Predictors of Emotional Adjustment and Posttraumatic Growth Following Bereavement in the United States and China

by

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A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Approved April 2014 by the
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ARIZONA STATE UNIVERSITY

May 2014

ABSTRACT

Using an integrated perspective of the Grief Work Hypothesis and Posttraumatic Growth Theory, this study was designed to contribute to the sparse existing cross-cultural research by examining and comparing individuals' emotional adjustment and posttraumatic growth in the United States (US) and China. Another main goal was to unfold the predictive effects of different dimensions of locus of control, coping strategies and social support on the outcomes and further, to explore cultural differences in the underlying mechanisms.

Web-based survey was disseminated and administered in the US and China. One thousand and seventy-eight participants completed the survey and met the criteria such that they were eighteen years old or older and experienced death of a loved one six to thirty-six months ago.

As expected, US participants experienced higher levels of subjective well-being, lower levels of complicated grief and posttraumatic growth than Chinese participants. They also reported higher external yet lower internal locus of control, less frequent use of active and avoidance coping, and less informational support and negative social interactions than their Chinese counterparts. No difference in emotional support was evidenced between the two cultures.

After controlling for demographic, loss-related information and the impact of post-bereavement life events, hierarchical regression analyses revealed that culture, external locus of control, avoidance coping and negative social interactions were unique predictors of complicated grief. Furthermore, the relation between external locus of control and complicated grief was weaker for US participants compared to that for

Chinese participants. Culture, external and internal locus of control, active and avoidance coping, and negative social interactions significantly predicted individuals' subjective well-being after the loss. Additionally, culture, internal locus of control, active and avoidance coping, informational support, and negative social interactions were identified as unique predictors of posttraumatic growth. Specifically, an interaction effect of avoidance coping x culture emerged such that avoidance coping significantly predicted posttraumatic growth only for US participants.

This study extracted the underlying mechanisms of predicting individuals' emotional adjustment and personal growth following bereavement. The influence of culture was also highlighted. Application of existing theories to the Chinese culture and clinical implications of the current study were discussed.

ACKNOWLEDGMENTS

I would love to offer my sincere gratitude and respect to my advisor, Dr. Paul Miller for involving me in his research, advice in exploring my research interests, and in promoting my professional and personal development. I would also like to thank my committee members, Dr. Perla Vargas and Dr. Deborah Hall, for their time and advice. In addition, I appreciate the suggestions from Dr. Nancy Eisenberg on the initial design of the study.

Furthermore, I am grateful to the Graduate Research Support Program by the Graduate and Professional Student Association, Arizona State University, as well as the School of Social and Behavioral Science, New College of Interdisciplinary Arts and Science, Arizona State University, for their funding for the current study.

This study may not be initiated without my volunteer experience at the New Song Center for Grieving Children. I appreciate the families and children at the center, who have been sharing their life stories and inspiring me to explore how individuals cope with bereavement and how professionals may help. Furthermore, my thanks go to participants in the current study, for their time and thoughtful comments.

Finally, I would love to express my gratitude to my family and friends, who have been always standing by me.

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Death of a loved one is almost inevitable and can be considered one of the most stressful experiences in a person's life (Holmes & Rahe, 1967). Bereavement, defined as the experience that follows death (Worden, 2002), or a reaction to such experience (American Psychiatric Association, 2000), has been known to be associated with acute psychosocial maladaptive outcomes across all age groups such as complicated grief (e.g., prolonged grief with denial of the death) (Boelen & van den Bout, 2005; Hensley, 2006), posttraumatic stress, depression, and worsened self-perception of health (Bonanno, Papa, Lalande, Zhang, & Noll, 2005). Also, longitudinal studies have demonstrated that those negative influences may remain (weakened yet still present) years after the loss (Miller, 2010; Rotheram-Borus, Stein, & Lin, 2001; Worden & Silverman, 1996). These undesirable outcomes were most common among people who valued the deceased as important (Murphy, 1988), had low social-economic status (Parker & Manicavasagar, 1986), lived with depressed members in the family, or experienced other stressful events in current life (Cerel, Fristad, Verducci, Weller, & Weller, 2006).

However, in recent years, with the development of several models regarding personal or posttraumatic growth after significant adverse events (Joseph & Linley, 2005; Nerken, 1993), such as the Model of Posttraumatic Growth (Tedeschi & Calhoun, 1995, 2004), much more attention has been paid to the positive outcomes following bereavement. There is some evidence that most individuals manage to grow in resiliency, have a change in their outlook on life (Miller, 2010), have a deeper appreciation of life, show greater caring for their loved ones, and develop emotional strength from their prior and continuing bereavement experience (Oltjenbruns, 1991).

It should be noted that both the focus on recovery from grief and the perspective of promotion for growth were rooted and developed in the Western culture (M. S. Stroebe, 1992; Tedeschi & Calhoun, 1995, 2004). In spite of the universality of bereavement experience, individuals in different countries or cultures appear to show diversities in their understanding and value of death (Chan et al., 2005; Rosenblatt, 2001). Also, their rituals in memorializing the deceased as well as their preference of coping strategies were found to differ at certain points of their grieving process (Bonanno et al., 2005). Hence, more light should be shed on the influence of culture on people's experience and adjustment to such a traumatic loss in their life.

Bereavement Experience in the United States and China

Rosenblatt (2001) proposed that culture might frame the way grief is experienced and expressed. In the traditional Western culture, the goal of processing grief is to detach from (or relocate) the deceased (M. S. Stroebe, 1992). On the other hand, in the Chinese culture, it is vital to maintain continuing bonds with the loved one who died, so that people appreciate holding rituals in the memory of the deceased, talking to (the photo of) the deceased, or dreaming of the deceased (Chan et al., 2005). Greatly influenced by the philosophies of Confucianism, Taoism and Buddhism, the Chinese also tend to regard death as a mark of transition from life to another world, as well as a symbolic representation of the future life of the surviving family members (Chan et al., 2005; S.-W. Ho & Brotherson, 2007). Consistent with these differences in beliefs, stronger continuing bonds have been found to predict better adjustment in a Chinese sample; yet, such pattern

was reversed for the bereaved population in the United States (Lalande & Bonanno, 2006).

Not only do bereaved individuals in different cultures hold diverse values and goals for their grieving process (e.g., whether to maintain continuing bonds), but they also vary in their ways of coping and expression. From a Western viewpoint, the expression of grief-related emotions is essential for bereaved survivors to work through the meanings of the loss and is therefore encouraged (Bonanno & Papa, 2003). Specifically, the expression of positive but not negative emotion when talking about the deceased has been associated with better adjustment, such as ameliorated grief symptoms (Bonanno & Keltner, 1997). However, freely expressed negative emotion might not be as effective an adaptation as it was expected to be because disclosure of loss-related emotion, either in the form of interpersonal conversation or writing a letter, predicted no reduction in individuals' distress among bereaved individuals in Western culture (M. Stroebe, Stroebe, Schut, Zech, & van den Bout, 2002). Conversely, in China, it is encouraged to control emotions that are adverse or disruptive to harmony in social interactions. Hence, individuals' needs to express emotions during bereavement, especially the negative feelings, might be largely ignored or misunderstood (Leong, Tseng, & Wu, 1985; Shen, 1995). For example, despite the fact that all the respondents in a study of children orphaned by AIDS reported distress from the loss of their mother, only 4% of them shared their feelings with others (Xu, Wang, Ji, & He, 2006). However, contrary findings emerged in Hong Kong where bereaved adults were willing to share their feelings with their close friends, siblings and professionals (A. Chow, Chan, & Ho, 2007). The divergent findings may result from the cultural differences between Mainland

China and Hong Kong, the nature of the sample population (i.e., age, educational level), or the interview designs.

Emotional Adjustment and Posttraumatic Growth Following Bereavement in the United States and China

Depression and grief have been broadly evidenced among bereaved individuals in the United States and China (Auster, Moutier, Lanouette, & Zisook, 2008; Chan et al., 2012; Hensley, 2006; J. Zhang, Tong, & Zhou, 2005). A longitudinal comparison between bereaved spouses' and parents' adjustment in these two countries revealed that bereaved Chinese were more distressed (at a marginal level) and reported worse health conditions than the U.S. sample four months after the death. At eighteen months after the death, however, Chinese participants showed lower levels of depression and no longer differed in perceived health from the bereaved Americans (Bonanno et al., 2005). This pattern suggested a differential trajectory of adjustment between the two cultures by highlighting the less detrimental effect of deliberate grief avoidance (e.g., avoiding thinking about the deceased on purpose) in China. However, less attention has been paid to comparing survivors' positive emotional outcomes (i.e., well-being, positive affect) after the loss of a loved one cross-culturally.

Subjective well-being, consisting of two components - affect well-being (i.e., presence of pleasant affect and absence of negative affect) and cognitive well-being (i.e., cognitive evaluation of life overall), reflects the feelings and attitudes people have for their lives (Diener, 1984). A recent meta-analysis (Luhmann, Hofmann, Eid, & Lucas, 2012) suggested that there were persistent detrimental effects of bereavement on

individuals' subjective well-being in Western culture, especially for cognitive well-being. Further, Mancini, Bonanno, and Clark (2011) conducted a longitudinal study to distinguish four types of subjective well-being trajectories (i.e., chronic, improved, acute recovery, and resilient) from four years before to four years after the loss, while controlling for age, health and changes in income. Prospective evaluation of subjective well-being of the bereaved population in China and comparisons between those in the US and China could supplement the concurrent literature mostly grounded in the Western culture.

In contrast to the Grief Work Hypothesis's emphasis on recovery from loss (M. S. Stroebe, 1992), Nerken (1993) suggested that individuals' grieving process should work toward enhancing individuals' reflective selves' insights, affirmative strengths and abilities to make life matter. Furthermore, Tedeschi and Calhoun (1995) proposed the Model of Posttraumatic Growth, tapping into the experience of significant positive changes in personal goals, behaviors, beliefs and identity that arise from individuals' struggle with highly stressful and demanding situations (Calhoun, Cann, Tedeschi, & McMillan, 2000; Tedeschi & Calhoun, 2004). Emerging research has revealed some positive predictors of posttraumatic growth, including internal, global and stable attribution (S. Ho, Chu, & Yiu, 2008), posttraumatic distress symptoms (Qian, Yang, Li, Xu, & Wang, 2012; Yu et al., 2010), social support (Yang, Lin, & Qian, 2010), and positive reinterpretation coping (active coping) (Engelkemeyer, 2009). Yet, most studies were conducted among participants within a single cultural background.

Additionally, most prevention and intervention programs for the bereaved to date have focused on grief recovery (Aho, Tarkka, Åstedt-Kurki, Sorvari, & Kaunonen, 2011;

Currier, Holland, & Neimeyer, 2007; see:Merz, 2010, for an exception). As personal growth could not happen without distress (Laurence G. Calhoun & Tedeschi, 2001), examining both distress and posttraumatic growth may disclose a broader spectrum of people's adaptation to significant interpersonal loss and the effectiveness of their coping mechanisms.

