IMPROVED FUNCTIONING AFTER BEREAVEMENT:

THE ROLE OF SOCIAL INTEGRATION AND SOCIAL SUPPORT

By

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ABSTRACT

People respond in widely varying ways to the loss of a loved one. Although most people manage the experience of loss without significant disruptions in healthy functioning, others show markedly divergent reactions including chronic grief symptoms and recovery from initial elevations in grief. In addition to these grief patterns, recent prospective research has found evidence of a particularly surprising response to loss: marked improvement in psychological functioning after loss. The goal of this project is to examine the correlates of this pattern with a focus on social functioning. To address this goal, I conducted a secondary analysis of a prospective study of bereaved spouses to examine whether those spouses who improve after loss also report beneficial changes in social functioning. Data were collected before and after bereavement with baseline interviews occurring on average 3 years before spousal loss and post-loss interviews occurring at 6 months. Improved participants were identified based on reductions in depression scores using medium and large effect size changes to identify improved functioning after loss. A repeated measures analysis examines changes in social relationship variables over the 2 waves for both bereaved groups, as well as a control group, and compares results to those who were not identified as improved. I hypothesized that improvements in functioning in the wake of bereavement are associated with improvements in social relationships. Results revealed positive changes in several social support variables among those who experience psychological improvement in the wake of loss compared to the control group and non-improved bereavement group, including perceived instrumental support, involvement in clubs and religious activities, negative hassles from friends and relatives, and wellbeing. These results support the hypothesis that improvements in functioning in the wake of bereavement are associated with improvements in relationships.

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CHAPTER 1: INTRODUCTION

Problem Statement

For decades, it has been assumed that interpersonal loss has substantial and long-lasting effects on people. Recently, it has been found that, to the contrary, the loss of a loved one results in a variety of grief reactions. These heterogeneous reactions to loss support the understanding that people respond in different ways to loss (Bonanno, Westphal, & Mancini, 2011). The inclusion of pre-loss data has allowed researchers to observe several distinct bereavement patterns. Most people who lose a loved one experience resilient bereavement, or a lack of significant disruption to their healthy level of functioning (Bonanno, 2004; Bonanno et al., 2002; Maccallum, Galatzer-Levy, & Bonanno, 2015). However, others experience differing reactions including chronic symptoms of grief or depression, as well as temporary increases in grief symptoms followed by recovery.

A more surprising finding is a group of individuals with marked improvement in psychological functioning after loss (Bonanno et al., 2002; Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015; Mancini, 2019; Mancini, Bonanno, & Clark, 2011). Bereavement research shows evidence of growth following the death of a loved one. Some individuals gain resources or experiences that allow them to build positive well-being and improvement after loss. Various factors allow individuals to tolerate or grow in adversity and loss including relief from the caretaking role, lack of financial burden, finding meaning, and reconstruction of narrative (Bauer & Bonanno, 2001; Neimeyer, Baldwin, & Gillies, 2006; Tedeschi & Calhoun, 2004a). Theories such as posttraumatic growth and the silver linings perspective contribute to our understanding of improvement occurring as a result of adversity and loss. However, they

function to explain resilience or improvement only after an initial decrease in psychological well-being. They also focus on individual processes in the bereaved but exclude prosocial factors.

While a number of studies have identified factors that help explain why individuals remain resilient or recover after losing a loved one, there is limited understanding of why significant improvement occurs during bereavement. Patterns of heterogeneity clearly identify a subset of the bereaved population that exhibits markedly higher levels of grief symptoms before the loss of a spouse than after (Bonanno et al., 2002). This population does not exhibit any notable stress reactions in the wake of the loss, but instead experiences greater psychological functioning after the death. The understanding of why this improvement exists has been largely omitted from the literature on bereavement.

One possible explanation for marked improvement in the wake of loss is a change in one's social environment. Research on social support and bereavement has traditionally studied the relationship as a buffering one, whereby social support acts as a protective factor against negative psychological functioning in the wake of bereavement (Anusic & Lucas, 2014; Tedeschi & Calhoun, 2004b). However, a growing body of literature has provided evidence for a different method of examining the relationship between social support and bereavement- social functioning improving as a result of loss. Recent studies have found that social support is not simply a protective factor but can be improved as a result of the loss (Bonanno, 2010; Mancini, 2019). In the wake of adversity and loss, people seek to affiliate with and provide support to others (Taylor, 2011). Communities rally around their members, providing opportunities for conversation and shared activities that help spread happiness through their social networks (Fowler & Christakis, 2008; Lakey & Orehek, 2011).

One theory has expanded on this concept of social support being a dependent variable influenced by bereavement. Psychosocial gains from adversity (PGA) explains improvement after loss by postulating that significant adversity can positively impact psychological well-being due to its effects on social functioning (Mancini, 2019). The theory suggests that affiliative behaviors emerge in the wake of loss, and these affiliative behaviors could have beneficial effects on psychological functioning, especially if the social environment improves as a result.

Prior research has been unable to document these changes for several reasons. One major reason is that the overwhelming majority of bereavement research is conducted after a loss has occurred. As a result, it is not possible to assess improved psychological functioning (e.g., reduced depression) or to assess changes in social functioning. Another issue is that techniques for distinguishing different patterns of response have only recently been developed, and thus improved participants were typically not identified in prior research. The present study will seek to examine these issues using an unusual prospective data set with assessments before and after the loss. This will allow me to examine the group of improved participants after loss and assess whether they showed changes in social functioning along various dimensions, including perceptions of support, objective support, social and community involvement. The study will include exploratory analyses to further understand changes in social and psychological functioning.

Literature Review

Heterogeneous Grief Reactions

How do people respond to the death of a loved one? Traditionally it was believed that there is one homogenous distribution for reactions to stressful events (Bonanno et al., 2011; Duncan, Duncan, & Strycker, 2006). Stress reactions were explored from a perspective of

evidence of pathology or absence of symptomology. However, more recent research has found substantial variation in the ways humans respond to loss and stressful events. This concept is known as heterogeneity of traumatic reactions (Bonanno et al., 2011; Dickstein, Suvak, Litz, & Adler, 2010).

Early research studying the heterogeneity of grief reactions found three prototypical patterns (Bonanno et al., 2011). These studies provided longitudinal data several months or years after loss. Research consistently found prototypical patterns arising with stressful events, including grief and bereavement (Bonanno, Moskowitz, Papa, & Folkman, 2005; Bonanno et al., 2011; Bonanno et al., 2002; Galatzer-Levy, Huang, & Bonanno, 2018). These trajectories were understood to include chronic grief/chronic distress (depression that endures throughout the bereavement process), absent grief or resilience (low levels of depression or distress), and an increase in grief symptoms followed by improvement, known as recovery (Bonanno, 2004; Bonanno et al., 2011; Bonanno et al., 2002; deRoon-Cassini, Mancini, Rusch, & Bonanno, 2010; Galatzer-Levy et al., 2018). Post-loss research hypothesized that delayed grief (late onset of distress) would be the most reasonable explanation for low levels of distress after bereavement (Bonanno et al., 2002). However, no clear evidence for delayed grief has yet emerged.

The vast majority of bereaved individuals exhibit resilience (Bonanno et al., 2002; deRoon-Cassini et al., 2010; Galatzer-Levy & Bonanno, 2012; Galatzer-Levy et al., 2018; Maccallum et al., 2015). Bereaved spouses in this group report healthy levels of functioning and low levels of depression and grief throughout the entirety of the bereavement process. They express similarly positive adjustment before the loss. The vast majority of research finds that they maintain this functioning up to four years after loss (Boerner, Wortman, & Bonanno, 2005;

Bonanno et al., 2002). This low initial distress predicts long-term positive psychological functioning.

The patterns of depression and grief that arose from post-loss bereavement research convey only part of the reality. Information regarding how the patterns appear pre-loss to post-loss is undersupplied. This lack of pre-loss information leaves out potentially salient information about the heterogeneity patterns. More recently, research has begun to utilize prospective data. This has modified our understanding of grief trajectories.

An increasing number of studies use pre-loss information to identify different patterns of response to grief and other acute stressors. Galatzer-Levy et al. (2018) conducted a meta-analysis which confirmed that those with negative psychological functioning before the PTE experience different patterns after loss than those with positive pre-PTE psychological functioning. A growing number of studies research the patterns of distress that bereaved spouses exhibit following the loss of their partner, including distress levels prior to death. This allows participants to provide a more accurate depiction of their symptomology because participants are able to respond about how they currently feel pre-loss, as opposed to previous studies that asked participants post-loss to attempt to remember their depression levels pre-loss (Bonanno et al., 2002). Prospective research has determined five meaningful patterns of bereavement (common grief, chronic grief, chronic depression, resilient, and depressed improved) and three non-substantive patterns (delayed-improved, delayed grief, and improved-relapsed). It should be noted that some prospective research has only identified four of these meaningful trajectories, finding no evidence for common grief (Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015). These patterns have been used as a standard in bereavement research (Bonanno et al., 2002).

Prospective research finds significant dysfunction within some of the heterogeneous patterns for grief. Negative psychological functioning can be experienced as chronic distress or grief. Chronic grief is persistent with elevated symptoms of grief following loss (Maccallum et al., 2015). It is a continuation of grief symptoms that last at least 18 months post-loss. By 18 months, chronic grievers have lower levels of grief than at six months but continue to have higher levels than all other patterns except for chronic depression (Bonanno et al., 2002). Another pattern with observed dysfunction is chronic depression. These individuals have high levels of depressive symptoms before the loss of a spouse and maintain high levels across all assessments (Bonanno et al., 2002; Maccallum et al., 2015).

Common grief reflects how most people imagine the bereavement process to materialize. These individuals evidence healthy functioning before the loss, and then experience symptoms of grief and depression in the aftermath of the loss. After the initial surge post-loss, people begin to experience a significant decrease in grief and depressive symptoms around the six-month mark. Common grievers typically return to prior levels of pre-loss functioning within a year after the loss (Bonanno et al., 2002). Despite its name, common grief is less common than both resilience and chronic grief (Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015).

These patterns have received extensive coverage in the literature and are widely viewed as valid characterizations of reactions to loss. However, the improved pattern is not well represented in the bereavement literature because pre-loss information is necessary to identify this grief pattern. In the absence of pre-loss assessments, this group only shows evidence of adaptive levels of functioning post-loss. Thus, improved individuals would be conflated with the resilient bereaved. Unfortunately, since pre-loss information is necessary to identify this grief pattern, it is often overlooked (Bonanno et al., 2002). However, prospective studies have found

increasing evidence of improved functioning after loss (Bonanno et al., 2002; Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015; Mancini et al., 2011; Schulz et al., 2001). Nevertheless, perhaps because this response is at variance with our assumptions about loss, relatively little research has sought to provide an explanation for why people might improve after loss.

Improved Functioning after Loss

Psychological well-being and growth. Although it is widely assumed that most people experience considerable psychological distress after the loss of a loved one, there is growing evidence that a subset of people experience improved functioning after a loss. Once techniques are used to identify distinct patterns of response to loss, the heterogeneity of grief reactions can emerge, including resilience, recovery, chronic grief, and improved grievers (Bonanno et al., 2002). The possibility of improved functioning is consistent with the dynamic nature of responses to loss and their exceptional sensitivity to contextual influences (Bisconti, Bergeman, & Boker, 2004; Coifman & Bonanno, 2010). It is also consistent with the largely healthy levels of functioning people exhibit after acute adversity and loss (Bonanno, 2001; Bonanno, 2004; Bonanno et al., 2002). Finally, it is broadly consistent with prior theorizing and empirical research on the benefits of adversity (Linley & Joseph, 2004; Park & Helgeson, 2006; Seery, 2011).

Theories such as posttraumatic growth and the silver lining perspective have contributed some of our greatest understanding of growth in adversity. Posttraumatic growth describes positive changes that individuals experience through their struggles after adversity (Tedeschi & Calhoun, 1996). It consists of positive personal and psychological changes that occur in the context of significant emotional distress in aftermath of crisis (Tedeschi & Calhoun, 1996). This growth includes a greater appreciation for life, improved relationships, strengthened identity

construction, spiritual development, and new sense of purpose (Bauer & Bonanno, 2001; Packman, Horsley, Davies, & Kramer, 2006; Tedeschi & Calhoun, 2004a). Individuals who experience posttraumatic growth exhibit high levels of meaning-making in the wake of loss (Carnelley, Wortman, Bolger, & Burke, 2006; Neimeyer et al., 2006). Similarly, the silver lining perspective established that some adversity can strengthen individuals and promote later resilience to stress, although the relationship between cumulative lifetime adversity and mental well-being is U-curved (Seery, 2011). This perspective concludes that exposure to stressors throughout life can promote resiliency in future adverse life events. While these growth frameworks allow us to understand what helps people successfully cope with adversity, neither explains why people have low psychological functioning before loss and improvement following it, leaving the improved group fairly unexplored.

How is improvement distinct from resilience? While resilience and improved psychological functioning exhibit some commonalities, they are markedly different bereavement patterns. Individuals in the improved group account for approximately five to 11 % of people (Bonanno, 2004; Bonanno et al., 2011; Bonanno et al., 2002; Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015; Mancini, 2019; Mancini et al., 2011). Despite the small percentage of bereaved individuals in the improved group, this population is important because it is anomalous and poorly understood.

Grief symptoms in the improved group mimic those of the resilient group post-loss, with just slightly elevated rates making it easily confused with resilience without prospective data (Bonanno et al., 2002). Both groups exhibit limited grief reactions and distress. Each bereavement pattern exhibits lessened grief reactions over time (aside from the inconsequential delayed-grief group), but the resilient and improved groups do not show significant change

between post-loss time points. They do, however, show significantly lower grief reactions than the other patterns (Bonanno et al., 2002). Like the resilient group, the improved group also demonstrates low avoidance and distraction. As previously described, both resilient and improved individuals do experience occasional grief symptoms early in the bereavement process (Bisconti et al., 2004).

Despite these similarities, the inclusion of pre-loss data presents significant differences between resilience and improvement. Improved individuals exhibit remarkably high levels of depression pre-loss and a significant reduction by six months. Grief symptoms continue to decrease and remain consistently low up to four years later (Boerner et al., 2005; Maccallum et al., 2015). Unlike resilient people, improved individuals do not demonstrate notable traumatization after the stressful event.

Without pre-loss data, considerable information is missed about the improved group. The bereavement pattern appears completely different before and after loss. The improved group is the only bereavement pattern to show significantly higher levels of depression and lower levels of subjective well-being before the loss than after (Bonanno et al., 2002; Mancini et al., 2011). In fact, improved individuals experience the highest levels of subjective well-being at the time of loss, with post-loss levels gradually declining while remaining higher than pre-loss levels (Mancini et al., 2011). Researchers have examined pre-loss data in the short term (within eight months of loss) and long term (several years before death) (Bonanno, 2004; Bonanno et al., 2011; Bonanno et al., 2002; Mancini et al., 2011). Before the adverse event, improved individuals exhibit greater depression levels than any other group, including the chronic depression group. After the loss, depression rates drop rapidly and significantly. This is the only

pattern in which individuals significantly improve psychological functioning in the wake of the adverse events.

Predictors of Improved Functioning After Loss. What leads this subpopulation of bereaved individuals to experience improved psychological functioning after loss? A variety of factors likely contribute to improved functioning.

Relief. One possibility is that bereaved individuals gain relief after spousal loss. For example, some evidence suggests that improved participants' spouses are more likely to be ill prior to their death (Bonanno et al., 2002). Thus, when individuals lose a spouse after a prolonged illness, the surviving partner can experience feelings of great relief. This may include relief from watching a loved one suffer, relief from caretaking responsibility, and relief from financial burden (Bonanno et al., 2002; Mancini et al., 2011). It can be an extremely difficult and isolating experience taking care of a dying spouse. After loss, the surviving partner may be able to resume with the life he or she previously experienced before the illness became of primary importance in his or her life (Bonanno et al., 2002). In fact, Schulz et al. (2001) found that while non-caregivers struggled with grief, those who were strained caregivers to their spouse in life experienced significant psychological improvement in bereavement.

Furthermore, because the spouse is often ill ahead of death, the bereaved spouse has time to process the experience and often grieves the loss before it even happens (Bonanno, 2004; Bonanno et al., 2002; Stroebe & Stroebe, 1993). Unlike the case of sudden loss, when someone is ill and diagnosed as terminal, there is frequently some time for the bereaved to acclimate to the idea and grieve before the person passes. Bonanno et al., (2005) found an increase in depressed mood in the six months leading up to loss, with the highest rate established two months prior to bereavement. From that point on, improved individuals experienced a continuous decrease in

depressed mood. This may support the concept that the grieving process occurs before the spousal death for this population.

