event type as a predictor of relationship satisfaction at follow-up controlled for pre-existing relational satisfaction (measured at pre-study) by including patient and partner Phase I couple satisfaction scores as covariates in the Mixed Model ANOVA.

Figure 1. *Actor-Partner Interdependence Model (APIM).*

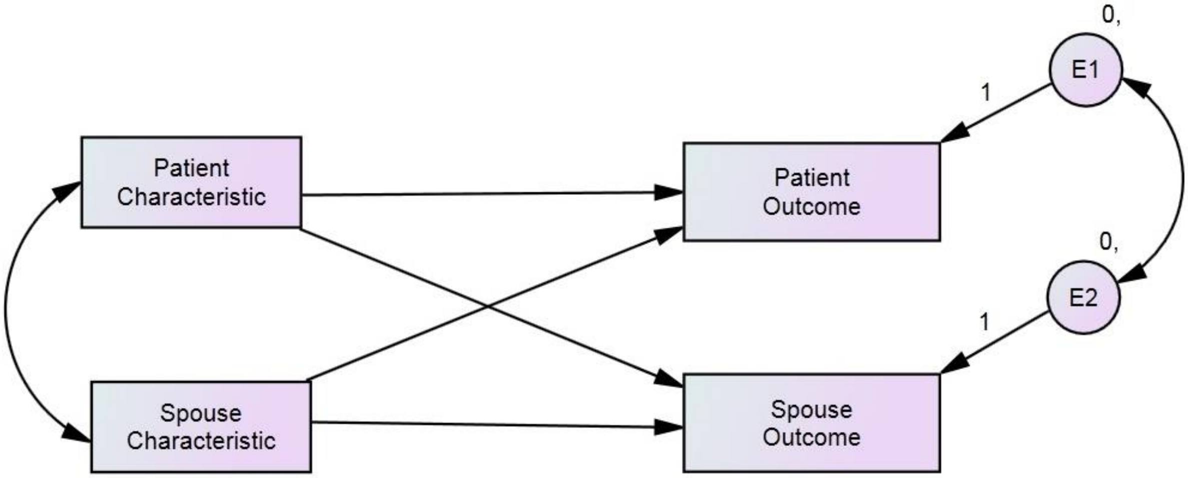

Figure 2. *Patient and Spouse Depression Scores by Event Type*

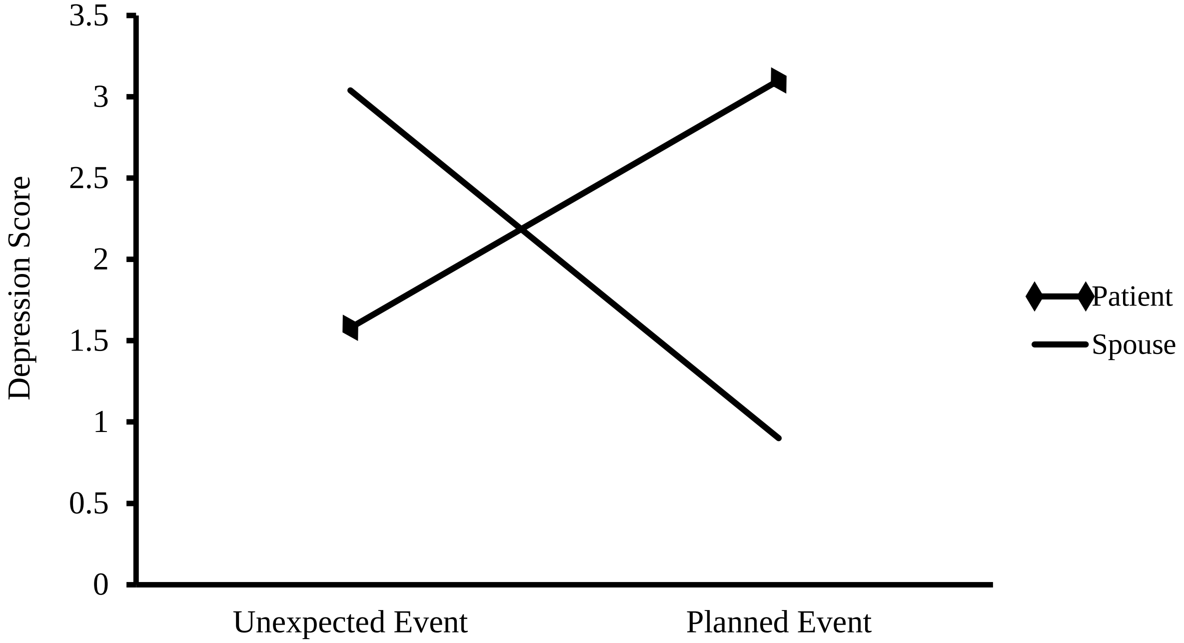

Figure 3. *Patient and Spouse Perceived Social Support Scores by Event Type*

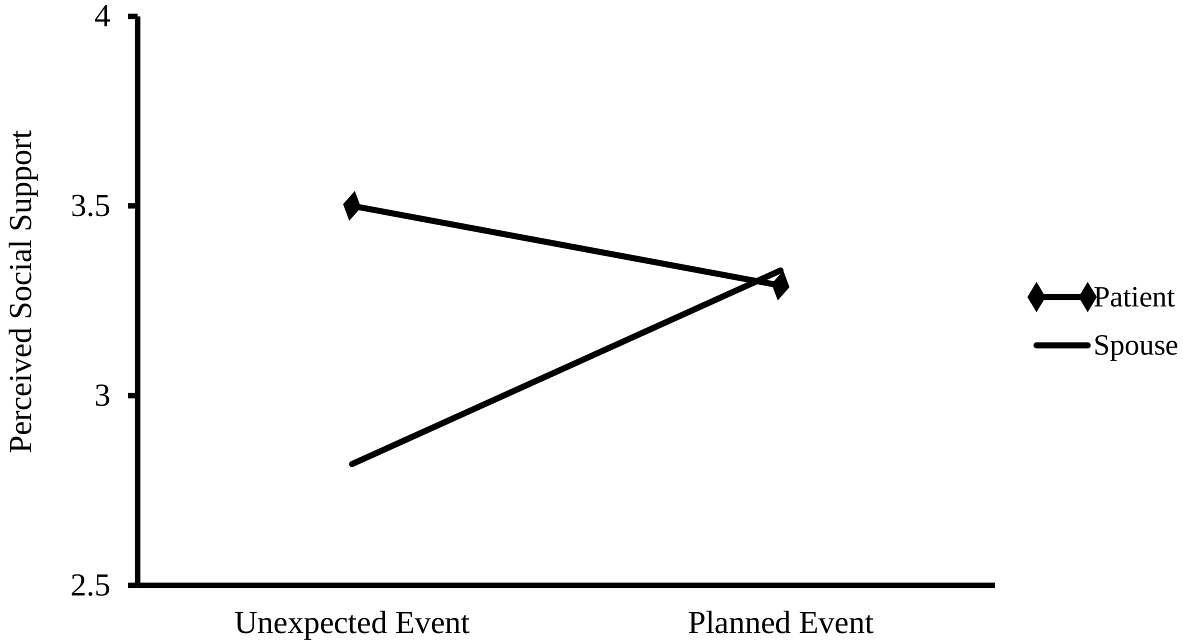