In summary, individuals' bereavement experience and emotional expression have been shown to vary as a function of different values and adaptation goals manifested in their particular cultures. However, existing cross-cultural studies on relevant topics between the United States and China appear to mostly involve relatively small samples with a qualitative design, which might be subject to a lack of sample representativeness and researchers' subjective interpretation. Also, the majority of the studies were conducted in Hong Kong, where individuals were influenced by both traditional Chinese and Western cultures (A. Chow & Yip, 2011). A few exceptions, such as Bonanno and colleagues' longitudinal research between United States and Mainland China (2005, 2006, 2007), have mainly focused on bereaved adults' maladjustment in terms of distress and perceived health. Positive outcomes developed after the loss, such as posttraumatic growth, have not yet been examined across different cultures. Further, most research to date did not take other post-bereavement stressful life events into account, which were found to predict accumulated adverse effects on individuals' adjustment in addition to the effect of the loss itself (Cerel et al., 2006; Hagan, Luecken, Sandler, & Tein, 2009). Finally, previous cross-cultural research has paid little attention to the influences of personal characteristics (e.g., locus of control) and perception of environmental sources (e.g., social support). Therefore, studies aiming at unfolding individuals' coping

mechanism and its efficacy on a broader spectrum of outcomes in a cross-cultural context may contribute to the present literature and empirical findings.

The Role of Locus of Control

The model of "experienced competence" has highlighted individuals' locus of control, along with their coping efficacy, history of coping competence, and self-esteem as reliable personal assets for confronting challenging situations (Allen & Hayslip, 2001; Hayslip, Allen, & McCoy-Roberts, 2001). The latter three attributes have shown positive predictive effects on adjustment to bereavement (Bauer & Bonanno, 2001; Benight, Flores, & Tashiro, 2001; Ford, 2006). Locus of control, however, has gained less attention.

Defined as individuals' subjective attributions or reasons for the occurrence and outcomes of events, locus of control was hypothesized to be a stable personal characteristic (Rotter, 1966). Two major orientations have been identified - individuals with an internal orientation tend to regard events as controlled by their personal characteristics or actions; those with an external orientation think of events as influenced largely by environmental circumstances, such as powerful others and chance (Levenson, 1973, 1974; Rotter, 1966). Internally-orientated individuals were found to report easier adjustment to life events in the United States (Kilmann, Laval, & Wanlass, 1978). Similar patterns were found in China such that attribution of control by chance forces and powerful others were influential risk factors whereas internal locus of control served as a protective factor of emotional and psychological adjustment among adolescents with

exposure to the Wenchuan earthquake (W. Zhang, Jiang, Ho, & Wu, 2011) as well as other non-clinical populations (Ye, She, & Wu, 2007; Zou & Gan, 2007).

Comparisons between Americans and Chinese revealed mixed findings. Hong Kong Chinese were found to be more external than Americans, while Taiwanese students were less internal than Americans but showed no differences in external locus of control (see: Hui, 1982, for a review). Moreover, a recent meta-analysis in non-clinical populations found that external control was moderately related to depression and anxiety symptoms. In particular, the relationship between external control and anxiety was weaker for collectivist countries as compared to individualistic countries (Cheng, Cheung, Chio, & Chan, 2013), highlighting the moderational effect of culture on the relation between locus of control and individuals' emotional adjustment.

Among bereaved individuals, those with an internal locus of control, as compared to an external locus of control, appeared to report higher levels of guilt (Taub, 1997), and better communication skills (Oltjenbruns, 1991). It was also hypothesized by Tedeschi and Calhoun (2004) that those with an internal orientation might experience more control over the post-loss situations, which, in turn, benefit their emotional adjustment and promoted personal growth. Ho and colleagues' empirical study in Hong Kong supported the hypothesis (S. Ho et al., 2008); however, locus of control failed to predict posttraumatic growth among individuals in Western societies (Bossick, 2009; Cummings & Swickert, 2010; Walker, 2008). The inconsistent findings suggest cultural differences in the relation between locus of control and post-bereavement outcomes. For example, internal locus of control may predict posttraumatic growth only for Chinese individuals but not for Americans (Bossick, 2009; Cummings & Swickert, 2010; S. Ho et al., 2008;

Walker, 2008). In addition, the relation between high external locus of control and worse emotional adjustment may be stronger for Americans as compared to Chinese (Cheng et al., 2013).

The Role of Coping Strategies

Coping strategies have also demonstrated significant predictive effects on individuals' emotional outcomes during bereavement. The Cognitive Stress Theory and Stress Coping Model, proposed by Lazarus and Folkman (1984; Lazarus, 1985), have highlighted that active coping strategies, such as cognitive appraisal and behavioral efforts to manage the events, were mediators of individuals' adjustment to stressful events. Much existing research have embraced this model and found that among bereaved individuals, problem-focused coping, referring to cognitively restructuring problems and taking action, was related to reduced grief (Iversen, 2000) and other psychosocial malfunctioning symptoms (Gass & Chang, 1989). In addition, seeking a global meaning or understanding of a changing situation (Park & Folkman, 1997), such as the meaning of loss, has been associated with improved psychosocial adjustment (Coleman & Neimeyer, 2010; Tolstikova, 2010). Similarly, Gan, Guo, and Tong (2013) found that the meaning-focused active coping accounted for a significantly greater proportion of variance in positive affect (i.e., well-being) among earthquake victims in China. Moreover, active coping was associated with lower distress in caregivers of chronic ill patients (Hwang, 2008). On the other hand, avoidance coping, such as emotional suppression and dissociation was found to be associated with minimal grief symptoms (Bonanno, Keltner, Holen, & Horowitz, 1995; Engler, 1999; Iversen, 2000). Identical findings emerged for

withdrawing strategies such that they protected adolescents from Posttraumatic Stress Disorder after the Wenchuan earthquake in China (W. Zhang et al., 2011). These findings suggested that avoidance coping may be related to less maladaptation in bereaved individuals in both the US and Chinese cultures.

In the recent years, the Dual Process Model (Hansson & Stroebe, 2007; M. Stroebe, Schut, & Stroebe, 2005) has been proposed to identify individuals' coping strategies with different goals during the bereavement process, namely, the loss-oriented (i.e., working through grief and the loss) and restoration-oriented strategies (i.e., coping with the consequences of bereavement and a changed world). Under this framework, active coping strategies with both loss- and restoration-orientations, as well as avoidance coping with a loss-orientation was evidenced among Chinese widows in a qualitative study (Woo, Chan, Chow, & Ho, 2009). Whether loss-oriented and restoration-oriented coping strategies influence individuals' emotional adjustment and personal growth in the same way remains unexplored.

Existing studies on coping strategies appear to be inconsistent in their measures, including different categorizations and operationalization in assessing coping, which might have led to the discrepancies in previous findings (Cousins, 2011; Gass & Chang, 1989). Despite the myriad of research regarding coping with bereavement, cross-cultural studies were rarely carried out. Bonanno and colleagues (2005, 2007) found that Chinese reported more frequent "searching for meaning" (active coping) as well as "avoiding thinking about the deceased" (avoidance coping) than the bereaved in the United States (Bonanno et al., 2005; Pressman & Bonanno, 2007). However, the effect of such cultural differences in copings strategies on positive outcomes among bereaved individuals has

not been explored. Therefore, examining a broader spectrum of outcomes (i.e., subjective well-being posttraumatic growth) in addition to the traditional framework of recovery from grief may disentangle the underlying mechanisms on strategies for coping with bereavement stress.

The Role of Perceived Social Support

In addition to personal characteristics and coping strategies, perception of different types of social support has been found to be associated with bereavement outcomes (DeSantis, 2012; Engelkemeyer, 2009). Particularly, perceiving emotional support reflects the experience of having others listen and show interests, while perceiving informational support refers to receiving suggestions and information from others, and perceiving negative social interactions indicates experiencing demands and criticism by others (Krause, 1995). Higher levels of perceived overall social support were related to lower levels of grief among bereaved individuals (Engler, 1999), despite non-significant findings in an elderly sample (Mahan, 2008). Also, perceived support has been associated with lower levels of post-bereavement depression (Dimond, Lund, & Caserta, 1987; Norris & Murrell, 1990; W. Stroebe, Zech, Stroebe, & Abakoumkin, 2005); however, this relation was not significantly different from a non-bereaved sample. Thus, perceived support did not appear to have a unique buffering effect on individuals' adjustment to bereavement (W. Stroebe et al., 2005). Also, studies exploring relations between various sources (e.g., family, friends, significant others), or types (e.g., emotional, informational, material) of actual or perceived potential social support have revealed inconsistent findings (Burke, Neimeyer, & McDevitt-Murphy, 2010). Dudley

(1997) found that shortly after perinatal death, mothers' depression was negatively linked to perceived support in boosting their self-esteem and support from their husbands. However, no relations emerged between fathers' or mothers' depression levels and their perceived emotional support, or support from parents, friends (Dudley, 1997). Similar mixed findings appeared in Asian cultures such that only material support (in China) and family support (in Japan) protected adolescents from traumatic experience (e.g., natural disaster) over time (Fukukawa et al., 2005; W. Zhang et al., 2011). Therefore, the assumption that lack of social support can be detrimental to bereavement outcomes (Allen & Hayslip, 2001) has been partially supported but may vary upon the cause of death, time since death, as well as age and gender of the survivors.

In addition, social support, particularly emotional support and advice, was proposed to predict personal growth following traumatic experiences (Joseph & Linley, 2005; Tedeschi & Calhoun, 2004). Perceived emotional and advice support (or guidance) and social support satisfaction have been found to be positively related to personal growth among bereaved adults (Engelkemeyer, 2009). Also, bereaved adolescents' personal growth could be predicted by increased social support (DeSantis, 2012). There is evidence of posttraumatic growth among Chinese natural disaster victims (W. Zhang et al., 2011); yet the role of social support for Chinese individuals' adaptation to bereavement and personal growth has not received much attention.

Pressman and Bonanno (2007) found that bereaved individuals in both the US and China tended to process grief with their family or alone rather than with friends. However, how different types of social support (i.e., emotional support, informational support, negative social interactions) promote or precede emotional adjustment and posttraumatic

growth within the Chinese culture, where harmonious social relationships are emphasized, and whether the mechanisms vary between American and Chinese cultures, remain important areas for research.

The Current Study

The current study is designed to contribute to the sparse existing cross-cultural research (Bonanno et al., 2005; Lalande & Bonanno, 2006; Pressman & Bonanno, 2007) on individuals' reactions and adjustment to bereavement in the United States and China in several ways.

The first purpose of this study is to examine and compare both positive and negative bereavement outcomes between the United States and China, especially the positive ones that have been largely unexamined by utilizing the Model of Posttraumatic Growth (Tedeschi & Calhoun, 1995, 2004). That is, this study assesses positive outcomes, namely posttraumatic growth, in addition to the full spectrum of emotional adjustment (from complicated grief symptoms to subjective well-being) in bereaved adults in the two cultures. Additionally, the relationships between those outcomes will be explored.

Hypothesis 1: Based on previous findings (Bonanno et al., 2005), US participants will experience lower levels of complicated grief and posttraumatic growth, as well as higher levels of subjective well-being as compared to their Chinese counterparts. A negative relation between complicated grief and subjective well-being is expected, while the relations between posttraumatic growth and the two indices of emotional adjustment will be examined.

Secondly, previous cross-cultural studies have predominantly focused on individuals' grief-related coping mechanisms in response to bereavement. Other influential factors, such as personal characteristics (i.e., locus of control) and perception of environmental resources (i.e., perceived social support), remain unexplored cross-culturally. Therefore, this study also evaluates and compares individuals' personal characteristics, post-bereavement reactions and resources cross-culturally, in terms of their locus of control (i.e., internal locus of control, external locus of control), coping strategies (i.e., active coping, avoidance coping) as well as perceived social support (i.e., emotional support, informational support, negative social interactions).

Hypothesis 2: US participants will report lower levels of external locus of control and higher levels of internal locus of control than their Chinese counterparts (Hui, 1982).

Hypothesis 3: US participants will report less frequent use of active and avoidance coping in response to bereavement as compared to Chinese participants (Bonanno et al., 2005; Pressman & Bonanno, 2007).