Improved social functioning. Another plausible explanation of improved functioning is a change in the social environment and social relationships. Some evidence suggests that improved individuals report more negative relationship quality with their spouse. For example, improved bereaved spouses rate their marriage and relationship with their spouse as less satisfying than those in other patterns (Bonanno et al., 2002). The improved group experiences significantly fewer positive evaluations of their relationships with the deceased spouse than almost all other groups. Those with improvement express the most negative and intensely ambivalent views of their spouse and marriage, more so than even the chronic depression group (Bonanno et al., 2002). Similar to the resilient group, although seemingly for different reasons, the improved group rates low levels of dependency on their spouse and the relationship. This lack of dependency appears to come from a lower quality marital relationship in the improvement group (Bonanno, 2004).

Improved individuals often experience an unhappy relationship and a demanding, lengthy caretaking process for an ailing spouse which may contribute to positive well-being in bereavement. Therefore, the death of the spouse can be viewed as a relief from a chronic stressor (Bonanno, 2004). In fact, Bonanno (2004) examined perceived benefits of widowhood. Not surprisingly, the study found that the improved group rated highest on this variable. Negative views of the relationship, the experience of intense ambivalence during the marriage, and extensive caretaking for the ill spouse explain the high rates of depression ahead of the adverse event or bereavement. After the loss, the absence of grief, perceived benefits of widowhood, and a lack of searching for meaning allow for a sharp and significant change in

depression in the bereaved partner. Improved individuals may struggle with difficulties prior to the loss. Similarly, they often experience pre-loss stressors as greater than the loss itself (Galatzer-Levy & Bonanno, 2012). These positive changes also permit individuals in the improved group to feel positively surprised at how well they cope (Bonanno, 2004). Interestingly, this group is the only grief trajectory to find significant positive change in the comfort they experience from positive memories of the relationship as time passes (Boerner et al., 2005).

Bereavement and Social Processes

Social support is a broad variable which includes a variety of characteristics (Haber, Cohen, Lucas, & Baltes, 2007), many of which stimulate well-being and adaptation through friends, family, and community (Argyle, 2013; Cohen, Gottlieb, & Underwood, 2001; Gillath, Karantzas, & Fraley, 2016; Lucas & Dyrenforth, 2006; Myers, 1992). This includes behavioral actions such as seeking out and receiving social support (Bisconti, Bergeman, & Boker, 2006; Bonanno & Mancini, 2012; Gillath et al., 2016; Norris et al., 2002; Prati & Pietrantoni, 2009; Moskowitz, Folkman, & Acree, 2003). Likewise, personal interpretation including perceived social support and satisfaction with social support are correlated with psychological well-being and improvement in loss (Linley & Joseph, 2004; Norris et al., 2002; Norris & Kaniasty, 1996; Park, Cohen, & Murch, 1996; Moskowitz et al., 2003; Utz, Swenson, Caserta, Lund, & deVries, 2014). Other forms of social support linked to psychological adjustment in loss include frequency of contact, having substantive conversations, as well as size and closeness of an individual's social network (Dickstein, McLean, et al., 2010; Mehl, Vazire, Holleran, & Clark, 2010; Norris et al., 2002; Park et al., 1996; Moskowitz et al., 2003). Conversely, studies have shown that a lack of social support, including avoidance of others and loneliness, is associated

with increased depression in bereavement (Cacioppo, Hawkley, & Thisted, 2010; Nolen-Hoeksema, Larson, & Larson, 2013; Moskowitz et al., 2003).

One traditional approach to researching social support in bereavement is perceived social support, which has been found to be a protective factor against different forms of stress (Cohen & Wills, 1985). The "buffering" and "main-effect" (or direct-effect) models examine social support as a moderating or independent variable (Cohen & Wills, 1985). The buffering effect refers to social support acting as a moderator protecting against the deleterious impact of stress and helping individuals cope with loss (Anusic & Lucas, 2014; Stroebe, Zech, Stroebe, & Abakoumkin, 2005; Tedeschi & Calhoun, 2004). The main effect model claims that the relationship between social support and well-being remains the same regardless of the stressor or bereavement, separating time and the impact of loss from social support (Cohen & Wills, 1985). It does not require the occurrence of an adverse event in order to serve as a protective variable.

These traditional methods have found that social support plays an essential role in resilience and well-being after a stressful event (Cohen & Wills, 1985; Dickstein, McLean, et al., 2010; Myers, 2000; Stroebe & Stroebe, 1987). Social environments with adaptive growth narratives, as well as shared experiences of difficulties and positive change, foster individual improvements and protect against prolonged grief (Denckla, Mancini, Bornstein, & Bonanno, 2011; Tedeschi & Calhoun, 2004). Main effects have found that social connectedness is beneficial to psychological well-being regardless of adversity or loss (Cohen, 2004). Social support is found to alleviate stress and burden for caregivers in bereavement (Bonanno & Mancini, 2012; Gillath et al., 2016). These effects can last several years after loss (Stroebe, Stroebe, Abakoumkin, & Schut, 1996b). Similarly, researchers have discovered that improved social support after adversity has a negative relationship with depression (Brown & Harris, 1978;

McNaughton, Patterson, Irwin, & Grant, 1992). When social support is utilized as an independent or moderating variable, it is consistently and positively correlated with emotion regulation, coping, and behavioral change (Anusic & Lucas, 2014; Cohen, 2004; Cohen & Wills, 1985; Gillath et al., 2016; Mancini & Bonanno, 2009; Schaefer & Moos, 1998; Stroebe, Stroebe, Abakoumkin, & Schut, 1996a).

Adversity and Social Processes

While traditional research has examined social support as a protective measure against stress in bereavement, one possibility that has been ignored is that bereavement can actually benefit the social environment. History indicates that prosocial behaviors occur when individuals and communities experience adverse events (Schachter, 1959). Disasters such as the Boston Marathon bombing, the September 11 terrorist attacks, and Hurricane Katrina are all evidence of people rallying together after loss and disaster (Abrams, Albright, & Panofsky, 2004; Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015; Solnit, 2010).

Not all research on adversity and social environments focuses on mass trauma, however. Some studies have demonstrated that grief in bereavement can deepen social connections (Bonanno, 2010). Friends and family offer intense support after loss (Didion, 2007). People who lose loved ones may seek out positives as a method of defending against the threat of their own mortality and to feel as though life is meaningful (Davis & McKearney, 2003). The lack of research on bereavement improving social environments provides a fruitful opportunity to understand changes in psychological functioning from a perspective of stimulated social relationships.

Psychosocial Gains from Adversity

Evidence of adversity creating beneficial changes in the environment has led to the development of "psychosocial gains from adversity" (PGA), a multi-level theory that helps to explain the phenomenon of improvement in loss (Mancini, 2019). The theory argues that adversity can actually improve psychological adjustment in certain individuals. Mancini (2019) describes it as "marked improvement on a dimension of psychological functioning that directly follows exposure to either an isolated and highly adverse event (such as natural disaster, violent or life-threatening experience, or terrorist attack) or a major stressful life event (such as bereavement, divorce, or major illness)." This represents the improved heterogeneity pattern, whereby individuals have lower or more impaired psychological functioning before the adverse event. The concept of psychosocial gains from adversity (PGA) suggests there is a social component that arises in the wake of a trauma, which, in those with low psychological functioning pre-event, actually improves functioning. This can mean changes in depression, anxiety, life satisfaction or meaning of life (Mancini, 2019).

PGA reflects positive changes in one's social environment, evidenced by prior research. The improvement that one experiences after loss comes from an interpersonal, social context rather than personal. On the same note, the individual is influenced by the group and vice versa. There is a direct interaction between the individual and his or her social environment, with each influencing the other. The interaction and social growth lead to psychological gains in the individual (Mancini, 2019). The theory suggests a model of how the social mechanism of PGA creates the gain in functionality. It recognizes how the social component and affiliative behaviors emerge after tragedy, how people seek them out, and the positive impact on those who are isolated and depressed before the event.

In the wake of adversity, people commonly experience an impulse to engage in affiliative behavior, a so-called "tend-and-befriend" response (Taylor, 2011). This concept, as well as the collective spread of happiness (Christakis & Fowler, 2009; Fowler & Christakis, 2008) and the relational regulation theory (Lakey & Orehek, 2011), is the foundation of PGA. People naturally attempt to protect others and seek out relationships when they feel threatened (Taylor, 2011; von Dawans, Fischbacher, Kirschbaum, Fehr, & Heinrichs, 2012). People become receptive to the comfort of others, as well as create a desire to reach out for social support (Mancini, 2019; Taylor, 2011). Acutely stressful events increase prosocial behavior including trusting others, willingness to take risks through social interaction, and sharing activity (von Dawans et al., 2012). This increased social behavior can last for years after the event, both for those directly impacted and those who are not (Drabek, Key, Erickson, & Crowe, 1975).

Research shows evidence that sharing experiences magnifies the reaction (Boothby, Clark, & Bargh, 2014). During these difficult times, people share experiences and develop bonds over mutual suffering (Taylor, 2011). This shared pain triggers a group formation, or collective identity, whereby there is an increased feeling of kinship (Bastian, Jetten, & Ferris, 2014; Bastian, Jetten, Hornsey, & Leknes, 2014; Buhrmester et al., 2015). Threats to the collective group are seen as threats to the self, leading to altruistic and self-sacrificial behavior (Buhrmester et al., 2015; Solnit, 2010; Whitehouse & Lanman, 2014). Shared pain promotes trusting interpersonal relationships by increasing perceived bonding and connection, triggering empathy from others (Bastian, Jetten, & Ferris, 2014; Bastian, Jetten, Hornsey, et al., 2014).

Through these social behaviors and developing bonds, conversations and interactions become more substantial with a goal of connection and well-being (Mancini, 2019). Topics of conversation are more meaningful and include shared emotions and understanding. However,

these conversations are not always about the adverse event. Relational regulation theory (RRT) postulates that people's thought, affect, and action are regulated through ordinary social interactions, not conversations focused on coping methods for stress (Lakey & Orehek, 2011). Relational interactions, including shared activities and common yet emotionally impactful conversations, impact one's affect. These interactions breed more thought and discussion on powerful topics about life, which creates more meaningful social relationships (Lakey & Orehek, 2011; Mancini, 2019). These positive social interactions create better quality relationships which are closely associated with well-being (Dickstein, McLean, et al., 2010; Norris et al., 2002).

The PGA model observes that adversity promotes a cooperative prosocial environment on a group level, not just an individual one (Mancini, 2019). The shared experiences leading to social bonding create stronger relationships and increased social contact, which spreads out through communities. Fowler and Christakis (2008) describe happiness as a collective phenomenon, not simply an individual experience. Those who are surrounded by happy people are more likely themselves to be happy in the future. When happy people are centralized in their social network, happiness spreads to others in and around their community. The kindness and support that people express encourages others to act similarly (Mancini, 2019). Oftentimes this leads those impacted to make positive change in the community by volunteering or providing other means of support, thus changing the whole social environment around them. The phenomenon is a ripple effect, creating clusters of happy people (Fowler & Christakis, 2008). This phenomenon is not simply due to a tendency to associate with those who hold similar views, but the happiness within a group can actually improve those associated with it.

Similarly, communities mobilize around their members in the wake of adversity. They create high levels of support and protect each other immediately after a disaster (Kaniasty &

Norris, 2004). The collective identity develops community relief efforts, which members engage in for involvement and connection (Abrams et al., 2004). For example, New Yorkers responded to 9/11 with widespread and communal connection with others, including strangers, shifting away from inconsequential, polite communication (Abrams et al., 2004). This social integration after a stressful event allows members of a group to experience a sense of identification within their community (Cohen, 2004).

How do people experience prosocial gains from adversity? PGA arises within individuals who have low psychosocial functioning before a negative event- those with increased depression or anxiety and lower levels of social support than other groups. An adverse life event occurs, such as a loss or trauma. Because prosocial behaviors are an automatic response to stress, positive change occurs soon after the stressful event (Mancini, 2019). It culminates with social improvement and an enhanced sense of community. Provided that no harm is done to the social network, the affiliation and deeper connection positively alter the individual's psychological functioning. There is no preoccupation with the event or traumatization. Unlike posttraumatic growth, there is no rumination or shattered belief system to work through. Individuals in this group show significant improvements in depression, anxiety, and life satisfaction (Mancini, 2019). This improvement occurs rapidly after the adversity, with individuals showing dramatically improved psychosocial gains from their original state before the acute, traumatic event.

Few studies have yet to directly examine psychosocial gains from adversity. Mancini (2014) studied the effects of social support on improvement after mass trauma. The study found that those who improved after the adversity (lower anxiety and depression scores) had improved social support after the traumatic event. Similarly, Mancini, Littleton, and Grills (2015)

discovered that female survivors of the Virginia Tech shooting experienced significant gains in interpersonal resources and perceived social support after the event. This research provides support to the theory that improvement after adversity occurs in relationship with changes in one's social environment.

Methodological Issues

Very little prior research has examined the possibility that interpersonal loss can have favorable effects on social relationships. A primary reason is that it is remarkably difficult to measure pre-loss functioning when many stressful events are not foreseeable. The difficulty of obtaining assessments before a loss leads to a lack of long-term prospective research on bereavement. Because the improvement trajectory requires prospective or pre-loss data, most literature cannot document improvement in psychological functioning following a loss. Thus, little is known about what contributes to improved functioning after loss (Bonanno et al., 2002).

One challenge that arises from limited prospective research and focusing on the improvement group is a small sample size. Due to the difficult nature of gaining pre-loss data, there is frequently a small sample size in prospective bereavement research. There is even less research studying the details of the improved group, despite how drastically different it is from the other patterns. This is likely due to the improved group only accounting for a small percentage of bereavement reactions (Bonanno, 2004; Bonanno et al., 2011; Bonanno et al., 2002; Galatzer-Levy & Bonanno, 2012; Maccallum et al., 2015; Mancini, 2019; Mancini et al., 2011).

Because it is an uncommon trajectory, improvement is rarely studied independently from other grief reactions to understand why the pattern is so different. There are vast opportunities for research in this demographic. It is clearly identifiable as a population that unexpectedly

thrives after the loss of a spouse. Therefore, it is valuable to study the population at greater length. Science can gain a more comprehensible understanding of what causes improved psychological functioning in this particular subset of bereaved individuals.

Finally, with the scarcity of data on the improved bereavement pattern, a gap emerges in social support and improvement research. Research has typically examined social support as a variable that protects or moderates affect and well-being. Unfortunately, main effects are rarely able to find causal impact of social support on bereavement symptoms. Similarly, buffering effects are limitedly conclusive due to the dearth of knowledge regarding the impact of social support before partner death. Differences in methodology also create inconsistencies in data (Anusic & Lucas, 2014).

One method researchers use to overcome the scarcity of prospective data is cross-sectional self-report in the aftermath of bereavement. Some researchers using this data metric have found a relationship between social support and affect in the years after loss but lacked any significant correlation in the immediate wake (Bankoff, 1983; Greene & Feld, 1989). The issue with pre-loss information self-reported after loss is that bereaved individuals often do not have an accurate representation or view of their emotions before the adverse experience. Most importantly, these methods exclude the possibility that social support itself is stimulated as a result of bereavement.

Another important issue is establishing that changes in functioning after loss are specifically attributable to the loss. Most research identifies differences within the bereaved population and compares the subsets. For example, heterogeneity research examines differences between trajectories of psychological functioning among bereaved individuals (Bonanno et al., 2010; Dickstein, Suvak, et al., 2010). Bereavement research frequently lacks a control group of

non-bereaved individuals to confirm that the loss itself impacts changing psychological and social functioning. Including a control group in bereavement studies has distinct advantages. It isolates the independent variable and provides a clear baseline for functioning. By identifying a control group, bereavement research improves internal validity. Removing the possibility that changes in functioning within bereavement groups is due to factors unrelated to the loss itself manages alternate explanations including post-test group maturation (Campbell & Stanley, 1963). With these limitations, research has created an unexplored opportunity to understand if changes in social support are correlated with changes in improvement during bereavement.