Figure 4. *Patient and Spouse Relationship Satisfaction Scores by Event Type*

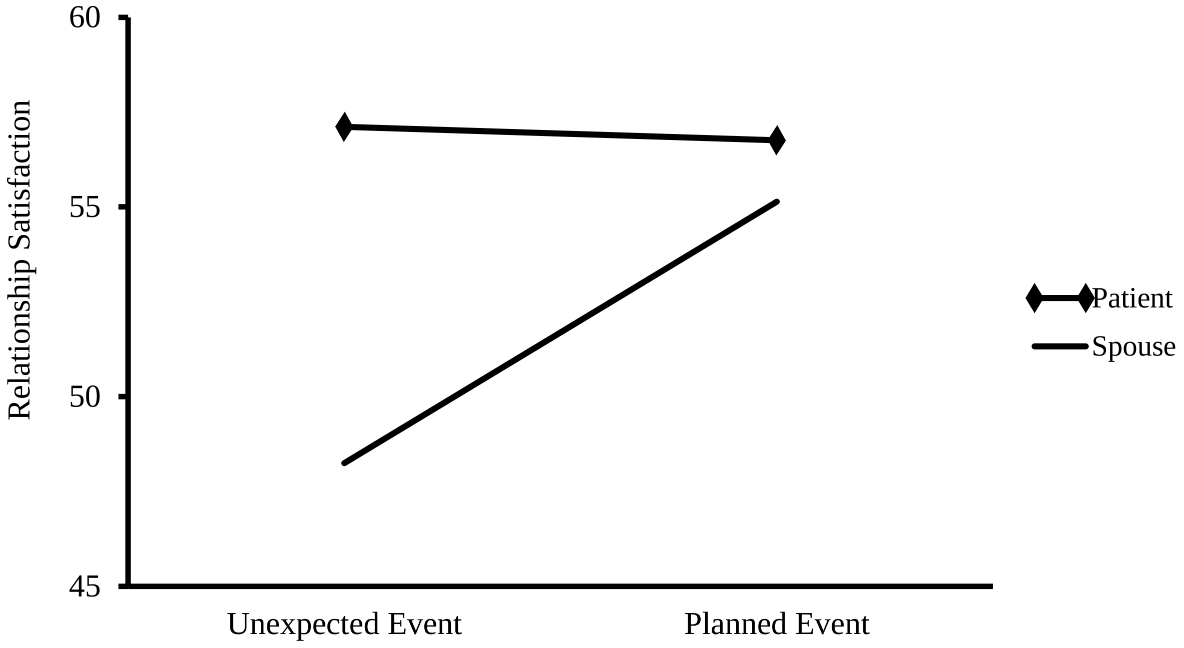

Figure 5. *Patient and Spouse Coded Responsiveness Ratings by Event Type*

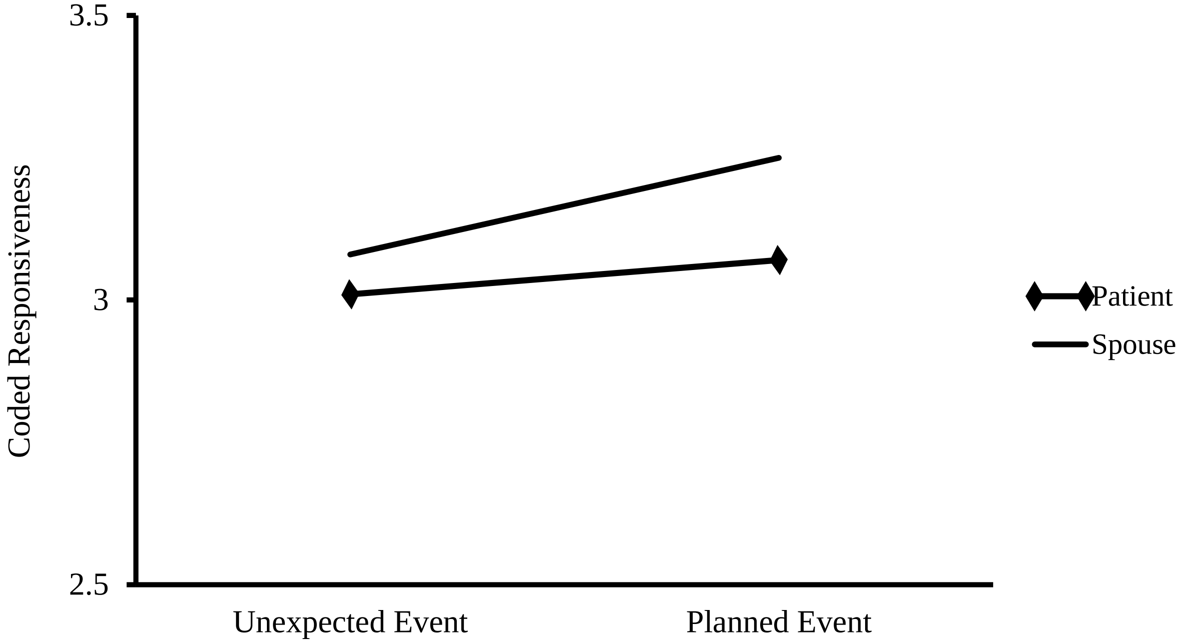

Figure 6. *Patient and Spouse Coded Non-Responsiveness Ratings by Event Type*