It is unclear how levels of emotional, information support and negative social interactions may differ across the two cultures due to lack of prior pertinent research. Putative cultural differences in these dimensions will be tested in the current study.

Furthermore, this study aims to examine the predictive effects of locus of control, coping strategies and perceived social support on individuals' emotional adjustments and posttraumatic growth in the two cultures. Also, because much previous research overlooked individuals' exposure to other traumatic life events and their impact, which has been associated with emotional adjustment (Cerel et al., 2006; Hagan et al., 2009),

this study measures and considers the impact of post-bereavement life events as a covariate.

Hypothesis 4: After controlling for demographic, loss-related information, the impact of post-bereavement life events and culture, internal locus of control will predict better emotional adjustment, including lower levels of complicated grief and higher levels of subjective well-being, as well as more posttraumatic growth (Taub, 1997; Tedeschi & Calhoun, 2004); external locus of control will predict higher levels of complicated grief (Cheng et al., 2013).

Hypothesis 5: After controlling for demographic, loss-related information, the impact of post-bereavement life events and culture, both active and avoidance coping strategies will predict better emotional adjustment and more posttraumatic growth (Engelkemeyer, 2009; Engler, 1999).

Hypothesis 6: Emotional and informational support will predict better emotional adjustment and more post-bereavement growth while negative social interactions will predict worse emotional outcomes and less personal growth, after controlling for demographic, loss-related information, the impact of post-bereavement life events and culture. (Engelkemeyer, 2009; Engler, 1999).

Finally, this study explores whether culture moderates the relations between predictors (i.e., individual dimensions of locus of control, coping strategies and social support) and bereavement outcomes (i.e., complicated grief, subjective well-being and posttraumatic growth).

Hypothesis 7: The relation between external locus of control and complicated grief will be weaker for Chinese participants than that for US participants (Cheng et al.,

2013). In addition, internal locus of control will predict posttraumatic growth only for Chinese individuals but not for Americans (Bossick, 2009; Cummings & Swickert, 2010; S. Ho et al., 2008; Walker, 2008).

Furthermore, the current study will explore the moderational effect of culture on the relations between the other predictors and the bereavement outcomes (i.e., complicated grief, subjective well-being, and posttraumatic growth).

METHOD

Design

This cross-sectional study used web-based self-reported questionnaires to examine and compare emotional adjustment and posttraumatic growth following bereavement between individuals in the United States and China.

Based on previous studies of bereaved adults with a retrospective design (Engelkemeyer, 2009; Parker & Manicavasagar, 1986), criteria of an individual's eligibility for this study included: a) 18 years old or older; b) death of a loved one, such as parent, grandparent, spouse, child, close relative or friends; c) death occurred no sooner than 6 months ago and no longer than 36 months ago at the time of recruitment, and d) capability to complete questionnaires in either English or Chinese.

Participants

Responses from 1798 participants were collected. Among these, 31 respondents were identified as duplicates because they used same IP addresses and provided identical demographic information, and their responses were subsequently discarded. Among the

remaining 1766 responses, 1758 completed more than 80% of the survey. According to the inclusion criteria, 192 participants reporting the experience of one loss that occurred sooner than 6 months ago and 362 participants reporting their latest loss that happened longer than 36 months ago were excluded from the sample. Another 36 participants reported experiencing multiple deaths of loved ones, with the most recent loss occurred within 6 months. Because these participants may have experienced another loss that met the inclusion criteria of this study, independent samples t-tests were performed between these participants and those who strictly met the inclusion criteria. The results indicated that there were no significant differences in all predictor and outcome measures between the two groups. Therefore, both groups of participants were included in the following analyses. In addition, 11 participants whose nationalities were neither the United States nor China were excluded from the analyses.

Furthermore, to rule out the impact of participants' completion speed on the reliability and validity of the web-based responses in this study, a random sample of 114 participants' completion time (10.6%) was selected by SPSS 22.0 to result in an average completion time of 15.33 minutes (SD = 9.50). Completion time within one standard deviation of the selected sample was set as a reference as an adaptation from the methodology used by Montag and Reuter (2008). Subsequently, participants whose completion time was shorter than 5.8 minutes were categorized as a fast group (N = 115), while those whose completion time was longer than 24.83 minutes were categorized as a slow group (N = 154), and the rest were considered as a reference group. In both the fast and slow group, acceptable internal reliability across all the measures in the study emerged, with Cronbach's αs ranging from .71 to 96. One-way ANOVAs were

performed to compare the effect of completion speed on all predictor and outcome measures in this study. Main effects of completion speed were detected on external locus of control, internal locus of control, avoidance coping, emotional support, informational support, negative social interactions, complicated grief and posttraumatic growth. Post-hoc comparisons using the Tukey HSD tests indicated that the mean scores in external locus of control, internal locus of control, avoidance coping, emotional support, negative social interactions, and complicated grief for the fast group were significantly different than those for the reference group, *p*s < .05; also, participants in the slow group reported significantly more frequent use of avoidance coping strategies than those in the reference group, p = .012. To minimize the influence of completion speed on results of the current study, responses from participants in the fast group were excluded from the subsequent analysis.

As a result, a final sample of 1178 participants that met the inclusion criteria and completed the survey at an acceptable pace were included in the analysis for the current study, among which 508 were male (52.7%), and 568 were female (47.1%), 2 were missing for their gender information (.2%); 631 (58.5%) identified themselves as US citizens, whereas 447 (41.5%) reported themselves as Chinese citizens; the mean age was 34.81 years old (*SD* = 11.02, range 18-87), and the average time since death of a loved one was 18.01 months (*SD* = 8.38, range 6-36).

Covariate Measures

Demographic and loss-related information. A self-report questionnaire was developed by the researcher of this study to obtain participants' demographic information,

including age, gender, culture, ethnicity, marital status, religious belief, highest educational degree, and yearly household income. Of these, responses for ethnicity and yearly household income for samples in the US and China were comparable according to their national data. In addition, information regarding the loss event was measured, including participants' relationship to the deceased, gender of the deceased, cause of death, time since death, and presence at the death. A 5-point Likert scale (1 = "strongly disagree", 5 = "strongly agree") was used to measure participants' closeness to the deceased and perception of the death as unexpected or a relief. Finally, participants were asked whether they used counseling services, therapy, or other professional help, including attending support groups.

Impact of Post-bereavement Life events. Participants completed the revised 11-item Life Events Checklist, which was originally developed by Gray, Litz, Hsu, and Lombardo (2004). The checklist measures individuals' appraisals of the impact of a life event that either happened to them personally, or they personally witnessed or learned about after the loss, including natural disaster, accident, physical or sexual assault, life threats, economic hardships, family difficulties, and loss of social network. Participants reported on a 6-point Likert scale ranging from 0 to 5 (0 = "the event has no impact or does not apply", 5= "the event has a very high impact") to indicate the level of impact on them. The higher the accumulated score is, the higher the impact post-bereavement life events had on an individual. The original measure has evidence of adequate reliability and good validity with other questionnaires about traumatic events in both clinical and non-clinical samples (Gray et al., 2004).

Predictor Measures

Locus of control. Individuals completed the revised 12-item Internal, Powerful Others, and Chance scales (Levenson, 1973, 1974). Internal locus of control refers to respondents' internal expectancies as the reason for the outcome of an event based on their own thoughts or behaviors (e.g., "My life is determined by my own actions"). External locus of control refers to participants' beliefs that the outcome of an event is controlled by powerful others or chance forces, respectively (e.g., "People like me have very little chance of protecting our personal interests when they conflict with those of strong pressure groups", "When I get what I want, it's usually because I'm lucky"). A 7-point Likert scale ranging from -3 to 3 (-3 = "strongly disagree", 0 = "neither agree nor disagree", 3 = "strongly agree") was used to denote participants' agreement with each item. Higher scores in each dimension suggested a stronger belief in that specific source of control. Acceptable reliability of this scale has been revealed in previous research using both US (Levenson, 1973, 1974) and Chinese samples (Liu, 2003; Ye et al., 2007; Zou & Gan, 2007). Both the external and internal locus of control subscales evidenced acceptable internal reliability in the current study, Cronbach's αs = .86 and .75, respectively.

Coping strategies. Participants' coping strategies were measured by an adaptation of the 36-item Children's Coping Strategies Checklist (Ayers, Sandler, West, & Roosa, 1996; Program for Prevention Research, 1999), examining individuals' active and avoidance coping when they had problems or felt upset during the bereavement process. Active coping taps into problem focused coping (i.e., cognitive decision making, direct program solving, seeking understanding) and positive cognitive restructuring (i.e.,

positivity, control and optimism) (e.g., "I thought about which things are best to do to handle the problem"), while avoidance coping measures avoidant actions, suppression and wishful thinking (e.g., "I didn't think about it"). A 4-point Likert scale ranging from 1 to 4 (1 = "never", 4 = "most of the time") was used to assess participants' frequency of using each strategy. The checklist has revealed good internal reliability in prior research (Ayers et al., 1996; Wolchik, Coxe, Tein, Sandler, & Ayers, 2009). Both active and avoidance coping were found to be associated with increasing new possibilities and personal growth among bereaved adolescents and young adults (Wolchik et al., 2009). In the present study, Cronbach's αs for the active and avoidance strategies subscales were .94 and .87, respectively.

Perceived social support. The adapted 13-item self-reported Perceived Support Scale (Krause, 1995) was used to examine individuals' perception of various aspects related to social support from family members or friends after the loss, including emotional support with one-item measuring satisfaction with emotional support (e.g., "My family/friends listened to me talk about my private feelings"), informational support with one-item measuring satisfaction with informational support (e.g., "My family/friends offered me information that made a difficult situation easier to understand"), and negative social interactions (e.g., "My family/friends made too many demands on me"). A 5-point Likert scale ranging from 1 to 5 (1 = "strongly disagree", 0 = "neither agree nor disagree", 5 = "strongly agree") was used to assess participants' agreement with each item. Higher mean scores indicated higher levels of emotional, information support, and negative social interactions. Good internal consistency and convergent validity of this scale with life satisfaction have been demonstrated in previous

studies (Krause, 1995). Satisfactory internal reliability was evidenced with Cronbach's αs for emotional support (.95), informational support (.84), and negative social interactions (.82).

Outcome Measures

Complicated grief. The 19-item one-factor Inventory of Complicated Grief (Prigerson et al., 1995) was used to measure the frequency that individuals experienced pathological grief symptoms during the past month, involving intense intrusive thoughts, avoidance of activities or properties related to the deceased, longing and searching for the deceased, denial of the death, and loneliness (e.g., "I feel drawn to places and things associated with the person who died"). The inventory was administered on a 5-point Likert scale ranging from 0 to 4 (0 = "once or less a month", 4 = "more than once a day"). Higher sum scores of the inventory suggest more and severe symptoms of complicated grief. The inventory has demonstrated high internal consistency, test-retest reliability, and has been significantly associated with depression and PTSD using both American and Chinese samples (He, Wang, Tang, Yu, & Xie, 2013; Prigerson et al., 1995). In this study, the scale also revealed a satisfactory internal reliability, Cronbach's $\alpha = .96$.