Operationalizing Improvement after Loss

Limited research has defined "improvement" in bereavement research (Galatzer-Levy et al., 2018). Most research has operationalized it in the context of a distinct pattern distinguished from other significant heterogeneity patterns (Bisconti et al., 2006; Boerner et al., 2005; Bonanno et al., 2011; Bonanno et al., 2002; Maccallum et al., 2015; Mancini et al., 2011). Improvement is predominantly examined through the lens of deciphering heterogeneity patterns inclusive of prospective data. These studies primarily identify improvement as including individuals with significant levels of pre-loss depression. It is defined as either high pre-loss depression with a significant negative slope from before loss to six months post-loss, or as steep upward trend in improved well-being from pre-loss baseline (Bisconti et al., 2004; Bisconti et al., 2006; Galatzer-Levy & Bonanno, 2012). Research often includes a one standard deviation change from pre-loss to post-loss (Boerner et al., 2005; Bonanno et al., 2005; Bonanno et al., 2002). Some research allows for a gradual return towards baseline levels, while other studies require a consistent one standard deviation of improvement at each post-loss assessment (Boerner et al., 2005; Bonanno & Mancini, 2012; Bonanno et al., 2005; Bonanno et al., 2002;

Maccallum et al., 2015; Mancini et al., 2011; Mancini et al., 2015). As there is no one definition for "improvement," it can be valuable to operationalize the "improved group" as exhibiting at least a medium effect size to include all those who experience the phenomenon.

Current Study

Studies have, to a limited extent, explored improvements of psychological functioning after the loss of a spouse. Similarly, there is a gap in bereavement research examining how positive changes in social interactions after loss function as a primary element of psychosocial gains. This is valuable to research because there are clear reasons to believe that social improvements after adversity have a significant relationship to the decrease in depression that some individuals experience after the loss of a loved one. It is a gap in the research that holds a wealth of questions and opportunity in improvement after adversity.

The purpose of this study is to examine if improvements in functioning are associated with improvements in social relationships in the wake of bereavement. Specifically, the study uses an unusual prospective study with assessments of data before and after loss to examine whether improvement is associated with changes in social perceptions and behavior. This study examines social support and functioning not as a buffer against stress, but as a dependent variable in the aftermath of loss. The study builds on the understanding of improvement and social support by improving upon methodological limitations of prior research and expanding on the concept of psychosocial gains from adversity. I test the accuracy of the PGA's theory that bereavement can stimulate improved functioning through improvements in psychological functioning. This study is an important addition to the research due to the inclusion of prospective data, the value of researching the improved group, and the new way of examining social support in loss. This study has the capacity to change the way researchers study and understand loss.

In order to address the hypotheses presented in the current study, I conducted a secondary analysis of data collected from the Changing Lives of Older Couples (CLOC) study, a multi-wave prospective study of spousal bereavement. The study includes 1,532 married individuals from the Detroit Standardized Metropolitan Statistical Area (SMSA). The study utilizes both pre- and post-loss data, with baseline interviews occurring on average three years before spousal loss. Follow-up interviews occurred at six and 18 months post-loss. The study is widely used in the psychological community to further understanding of bereavement.

Using this data set, I primarily identified improved psychological functioning using a broad construct of general improvement after loss. Using a repeated measures analysis, I examined changes in social relationship variables over two waves. I expected to find improvements in social functioning. I then compared improvements in social functioning between the improved group, all other bereaved individuals, and a control group of individuals who did not experience bereavement. The improved group was identified by examining reductions in depression symptoms from pre- to post-loss. To examine whether improvement depends on the magnitude of change, I examined the relative magnitude of improvement according to two standard effect size metrics (medium, $d = .50$; large, $d = .80$). I identified "bereavement" as the independent variable, which is examined by the first pre-loss wave and a following six-month post-loss wave and compared bereaved spouses (improved and not improved) to a non-bereaved control group. Social functioning is the dependent variable, which consists of multiple social variables examined in the original study. Thus, the present study examined both whether bereavement itself leads to changes in social functioning and whether improved functioning after can be linked to changes in the social environment.

Hypotheses

This study examined whether people who show improved functioning, as defined by reduced depression from before to after a loss, also show improved social functioning from before to after the loss. I examined three research questions, testing hypotheses for each:

Q1: Do bereaved spouses who show improved functioning after loss experience improvements in the perceptions of their close others, relative to a group that does not improve and a non-bereaved control group?

H1A. Bereaved spouses who show improved functioning after loss also show improved perceptions of support from children from before to after the loss, relative to a group that does not improve and a non-bereaved control group.

H1B. Bereaved spouses who show improved functioning after loss also show improved perceptions of instrumental support from before to after the loss, relative to a group that does not improve and a non-bereaved control group.

Q2: Do bereaved spouses who show improved functioning also report increased informal social involvement, relative to a group that does not improve and a non-bereaved control group?

H2A. Bereaved spouses who show improved functioning also report increased social involvement through in-person social interaction, relative to a group that does not improve and a non-bereaved control group.

H2B. Bereaved spouses who show improved functioning also report increased social involvement through phone interaction, relative to a group that does not improve and a non-bereaved control group**.**

Q3: Do bereaved spouses who show improved functioning from before to after the loss report improved community involvement, relative to a group that does not improve and a non-bereaved control group?

H3A. Bereaved spouses who show improved functioning from before to after the loss report increased involvement in clubs and religious activities, relative to a group that does not improve and a non-bereaved control group.

Exploratory Analyses

Exploratory analyses examined the differences between positive and negative support and the relationship with psychological functioning in bereavement. To determine the relationship between functioning and positive support, I used the variable *positive support from friends and relatives*. For negative support, I used the *hassles from friends and relatives* variable. Similarly, I conducted an exploratory analysis of the change in *well-being* from before and after loss, providing an introduction for future research.

CHAPTER 2: METHOD

Participants

Participant data was collected from the CLOC study, a multi-wave prospective study of spousal bereavement with a two-stage probability sample including 1,532 married individuals from the Detroit Standardized Metropolitan Statistical Area (SMSA). All participants were English-speaking and married at baseline. The husband must be age 65 or older. All participants were non-institutionalized and were capable of participating in a two-hour face-to-face interview.

Baseline interviews with the respondents were conducted between June 1987 and April 1988. Spousal loss was identified using daily obituaries in local Detroit-area newspapers and monthly death records provided by the State of Michigan. The National Death Index (NDI) was used along with death certificates to confirm all deaths. Three hundred and sixteen of the 335 respondents known to have lost a spouse during the five-year study were contacted for interview. Eighty-six percent (n = 276) of those contacted participated in at least one follow-up interview. Sixty-four percent (n = 205) responded in both follow-up interviews.

Analyses in this study included 333 participants who participated in at least one follow-up interview. This included 250 widowed individuals (215 women and 35 men). Widowed participants' average age at 6-months post-loss was 70 (*SD* = 6.86) years. The control group included 83 non-bereaved participants (72 women and 11 men). The average age for individuals in the control group at follow-up was 68 (*SD* = 6.42) years.

Procedure

Data were collected at three time points during the study. The CLOC study used a pre-loss baseline averaging three years prior to the death of the spouse. Wave 1 occurred six months after spousal death. Wave 2 occurred 18 months post-loss. This study examined social support

variables over the baseline to wave 1 of loss, excluding wave 2. This study defined improved psychological functioning as individuals experiencing at least a medium degree of improvement after loss. Further analyses also examined an improved group consisting of a strict, previously determined definition of improvement.

Operationalizing Improvement

The "improved group" was defined according to two effect size metrics. First, participants who demonstrate at least a medium effect size change in depression from baseline to six months post-loss of at least .50 standard deviation. This identification was designated to include all participants who experience a moderate degree of improvement after loss. Second, participants who demonstrate a large effect size change in depression from baseline to six months post-loss of at least .80 standard deviation. This identification was designated to include all participants who experience a large degree of improvement after loss (Cohen, 1992), irrespective of their pre-loss level of depression.

Measures

Depression

Depression was measured using the brief nine-item version of the Center for Epidemiologic Studies Depression (CES-D) scale (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). Participants were asked to respond to how often they experienced each symptom in the week prior to the interview (I felt depressed; I felt that everything I did was an effort; My sleep was restless; I was happy; I felt lonely; I enjoyed life; I did not feel like eating, my appetite was poor; I felt sad; I could not get going). These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or

much of the time, and 3 = most or all of the time. High scores indicated greater depressive symptoms (α = .76).

Social Functioning Variables

Perceived support from children was measured using eleven questions on a four point Likert scale: "How much do you feel they make too many demands on you?"; "How much are they critical of you?"; "How much do your children make you feel loved and cared for?"; "How much are they willing to listen when you need to talk about your worries or problems?"; "How much do your children depend on you for emotional support?"; "How much do they depend on you for help or advice with financial and legal matters?"; How much do they depend on you for your help with errands, baby-sitting or other chores?; "How much do you depend on your children for emotional support?"; "How much do you depend on them for help or advice with financial and legal matters?"; "How much do you depend on them for help with errands or other chores?"; "In the past 12 months, how often did you have contact with at least one of your children who do not live with you in person, by phone or by mail?" The scores of the first two questions and the reverse scores of the last nine are averaged (4-point scale: 1 = not at all; 4 = a great deal). High scores indicated higher levels of emotional support (α = .92).

Perceived instrumental support was measured by averaging three questions: "If you and your (husband/wife) needed extra help with general housework or home maintenance, how much could you count on friends or family members to help you?"; "If you and your (husband/wife) needed extra money, how much could you count on someone other than a lending institution, to lend or give you money?"; "If you were willing, how much could you count on someone, besides your (husband/wife), to make sure you are taken care of?" These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or

much of the time, and 3 = most or all of the time. Scores were reversed. High scores indicated higher levels of instrumental support (α = .63).

Frequency of in-person social interaction was measured by a single question: "How often do you get together with friends, neighbors or relatives and do things like go out together or visit in each other's homes?" This question was scored on a 4-point scale, where 3 = rarely or none of the time, 2 = some or little of the time, 1 = moderately or much of the time, and 0 = most or all of the time. The score was reversed. High scores indicated higher levels of frequency of in-person social interaction.

Frequency of phone interaction was measured by asking: "In a typical week, about how many times do you talk on the telephone with friends, neighbors or relatives?" This question was scored on a 4-point scale, where 3 = rarely or none of the time, 2 = some or little of the time, 1 = moderately or much of the time, and 0 = most or all of the time. The score was reversed. High scores indicated higher levels of frequency of phone interaction.

Involvement in clubs and religious activities was defined by the CLOC variable of *formal social integration*. This is measured by averaging two questions: "How often do you attend meetings or programs of groups, clubs, or organizations that you belong to?" and "How often do you usually attend religious services?" These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or much of the time, and 3 = most or all of the time. Scores were reversed. High scores indicated higher levels of involvement in clubs and religious activities (α = .49).

Positive support from friends and relatives was measured by averaging two questions: "On the whole, how much do your friends and relatives make you feel loved and cared for?" and "How much are your friends and relatives willing to listen when you need to talk about your

worries or problems?" These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or much of the time, and 3 = most or all of the time. Scores were reversed. High scores indicated higher levels of positive support from friends and relatives (α = .71).

Hassles from friends and relatives was measured by averaging two questions: "How much do you feel your friends and relatives make too many demands on you?" and "How much are they critical of what you do?" These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or much of the time, and 3 = most or all of the time. Scores were reversed. High scores indicated higher levels of hassles from friends and relatives (α = .43).

Well-being was measured by averaging seven responses: "I was happy"; "I enjoyed life"; "I was particularly excited or interested in something"; "I was pleased about having accomplished something"; "I felt that things were going my way"; "I felt proud because someone complimented me on something I had done"; "I felt on top of the world." These questions were scored on a 4-point scale, where 0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or much of the time, and 3 = most or all of the time. High scores indicated higher levels of well-being (α = .80).

Data Analysis

To examine the impact of improved functioning after loss, three group variables were first constructed. Bereaved participants were split into two groups: improved and non-improved. Improved participants are those who experience improved psychological functioning from before bereavement to six months after loss. Improved psychological functioning was determined by reductions in depression symptoms according to both medium and large effect sizes. A control

group of non-bereaved individuals was studied for comparison to determine what change is attributable to loss. To examine whether change in social variables differs for each group, I examined within-person change from baseline to six months by group using a linear mixed model. The within-subjects factor is the dependent variable (each social variable was analyzed separately) and the between-subjects factor is the improvement trajectory (improved, not improved, control). Separate analyses were conducted using the liberal criterion (medium effect) and the conservative criterion (large effect) for the hypotheses. I conducted a series of linear mixed models for each variable, including: perceived support from children, perceived instrumental support, frequency of in-person social interaction, frequency of phone interaction, involvement in clubs and religious activities, friend and relative positive support, friend and relative negative hassles, and well-being. Separate mixed models were conducted for each outcome using both medium ($d > .5$) and large ($d > .8$) effect size changes for the improved group (Cohen, 1992).

CHAPTER 3: RESULTS

Descriptive Findings on Improvement

The study identified 250 bereaved subjects and 83 non-bereaved control group subjects. For the medium effect analyses, 63 individuals qualified as "improved." The improved group therefore included 25.2% of the bereaved populations, with the not-improved group including the other 74.8% of bereaved subjects. The large effect analyses narrowed the qualification for "improvement." Only 40 participants were considered improved. Therefore, when examining a large effect of change, 16% of the bereaved population exhibited psychological improvement while 84% were not improved.

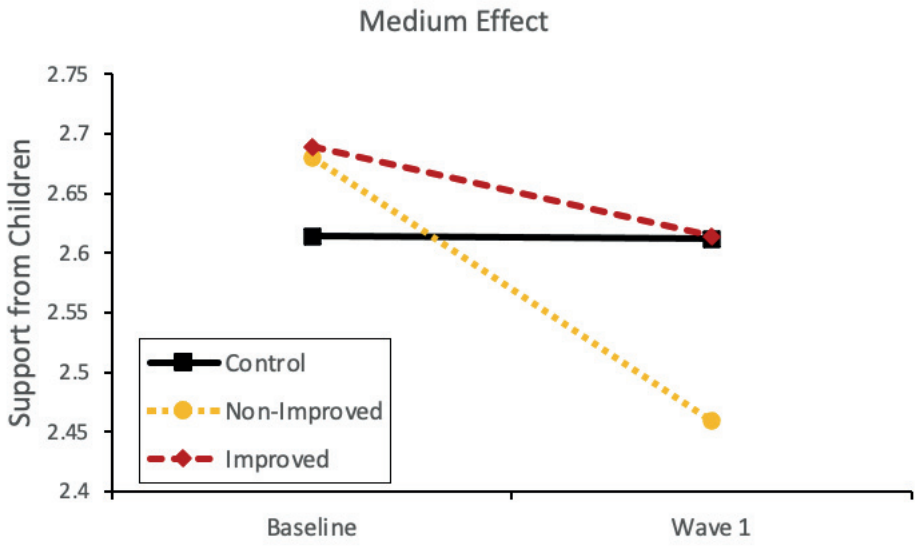
Group Changes in Perceived Support from Children

Medium effect improved group. The degree of change in perceived support from children was first examined in participants with a moderate degree of improved functioning (medium effect). These analyses revealed that there was variation in the groups but that this was primarily a consequence of the non-improved bereaved group experiencing a reduction in perceived support from children. Specifically, there was a main effect for time from baseline to W1, F (1,320.67) = 9.23, p = .003 but no group effect (p = .830). However, as shown in Table 1, there was a significant Time x Group interaction, F (2,320.64) = 5.44, p = .005. To determine how each group changed from baseline to W1, post-hoc analyses were conducted. As shown in Figure 1A, only the non-improved bereaved group experienced a significant decline in perceived support from children, F (1,179.33) = 34.53, p = <.001. The control and improvement groups experienced almost no change over time (p = .973, p = .215, respectively), suggesting that the improved group sustained its perception of support from children relative to the not-improved group. Hypothesis 1A is not supported by the medium effect analysis.

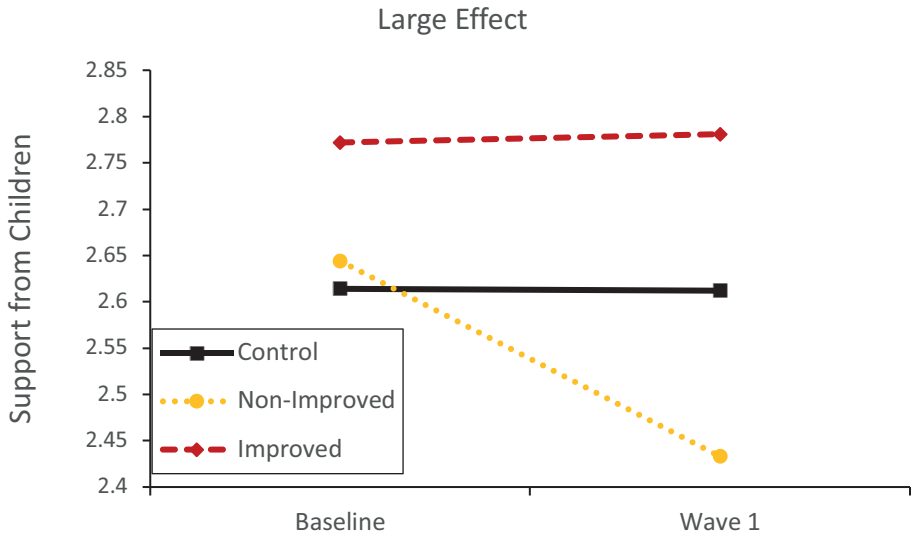
Figure 1

Changes in Perceived Support from Children by Group

A



B



Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. An almost identical pattern of results emerged for the large effect improved group. These analyses identified that the reduction in perceived support from children in the non-improved group was responsible for the limited variation within group. There was no effect for group (p = .330) and only a marginal effect of time for perceived support (p = .057). Again, the interaction between time and group was significant, F (2, 330.52) = 6.47, p = .002. Post-hoc analyses determined similar within-group results between medium and large effect sizes. Results for the non-improved group were similar to the medium effect analysis, exhibiting a significant decrease of support from before to after the loss, F (1, 207.30) = 6.20, p = <.001. As shown in Figure 1B, neither the control group (p = .973) nor the improved group experienced a significant reduction in perceived support from before to after the loss (p = .901). Similar to the control group but in contrast to the non-improved group, improved bereaved participants sustained their level of perceived support from children. Hypothesis 1A is not supported by this result, as the improved group did not exhibit improvements in perceived support from children.

Changes in Perceived Instrumental Support by Group

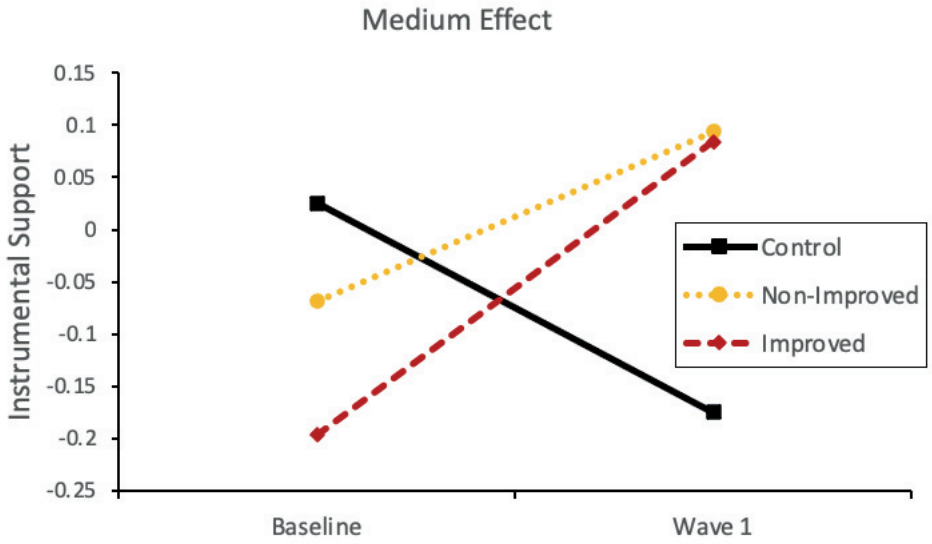
Medium effect improved group. Next, the effect on perceived instrumental support was examined. Results identified variation among groups due to reduction in control group support and positive changes in non-improved group support. Notably, there was a main effect for the time x group interaction, F (2, 322.99) = 5.24, p = .006, as show in Table 1. The impact of time on instrumental support, however, was not significant (p = .184) nor was there significance for group (p = .706). Post-hoc analyses found significant, yet distinctly different, changes for the control group and non-improved bereavement group. The control group experienced a significant decrease from baseline to W1, F (1,82) = 7.27, p = .009, while the non-improved

group experienced significant improvement over time, F (1, 181) = 4.47, p = .036. The improved group showed a marginal trend toward improved instrumental support over time (p = .072). In contrast to both bereaved groups, the control group showed a significant reduction in instrumental support over time (M = -.18, SD = .11). Improved bereaved participants sustained their level of perceived instrumental support relative to the improved support in the non-improved group and the reduction of support in control group (see Panel A of Figure 2). Hypothesis 1B is not supported by this result, as the improved group did not exhibit improved instrumental support when testing for a medium effect.

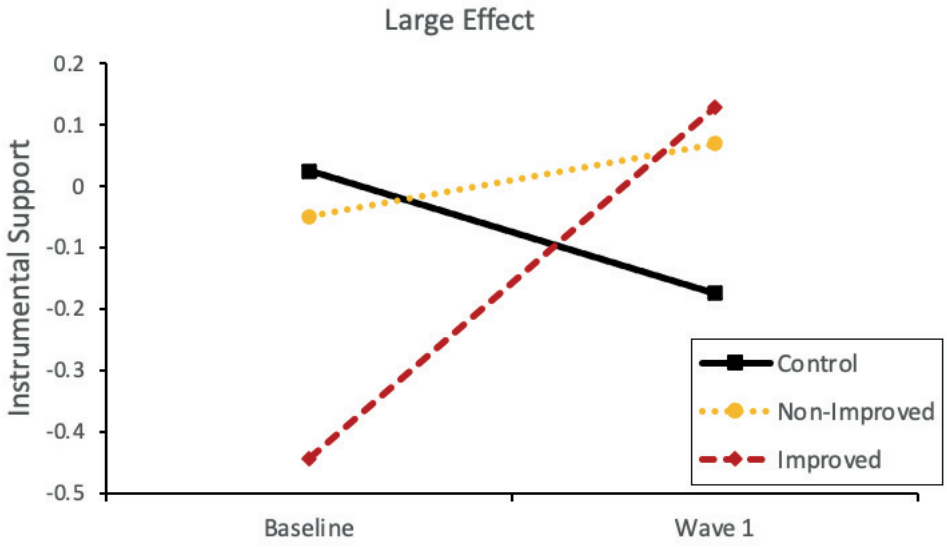
Figure 2

Changes in Perceived Instrumental Support by Group.

A



B



Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. Alternate results occurred for the bereavement groups in the large effect. Group variation was due in part to control group reduction of instrumental support similar to that of the medium effect analysis. However, unlike the medium effect analysis, the improved group experienced improvement in instrumental support instead of the non-improved, as shown in Panel B of Figure 2. Both time, F (1,333.02) = 6.20, p = .013, and the time x group interaction, F (2, 333.00) = 8.83, p = <.001, were significant for the instrumental support variable under a large effect analysis (see Table 1). Group, however, was not (p = .470). Contrary to the medium effect analyses, the improved group experienced a significant increase over time, F (1,39) = 10.11, p = 003, while the non-improved group experienced only a marginally significant change from before to after the loss (p = .096). The control group experienced a significant decrease in instrumental support between timepoints, F (1,82) = 7.27, p = .009, suggesting the improved group improved its perceptions of instrumental support, compared to both non-improved and control groups. Unlike the medium effect, the large effect analysis provides support for Hypothesis 1B.

Table 1

Improved Bereaved, Non-Improved Bereaved, and Control Participants by Time

Grouping Variable	Baseline	6 Months	Group X Time Effect
Perceived Support from Children			
Medium Effect			F (2,320.64) = 5.44, *p* = .005
Improved	2.69 (.13)	2.61 (.13)	
Not Improved	2.68 (.07)$_a$	2.50 (.07)$_a$	
Control	2.61 (.10)	2.61 (.10)	
Large Effect			F (2,330.52) = 6.50, p = .002
Improved	2.77 (.16)	2.78 (.16)	
Not Improved	2.63 (.07)$_b$	2.43 (.07)$_b$	
Control	2.61 (.11)	2.61 (.11)	
Perceived Instrumental Support			
Medium Effect			F (2,323.00) = 5.24, p = .006
Improved	-.20 (.13)	.08 (.13)	
Not Improved	-.07 (.07)$_c$	.09 (.07)$_c$	
Control	.23 (.11)$_d$	-.18 (.11)$_d$	
Large Effect			F (2,333.00) = 8.83, p = .000
Improved	-.44 (.16)$_e$	.13 (.16)$_e$	
Not Improved	-.05 (.07)	.07 (.07)	
Control	.03 (.11)$_f$	-.17 (.11)$_f$	
Frequency of In-person Social Interaction			
Medium Effect			F (2,325.00) = 4.56, p = .011
Improved	3.24 (.15)$_g$	3.70 (1.5)$_g$	
Not Improved	3.46 (.09)$_h$	3.78 (.09)$_h$	
Control	3.72 (.13)	3.53 (.13)	

			F (2,330.00) = 4.95, p = .008
Large Effect			
Improved	3.20 (.19)$_i$	3.80 (.19)i	
Not Improved	3.47 (.08)$_j$	3.77 (.08)$_j$	
Control	3.72 (.13)	3.53 (.13)	
Frequency of Phone Interaction			
Medium Effect			F (2,325.00) = 3.77, p = .024
Improved	4.81 (.15)	5.13 (.15)	
Not Improved	4.81 (.09)$_k$	5.14 (.09)$_k$	
Control	4.86 (.13)	4.72 (.13)	
Large Effect			F (2,330.00) = 3.77, p = .024
Improved	4.80 (.18)	5.13 (.18)	
Not Improved	4.82 (.08)$_l$	5.15 (.08)$_l$	
Control	4.86 (.13)	4.72 (.13)	
Involvement in Clubs and Religious Activities			
Medium Effect			F (2,323.00) = 5.90, p = .003
Improved	.05 (.13)	.20 (.13)	
Not Improved	.02 (.07)	.10 (.07)	
Control	.16 (.11)$_m$	-.11 (.11)$_m$	
Large Effect			F (2,333.00) = 6.21, p = .002
Improved	-.21 (.16)	-.01 (.16)	
Not Improved	.05 (.07)	.12 (.07)	
Control	.16 (.11)$_n$	-.11 (.11)$_n$	

Note. $N = 333$. Standard deviations are presented in parentheses. Means sharing a common subscript represent significant change from baseline to W1.

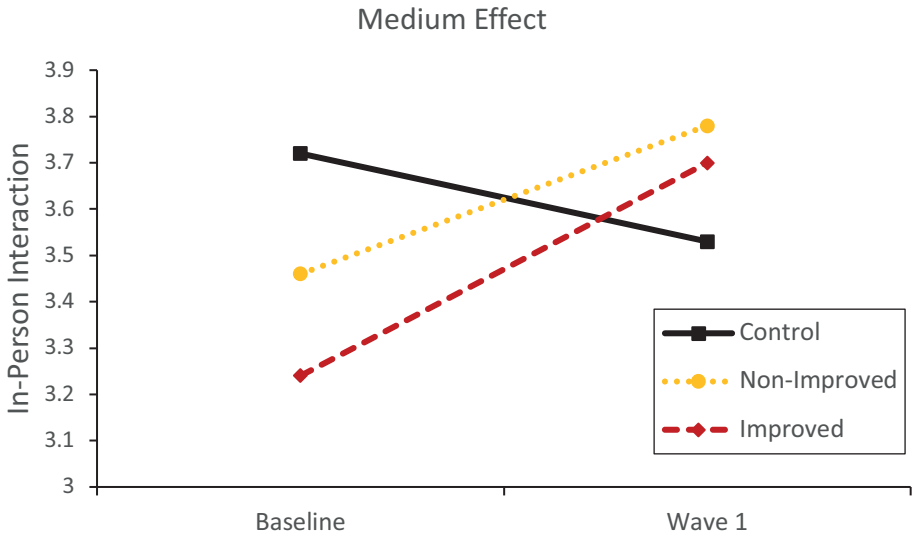
Group Changes in the Frequency of In-Person Interaction

Medium effect improved group. The degree of change in frequency of in-person interaction examined in participants with a moderate degree of improved functioning was significant for both bereavement groups. Specifically, visits with friends had significant changes in both time, F (1, 325.00) = 4.83, p = .029, and interaction effects F (2, 325.00) = 4.56, p = .011 (see Table 1). There was no significant change for the group effect (p = .523). Post-hoc analyses revealed that both bereavement groups experienced an increase in the frequency of in-person interaction. The non-improved group exhibited a significant improvement in the frequency of in-person interaction between pre- and post-loss, F (1,181) = 6.45, p = .011. The improved group also experienced significance between timepoints, F (1,62) = 4.17, p = .043. The control group had no significant change over time (p = .276). As compared to the control group, the improved group experienced improvements in in-person interaction (see Figure 3A). Hypothesis 2A is supported by the medium effect analysis.

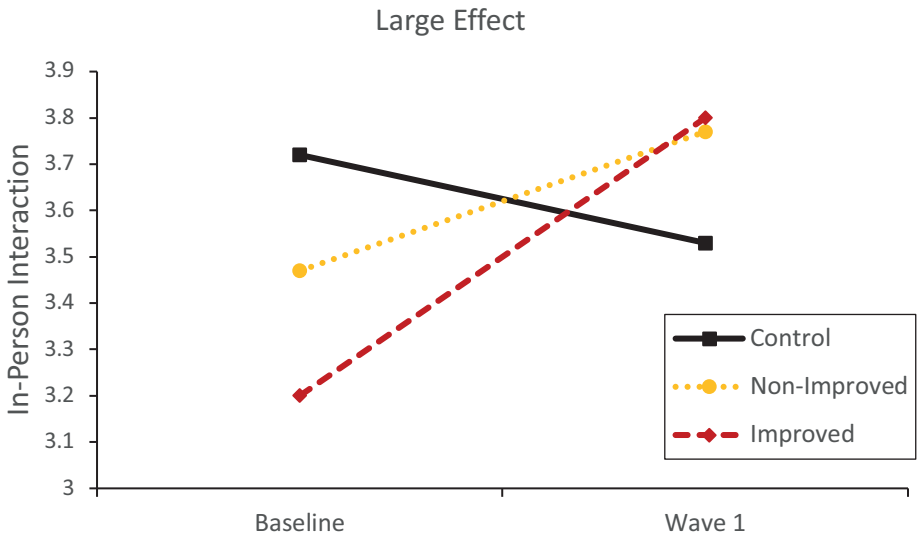
Figure 3

Changes in Frequency of In-person Interaction by Group

A



B



Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. Results for the large effect group revealed an almost identical pattern. The limited variation of group results was a consequence of similar improvement of frequency between both bereavement groups while no change occurred for the control group (see Figure 3B). Analyses identified that both time, F (1, 330.00) = 5.57, p = .019, and the time x group interaction, F (2, 330.00) = 4.95, p = .008 were significant. The impact of group alone was not significant (p = .757). With the large effect analysis, the control group exhibited the same nonsignificant change (p = .276) as with the medium effect analysis. The non-improved group experienced similar significance to the medium effect analysis, F (1,209) = 6.25, p = .013. Similarly, the improved group continued to exhibit significant improvement in in-person interaction, F (1,39) = 4.73, p = .033. As shown in Table 1, the improved group experienced the lowest frequency of in-person social interaction at baseline (M = 3.20, SD = .19). Again, as compared to the control group, the improved group experienced improvements. Hypothesis 2A is also supported by the large effect analysis.

Group Changes in the Frequency of Phone Interactions

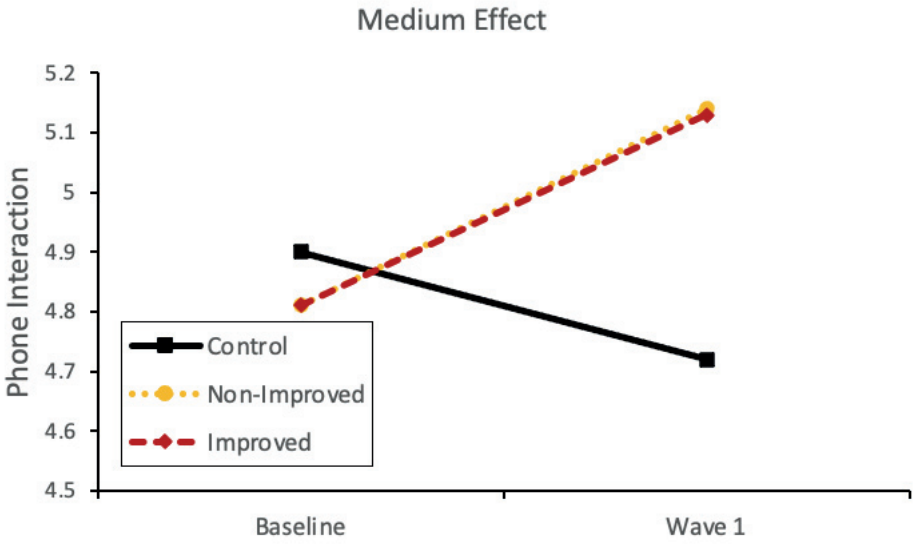
Medium effect improved group. Next, the effect on the frequency of phone interactions were examined. Unlike in-person interactions, variation in groups for phone interactions was only a consequence of improvement within the non-improved group. No significant changes occurred for either the improved or control group. As with in-person, the frequent phone interaction variable had both significant time, F (1, 325.00) = 4.59, p = .033, and interaction effects, F (2, 325.00) = 3.77, p = .024 (see Table 1). There was no significant effect of group (p = .311). Post-hoc analysis revealed that changes in the groups for this variable similarly reflect changes in the in-person variable. There was no significant change between baseline and W1 for the control group (p = .475) and or the improved group (p = .127). There was, however,

significant change between time points for the non-improved bereavement group, F (1,181) = 7.83, p = .005, with this group increasing the frequency of phone interactions. As with visitation, there was a non-significant decrease in frequency for the control group. As shown in Panel A of Figure 4, the improved group exhibited no positive change in comparison to either non-improved or control groups. Hypothesis 2B is not supported by the medium effect analysis, as the improved group did not experience improvements in frequency of phone interactions.