Subjective well-being. An adapted version of the 9-item Index of Well-being (Campbell, 1976; Campbell, Converse, & Rodgers, 1976) was administered to measure changes in participants' perception of subjective well-being after the loss on a 7-point Likert Scale. Consistent with the definition provided by Campbell et al. (1976), this index is composed of two factors. The first factor assesses individuals' affective well-being using eight groups of semantic differential items that describes the current state of

participants' life as compared to their life before the loss (e.g., much more boring versus much more interesting) and the second factor has individuals rate their overall life satisfaction after the loss. The well-being score is calculated by the sum of the mean score of the first eight general affect items weighted with 1.0 and the overall life satisfaction score multiplied by a weight of 1.1 (Campbell et al., 1976). Higher scores indicate higher levels of overall subjective well-being. Diener (1984) reported that this scale had a high internal consistency while Campbell et al. (1976) established a good convergent validity of the scale. Acceptable internal reliability, test–retest reliability, and criterion-related validity of the Chinese version of the Index of Well-Being have evidence as well (Li & Zhao, 2000). Internal item consistency reliability for the scale in the current study was high (α = .93).

Posttraumatic growth. Individuals' posttraumatic growth following bereavement was assessed by the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). This measure includes five factors: Relating to Others (e.g., "I have a deeper sense of closeness with others"), New Possibilities (e.g., "I developed new interests"), Personal Growth (e.g., "I know that I can handle difficulties"), Spiritual Change (e.g., "I have a stronger religious faith") and Appreciation of Life (e.g., "I have a better appreciation for the value of my own life"). A 6-point Likert Scale ranging from 0 to 5 was used to measure how each statement matched a respondent's experience as a result of the death of a loved one (0 = "did not experience"; 1 = "to a very small degree", 5 = "to a very great degree"). Higher sum scores indicate stronger evidence of growth from bereavement. This inventory has demonstrated good internal consistency and acceptable test-retest reliability in previous research (Tedeschi & Calhoun, 1996), and has been

translated into Chinese and tailored to the Chinese culture. The Chinese measure has been used to evaluate posttraumatic growth among earthquake survivors (Chen, Huang, Gan, & Tang, 2012; Gao et al., 2010). Acceptable internal reliability of this inventory was evidenced in the present study, Cronbach's $\alpha = .95$.

A summary of the predictor and outcome measures and their definitions in the current study is presented in Table 1.

Table 1

Summary of Measures

Measure Subscale	Definition
Predictor	
Adapted Internal, Powerful Others, and Chance scales (External - Powerful Others & Chance, and Internal)	Assesses individuals' subjective attribution or reasons for the occurrence and outcomes of events
External Locus of Control	Individuals' attribution of events to environmental circumstances, including powerful others and chance
Internal Locus of Control	Individuals' attribution of events to personal characteristics
Adapted Children's Coping Strategies Checklist	Assesses individuals' frequency of using coping strategies when they had problems of felt upset during bereavement process
Active Coping	Individuals' cognitive and behavioral efforts to manage the problem or adjust the negative affect, including cognitive decision making, direct problem solving, seeking understanding, positivity, control, and optimism
Avoidance Coping	Individuals' cognitive and behavioral avoidance from the problem or negative affect, including avoidant actions, suppression and wishful thinking

Perceived Support Scale	Assesses individuals' perception of and satisfaction with different types of support from family and friends
Emotional Support	Individuals' perception of and satisfaction with having others listen and show interests
Informational Support	Individuals' perception of and satisfaction with having others provide suggestions and information
Negative Social Interactions	Individuals' perception of demands and criticism by others
Outcome	
Inventory of Complicated Grief	Assesses individuals' prolonged grief symptoms, including intense intrusive thoughts, avoidance of activities or properties related to the deceased, longing and searching for the deceased, denial of the death, and loneliness
Adapted Index of Well-being	Assesses individuals' perception of changes in subjective well-being after the loss, including their affect well-being (i.e., presence of pleasant affect and absence of negative affect) and cognitive well-being (i.e., overall satisfaction with life)
Posttraumatic Growth Inventory	Assesses individuals' significant positive changes in personal goals, behaviors, beliefs and identity after the loss, including changes in relating to others, new possibilities, personal growth, spiritual change, and appreciation of life

Translation into Chinese

Chinese versions of the Index of Subjective Well-being and the Inventory of Posttraumatic Growth were obtained (Gao et al., 2010; Li & Zhao, 2000). The researcher of the current study translated the rest of the measures from English to Chinese. A team of three Chinese graduate students who have learned English for at least 10 years and were naïve about the nature of the study back-translated the Chinese

version of the scales to English. Discrepancies between the original English versions and the back-translations were identified and modification of the Chinese translation was discussed between the investigator and the back-translators.

Procedure

Approval from the Institutional Review Board at Arizona State University was obtained. Participants were recruited from online advertisement, including "craiglist.org", Amazon Mechanical Turk in the United States, and "taobao.com", "www.sojump.com" in China. All measures in this study were administered online via "www.qualtrics.com" in both countries where a drop-down menu allowed participants to choose to complete the survey in either English or Chinese.

On the advertisement page, a participant information letter, delineating the purpose of this study and the criteria of eligibility for participation, was presented. A link to the survey website was provided. By clicking a button at the bottom of the webpage to continue, individuals indicated their agreement to participate in this study. They retained the right to quit at any time during the survey. Other than the demographic and loss-related measures which appeared at the very end, the rest of the questionnaires were administered by the website to participants in a randomized order. At the end of the survey, an appreciation letter with a survey code appeared and asked whether participants would like to leave their contact information to receive a summary of the results from this study. Each participant received a $2 compensation for their time and could choose to enter a drawing for a $25 Amazon gift card, given that their participation was verified by the survey code. For those who participated in the study via Amazon Mechanical Turk,

their compensation was granted via the system, whereas the rest of the participants were directed to a separate link to leave their Paypal (in the United States) or Taobao (in China) account in order to be compensated. This process was completely voluntary.

RESULTS

Descriptive Statistics and Comparisons of Demographic and Covariate Measures between the Unites States and Chinese Samples

Descriptive statistics of participants' demographic and loss-related information, as well as the impact of post-bereavement life events on them are presented in Table 2. About half of the participants in the US and Chinese samples lost either their parent or grandparent; 14.3% of participants in the US and 20.4% in China experienced multiple deaths. Around half of the deaths were due to chronic causes, such as chronic health problems; another 40% of the deaths were due to acute causes such as acute illness, accident, homicide and suicide. The US sample was predominantly Caucasian American (81.8%), followed by African American (7.3%), Asian American (5.4%), Hispanic American (3.6%), Other (1.4%), and Native American (.5%). Most Chinese participants reported their ethnicity as Han (95.5%), following by Man (2.0%), Zhuang (.7%), Hui (.7%), Other (.7) and Weiwuer (.2).

Table 2

Descriptive Statistics of Demographic, Loss-related Information and the Impact of Post-bereavement Life Events of Participants in the United States and China

		United States	China
Participant Age (Years old)	*M* (*SD*)	35.82 (11.90)	33.33 (9.41)

Age of the Deceased (Years old)	*M* (*SD*)	62.76 (22.89)	67.98 (20.83)
Participant Gender	Male *N* (%)	296 (46.9)	212 (47.4)
	Female *N* (%)	335 (53.1)	233 (52.1)
Gender of the Deceased	Male *N* (%)	329 (52.1)	259 (57.9)
	Female *N* (%)	298 (47.2)	182 (40.7)
Deceased's Relationship	Parent *N* (%)	138 (21.9)	66 (14.8)
To the Participant	Grandparent *N* (%)	187 (29.6)	181 (40.5)
	Spouse *N*(%)	8 (1.3)	6 (1.3)
	Partner *N* (%)	8 (1.3)	5 (1.1)
	Child *N* (%)	10 (1.6)	4 (.9)
	Sibling *N* (%)	31 (4.9)	13 (2.9)
	Relative *N* (%)	72 (11.4)	41 (9.2)
	Friend *N* (%)	78 (12.4)	33 (7.4)
	Other *N* (%)	9 (1.4)	7 (1.6)
	Multiple Deaths *N* (%)	90 (14.3)	91 (20.4)
Cause of Death	Chronic *N* (%)	337 (53.4)	236 (52.8)
	Acute *N* (%)	250 (39.6)	184 (41.2)
	Both *N* (%)	44 (7.0)	19 (4.3)
Received Counseling Service	Yes *N* (%)	84 (13.3)	45 (10.1)
	No *N* (%)	545 (86.4)	399 (89.3)
Presence at Death	Yes *N* (%)	141 (22.3)	152 (34.0)
	No *N* (%)	487 (77.2)	292 (65.3)
Time Since Death (Months)	*M* (*SD*)	17.40 (8.41)	18.88 (8.28)
Unexpectedness of Death	*M* (*SD*)	3.28 (1.62)	3.70 (1.28)
Levels of Relief	*M* (*SD*)	1.73 (1.14)	1.85 (1.14)
Closeness to the Deceased	*M* (*SD*)	4.61 (.67)	4.49 (.76)
Impact of Life Events	*M* (*SD*)	14.79 (11.62)	24.32 (13.23)

Independent samples t-tests indicated that in the current sample, US participants were significantly older than Chinese participants, $t(1038) = 3.80$, $p < .001$; the deceased of the US participants were significantly younger, $t(1003) = -3.87$, $p < .001$; US

participants reported significantly shorter time since they experienced the most recent loss, $t(1076) = -2.86$, $p = .004$; but US participants reported that the death was less unexpected and they had a closer relationship to the deceased, $t(1062) = -4.71$, $p < .001$, $t(871) = 2.59$, $p = .01$, respectively; moreover, US participants reported marginally lower levels of relief after the loss, $t(1073) = -1.80$, $p = .07$, and significantly lower levels of being impacted by post-bereavement life events than Chinese participants, $t(878) = -12.24$, $p < .001$.

Descriptive Statistics and Comparisons of Predictor and Outcome Measures between the United States and Chinese Samples

In order to test Hypotheses 1-3, independent sample t-tests were performed on predictor and outcome measures between American and Chinese participants. Descriptive statistics for the predictor and outcomes measures, as well as the results of the independent samples t-tests are displayed in Table 3.

Consistent with Hypothesis 1, US participants reported significantly lower levels of complicated grief and posttraumatic growth, as well as higher levels of subjective well-being when comparing to Chinese participants, ps $< .001$. In addition, participants in the United States reported significantly lower levels of external locus of control and higher levels of internal locus of control than those in China, ps $< .001$, which supported Hypothesis 2. Congruent with the Hypotheses 3, US participants reported lower frequency of using both active and avoidance coping strategies as compared to their Chinese counterparts, ps $< .001$. What is more, American participants reported less

informational support and negative social interactions with their family and friends after the loss, *p*s < .001; no cultural differences in emotional support emerged.

Table 3

Descriptive Statistics of Predictor and Outcome Variables, and Comparisons between the United States and Chinese Samples

	United States		China		
	M(*SD*)	*N*	*M*(*SD*)	*N*	*t*
External Locus of Control	-.62(1.16)	631	.26(1.06)	447	-13.06***
Internal Locus of Control	1.40(1.01)	631	1.06(.97)	447	5.68***
Active Coping	2.49(.53)	631	2.70(.52)	446	-6.39***
Avoidance Coping	2.35(.57)	631	2.50(.54)	446	-4.35***
Emotional Support	3.96(.88)	631	4.01(.63)	447	-1.17
Informational Support	3.66(.86)	631	3.97(.60)	447	-7.03***
Negative social interactions	2.02(.98)	631	2.78(1.00)	447	-12.45***
Complicated Grief	17.20(15.69)	631	26.28(16.51)	447	-9.16***
Subjective Well-being	8.18(2.43)	629	7.80(2.19)	440	2.64**
Posttraumatic Growth	51.36(23.58)	631	63.19(20.47)	447	-8.77***

Note: **$p < .01$. ***$p < .001$.

Correlations between Predictor Measures in the United States and China

Table 4 shows the Pearson product-moment correlation coefficients between predictor measures for the US and Chinese participants.