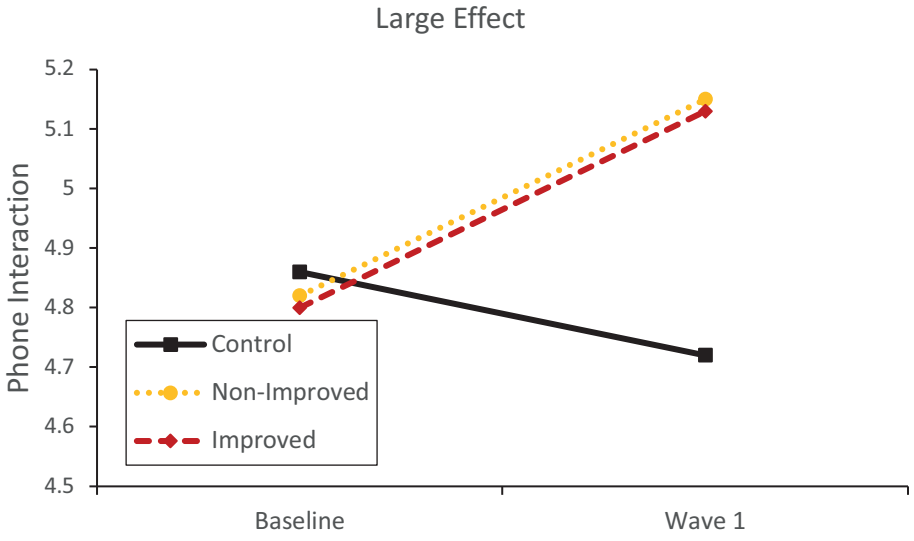
Figure 4

Changes in Frequency of Phone Interactions by Group

A



B



Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. A similar pattern was revealed for the large effect analysis. Group variation remained due to changes in the non-improved group, with nearly identical change occurring in the improved group (see Panel B of Figure 4). Neither time (p = .055) nor group (p = .281) were a significant factor for the frequency of phone interactions. As Table 1 shows, however, the interaction between time and group was significant, F (2, 330.00) = 3.77, p = .024. The simple effect analysis found no significant change over time for the control group (p = .475) or the improved group (p = .196). For the non-improved group, there was a significant increase of frequency between baseline and W1, F (1, 209) = 8.59, p = .004. Similar to the medium effect analysis, there was no positive change for the improved group compared to the control or non-improved groups. This result does not support Hypothesis 2B.

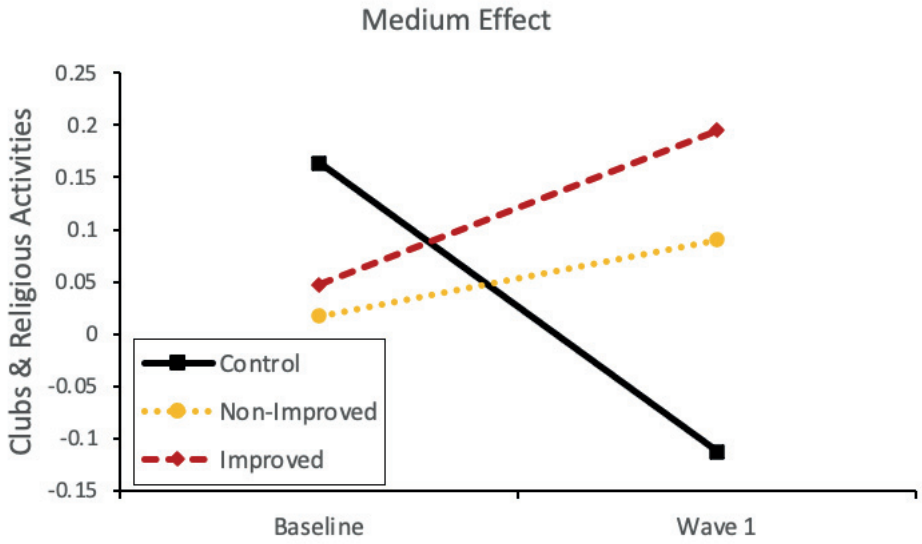
Changes in Involvement in Clubs and Religious Activities by Group

Medium effect improved group. For the final hypothesis, the degree of change in involvement in clubs and religious activities was first examined in participants with a moderate degree of improved functioning. These analyses revealed that there was variation in the groups but that this was primarily due to the control group experiencing reduced involvement in clubs and religious activities. For instance, neither time nor group were significant for involvement in activities (p = .729, p = .816, respectively). The interaction between time and group was significant, F (2, 323.00) = 5.90, p = .003 (see Table 1). Post-hoc analysis revealed a significant decrease in involvement in clubs or religious activities over time for the control group, F (1,82) = 8.48, p = .005. By contrast, neither the improved (p = .183) nor the non-improved (p = .255) bereaved participants experienced change from before to after the loss (see Figure 5A). The improved group sustained its involvement in clubs and religious activities relative to the control group. Hypothesis 3A is not supported by the medium effect analysis.

Figure 5

Changes in Involvement in Clubs and Religious Activities by Group

A



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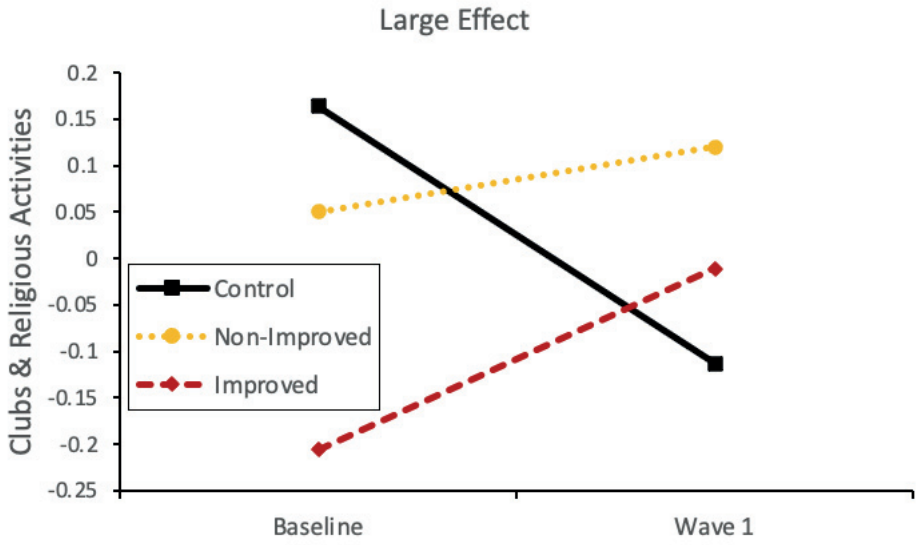


Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. A considerably similar pattern of results emerged for the large effect improved group. These analyses identified that the reduction in involvement in clubs and religious activities in the control group was responsible for the limited variation within group. Time, alone, was not a significant factor (p = .948). Group, alone, was not significant either (p = .440). As Table 1 shows, the time x group interaction was significant, F (2, 333.00) = 6.21, p = .002. Results for the large effect were similar to the medium effect across groups. The improved and non-improved groups change over time remained nonsignificant (p =.155 and p =.227, respectively) (see Figure 5B). The improvement in the control group between baseline and W1 remained significant as with a medium effect, F (1,82) = 8.48, p = .005. However, there was one notable difference between medium and large effect analyses. The improved group experienced poor involvement in clubs and religious activities before the spousal loss (M = -.21, SD = .16). This group experienced increases in formal social integration after the loss but continued to have poor involvement (M = -.01, SD = .16). The hypothesis is not supported.

Summary of Findings

Although hypotheses were not always supported, medium and large effect analyses revealed multiple changes in social support in the improved group compared to the non-improved bereaved and control groups. The improved group's nonsignificant change in perceived support from children varied from the non-improved bereaved group's reduction in support. Similarly, both bereavement groups' nonsignificant change in involvement in clubs and religious activities varied from the control group's reduction in involvement. Participants with a large degree of improved functioning (large effect) exhibited significant improvement in perceived instrumental support as compared to the non-improved group's nonsignificant change and the control group's significant reduction in support. When examining participants with a

moderate degree of improved psychological functioning, however, it was the non-improved group who experienced significant improvement in perceived instrumental support compared to the improved group's nonsignificant change. The improved group's nonsignificant improvement was greater only compared to the control group's significant reduction in support. Both bereavement groups exhibited improved frequency of in-person social interaction compared to the nonsignificant change in the control group. Finally, only the non-improved bereavement group exhibited significant improvement in frequency of phone interaction. Change for both the improved group and control group was nonsignificant.

Exploratory Analyses

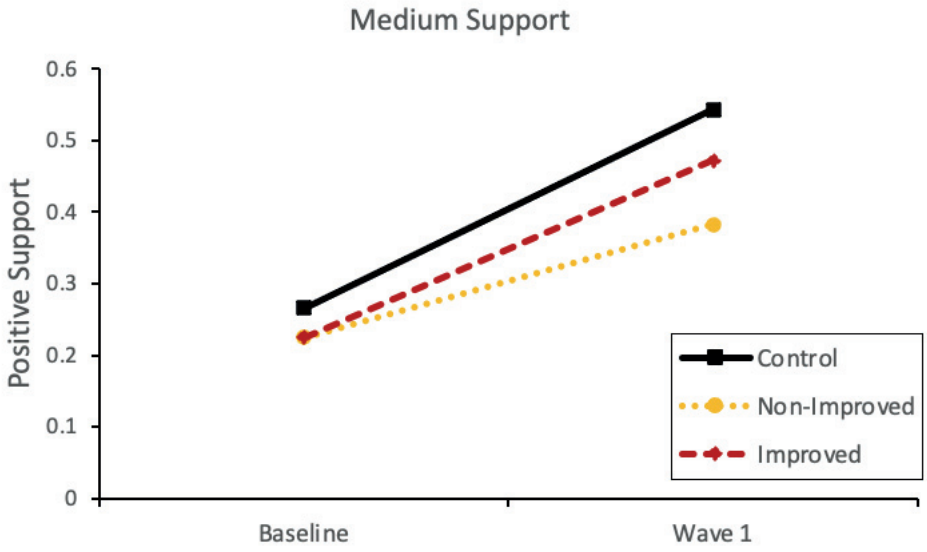
Changes in Positive Support from Friends and Relatives by Group

Medium effect improved group. Next, exploratory analyses of several social support variables were conducted. The first exploratory analysis examined the degree of change in positive support from friends and relatives in participants with a moderate degree of improved functioning (medium effect). These analyses identified that improvement in positive support in both the non-improved bereavement group and control group was responsible for the variation within groups (see Figure 6A). Time was a significant factor for positive support from friends and relatives, F (1,323.00) = 12.20, p = .001. The group and the interaction were not (p = .631, p = .658, respectively) (see Table 2). Post-hoc analysis revealed that the control group had a significant increase of positive support between baseline and W1, F (1,82) = 6.06, p =.016. The non-improved bereavement group also experienced a significant increase over time, F (1,181) = 4.68, p = .032. The improved group, however, did not have any significant changes in positive support from friends and relatives over time (p = .143). These analyses revealed no improved positive support for the improved group compared to either the non-improved or control group.

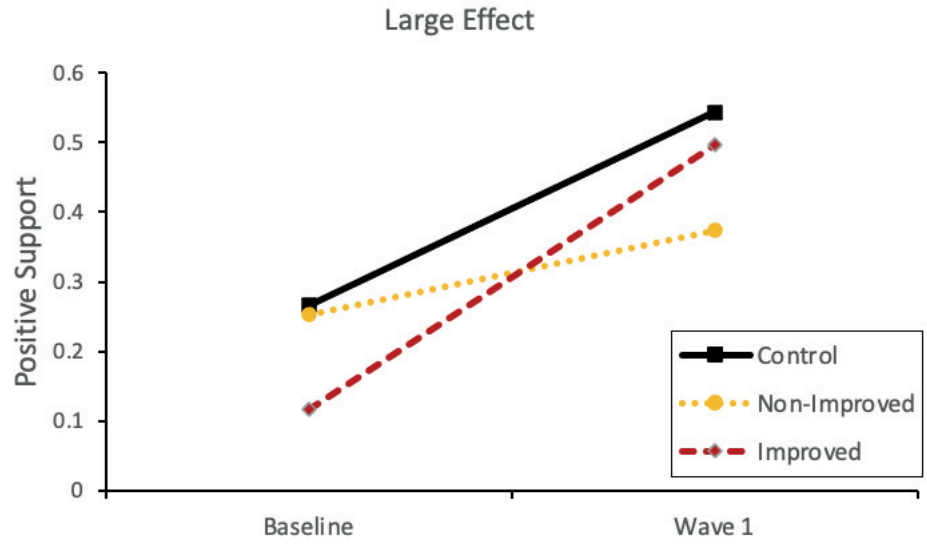
Figure 6

Changes in Positive Support from Friends and Relatives by Group

A



B



Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. Large effect analyses were then examined for positive support from friends and family. These analyses identified that improvement in positive support in the control group was responsible for the limited variation within group, as no change was revealed for either bereavement group. Similar to the medium effect, time was a significant factor impacting friend and relative positive support, F (1, 333.00) = 12.71, p = <.001. Group and the interaction were not significant (p = .657 and p = .262, respectively). Neither the improved (p = .090) nor the non-improved (p = .088) bereavement groups had any significant positive change in the variable over time (see Figure 6B). Only the control group had a significant increase of positive support, F (1,82) = 6.06, p =.016. As shown in Table 2, the improved group experienced the least amount of support at baseline (M = .12, SD = .15). The control group experienced the greatest amount of support at both baseline (M = .27, SD = .11) and W1 (M = .54, SD = .11). Similar to the medium effect analysis, the large effect analysis revealed no improved positive support for the improved group by comparison to either the non-improved or control groups.

Table 2

Exploratory Analyses: Improved Bereaved, Non-Improved Bereaved, and Control Participants by Time

Grouping Variable	Baseline	6 Months	Group X Time Effect
	Positive Support from Friends and Relatives		
Medium Effect			F (2,323.00) = .42, p = .66
Improved	.23 (.13)	.47 (.13)	
Not Improved	.23 (.07)$_a$	.39 (.07)$_a$	
Control	.27 (.11)$_b$	.54 (.11)$_b$	
Large Effect			F (2,333.00) = 1.35, p = .26
Improved	.12 (.15)	.50 (.15)	
Not Improved	.25 (.07)	.37 (.07)	
Control	.23 (.11)$_c$	.54 (.11)$_c$	
	Negative Hassles from Friends and Relatives		
Medium Effect			F (2,323.00) = 3.04, p = .05
Improved	.10 (.12)$_d$	-.42 (.12)$_d$	
Not Improved	-.05 (.07)$_e$	-.47 (.07)$_e$	
Control	.02 (.10)	-.12 (.10)	
Large Effect			F (2,333.00) = 2.14, p = .119
Improved	.01 (.14)$_f$	-.41 (.14)$_f$	
Not Improved	-.04 (.06)$_g$	-.45 (.06)$_g$	
Control	.02 (.10)	-.12 (.10)	
	Well-being		
Medium Effect			F (2,266.50) = 4.54, p = .01
Improved	-.60 (.14)$_h$	.00 (.14)$_h$	
Not Improved	.11 (.08)	.03 (.08)	

Control	.15 (.11)	.00 (.11)	
Large Effect			F (2,323.00) = 5.24, p = .06
Improved	-.71 (.16)	-.18 (.16)	
Not Improved	.06 (.07)	.03 (.07)	
Control	.15 (.11)	.00 (.11)	

Note. Standard deviations are presented in parentheses. Means sharing a common subscript represent significant change from baseline to W1.