External locus of control was positively correlated with internal locus of control for the Chinese participants whereas the pattern was reversed for US participants. Active coping had a positive relationship with avoidance coping for both participants from both countries, with the magnitude of the relationship higher in China. Higher levels of

emotional support were related to higher levels of informational support, less negative social interactions while higher levels of informational support was also linked to less negative social interactions. These patterns were identical between the US and Chinese participants.

Table 4

Correlations between Predictor Variables in the United States and China

	1	2	3	4	5	6	7
1. External Locus of Control		-.55***	-.07[a]	.33***	-.18***	-.14***	.28***
2. Internal Locus of Control	.24***		.28***	-.11***	.30***	.32***	-.16***
3. Active Coping	.20***	.51***		.21***	.29***	.41***	.04
4. Avoidance Coping	.43***	.25***	.58***		-.05	-.00	.25***
5. Emotional Support	.03	.45***	.46***	.20***		.80***	-.39***
6. Informational Support	.07	.47***	.49***	.21***	.80***		-.26***
7. Negative social interactions	.50***	.09[a]	.02	.28***	-.20***	-.14**	

Note: Correlations for the US participants are presented in the upper-right triangle (N = 631) while correlations for Chinese participants are presented in the lower-left triangle (N = 446 or 447). [a]$p < .10$. **$p < .01$. ***$p < .001$.

Higher levels of external locus of control were correlated with more frequent avoidance coping and more negative social interactions regardless of culture, as well as lower levels of emotional and informational support only for the US participants. External locus of control was positively associated with active coping for the Chinese participants yet this pattern was reversed and marginal for the American participants. Higher levels of internal locus of control were associated with more frequent active coping, higher levels of emotional and informational support for both groups. Among the US participants, internal locus of control was negatively related to avoidance coping,

whereas it was positively related with avoidance coping among the Chinese participants. Moreover, a significant negative relationship between internal locus of control and negative social interactions emerged in the US while the relationship was marginally positive instead in China. Additionally, active coping was positively related to emotional and informational support in both countries. Interestingly, the more negative social interactions US participants perceived, the more frequently they used avoidance coping, and it also held true for Chinese participants. However, more perceived emotional and informational support was only associated with more avoidance coping in China but not in the United States.

Correlations between Outcome Measures in the United States and China

Table 5 displays the Pearson product-moment correlation coefficients between the outcome variables for the US and Chinese participants.

The pattern was similar for participants from both countries such that complicated grief was negatively related to subjective well-being, and posttraumatic growth was positively associated with both complicated grief and subjective well-being.

Relationships between Covariate and Outcome Measures

Based on previous studies (Cerel et al., 2006; Hagan et al., 2009; Wolchik et al., 2009), participants' age, gender, ethnicity, presence at death, time since death, unexpectedness of death, levels of relief, closeness to the deceased, cause of death, experience of multiple deaths, age and gender of the deceased, as well as the impact of post-bereavement life events were considered as putative covariates.

Table 5

Correlations between Complicated Grief, Subjective Well-being and Posttraumatic Growth in the United States and China

	Complicated Grief	Subjective Well-being	Posttraumatic Growth
Complicated Grief		-.32***	.24***
Subjective Well-being	-.22***		.27***
Posttraumatic Growth	.28***	.18***	

Note: Correlations for the US participants are presented in the upper-right triangle (N = 631 or 629) while correlations for Chinese participants are presented in the lower-left triangle (N = 447 or 440). ***$p < .001$.

Pearson product-moment correlation analyses (Table 6) revealed significant correlations between the age of the deceased, participants' presence at death, time since death, unexpectedness of death, participants' closeness to the deceased, as well as the impact of post-bereavement life events and the outcome variables. However, the relatively weak bivariate correlations suggest that these correlates may only be accounting for a relatively small proportion of variability in the outcome variables.

In addition, a One-way ANOVA revealed a main effect of cause of death (chronic cause versus acute cause versus both causes) on complicated grief, F (3, 1074) = 2.94, $p < .05$; post-hoc comparisons using the Tukey HSD tests revealed that participants who experienced a death due to a chronic cause (M = 19.63, SD = 16.77) reported marginally significantly lower levels of complicate grief than those who experience a death due to an acute cause (M = 22.22, SD = 16.40). No significant main effects of cause of death on participants' complicated grief, subjective well-being or posttraumatic growth emerged.

Table 6

Correlations between Demographic, Loss-related Information, the Impact of Post-bereavement Life Events and Outcome Variables

	Complicated Grief	Subjective Well-being	Posttraumatic Growth
Participant Age	-.07*	-.04	-.03
Age of the Deceased	-.13***	.06*	-.06*
Participant Gender[b]	-.07*	.02	-.03
Gender of the Deceased[b]	.05	-.03	.04
Participant Ethnicity[c]	-.03	-.07*	-.06*
Received Counseling Service[d]	.10**	.02	.02
Presence at Death[d]	.15***	-.08**	.08*
Time since Death	-.08*	.06*	.04
Experience of Multiple Deaths[d]	.10**	.00	.07*
Unexpectedness of Death	.20***	-.01	.13***
Levels of Relief	-.02	.09**	-.01
Closeness to the Deceased	.09**	-.10**	.11***
Impact of Life Events	.42***	-.06[a]	.32***

Note. [b]Male versus female (1 = male, 0 = female). [c]Caucasian American/Han versus Other (1 = Caucasian American in the US or Han in China, 0=Others). [d]Yes versus no (1 = yes, 0 = no). [a]$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Partial Correlations between Predictor and Outcome Measures

Table 7 displays the partial correlations between predictor and outcome measures in this study, after age of the deceased, experience of multiple deaths, time since death, presence at death, unexpectedness of death, closeness to the deceased, the impact of post-

bereavement life events and participants' culture were controlled for based on the previous analyses.

Table 7

Partial Correlations between Predictor and Outcome Variables

	Complicated Grief	Subjective Well-being	Posttraumatic Growth
External Locus of Control	.29***	-.16***	.00
Internal Locus of Control	-.06*	.24***	.36***
Active Coping	.06*	.22***	.54***
Avoidance Coping	.34***	-.13***	.21***
Emotional Support	-.07*	.15***	.30***
Informational Support	-.03	.16***	.38***
Negative social interactions	.25***	-.00	.04

Note: Covariates include age of the deceased, experience of multiple deaths, time since death, presence at death, unexpectedness of death, closeness to the deceased, the impact of post-bereavement life events and culture. $^{*}p < .05$. $^{***}p < .001$.

Higher levels of external locus of control were related to higher levels of complicated grief and lower levels of subjective well-being, while higher levels of internal locus of control were linked to lower levels of complicated grief, as well as higher levels subjective well-being and posttraumatic growth. Frequent use of active coping strategies had a moderate to strong positive relationship with subjective well-being and posttraumatic growth, as well as a weak yet positive correlation with negative emotional outcomes. On the other hand, more frequent use of avoidance coping was associated with worse emotional maladjustment symptoms (i.e., higher levels of complicated grief, lower levels of subjective well being), yet higher levels of

posttraumatic growth. Emotional and informational support was both positively associated with subjective well-being and posttraumatic growth, and perception of the former type of support also had a weak and negative association with complication grief. Additionally, the more negative social interactions that participants perceived, the higher they reported levels of complicated grief.

Predictors of Outcome Measures with Culture as a Moderator

In order to examine Hypotheses 4-7 and to further explore the predictive effect of social support as well as the moderational effect of culture, three separate hierarchical regression analyses predicting complicated grief, subjective well-being and posttraumatic growth were performed. At Step 1 for each model, age of the deceased, experience of multiple deaths (coded: yes = 1, no = 0), time since death, presence at death (coded: 1= yes, 0 = no), unexpectedness of death, closeness to the deceased, and the impact of life events were entered. At Step 2, participants' culture (coded: United States = 1, China = 0) and mean centered scores (Aiken & West, 1991) of external and internal locus of control, active and avoidance coping, emotional and informational support, as well as negative social interactions were entered to examine the main effects of these putative predictors when all the covariates were partialed. At Step 3, interaction terms calculated by multiplying culture with the mean centered score of each predictor were entered to test the moderational effect of culture on the relation between the each predictor and outcome (i.e., complicated grief, subjective well-being, posttraumatic growth). Results of the three hierarchical regression models are summarized in Table 8.

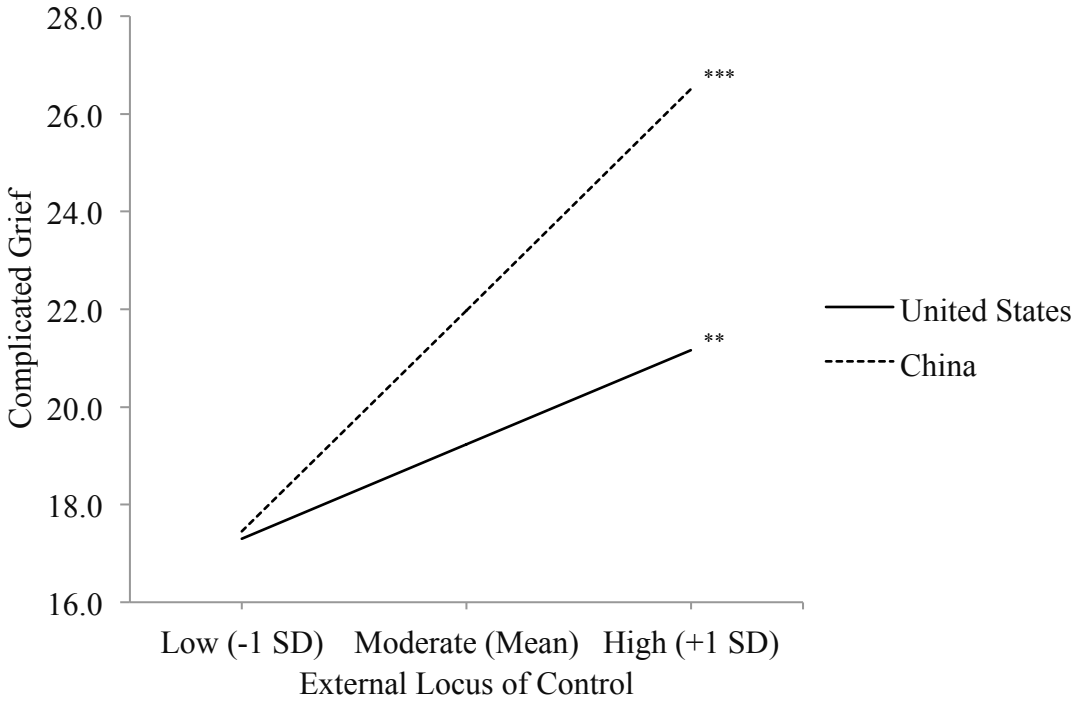
Table 8

Summary of Standardized Regression Coefficients and Adjusted R^2 Change from Hierarchical Regression Analyses Predicting Complicated Grief, Subjective Well-being and Posttraumatic Growth

	Step 1			Step 2			Step 3		
	CG	SWB	PTG	CG	SWB	PTG	CG	SWB	PTG
Age of the Deceased	-.09**	.08*	-.04	-.09**	.07*	-.07*	-.08**	.07*	-.06*
Multiple Deaths[b]	.02	.02	.02	.00	.04	.03	.01	.04	.03
Time since Death	-.08**	.07*	.04	-.08**	.08**	.05*	-.08**	.08**	.05*
Presence at Death[b]	.12***	-.06*	.04	.10***	-.04	.03	.10***	-.04	.02
Unexpectedness	.12***	.03	.07*	.07*	.05	.03	.08**	.06[a]	.03
Closeness	.06*	-.09**	.09**	.10***	-.14***	.04	.11***	-.13**	.04
Impact of Life Events	.39***	-.06[a]	.30***	.18***	-.01	.12***	.17***	-.01	.12***
Culture[c]				-.08*	.12**	-.08**	-.08*	.13**	-.08**
External LOC				.17***	-.12**	.00	.27***	-.12[a]	.07
Internal LOC				.02	.08*	.14***	.01	.02	.16**
ACTV Coping				-.04	.23***	.37***	-.09	.34***	.36***
AVOI Coping				.26***	-.20***	.07*	.25***	-.26***	-.05
EMO Support				-.02	.06	.01	.00	.01	.04
INFO Support				.03	.01	.16***	-.03	-.06	.19*
NSI				.14***	.11**	.08**	.12*	.15*	.09[a]
Culture[c] x External LOC							-.12*	.03	-.09[a]
Culture[c] x Internal LOC							-.01	.09	-.04
Culture[c] x ACTV Coping							.06	-.10	.03
Culture[c] x AVOI Coping							.02	.06	.14**
Culture[c] x EMO Support							-.03	.06	-.03
Culture[c] x INFO Support							.07	.07	-.03
Culture[c] x NSI							.00	-.04	-.02
Adjusted R^2 Change	.22***	.02***	.12**	.15***	.12***	.31***	.00	.00	.00*

Note: Standardized regression coefficients are displayed in the table. CG: complicated grief. SWB: subjective well-being. PTG: posttraumatic growth. LOC: locus of control. ACTV: active. AVOI: avoidance. EMO: emotional. INFO: informational. NSI: negative social interaction. [b]Yes versus no (1 = yes, 0 = no). [c]United States versus China (1 = United States, 0 = China). [a]$p < .10$. [*]$p < .05$. [**]$p < .01$. [***]$p < .001$.

Predictors of Complicated Grief with Culture as a Moderator. A hierarchical regression model predicting complicated grief (summarized in Table 8) revealed that culture, individual dimensions of locus of control, coping strategies and social support jointly explained a significantly greater proportion of variability in complicated grief when moving from Step 1 to Step 2 of the model, $\Delta R^2 = .15$, $F(8, 1041) = 32.99$, $p < .001$. Main effects of culture, external locus of control, avoidance coping and negative social interactions emerged such that being in the Chinese rather than the American culture, higher levels of external locus of control, avoidance coping, and negative social interactions predicted higher levels of complicated grief after controlling for all the covariates and other predictors, ps < .05. The combination of the interaction terms at Step 3 of the model did not account for a significantly greater proportion of variability in complicated grief, $\Delta R^2 = .00$, $F(7, 1034).12 = 1.33$, $p = .23$. However, the predictive effect of external locus of control was found to significantly vary between the United States and China, *Beta* = -.12, $t(1034) = -2.21$, $p = .027$. Simple slope analyses (Figure 1) revealed that in the United States, those who reported higher levels of external locus of control experienced higher levels of complicated grief, $b = 1.62$, $t(1025) = 2.92$, $p = .004$. This pattern also held, but was significantly stronger for participants in China, $b = 3.79$, $t(1025) = 4.88$, $p < .0001$.



Note: Covariates, other predictors and other interaction variables that are entered in the hierarchical model are partialed. $^{**}p < .01$. $^{***}p < .001$.

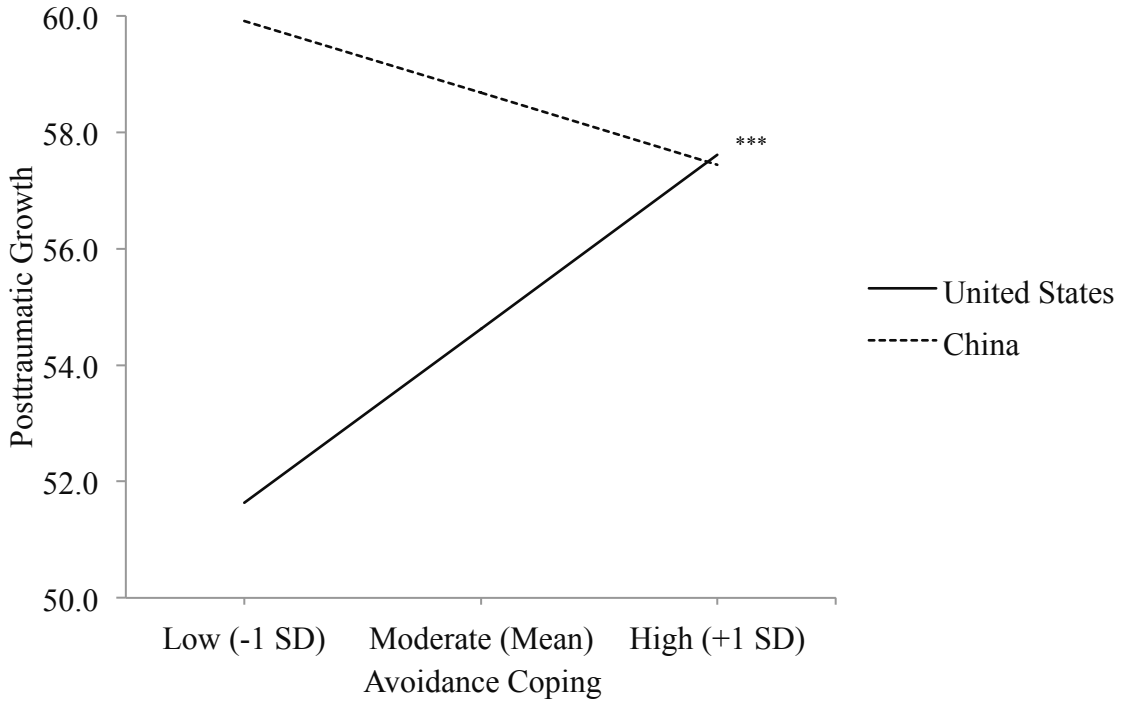
Figure 1. Regression Slopes for Complicated Grief as Predicted by External Locus of Control in the United States and China.

Predictors of Subjective Well-being with Culture as a Moderator. A hierarchical regression model of predicting subjective well-being (summarized in Table 8) revealed that the combination of culture, individual dimensions of locus of control, coping strategies and social support accounted for a significantly greater proportion of variability in subjective well-being when moving from Step 1 to Step 2 of the model, $\Delta R^2 = .12$, $F(8, 1032) = 18.81$, $p < .001$. Main effects of culture, external and internal locus of control, active and avoidance coping, and negative social interactions were detected such that being in the American rather than the Chinese culture, higher levels of internal locus of control, active coping, and negative social interactions, as well as lower levels of

external locus of control and avoidance coping uniquely predicted higher levels of subjective well-being after controlling for all the covariates and other predictors, *p*s < .01. The combination of all interaction terms did not jointly explain a significantly greater proportion of variability in subjective well-being, $\Delta R^2 = .01$, $F(7, 1025) = 1.38$, $p = .21$; no significant effect for any individual interaction term emerged.

Predictors of Posttraumatic Growth with Culture as a Moderator. A hierarchical regression model predicting posttraumatic growth (summarized in Table 8) revealed that culture, individual dimensions of locus of control, coping strategies and social support jointly accounted for a significantly greater proportion of variability in posttraumatic growth over and above the effects of the covariates alone, $\Delta R^2 = .31$, $F(8, 1041) = 73.23$, $p < .001$. Main effects of culture, internal locus of control, active and avoidance coping, informational support, and negative social interactions emerged such that being in the Chinese as opposed to the American culture, higher levels of internal locus of control, active and avoidance coping, informational support, and negative social interactions predicted more posttraumatic growth after controlling for all the covariates and other predictors, *p*s < .01. A significantly greater proportion of variability in posttraumatic growth was accounted for when all the interaction terms were entered at the Step 3 of the model, $\Delta R^2 = .00$, $F(7, 1034) = 2.19$, $p = .03$. There was a marginally significant interaction effect of culture x external locus of control when predicting posttraumatic growth, *Beta* = -.09, $t(1034) = -1.74$, $p = .08$. Simple slope analyses revealed that the relationship between external locus of control and posttraumatic growth was negative but statistically insignificant for US participants, $b = -.85$, $t(1025) = -1.17$, $p > .10$, whereas such a relationship was positive yet insignificant for Chinese participants,

b = 1.32, t(1025) = 1.29, p > .10. In addition, the main effect of avoidance coping remained at Step 3, and was qualified by a significant culture x avoidance coping interaction, *Beta* = .14, t(1034) = 2.98, p = .003. Simple slope analyses (Figure 2) demonstrated that US participants who used avoidance coping more frequently reported higher levels of posttraumatic growth, b = 5.31, t(1025) = 3.84, p < .0001; however, there was no significant relationship between avoidance coping and posttraumatic growth for Chinese participants, b = -2.19, t(1025) = -1.03, p > .10.



Note: Covariates, other predictors and other interaction variables that were entered in the hierarchical model were partialed. $^{***}p < .001$

Figure 2. Regression Slopes for Posttraumatic Growth as Predicted by Avoidance Coping in the United States and China.

DISCUSSION

Emotional Adjustment and Posttraumatic Growth following Bereavement in the United States and China

As expected in Hypothesis 1, participants in the United States experienced better emotional adjustment (i.e., higher levels of subjective well-being and lower levels of complicated grief) yet less posttraumatic growth than those in China. Cultural differences in these bereavement outcomes may be influenced by diversities in values between American and Chinese individuals. For example, some of the complicated grief symptoms (e.g., longing for the deceased, feeling pain in the same area as the deceased) are congruent with Chinese beliefs that individuals should maintain continuing bonds with the deceased (Chan et al., 2005), which may have led to higher scores for complicated grief among Chinese bereaved individuals. In addition, Tsai, Knutson, and Fung (2006) have found that Chinese individuals value low-arousal positive affect (e.g., calm) whereas Americans value high-arousal positive affect (e.g., excitement). This difference may reflect the finding in this study as Chinese may report lower levels of subjective well-being than Americans due to their value of low-arousal positive affect regardless of the experience of significant loss. Future studies that utilize pre-bereavement measures may control for this cultural difference. Furthermore, preference of holistic thinking among Chinese individuals (Choi & Nisbett, 1998) may have increased their awareness of changes after the loss in various circumstances (e.g., relationship with others, new possibilities in life), which in turn, promoted their personal growth.

Consistent with the proposed relationships between outcomes in Hypothesis 1, a negative association between complicated grief and subjective well-being was evidenced. Interestingly, positive relationships were found between posttraumatic growth and subjective well-being, as well as between posttraumatic growth and complicated grief in both cultures. The former relationship is congruent with previous findings among trauma survivors (Wild & Paivio, 2003). Similarly, Cole (2012) found that for trauma survivors, perceived personal growth predicted more Posttraumatic Stress Disorder (PTSD) symptoms whereas for a control group, perceived growth also predicted general stress over time. These findings suggest that personal growth is not only related to distress (Laurence G. Calhoun & Tedeschi, 2001), but that it may develop along with pathological emotional symptoms. Janoff-Bulman (1989) suggested that individuals' denial and recurrent thoughts might facilitate individuals' cognitive coping, which in turn, promoted their insight of the world and adjustment over time. Future research could use a longitudinal design to disentangle the putative reciprocal effect of individuals' emotional adjustment and posttraumatic growth, and the role of cognitive and emotional coping strategies over the course of the grieving process.