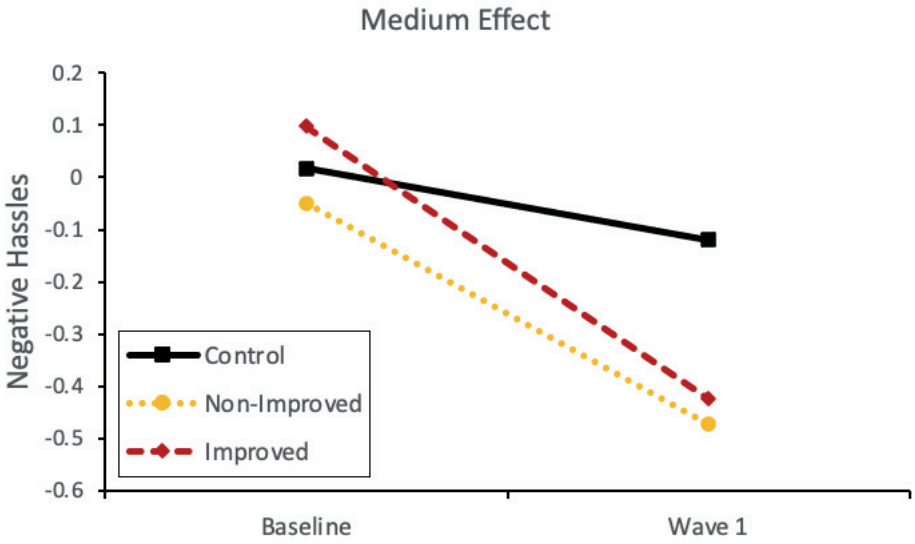
Group Changes in Hassles from Friends and Relatives

Medium effect improved group. The degree of change in hassles from friends and relatives was first examined in participants with a moderate degree of improved functioning. These analyses revealed that variation in the groups was a consequence of both the non-improved bereavement group and the improved bereavement group experiencing a reduction in hassles from friends and relatives. Specifically, both time, F (1, 322.96) = 32.26, p = <.001, and the interaction, F (2, 322.96) = 3.04, p = .049, were significant for the negative hassles variable (see Table 2). The effect of group was not significant (p = .088). Post-hoc analysis revealed both bereavement groups experienced positive change, determined by a lower score. A significant decrease in hassles occurred for the non-improved group, F (1,181) = 31.70, p = <001. This group had the least number of hassles from friends and relatives at baseline (M = -.50, SD = .07), as well as the least number of hassles at W1 (M = -.47, SD = .07). The improved group also exhibited a significant decrease in hassles over time, F (1,57) = 14.16, p = <.001. The control group had no significant change over time (p = .231). As compared to the control group, the improved group experienced improvements in reduced hassles from friends and family (see Panel A of Figure 7).

Figure 7

Changes in Negative Hassles from Friends and Relatives by Group

A



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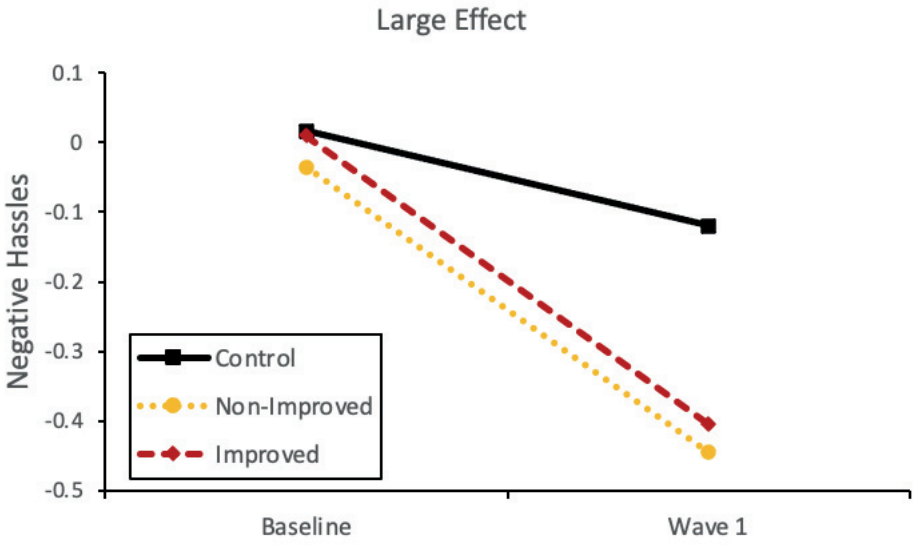


Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. An almost identical pattern of results emerged for the large effect improved group. These analyses identified that the reduction in hassles from friends and family in both the non-improved and improved bereaved groups was responsible for the limited variation within group. Similar to positive support from friends and relatives, but contrary to the medium effect, time was a significant factor for negative hassles from friends and relatives, F (1, 333.00) = 20.27, p = <.001, but not the group nor the interaction (p = .134 and p = .119, respectively). The control group, similar to the medium effect analysis, had no significance (p = .231). The non-improved group experienced a similar significant reduction of hassles as the medium effect analyses, F (1,209) = 21.77, p = <.001. The improved bereavement group also experienced a significant decrease over time, F (1,39) = 6.14, p =.018. Like the medium effect analysis, the non-improved group exhibited the least number of hassles at baseline (M = -.04, SD = .06) and at W1 (M = -.41, SD = .06) (see Table 2). As shown in Panel B of Figure 7, the improved group experienced improvements in reduced hassles from friends and family as compared to the control group.

Changes in Well-being by Group

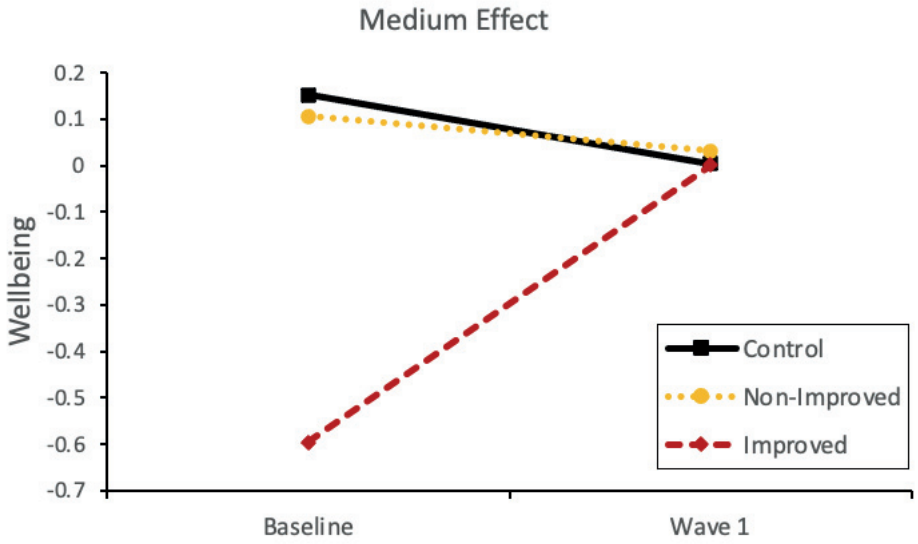
Medium effect improved group. The final variable for exploratory analysis began by examining changes in well-being in participants with a moderate degree of improved functioning (medium effect). These analyses identified that the increase in well-being in the improved bereaved group was responsible for the variation within group. The change over time was not significant for well-being (p = .208). The effect of group, however, was significant, F (2, 325), = 7.51, p = .001. The interaction between time and group was also significant, F (2, 266.50) = 4.54, p = .011 (see Table 2). Neither the control group nor the non-improved group experienced significant change from baseline to W1 (p = .366, p = .519, respectively). The improved group,

however, did experience significant improvement from pre-loss to post-loss, F (1,57) = 7.95, p = .007. This is the only group that experienced an increase of well-being by W1. Compared to baseline (M = -.60, SD = .14), improved bereaved participants experienced a substantial increase in well-being equivalent to a medium to large effect (M = .00, SD = .14, d = .60). The improved group experienced improvements in well-being compared to both the non-improved and control groups (see Figure 8A).

Figure 8

Changes in Well-being by Group

A



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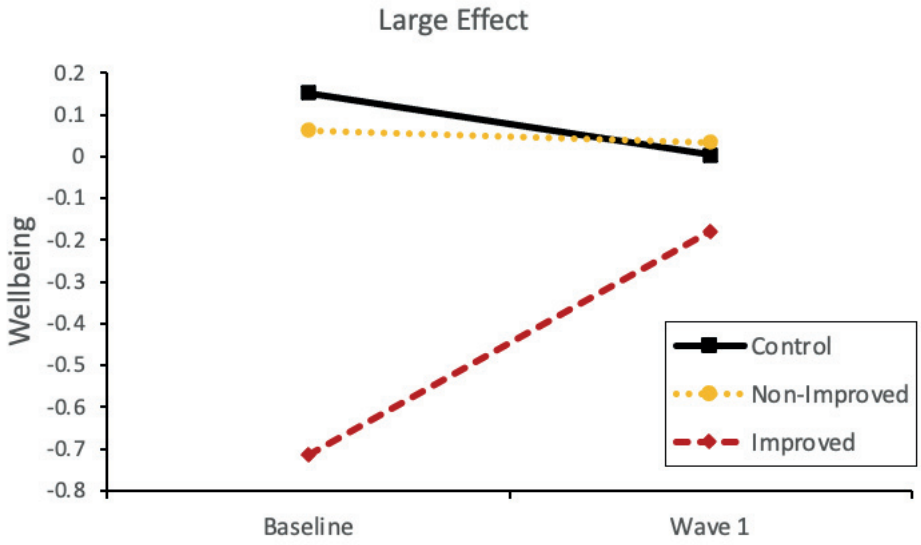

Note. Changes in mean scores are shown from baseline to W1 for the improved bereaved, non-improved bereaved, and control groups in infrequency. Increased frequency of interaction is shown as a negative slope. Panel 1 identifies changes with improvement defined as a moderate degree of improvement ($d > .5$). Panel 2 identifies changes with improvement defined as a large degree of improvement ($d > .8$).

Large effect improved group. Finally, varied results emerged for the large effect improved group. These analyses identified that the difference in levels of well-being at both baseline and wave one in the improved group from levels in the non-improved and control groups was responsible for the variation within group (see Figure 8B). Post-hoc analyses revealed that none of the groups experienced significant change, but the improved group had lower levels of well-being than the other groups. There was a significant main effect for group on well-being, F (2, 333.00) = 10.59, p = <.001. No effect of time emerged (p = .256), but there was a marginal interaction between time and group (p = .061) (see Table 2). Post-hoc analyses showed no significant change in well-being time for either the control group (p = .827) or the non-improved bereaved group (p = .788), although both had lower levels at W1 than baseline. Similarly, although the improved group approached significance (p = .059), there was no significant improvement between baseline and W1. These analyses revealed no improved positive support for the improved group by comparison to either the non-improved or control groups.

Summary of Findings

Medium and large effect analyses revealed variations in social support in the improved group compared to the not-improved bereaved and control groups in the exploratory analyses. Improvement in social support for the improved group was primarily revealed in a reduction of hassles from friends and family. Both bereavement groups exhibited positive improvement compared to the control group's nonsignificant change in hassles from friends and relatives. Participants exhibiting at least a moderate degree of psychological improvement also exhibited significant improvements in well-being as compared to both non-improved and control groups' nonsignificant change.

The improved group did not experience any improvement in either positive support from friends and family or in large effect analyses for well-being, however. Instead, medium effect analyses revealed that non-improved bereaved participants and control group participants were the only groups to experience significant improvement in positive support from friends and relatives. In large effect analyses, only the control group exhibited improvement compared to nonsignificant changes in positive support from friends and relatives in both bereavement groups. When examining changes in well-being in participants with a large degree of psychological improvement, none of the participant groups experienced significant change.

CHAPTER 4: DISCUSSION

This study sought to examine if improvements in functioning are associated with improvements in social relationships in the wake of bereavement. Specifically, the study examines whether psychological improvement is associated with changes in social perceptions and behavior. The study investigated whether bereaved individuals who show improvement in functioning after loss also experience improvement in perceptions of close others, increased social involvement, and improved community involvement. Overall, this study aimed to contribute to the current literature regarding the impact of bereavement on social functioning and to provide some explanation for why a subset of bereaved individuals shows improvement after a loss.

It should first be noted that this study found a surprisingly large subset of individuals who experienced reductions in depression from pre- to post-loss. When a medium effect size ($d > .50$) was used as the standard for improvement, more than 25% of the sample experienced improvement in psychological functioning. When a large effect was used ($d > .80$), more than 16% of the sample exhibited improvement. These proportions document that improvement is neither rare nor extraordinary but unexpectedly common. It is particularly noteworthy that the standard of a medium effect is relatively stringent and well beyond what could result from measurement error alone.

Why would a subset of bereaved spouses improve? According to the theory of psychosocial gains from adversity (PGA), one possibility is that bereavement could have beneficial effects on the social environment. Consistent with this possibility, the results suggested that bereavement had considerable effects, both positive and negative, on social behavior and on perceptions of social support. Surprisingly, when the improved and non-

improved bereavement groups were compared with a non-bereaved control group, losing a spouse had favorable effects resulting in more visits from friends and fewer hassles from friends and relatives. In a number of instances, these differences were marked in the improved bereaved group when compared to the group that did not improve. Results supported hypotheses that bereaved individuals who experience improvement in psychological functioning also experience improvement in perceived instrumental support, frequency of in-person social interaction, and reduced hassles from friends and family, relative to non-bereaved individuals and bereaved spouses without psychological improvement. These findings are consistent with previous literature, suggesting prosocial behaviors commonly occur in the wake of loss (Mancini, 2019). This study provides some support to the theory of PGA. There are significant positive changes in social support after loss, with some of these changes occurring in those with marked psychological improvement after loss.

The Impact of a Control Group on Improvement

The inclusion of a control group provides valuable comparison and reveals a more accurate depiction of change. Previous studies have found evidence of the correlation between social support and psychological improvement (Mancini, 2015; Moskowitz et al., 2003). Fewer studies have examined improvements in social functioning as a result of bereavement (Bonanno, 2010). This study supports and expands upon the limited body of research. The inclusion of a control group is uncommon in bereavement literature. This study's use of a control group allows us to isolate bereavement from change over time and thus strengthens the internal validity of the study. The control group suggested that both positive and negative changes in social support were attributable to bereavement. For all variables other than positive support from friends and family, the control group experienced either no change or significant negative change between

timepoints, revealing the relationship between positive changes in social functioning and bereavement. The control group provided a baseline of "no change" for perceived support from children, frequency of in-person social interaction, frequency of phone interaction, negative hassles from friends and relatives, and well-being. By comparison, both bereavement groups experienced significant improvement in the frequency of in-person interaction, as well as significant reduction in hassles from friends and relatives. At least one bereavement group experienced improvements in perceived instrumental support and an increase in frequency of phone interaction. Similarly, the control group experienced a significant reduction in perceived instrumental support and involvement in clubs and religious activities.

This suggests maturation, or some other cause, led to negative change in these variables for the general public. We can interpret that both significant and non-significant positive change are improvements over baseline for variables where the control group has significant reductions in social support, including involvement in clubs and activities. The bereaved groups have experienced more significant improvement, or less reduction, in social functioning than the control group in each of the social variables except for positive support from friends and relatives. This study provides support to existing literature on the impact of bereavement on social functioning. The inclusion of the control group expands on that literature and provides evidence of improvement as a result of loss.

Impact of Power on the Improved Group

While some findings are consistent with anticipated results, fewer hypotheses were supported than anticipated. Why did the improved group experience less significant change than expected? One likely reason is the impact caused by low numbers of participants. One of the biggest issues with studying psychological improvement in loss is that it is not a common

reaction to bereavement. I expected low participant numbers in analyses for both medium and large effect because previous literature has identified a very small percentage of the population who exhibit improvement in bereavement. While a greater percentage of the population exhibited improvement in this study than in previous research, this study still had a small sample size. Only 63 participants fit the qualifications for the improved group in the medium effect analyses. This number reduced even further to 40 participants when testing for a large effect. These small sample sizes decrease statistical power, reducing the ability to detect a significant effect. This may explain the limited statistical change found in the improved group in some of the analyses.

Evidence of this reasoning is seen in a few of the social factors. For example, there was a significant increase in well-being for the improved group in the medium effect analysis, but no significant change found in the large effect. We would expect that the significant change found in the medium effect analysis for the improved group would also be seen in the large effect analysis, as this was our more conservative group. This lack of change in the large effect analysis is likely due to the smaller sample size's low power.

Similarly, evidence can be found in the figures and tables. Figures 1A and 1B clearly show limited change from baseline to wave 1, providing evidence that there was no significant improvement in perceived emotional support from children for the improved group in either medium or large effect sizes. However, figures for other social support variables depict a very different story. Figures 4A and 4B show the improved group experiencing nearly identical change in phone interaction from baseline to wave 1 as the non-improved group. In fact, Table 1 shows an almost identical change in frequency of phone interaction in the improved group and the non-improved group. Despite this, however, only the non-improved group produced

significant results, providing evidence to the impact of power and low sample size. Similarly, Table 2 and Figure 6A show greater change in positive support from friends and relatives among the improved group than the non-improved group, but only the non-improved group exhibited statistically significant change. This clearly identifies the impact of statistical power on results for the improved group, an underpowered sample.

Is Improved Social Functioning a Causal Factor in Improvement after Loss?

One interesting result is the significant decrease in social support shown by the control group and the non-improved bereavement group in some of the analyses. Despite some of these analyses not providing support for the relevant hypotheses, the unexpected significant decreases in support from comparison groups provides evidence of better social support among improved participants after loss than others who do not experience psychological improvement. As discussed, the control group exhibited significant reduction of perceived instrumental support and involvement in clubs and religious activities. For clubs and activities, neither of the bereavement groups experienced significant increased involvement. However, the control group showed a significant decrease in involvement. While the hypothesis that the improved group experiences improvement in clubs and religious activities was not supported, it is clear that the improved group experienced better social involvement than the control group. This is an interesting and important result regardless of the accuracy of the hypothesis. The baseline determines that both no change and significant positive change suggest improvement relative to the control group. While it is undetermined what led to the decrease in involvement in clubs and religious activities for the control group, this result shows that bereavement has an impact on social involvement by safeguarding against negative change.

Perceived instrumental support reflected even more diversity of results. While the control group experienced significant negative change between timelines, both bereavement groups experienced significance positive change in either the medium effect or large effect analysis. While the non-improved group had significant improvement in the medium effect analysis, it was no longer significant once it had a larger number of participants, including those who no longer fit the requirements of improvement for a large effect. Conversely, once those individuals were no longer considered "improved," the refined improvement group had significant change, likely due to a stronger effect size. These between-group results were unique to instrumental support. No other variable experienced similarly diverse results. This showed the power of bereavement to overcome factors that may have impacted the general population, including maturation. It also identified a greater change in the improved group over either the non-improved or control comparison group.

Another unexpected result was significant negative change in perceived support from children. Neither the control group nor the improved group experienced significant positive or negative change in perceived support from children. Relative to the non-bereaved control group, the improved group showed no improved perceptions of support. However, the non-improved group exhibited a significant reduction in support, perceiving their children as less supportive after loss than before. While this information does not support the hypothesis that those with improved psychological functioning show improved perceptions of support, the improved group's sustained support is a distinctly better result than the reduction exhibited by the non-improved group.

One interpretation of these results is that it is not a significant increase in perceived support that leads to improvements of psychological functioning after loss, but instead it is the

sustained level of support from before to after loss. This perspective is interesting because many of the hypotheses are not directly supported by significantly increased levels of social support in the improved group, but they show better social support and integration in the improved group than the non-improved or control groups even without change. It is possible that the significant decrease in perceived support in the non-improved group adds to decreased or maintained psychological functioning after loss, distinguishing other bereavement groups from the improved group. This would substantiate the likelihood that the lack of decrease in perceived support, alternatively reported as sustained support, contributes to the improvement in psychological functioning after loss in the improved group. This interpretation of the results supports the relationship between social functioning and improvement in psychological function after loss, as well as the psychosocial gains from adversity theory.

Distinction between Social Interaction Types

The results of the analyses show heterogeneity of change among social support variables. Not only are there varied results between bereavement groups, but results also vary across social support variables. Analyses for each group range widely from significant reduction in support to no change to significant improvement, depending on the variable. For instance, while many variables experience no change or significant improvements after loss in the non-bereaved group, the perceived support from children variable significantly decreases.

One particularly surprising difference is the distinction between the two social interaction variables. The in-person social interaction and phone interaction variables are similar in that they both involve increased communication with friends and relatives. Thus, we expected similar results between in-person and phone calls. Providing a clear baseline, the control group consistently experiences no change for either variable. The non-improved bereavement group

also shows consistent results between both social interaction variables, experiencing significant change in both medium and large analyses. However, social interaction results were not consistent for the improved bereavement group. In both medium and large effect analyses, the improved group experienced a significant increase in frequency of in-person interaction. Surprisingly, individuals with improved psychological functioning did not experience any significant changes in the frequency phone interaction in the wake of loss.

One possible interpretation is that physical contact and connectedness distinguishes the two groups, leading to positive psychological change in the improved group. Another alternative is that friends and relatives of the bereaved spouse are more likely to reach out and support the non-improved individual via phone contact out of concern, whereas friends and relatives of improved spouses may feel less need. Because the non-improved group includes those experiencing elevated grief and depression symptoms after loss, these may be the individuals needing extra phone support. The improved group, experiencing relief from caretaking and financial burden (Mancini et al., 2011; Schulz et al., 2001), may receive fewer phone calls as others witness their improvement after the death of their spouse.

Another possible interpretation is that there was not enough power to be able to determine significant change in the phone interaction variable for the improved group. As previously discussed, the small sample size for the improved group may have created too little power to be able to accurately find significant improvement for several variables, including phone interaction. There was enough change in the in-person variable to identify significance regardless of power, but this may not be so with the phone interaction. Figures 4A & B show remarkable similarity between the non-improved and improved groups for phone interactions,

providing evidence for this interpretation. It is possible that, given a larger sample size, the study may have found significant change in this variable among the improved group.

Previous research has identified a relationship between social support and bereavement (Cohen & Wills, 1985). Studies have begun to examine how bereavement impacts social support for bereaved individuals (Mancini, 2019). This study contributes to the literature on how social support changes in bereavement. However, the study further expands on the literature by providing more evidence for the relationship between improvements in psychological and social functioning in bereavement.

Implications for Research and Theory on Bereavement

These results have significant implications for our understanding of spousal loss. First, this study reveals that improvement is more common than previously expected. Literature has defined the "improved bereavement group" as approximately five to 11% of the population (Bonanno et al., 2002; Mancini et al., 2011) based on high levels of pre-loss depression with significant improvement in symptoms after loss, sustained for months to years after bereavement. However, this study more broadly defined improvement as anyone experiencing at least a medium effect size of .50 standard deviation or, separately, anyone experiencing at least a large effect size of .80 standard deviation of reduction in depression scores from before bereavement to six months post-loss. By using these measures, we were able to identify anyone who experiences at least a moderate degree of psychological improvement in bereavement. The study found that 25.2 % of bereaved participants experienced improved psychological functioning when testing for at least a moderate degree of change, a much larger percentage of the bereaved population than previously defined. Even when limiting those identified in the improvement group by defining "improvement" as a large degree of change, participants experiencing

improved psychological functioning accounted for 16 % of bereaved participants. These results reveal that a larger percentage of the bereaved population experience improvement in the wake of loss than anticipated.

Second, social factors may play a larger role in bereavement than has previously been understood. Research has identified social support as having a buffering or main effect on bereavement (Cohen & Willis, 1985). Social support variables have long been identified as factors contributing to psychological well-being throughout the bereavement process. However, this study's perspective on the impact of social support on psychological functioning changes the way we view social support, as well as the relationship with improvement in psychological functioning. This study provides evidence that social support is not just a buffering factor that always remains stable through the bereavement process. Social support factors often change because of loss, changing what we know of how to examine social support in bereavement research.

This way of considering social support extends to research on psychological improvement in bereavement. Not only does continued social support through the bereavement process help improve psychological functioning, but changes in social support are also linked to reductions in depression. Many social support variables improve after loss in those with psychological improvement when compared to a control group. These include but are likely not limited to perceived instrumental support, in-person social interaction, involvement in clubs and religious activities, and reduction in negative hassles from friends and family. In fact, positive changes, or a lack of negative change, in several types of social support are greater in improved bereaved individuals than in those without psychological improvement after loss. These differential changes in social support factors between bereavement groups reveals evidence of a clear

relationship between changing social support and improved psychological functioning in the wake of loss.

Finally, theories of loss and grief must pay more attention to the possibility of improvement in the immediate wake of loss and attempt to account for it in their theories. Major theories such as posttraumatic growth and the silver lining perspective focus on resilience or improvement after struggling with loss. Posttraumatic growth considers only those who have an initial emotional distress after loss but are able to experience positive changes and growth after that distress (Tedeschi & Calhoun, 1996). The silver linings perspective explores cumulative promotion of resilience throughout one's lifetime as a result of exposure to stressors, not considering those who improve as a result of loss (Seery, 2011). Those who experience improved psychological functioning in the wake of loss make up a larger percentage of the bereaved population than previously believed, yet theories of grief and loss mostly overlook these individuals. The theory of psychosocial gains from adversity (PGA) opens the door for greater understanding of those who improve in loss. However, there is much more to learn about improved individuals and how they contribute to current theories.

Counseling Implications

This study provides deeper insight into how social support changes due to bereavement, as well as how this support can shape those who struggle with poor psychological functioning before the loss of their spouse. This study provides support to the theory of psychosocial gains from adversity by demonstrating that bereavement can stimulate improved psychological functioning through social improvement. The improved bereavement group is minimally researched, allowing this study to open the doors to greater understanding of the population.

By recognizing that there is a relationship between social support and psychological functioning after loss, we gain greater understanding of how to support those with low psychological functioning pre-loss. We can help individuals struggling with depression and poor well-being by surrounding them with support, likely preventing them from becoming members of chronic grief or chronic depression bereavement groups. Knowing how social support improves for the improved group allows clinicians to notice potential "red flags," such as poor quality of spousal relationship or prolonged illness, while clients are caretaking for ailing spouses or those who are early in the grieving process. Clinicians can recommend social activities and create or encourage support networks for bereaved spouses who have had similarly negative pre-loss experiences. Clinicians can also help these clients normalize their experience of feeling better after losing their spouse, recognizing why they have improved psychological functioning and understanding the changes in their lives.

Social support has primarily been studied as a buffering or moderating variable in bereavement (Cohen & Wills, 1985). By instead studying social support as a dependent variable, this study provided evidence for new ways of looking at the relationships between loss, social support, and psychological well-being. We can now better understand the limited social support being provided to a certain population of couples living in isolation, struggling with relationship, caregiver, and financial difficulties alone. Clinicians may consider the importance of bolstering social support before loss, not just after. Clinicians can also use this information to better understand the difficulties that some clients experience when their partner is ill.

Similarly, this study can help clinicians determine who needs grief treatment. Some bereaved individuals, such as those who experience a reduction of emotional support from children, are likely to benefit from grief treatment. It is apparent from these results, however,

that not everyone requires therapeutic support in bereavement, as some have increased psychological functioning after loss. Those with renewed capability to access social support may be best supported by leaning into their network and may not need counseling. Specifically, bereaved individuals with improved physical contact with friends and family are less likely to be good candidates for grief counseling than those with unimproved physical contact or even those whose form of contact is through phone calls. Similarly, those whose children, friends and family continue to provide similar or increased amounts of emotional and instrumental support after loss may experience improvement without therapy. When bereaved individuals are relieved of the burden of caretaking their spouse, are taken care of themselves, and have fewer hassles from others, their psychological improvement frequently improves without the use of therapy.

For those who do seek grief treatment, clinicians can prioritize helping clients gain a new sense of identity and freedom. Recognizing any support that they currently have that they did not previously attain and improving their perceptions of that support can have a positive impact on psychological functioning. For some, it may be valuable for them to limit the hassles or responsibilities after loss. Encouraging clients to use support systems for errands or tasks that need to be handled can help clients who have felt burdened and stressed by a long bereavement process.

Limitations

There are a few limitations to this study. One such limitation is the relatively small number of participants in both the control and improved groups. Previous literature suggests that a small population is expected for the improved group, especially when analyzing for a large effect (Bonanno et al., 2004; Mancini et al., 2011). The study had 63 improved participants in the medium effect analysis and only 40 in the large effect. While expected, this remains a

limitation for the study. The lack of control group in bereavement studies is reasonable given the difficulties in obtaining prospective data for bereavement. While the inclusion of a control group is a beneficial contribution to the study of bereavement, there were only 83 control participants. This relatively low number increases our margin of error and potential for inaccurate baseline determination.

Another limitation is the large number of variables used to encompass the broader understanding of "social support" and "social integration." The benefit of using a large number of variables is that we are able to see a wide scope of how social support changes in bereavement. However, the larger the number of variables used, the greater the likelihood for type 1 error. This study not only examined a wide range of social support variables, but it also doubled the number of analyses for those variables by testing for both medium and large effects. Running a substantial number of analyses creates further increased risk of false positives.

Finally, the CLOC study identified participants by focusing on elderly men, anticipating females outliving their spouses. In fact, one requirement to participate was the husband be at least 65 years old at the start of the study. This was not a requirement for women. This design intended to maximize the number of bereaved participants. This study also sampled couples from Detroit, Michigan SMSA and primarily obtained white participants. The result was an oversampling of older white women, making generalizability a limitation to our study.

Future Research Directions

Future research may consider analyses of further social support variables. While these particular variables provide valuable insight into changes in social relationships after loss, other social variables pursued in the CLOC study would be beneficial to study. There are a few variables related to participants' children and grandchildren including positive support and

negative hassles that can add to the literature on this subject. Research specifically examining how hassles from children changes in bereavement between the three groups would provide further insight into the types of social support that change in loss. It would also provide greater understanding of the relationships between bereaved spouses and their families, as well as how that relationship changes for the different bereavement groups.

The change in perceptions of social functioning after loss between bereavement patterns is an area that could be fruitful for future research. The significant reduction in perceived instrumental support by the control group was unexpected. It would be worthwhile for future studies to re-analyze this variable with a different cohort to determine if this was maturation or some other influence. Having a demonstrable baseline for instrumental support would provide more helpful interpretation of results between groups. Similarly, the unexpected significant reduction of perceived support from children in the non-improved bereavement group raises the question: "Why is there such negative change for perceived emotional support from children after loss for most bereaved individuals?" Research on this topic could contribute valuable information to bereavement literature by distinguishing between non-improved bereavement groups (i.e., resilient, common grief, chronic grief, chronic depression). Overall understanding of changes in this variable can also further our understanding of the improvement group, as well.

The difference between in-person and phone interaction for psychological improvement after loss is another interesting area for research. While results remained similar between the two variables for the non-improved group, the improved group's significant positive change in in-person and nonsignificant change in phone calls was unexpected. This study is unable to definitively identify why these similar variables had incomparable changes in the improved

group. Identifying what distinguishes these variables' relationship with the improved group will help to provide insight into how social interaction impacts improvement after loss.

Finally, future research may want to expand upon this study by using a different data set. For instance, new questions emerge such as: "How might this study have produced different results for a younger population of bereaved individuals?" Would younger bereaved spouses have more or less support from children? Would they be more likely to be involved in activities? Would caretaking burden be less likely to dissolve after loss due to likelihood of younger children still needing care? There is substantial potential to understand the impact of bereavement on other populations. Studying how bereavement impacts other demographics is challenging due to limited prospective bereavement research including psychological and social functioning. However, the CLOC study created a blueprint for how to recreate the data set, given researcher ability and interest. Examining differences between genders, ages, and other demographics would provide more generalizable results.

Conclusions

Most frameworks of loss present the bereaved as either resilient and able to find meaning in loss or as experiencing pain and suffering. For those, literature has long viewed one of the differences between them to be whether social support was able to buffer the impact of loss. Recent research identified those who experienced their suffering before the death of their loved one, experiencing improvement after loss. New ways of studying the relationship between social support and improvement have shifted our understanding of bereavement. Indeed, present findings support a new theory that improved psychological functioning after loss is due to bereavement's direct impact on social support and interaction – the theory of psychosocial gains

from adversity. While we often focus on the grief and sadness, loss has the ability to connect us and bring us closer together.

REFERENCES

Abrams, C. B., Albright, K., & Panofsky, A. (2004). Contesting the New York community: From liminality to the "new normal" in the wake of September 11. *City & Community, 3*(3), 189-220. doi:10.1111/j.1535-6841.2004.00078.x

Anusic, I., & Lucas, R. E. (2014). Do social relationships buffer the effects of widowhood? A prospective study of adaptation to the loss of a spouse. *Journal of Personality, 82*(5), 367-378.