Findings in this study contribute to the existing literature on cultural differences in perceived distress and health for bereaved parents and spouses (Bonanno et al., 2005) by comparing other emotional outcomes (i.e., complicated grief, subjective well-being) and personal growth between bereaved individuals in each culture. While Bonnano and colleagues' research (2005) focused on individuals who experienced death of either a spouse or a child, this study included those who have experienced other types of death (e.g., death of a parent or grandparent). Findings in this study, thus, provide evidence that

cultural differences in emotional adjustment and personal growth following bereavement exist among bereaved individuals, regardless of their relationship to the deceased.

External and Internal Locus of Control as Predictors with Culture as a Moderator

Hypothesis 2 regarding cultural differences in locus of control was supported such that US participants reported lower external yet higher internal locus of control than their Chinese counterparts. This finding supports literature to date that individuals in more collectivistic cultures tend to attribute more of the occurrence and outcome of an event to themselves whereas those in individualistic cultures are inclined to consider the outcome of an event as controlled by external factors (Cheng et al., 2013). Another interesting finding was the positive relationship between external and internal locus of control for Chinese, whereas the pattern was reversed among US participants, suggesting individuals high in external attribution might also be high in internal locus of control. The notion of locus of control was conceived and developed in the Western culture (Allen & Hayslip, 2001; Hayslip et al., 2001). Future research may explore whether external and locus of control reflect two dimensions of one single construct or represent two separate concepts under closer scrutiny, especially when applied to other cultures, such as the Chinese culture.

In the present study, external locus of control was found to uniquely predict worse emotional adjustment, in terms of higher levels of complicated grief and lower levels of subjective well-being, after controlling for demographic, loss-related information and individuals' culture. On the contrary, internal locus of control predicted better outcomes following bereavement, including higher levels of subjective well-being and

posttraumatic growth, which partially supported Hypothesis 4. These findings were consistent with prior literature suggesting that external locus of control was a risk factor whereas internal locus of control was a protective factor for individuals' emotional adjustment under stress (Taub, 1997). Moreover, although previous studies using samples in a single Western culture failed to provide evidence of the predictive effects of locus of control on personal growth (Tedeschi & Calhoun, 2004), findings in this study did support that internality was positively related to bereaved individuals' positive emotional outcomes and personal growth, regardless of their culture.

Furthermore, culture was established to be a significant moderator of the relationship between external locus of control and complicated grief, but not of the relationship between internal locus of control and posttraumatic growth, partially consistent with Hypothesis 7. Moreover, the relationship between externality and complicated grief was found to be weaker for US bereaved individuals, which was inconsistent with the hypothesis. Cheng et al. (2013) conducted a literature review using non-clinical samples and found that the effect of externality on depression and anxiety was weaker in collectivistic cultures, such as the Chinese culture. Disparities between the current findings and previous research may lie in the unique loss participants have experienced such that death of a loved one may have altered the influence of external locus of control on individuals' post-bereavement adjustment and growth. Also, although complicated grief was associated with depression and anxiety, less attention has been paid to the relation between externality and the unique symptoms of complicated grief, such as intense intrusive thoughts, denial of the death, and avoidance of activities or properties that reminded individuals of the loved one. In this study, the more individuals

tended to regard themselves as controlled by external factors, the harder time individuals had accepting the death and processing their grief.

Findings in the current study suggest that more perception or appraisal of control by individuals themselves as opposed to external attribution were related to reduced complicated grief symptoms and increased posttraumatic growth, and should thus be encouraged in clinical work or interventions. The cultural differences evidenced in the underlying mechanisms highlighted the particular importance of seeking to attenuate individuals' external locus of control in China.

Active and Avoidance Coping as Predictors with Culture as a Moderator

Congruent with Hypothesis 3, Chinese participants reported more frequent use of both active and avoidance coping than the US participants. Also, Chinese participants tended to use both active and avoidance coping strategies after the loss whereas American participants has fewer inclinations, as evidenced by differences in the magnitude of the correlation coefficients.

Additionally, active coping was identified as a unique predictor of positive outcomes following bereavement, including higher levels of subjective well-being and posttraumatic growth, regardless of participants' culture, which is consistent with research on college students who have prior traumatic experiences as well as cancer patients (Lelorain, Tessier, Florin, & Bonnaud-Antignac, 2012; Morris, Shakespeare-Finch, & Scott, 2007; Schmidt, Blank, Bellizzi, & Park, 2012; Schuster, 2008; Wang, Wang, Wang, Wu, & Liu, 2013; Wild & Paivio, 2003). Similarly, active coping was no longer a significant predictor of complicated grief after controlling for demographic and

loss-related information (Schnider, Elhai, & Gray, 2007; Schuster, 2008). These findings suggest that active coping, such as positive restructuring and understanding seeking, helps individuals to better perceive the changes after the loss and manage the problems or negative affect during the bereavement process, which in turn, promotes better emotional adjustment and personal growth (Wolchik, Coxe, Tein, Sandler, & Ayers, 2009). Avoidance coping, on the other hand, predicted worse emotional adjustment (i.e., higher levels of complicated grief and lower levels of subjective well-being), yet more personal growth. Identical findings were evidenced in studies on emotional outcomes (Schnider et al., 2007; Schuster, 2008) as well as those on posttraumatic growth among cancer or accidental injury inpatients in the United States and China (Carboon, Anderson, Pollard, Szer, & Seymour, 2005; Wang et al., 2013). Although avoidance coping is found to be associated with worse emotional adjustment, it may reflect individuals' self-regulatory strategies as they try to take some time off from their negative affect arisen from uncontrollable stressors, such as death of a loved one. Therefore, avoidance coping strategies may be adaptive in terms of promoting personal growth in the long run (Janoff-Bulman, 1989).

Moreover, the relationship between avoidance coping and posttraumatic growth varied between the US and Chinese participants such that more frequent use of avoidance coping predicted more posttraumatic growth in the United States, yet this effect was nonsignificant in China after controlling for all the covariates and other predictors. This cultural difference might be influenced by the moderately positive correlation between active and avoidance coping for Chinese participants (while the correlation was negative for US participants), which led to the result that the variance for avoidance coping in

accounting for posttraumatic growth was explained by its shared variance with active coping; hence, the predictive effect of avoidance coping became nonsignificant. This finding also suggests that avoidance coping may be more helpful in the development of posttraumatic growth in one culture but not the other.

In summary, active coping should be encouraged and promoted in order for individuals to obtain better emotional adjustment and personal growth after the loss of a loved one. Avoidance coping, albeit related to more posttraumatic growth, was also evidenced as associated with worse emotional outcomes. More research is needed to explore the effect of avoidance coping on bereaved individuals' well-being.

Emotional, Informational Social Support and Social Negative Interaction as Predictors

American participants were found to perceive less informational support and negative social interactions than their Chinese counterparts; no cultural differences in emotional support emerged. In the present study, emotional and information support was measured by both frequency of support and satisfaction with support. These two types of support appeared to positively correlate with each other, and both had a negative association with negative social interactions with family and friends.

Findings in this study partially supported Hypothesis 5 and previous research (Joseph & Linley, 2005; Tedeschi & Calhoun, 2004) such that informational support and negative social interactions were unique predictors of posttraumatic growth after demographic, loss-related information and the impact of post-bereavement life events were controlled. Moreover, higher levels of negative social interactions uniquely

predicted higher levels of complicated grief, and, interestingly, higher levels of subjective well-being and posttraumatic growth. These effects were consistent between the US and Chinese participants. Little research has paid attention to the impact of negative social interactions between bereaved individuals and their family members or friends. This study highlights the unique impact of negative social interactions on individuals' emotional adjustment when positive social interactions (providing social support) are controlled for in the analyses. Negative social interactions typically indicate too many demands from family and friends, but it also may have motivated bereaved individuals to seek out new possible social support sources, which, in turn, promote better posttraumatic growth (e.g., relating to others, new possibilities).

Informational support was found to uniquely predict better posttraumatic growth, and should hence be suggested by professionals. Negative social interactions, on the other hand, was positively related to both positive and negative outcomes following bereavement. It remains unclear how negative social interaction promote personal growth. Therefore, prospective studies, especially those with both quantitative and qualitative design, are needed to provide more evidence and explanations for the underlying mechanisms.

Limitations and Future Directions

The current study administered self-report questionnaires online. Although results from web-based surveys were found to be equivalent with those administered in traditional paper-and-pencil studies (Tolstikova, 2010), environmental influences, still, could neither be controlled nor tested when participants were answering the

questionnaires. Distractions from others or background noise might affect participants' emotional states and make them lose track. Similarly, individuals' motivation to participate in the study remained unknown. Previous research with a compensation design revealed no differences in the measure's reliability for participants who completed significantly faster or more slowly than the average (Montag & Reuter, 2008). However, the influence of completion speed on the validity of the measure remained unexplored. To rule out the possible effect of participants' pace of completing the survey, post-hoc analyses were conducted in the current study and those who submitted the responses faster than the average were excluded from the analyses. It should be noted that the retained data might still be a mixture of thoughtful responses and randomized choices, which, unfortunately, was unable to be identified, given the web-based design.

Furthermore, the approach of recruitment might bias the sample in the current study, as most of the participants had an account with an online survey website and were probably used to completing online questionnaires relatively frequently. Most of the participants represented the ethnic majority in the US and China and they lost a parent or grandparent six to thirty-six months ago. The underrepresented bereaved population in both countries, in spite of the strong interest of the investigator, might not be well represented in the current sample.

Another limitation of the current design was its cross-sectional nature. Although most of the measures tapped participants' recent or current emotions, adjustment and thoughts, some required their retrospective reports (e.g., subjective well-being), which might be subject to errors in memory or bias in their current appraisal. Demographic information, loss-related information such as time since death, and the impact of post-

bereavement life events were obtained and controlled for in the current analyses; however, it remains unclear whether the predictive effects of individuals' locus of control, coping strategies and social support on their emotional adjustment and posttraumatic growth maintain over time, as well as how the trajectory of these outcomes interact with each other in the long run. Future research may employ a longitudinal design to collect both pre-bereavement and post-bereavement data to delineate these patterns.

Theoretical models to date, whether focusing on recovery from bereavement, or cultivating personal growth (Joseph & Linley, 2005; Nerken, 1993; M. S. Stroebe, 1992; Tedeschi & Calhoun, 1995, 2004), appear to be rooted in the Western culture. Findings in this study suggest that most predictive effects are very similar between the bereaved individuals in the United States and China. However, external locus of control appears to be more of a risk factor for complicated grief for Chinese than Americans whereas avoidance coping helps promoting the posttraumatic growth of bereaved American's but not bereaved Chinese. Moreover, research in the future may explore whether similar pattern emerge for individuals with the loss of a child or spouse, which was suggested to be more stressful than other types of loss (Bonanno et al., 2005).

Finally, the current study examines individuals' positive and negative outcomes following bereavement simultaneously. An interesting positive association between complicated grief and posttraumatic growth has been observed. This finding then challenges the traditional focus on relieving stress and reducing grief or other pathological symptoms as the primary goal of clinical intervention. It remains uncertain how emotional maladjustment and personal growth may influence each other over time. In addition, this study, employing a cross-sectional design, explores the unique predictive

effects of personal characteristic factors, in terms of locus of control, as well as coping strategies and social resources, namely, perceived social support, on individuals' positive and negative outcomes following bereavement. Prospective longitudinal research is needed to unfold the long-term predictors of the bereavement outcomes and how these outcomes interact with one another in shaping individuals' overall well-being.

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APPENDIX A

PARTICIPANT INFORMATION LETTER AND CONSENT

You are invited to participate in a study to learn about how people in the United States and China adapt to life after their loved one has died. This is a very challenging and difficult experience but little is understood about the ways in which individuals adjust to it. One of the potential benefits to you may be a better understanding of how you have been doing during the grieving process. This information can then be used by professionals in both countries to assist those who find themselves in similar circumstances. Upon completion of the survey, two dollars will be offered as compensation for your time. What is more, you can choose to join a drawing of 25 dollars after completing the survey. *However, this study is not intended as psychotherapy, or as a substitution for psychotherapy.*

To be eligible to participate in this study, you have to meet the following criteria:

a) You are 18 years old or older;

b) You have experienced the death of a loved one, such as parent, grandparent, spouse, child, close relative or friends;

c) The death occurred no sooner than 6 months ago and no longer than 36 months ago at this time;

d) You are able to complete questionnaires in either English or Chinese.

This study is designed to minimize the potential risk for you. It may take you approximately 30 minutes. You will be viewing several questionnaires. Please follow the instructions and choose the best answer that matches your experiences. Participants' responses will be analyzed and presented as group data. Your responses will not be

linked to your identity or personal information. If you decide to participate in this research, *you may withdraw your consent and discontinue your participation at any time during the survey and for any reason, without penalty or prejudice*.

If you have any questions or concerns, please contact the investigators of this study: Chun Tao (ctao5@asu.edu) or Dr. Paul Miller (icpam@asu.edu), School of Social and Behavioral Science at Arizona State University. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at +1(480)965-6788.

You may request a short summary of the quantitative research findings for the group as a whole by providing your email address at the end of the survey.

Consent

I attest that I have read and understood this page and had any questions about this research answered to my satisfaction. No pressure has been applied to encourage my participation. By clicking the button in the lower-right corner and continue, I agree to that I have read all the information above and am willing to be a participant in this study and to complete questionnaires, with the understanding that I may drop out of the study at any time.

APPENDIX B

REVISED LIFE EVENTS CHECKLIST

Listed below are a number of difficult or stressful events that sometimes happen to people. If an event as described below *happened to you personally*, you *personally witnessed it occur* or *learned about it* happening to someone close to you since your loved one died, choose the description that best indicates how significantly that event had an impact on you. Please be sure to consider your life after the death as you go through the list of events.

0 = None or Does Not Apply

1 = Slight Impact

2 = Some Impact

3 = Moderate Impact

4 = High Impact

5 = Very High Impact

1. Natural disaster (for example, flood, hurricane, tornado, earthquake)
2. Accident (for example, transportation accident, accident at work, fire or explosion)
3. Physical assault (for example, being attacked, being shot, stabbed, threatened)
4. Sexual assault (for example, rape, attempted rape, made to perform any type of sexual act through force or threat of harm)
5. Life-threatening illness, health problem, injury or severe physical sufferings to you or to others close to you
6. Economic hardship (for example, debt, loss of job)

7. Family difficulties (for example, overwhelming housework, parenting, conflicts or disagreements)
8. Loss of social network (for example, friends, relatives)
9. Any other stressful event or experience, please specify: _____
10. Any other stressful event or experience, please specify: _____
11. Any other stressful event or experience, please specify: _____

APPENDIX C

REVISED INTERNAL, POWERFUL OTHERS, AND CHANCES SCALES

Here are some statements on how you might think about on what you encounter in life ever since your loved one died. Please choose the description below that best indicates how the statement matches your thoughts.

-3 = Strongly Disagree

-2 = Moderately Disagree

-1 = Slightly Disagree

0 = Neither Agree Nor Disagree

-1 = Slightly Agree

-2 = Moderately Agree

-3 = Strongly Agree

1. To a great extent my life is controlled by accidental happenings.
2. I feel like what happens in my life is mostly determined by powerful people.
3. When I make plans, I am almost certain to make them work.
4. Often there is no chance of protecting my personal interest from bad luck happenings.
5. When I get what I want, it's usually because I'm lucky.
6. How many friends I have depends on how nice a person I am.
7. People like me have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.
8. If important people were to decide they didn't like me, I probably wouldn't be able to make many friends.

9. I am usually able to protect my personal interests.
10. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.
11. My life is determined by my own actions.
12. It's chiefly a matter of fate whether or not I have a few friends or many friends.

APPENDIX D

REVISED COPING STRATEGIES CHECKLIST

Sometimes people have problems or feel upset after the death of a loved one. When this happens, they may do different things to solve the problem or to make themselves feel better. For each item below, choose the answer that best describes how often you did this to solve your problems or to make yourself feel better when you go through the bereavement process. There is no right or wrong answer.

1 = Never

2 = Sometimes

3 = Often

4 = Most of the time

When I had problems or felt upset during bereavement,

1. I thought about what I could do before I did something.
2. I tried to notice or think about only the good things in my life.
3. I tried to ignore it.
4. I tried to stay away from the problem.
5. I did something to make things better.
6. I told myself that things would get better.
7. I reminded myself that I am better off than a lot of others.
8. I daydreamed that everything was okay.

When I had problems or felt upset during bereavement,

9. I tried to put it out of my mind.

10. I thought about what would happen before I decided what to do.
11. I told myself that it would be Okay.
12. I told myself that I could handle this problem.
13. I tried to stay away from things that made me feel upset.
14. I tried to make things better by changing what I did.
15. I told myself I have taken care of things like this before.
16. I thought about why it happened.

When I had problems or felt upset during bereavement,

17. I didn't think about it.
18. I told myself I could handle whatever happens.
19. I told myself that in the long run, things would work out for the best.
20. I imagined how I'd like things to be.
21. I reminded myself that I knew what to do.
22. I thought about which things are best to do to handle the problem.
23. I just forgot about it.
24. I told myself that it would work itself out.

When I had problems or felt upset during bereavement,

25. I avoided the people who made me feel bad.
26. I reminded myself that overall things are pretty good for me.
27. I did something to solve the problem.
28. I tried to understand it better by thinking more about it.

29. I reminded myself about all the things I have going for me.

30. I wished that bad things wouldn't happen.

31. I thought about what I needed to know so I could solve the problem.

32. I avoided it by going to my room.

When I had problems or felt upset during bereavement,

33. I did something in order to get the most I could out of the situation.

34. I thought about what I could learn from the problem.

35. I wished that things were better.

36. I tried to figure out why things like this happen

APPENDIX E

REVISED PERCEIVED SUPPORT SCALE

People interact with their family members, friends and others in various situations. For each item below, choose the description that best indicates your experiences when interacting with family members, friends and others after the death of a loved one.

1 = Strong Disagree

2 = Somewhat Disagree

3 = Neither Agree Nor Disagree

4 = Somewhat Agree

5 = Strongly Agree

1. My family/friends were with me (physically) when I was in a stressful situation.
2. My family/friends suggested actions that I should take in order to deal with the problem I was having.
3. My family/friends comforted me by showing me physical affection.
4. I felt my family/friends made too many demands on me.
5. My family/friends listened to me talk about my private feelings.
6. My family/friends were critical of me and things I did.
7. I am satisfied with the companionship provided by my family/friends.
8. My family/friends listened to my plans to solve the problem.
9. My family/friends expressed interest and concern for my well-being.
10. I felt that my family/friends tried to pry into my personal affairs.
11. My family/friends offered me information that made a difficult situation easier to understand.

12. My family/friends supported me if I let them know what I wanted them to do.

13. I am satisfied with the information and advices my family/friends provided me.

APPENDIX F

THE INVENTORY OF COMPLICATED GRIEF

People differ in their feelings with regard to the death of a loved one. Please read the items below and choose the answer that best describes your experiences in the past month.

1= Once or Less

2=More than Once but Less than Once a Week

3=More than Once a Week but Less than Once a day

4= Once a day

5=More than once a day

1. I think about this person so much that it's hard for me to do the things I normally do.
2. Memories of the person who died upset me.
3. I feel I cannot accept the death of the person who died.
4. I feel myself longing for the person who died.
5. I feel drawn to places and things associated with the person who died.
6. I cannot help feeling angry about his/her death.
7. I feel disbelief over what happened.
8. I feel stunned or dazed over what happened.
9. Ever since he/she died, it is hard for me to trust people.
10. Ever since he/she died, I feel as if I have lost the ability to care about other people or I feel distant from people I care about.
11. I feel lonely a great deal of the time ever since he/she died.

12. I have pain in the same area of my body or have some of the same symptoms as the person who died.
13. I go out of my way to avoid reminders of the person who died.
14. I feel that life is empty without the person who died.
15. I hear the voice of the person who died speak to me.
16. I see the person who died stand before me.
17. I feel that it is unfair that I should live when this person died.
18. I feel bitter over this person's death.
19. I feel envious of others who have not lost someone close.

APPENDIX G

THE INDEX OF WELL-BEING

Here are some phrases for you to use to describe how you feel about your present life compared to your life before the loved one died.

Compared to my life before the death, my present life is:

1	Much More Boring	Moderately More Boring	Slightly More Boring	The Same	Slightly More Interes-ting	Moderately More Interesting	Much More Interesting
2	Much More Enjoyable	Moderately More Enjoyable	Slightly More Enjoy-able	The Same	Slightly More Miser-able	Moderately More Miserable	Much More Miserable
3	Much More Useless	Moderately More Useless	Slightly More Useless	The Same	Slightly More Worth-while	Moderately More Worth-while	Much More Worth-while
4	Much More Friendly	Moderately More Friendly	Slightly More Friendly	The Same	Slightly More Lonely	Moderately More Lonely	Much More Lonely
5	Much More Full	Moderately More Full	Slightly More Full	The Same	Slightly More Empty	Moderately More Empty	Much More Empty

6	Much More Discoura-ging	Moderately More Discoura-ging	Slightly More Discou-raging	The Same	Slightly More Hopeful	Moderately More Hopeful	Much More Hopeful
7	Much More Rewar-ding	Moderately More Rewarding	Slightly More Reward-ing	The Same	Slightly More Disap-pointing	Moderately More Disappoin-ting	Much More Disap-pointing
8	Brings out Much More of the Best in Me	Brings out Moderately More of the Best in Me	Brings out Slightly More of the Best in Me	The Same	Gives Me Slightly Less Chance	Gives Me Moderately Less Chance	Gives Me Much Less Chance

In thinking about my present life as a whole as compared to that before the death, I am:

9	Much More Dissa-tisfied	Moderately More Dissatisfied	Slightly More Dissa-tisfied	The Same	Slightly More Satisfied	Moderately More Satisfied	Much More Satisfied

APPENDIX H

POSTTRAUMATIC GROWTH INVENTORY

Some changes may have occurred in your life after the loved one died. Please choose the description below that best indicates how the statement matches your experience after the death of a loved one.

0 = Did not Experience

1 = Experience to a Very Small Degree

2 = Experience to a Small Degree

3 = Experience to a Moderate Degree

4 = Experience to a Great Degree

5 = Experience to a Very Great Degree

1. I changed the priorities about what is important in my life.
2. I have a better appreciation of the value of my own life.
3. I developed new interests.
4. I have a stronger feeling of self-reliance.
5. I have a better understanding of spiritual matters.
6. I know that I can count on people in times of trouble.
7. I established a new path for my life.
8. I have more of a sense of closeness with others.
9. I have a stronger willingness to express my emotions.
10. I know that I am more able to handle difficulties.
11. I am able to do better things with my life.
12. I am more able to accept the way things work out.

13. I have a better appreciation of each day.
14. New opportunities have become available to me that wouldn’t have been there otherwise.
15. I have more compassion for others.
16. I put more efforts into my relationships.
17. I'm more likely to try to change things which need changing.
18. I have a stronger religious faith.
19. I discovered that I'm stronger than I thought I was.
20. I learned a great deal about how wonderful people are.
21. I am more able to accept needing others.