Argyle, M. (2013). *The Psychology of Happiness*: Routledge.

Bankoff, E. A. (1983). Social support and adaptation to widowhood. *Journal of Marriage and the Family*, *45*(4), 827-839.

Bastian, B., Jetten, J., & Ferris, L. J. (2014). Pain as social glue: Shared pain increases cooperation. *Psychological Science, 25*(11), 2079-2085. doi:10.1177/0956797614545886

Bastian, B., Jetten, J., Hornsey, M. J., & Leknes, S. (2014). The positive consequences of pain: A biopsychosocial approach. *Personality and Social Psychology Review, 18*(3), 256-279. doi:10.1177/1088868314527831

Bauer, J. J., & Bonanno, G. A. (2001). I can, I do, I am: The narrative differentiation of self-efficacy and other self-evaluations while adapting to bereavement. *Journal of Research in Personality, 35*(4), 424-448.

Bisconti, T. L., Bergeman, C. S., & Boker, S. M. (2004). Emotional Well-Being in Recently Bereaved Widows: A Dynamical Systems Approach. *Journals of Gerontology: Series B: Psychological Sciences & Social Sciences, 59B*(4), 158-167.

Bisconti, T. L., Bergeman, C. S., & Boker, S. M. (2006). Social Support as a Predictor of Variability: An Examination of the Adjustment Trajectories of Recent Widows. *Psychology and Aging, 21*(3), 590-599.

Boerner, K., Wortman, C. B., & Bonanno, G. A. (2005). Resilient or at Risk? A 4-Year Study of Older Adults Who Initially Showed High or Low Distress Following Conjugal Loss. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 60B*(2), 67-73.

Bonanno, G. A. (2001). New directions in bereavement research and theory. *American Behavioral Scientist, 44*, 718-725.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American psychologist, 59*(1), 20.

Bonanno, G. A. (2010). *The other side of sadness: What the new science of bereavement tells us about life after loss*. New York Basic Books.

Bonanno, G. A., & Mancini, A. D. (2012). Beyond resilience and PTSD: Mapping the heterogeneity of responses to potential trauma. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(1), 74-83. doi:10.1037/a0017829

Bonanno, G. A., Mancini, A. D., Horton, J. L., Powell, T., Leard-Mann, C. A., Boyko, E. J., Wells, T.S., Hooper, T.I., Gackstetter, T. C., Smith, T.C., & For The Millenium Cohort Study Team. (2010). Trajectories of trauma symptoms and resilience in deployed U.S. military service members: A prospective study. *British Journal of Psychiatry, 200*(4), (317-323).

Bonanno, G. A., Moskowitz, J. T., Papa, A., & Folkman, S. (2005). Resilience to Loss in Bereaved Spouses, Bereaved Parents, and Bereaved Gay Men. *Journal of Personality and Social Psychology, 88*(5), 827-843.

Bonanno, G. A., Westphal, M., & Mancini, A. D. (2011). Resilience to loss and potential trauma. *Annual Review of Clinical Psychology, 7*,511-535. doi:10.1146/annurev-clinpsy-032210-104526

Bonanno, G. A., Wortman, C. B., Lehman, D. R., Tweed, R. G., Haring, M., Sonnega, J., Carr, D., & Nesse, R.M. (2002). Resilience to loss and chronic grief: A prospective study from preloss to 18-months postloss. *Journal of Personality & Social Psychology, 83*(5), 1150-1164. doi:10.1037//0022-3514.83.5.1150

Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging, 19*(2), 260-271. doi:10.1037/0882-7974.19.2.260

Boothby, E. J., Clark, M. S., & Bargh, J. A. (2014). Shared experiences are amplified. *Psychological Science, 25*(12), 2209-2216. doi:10.1177/0956797614551162

Brown, G. W., & Harris, T. (1978). Social origins of depression: a reply. *Psychological Medicine, 8*(4), 577-588.

Buhrmester, M. D., Fraser, W. T., Lanman, J. A., Whitehouse, H., & Swann, W. B. (2015). When Terror Hits Home: Identity Fused Americans Who Saw Boston Bombing Victims as "Family" Provided Aid. *Self and Identity, 14*(3), 253-270. doi:10.1080/15298868.2014.992465

Cacioppo, J. T., Hawkley, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the

Chicago Health, Aging, and Social Relations Study. *Psychology and Aging, 25*(2), 453-463. doi:10.1037/a0017216

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin.

Carnelley, K. B., Wortman, C. B., Bolger, N., & Burke, C. T. (2006). The Time Course of Grief Reactions to Spousal Loss: Evidence From a National Probability Sample. *Journal of Personality and Social Psychology, 91*(3), 476-492.

Carr, D., House, J. S., Wortman, C., Neese, R., & Kessler, R. C. (2001). Psychological adjustment to sudden and anticipated spousal loss among older widowed persons. *Journals of Gerontology: Series B: Psychological Sciences & Social Sciences, 56B*(4), 237-248.

Christakis, N. A., & Fowler, J. H. (2009). *Connected: The surprising power of our social networks and how they shape our lives*. New York: Little, Brown and Company.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159. doi:10.1037/0033-2909.112.1.155

Cohen, S. (2004). Social relationships and health. *American Psychologist, 59*(8), 676. doi:10.1037/0003-066X.59.8.676

Cohen, S., Gottlieb, B. H., & Underwood, L. G. (2001). Social relationships and health: Challenges for measurement and intervention. *Advances in Mind-Body Medicine, 17*(2), 129-141.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357. doi:10.1037/0033-2909.98.2.310

Coifman, K. G., & Bonanno, G. A. (2010). When distress does not become depression: Emotion context sensitivity and adjustment to bereavement. *Journal of Abnormal Psychology, 119*(3), 479-490. doi:10.1037/a0020113

Davis, C. G., & McKearney, J. M. (2003). How do People Grow from their Experience with Trauma or Loss? *Journal of Social and Clinical Psychology, 22*(5), 477-492. doi:10.1521/jscp.22.5.477.22928

Denckla, C. A., Mancini, A. D., Bornstein, R. F., & Bonanno, G. A. (2011). Adaptive and maladaptive dependency in bereavement: Distinguishing prolonged and resolved grief trajectories. *Personality and Individual Differences, 51*(8), 1012-1017. doi:10.1016/j.paid.2011.08.014

deRoon-Cassini, T. A., Mancini, A. D., Rusch, M. D., & Bonanno, G. A. (2010). Psychopathology and resilience following traumatic injury: A latent growth mixture model analysis. *Rehabilitation Psychology, 55*(1), 1.

Dickstein, B. D., McLean, C. P., Mintz, J., Conoscenti, L. M., Steenkamp, M. M., Benson, T. A., Isler, W.C., USAF BSC, Peterson, A.L., & Litz, B. T. (2010). Unit cohesion and PTSD symptom severity in Air Force medical personnel. *Military Medicine, 175*(7), 482-486. doi:10.7205/MILMED-D-09-00178

Dickstein, B. D., Suvak, M., Litz, B. T., & Adler, A. B. (2010). Heterogeneity in the course of posttraumatic stress disorder: Trajectories of symptomatology. *Journal of Traumatic Stress, 23*(3), 331-339. doi:10.1002/jts.20523

Didion, J. (2007). *The year of magical thinking*. New York: Vintage.

Drabek, T. E., Key, W. H., Erickson, P. E., & Crowe, J. L. (1975). The impact of disaster on kin relationships. *Journal of Marriage and Family, 37*(3), 481-494. doi:10.2307/350512

Duncan, T. E., Duncan, S. C., & Strycker, L. A. (2006). Latent variable growth curve modeling. In: Mahwah, NJ: Lawrence Erlbaum Associates.

Fowler, J. H., & Christakis, N. A. (2008). Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the Framingham Heart Study. *BMJ, 337*. doi:10.1136/bmj.a2338

Galatzer-Levy, I. R., & Bonanno, G. A. (2012). Beyond normality in the study of bereavement: Heterogeneity in depression outcomes following loss in older adults. *Social Science & Medicine, 74*(12), 1987-1994. doi:10.1016/j.socscimed.2012.02.022

Galatzer-Levy, I. R., Huang, S. H., & Bonanno, G. A. (2018). Trajectories of resilience and dysfunction following potential trauma: A review and statistical evaluation. *Clinical Psychology Review, 63*, 41-55. doi:https://doi.org/10.1016/j.cpr.2018.05.008

Gillath, O., Karantzas, G. C., & Fraley, R. C. (2016). *Adult attachment: A concise introduction to theory and research*: Academic Press.

Greene, R. W., & Feld, S. (1989). Social support coverage and the well-being of elderly widows and married women. *Journal of Family Issues, 10*(1), 33-51.

Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology, 39*(1-2), 133-144.

Kaniasty, K., & Norris, F. H. (2004). Social support in the aftermath of disasters, catastrophes, and acts of terrorism: Altruistic, overwhelmed, uncertain, antagonistic, and patriotic communities. In R. J. Ursano, A. E. Norwood, & C. S. Fullerton (Eds.), *Bioterrorism: Psychological and public health interventions*, (vol 3, pp 200-229). Cambridge, UK: Cambridge University Press.

Kohout, F. J., Berkman, L. F., Evans, D. A., & Cornoni-Huntley, J. (1993). Two shorter forms of the CES-D depression symptoms index. *Journal of Aging and Health, 5*(2), 179-193.

Lakey, B., & Orehek, E. (2011). Relational regulation theory: A new approach to explain the link between perceived social support and mental health. *Psychological Review, 118*(3), 482-495. doi:10.1037/a0023477

Linley, P. A., & Joseph, S. (2004). Positive Change Following Trauma and Adversity: A Review. *Journal of Traumatic Stress, 17*(1), 11-21. doi:10.1023/B:JOTS.0000014671.27856.7e

Lucas, R. E., & Dyrenforth, P. S. (2006). Does the existence of social relationships matter for subjective well-being? In K. D. Vohs & E. J. Finkel (Eds.), *Self and relationships: Connecting intrapersonal and interpersonal processes* (pp. 254–273). The Guilford Press.

Maccallum, F., Galatzer-Levy, I. R., & Bonanno, G. A. (2015). Trajectories of depression following spousal and child bereavement: A comparison of the heterogeneity in outcomes. *Journal of Psychiatric Research, 69*, 72-79. doi:10.1016/j.jpsychires.2015.07.017

Mancini, A. D. (2014). Resilience and other reactions to military deployment: The complex task of identifying distinct adjustment trajectories. *The Journal of Clinical Psychiatry, 75*(9), 956-957.

Mancini, A. D. (2019). When acute adversity improves psychological health: A social–contextual framework. *Psychological Review, 126*(4), 486-505. doi:10.1037/rev0000144

Mancini, A. D., & Bonanno, G. A. (2009). Predictors and parameters of resilience to loss: Toward an individual differences model. *Journal of Personality, 77*(6), 1805-1832.

Mancini, A. D., Bonanno, G. A., & Clark, A. (2011). Stepping off the hedonic treadmill: Individual differences in response to major life events *Journal of Individual Differences, 32*(3), 144-152. doi:10.1027/1614-0001/a000047

Mancini, A. D., Littleton, H. L., & Grills, A. E. (2015). Can people benefit from acute stress? Social support, psychological improvement, and resilience after the Virginia Tech campus shootings. *Clinical Psychological Science*, *4*(3), 401-417. doi:10.1177/2167702615601001

McNaughton, M. E., Patterson, T. L., Irwin, M. R., & Grant, I. (1992). The relationship of life adversity, social support, and coping to hospitalization with major depression. *Journal of Nervous and Mental Disease*, *180*(8), 491–497. https://doi.org/10.1097/00005053-199208000-00003

Mehl, M. R., Vazire, S., Holleran, S. E., & Clark, C. S. (2010). Eavesdropping on happiness: Well-being is related to having less small talk and more substantive conversations. *Psychological Science, 21*(4), 539-541. doi:10.1177/0956797610362675

Myers, D. G. (1992). *The pursuit of happiness: What makes a person happy-and why*: William Morrow & Company.

Myers, D. G. (2000). The funds, friends, and faith of happy people. *American Psychologist, 55*(1), 56.

Neimeyer, R. A., Baldwin, S. A., & Gillies, J. (2006). Continuing Bonds and Reconstructing Meaning: Mitigating Complications in Bereavement. *Death Studies, 30*(8), 715-738. doi:10.1080/07481180600848322

Nolen-Hoeksema, S., Larson, J., & Larson, J. M. (2013). *Coping with loss*: Routledge.

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001. *Psychiatry: Interpersonal and Biological Processes, 65*(3), 207-239.

Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology, 71*(3), 498-511.

Packman, W., Horsley, H., Davies, B., & Kramer, R. (2006). Sibling Bereavement and Continuing Bonds. *Death Studies, 30*(9), 817-841. doi:10.1080/07481180600886603

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*(1), 71-105. doi:10.1111/j.1467-6494.1996.tb00815.x

Park, C. L., & Helgeson, V. S. (2006). Introduction to the special section: Growth following highly stressful life events--Current status and future directions. *Journal of Consulting and Clinical Psychology, 74*(5), 791-796.

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma, 14*(5), 364-388.

Schachter, S. (1959). *The psychology of affiliation: Experimental studies of the sources of gregariousness*. Palo Alto, CA: Stanford University Press.

Schaefer, J. A., & Moos, R. H. (1998). The context for posttraumatic growth: Life crises, individual and social resources, and coping. *Posttraumatic growth: Positive changes in the aftermath of crisis, 99*, 126.

Schulz, R., Beach, S. R., Lind, B., Martire, L. M., Zdaniuk, B., Hirsch, C., Jackson, S., & Burton, L. (2001). Involvement in caregiving and adjustment to death of a spouse:

Findings from the caregiver health effects study. *JAMA: Journal of the American Medical Association, 285*(24), 3123-3129. doi:10.1001/jama.285.24.3123

Seery, M. D. (2011). Resilience: A silver lining to experiencing adverse life events? *Current Directions in Psychological Science, 20*(6), 390-394. doi:10.1177/0963721411424740

Solnit, R. (2010). *A paradise built in hell: The extraordinary communities that arise in disaster*: Penguin.

Stroebe, W., Stroebe, M., Abakoumkin, G., & Schut, H. (1996). The role of loneliness and social support in adjustment to loss: A test of attachment versus stress theory. *Journal of Personality & Social Psychology, 70*(6), 1241-1249.

Stroebe, W., & Stroebe, M. S. (1987). *Bereavement and health: The psychological and physical consequences of partner loss*: Cambridge University Press.

Stroebe, W., & Stroebe, M. S. (1993). Determinants of adjustment to bereavement in younger widows and widowers. . In M. S. Stroebe, W. Stroebe, & R. O. Hansson (Eds.), *Handbook of bereavement: Theory, research, and intervention* (pp. 208–226). Cambridge University Press.

Stroebe, W., Zech, E., Stroebe, M. S., & Abakoumkin, G. (2005). Does social support help in bereavement? *Journal of Social and Clinical Psychology, 24*(7), 1030-1050.

Taylor, S. E. (2011). Tend and befriend theory. *Handbook of theories of social psychology, 1*, 32-49.

Tedeschi, R. G., & Calhoun, L. (2004). Posttraumatic growth: A new perspective on psychotraumatology. *Psychiatric Times, 21*(4), 58-60.

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471. doi:10.1007/BF02103658

Tedeschi, R. G., & Calhoun, L. G. (2004a). A clinical approach to posttraumatic growth. *Positive psychology in practice, 405*.

Tedeschi, R. G., & Calhoun, L. G. (2004b). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological inquiry, 15*(1), 1-18. doi:10.1207/s15327965pli1501_01

Tedlie Moskowitz, J., Folkman, S., & Acree, M. (2003). Do positive psychological states shed light on rcovery from bereavement? Findings from a 3-year longitudinal study. *Death Studies, 27*(6), 471-500. doi:10.1080/07481180302885

Utz, R. L., Swenson, K. L., Caserta, M., Lund, D., & deVries, B. (2014). Feeling lonely versus being alone: loneliness and social support among recently bereaved persons. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 69*(1), 85-94.

von Dawans, B., Fischbacher, U., Kirschbaum, C., Fehr, E., & Heinrichs, M. (2012). The social dimension of stress reactivity: Acute stress increases prosocial behavior in humans. *Psychological Science, 23*(6), 651-660. doi:10.1177/0956797611431576

Whitehouse, H., & Lanman, J. A. (2014). The ties that bind us: Ritual, fusion, and identification. *Current Anthropology, 55*(6), 674-695. doi:doi:10.1086/678698