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Margaret Smith  
mmsmith@smu.edu

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Parent-Directed Gratitude:  
An Investigation of a Novel Intervention and  
Possible Mechanisms Between Gratitude and Well-Being

Margaret M. Smith  
Southern Methodist University

Approved by:

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George W. Holden, Ph.D.  
Professor of Psychology

---

Austin Baldwin, Ph.D.  
Associate Professor of Psychology

---

David Rosenfield, Ph.D.  
Associate Professor of Psychology

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Joe Trombello, Ph.D.  
Assistant Professor of Psychology  
UT Southwestern

## Abstract

First-year college students are vulnerable to developing psychopathology during the transition to college. Gratitude interventions have been effective at decreasing depressive symptoms and increasing well-being. There are mixed findings on whether gratitude directed toward a specific person is more effective than a general expression of gratitude. The present investigation has two research aims from a data collection involving a three-group randomized gratitude intervention study and a short-term longitudinal mediation model. The first research aim evaluated group comparisons related to well-being, positive affect, satisfaction with life, depressive symptoms, and quality of the parent-child relationship. The second research aim investigated the mechanisms between gratitude and well-being. Three possible mechanisms were investigated: social support, coping style, and positive affect. A total of 267 first-year college students completed online measures pre-intervention, participated in a 2-week intervention, and then completed measures at three time points post-intervention. In the first research aim, there were no significant group differences on any of the dependent variables. Regarding the mediation analyses, only positive affect significantly mediated the relation between gratitude and well-being. Implications, limitations, and future directions are discussed.

The transition to college is difficult, with approximately one third of college students meeting diagnostic criteria for a psychiatric disorder (American College Health Association, 2008). Students may not seek treatment due to financial and time constraints (Hunt & Eisenberg, 2010). A brief, inexpensive, accessible alternative is essential to buffer against the development of psychopathology. Gratitude interventions have consistently increased well-being and decrease depressive symptoms in college students (Dickens, 2017). However, the mechanisms between gratitude and well-being have yet to be examined with longitudinal data. This investigation seeks to address the aforementioned problems of (1) evaluating gratitude interventions in a college sample, and (2) identifying the process by which gratitude impacts well-being.

College students are at high risk to develop mental health problems. According to the stress diathesis model, individuals' genetic predisposition toward developing mental health problems is activated in particularly stressful environments. There are multiple stressors college students experience, especially in their first semester. Most students are living away from home for the first time and learning to function in a demanding academic and social environment (Hunt & Eisenberg, 2010). Additionally, the age of onset for many psychiatric diagnoses is in the traditional college students' age range (Kessler et al., 2005).

Despite college being a common time for the onset of psychopathology, a majority of college students have not sought mental health treatment. The American College Health Association (ACHA) report indicated that only 24% of college students with diagnoses of depression are in treatment (ACHA, 2008). Common barriers for students seeking treatment included financial and privacy concerns (Givens & Tija, 2002; Tija, Givens, & Shea, 2005). Although most college campuses have counseling services, there is a growing demand for their

resources (Xiao et al., 2017). For example, college counseling centers may have session limits or a waitlist (Meilman, 2016). If students decide to pursue treatment elsewhere, there is a significant financial burden. Furthermore, students may be concerned that classmates or friends may see them in the counseling center on campus.

Erikson (1963) recognized the importance of peer relationships for young adults. During the initial transition to college, close high school friends aided in the adjustment to college. Whereas later in the semester, it was more beneficial to develop peer relationships with fellow college students (Swenson, Nordstrom, & Hiester, 2008). In fact, relationships with college peers were associated with more academic success and continuation to the second year of college (Goguen, Hiester, & Nordstrom, 2011).

Just as peer relationships were beneficial, family connectedness served as a protective factor against the development of depressive symptoms and low self-esteem (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007). Students' relationships with their parents were found to buffer against the development of depressive symptoms. One study of first-year college students tracked daily reports of positive and negative emotionality as well as quality of communication between parent and child. They found that students' relationship with their parents was positively associated with well-being and negatively associated with depressive symptoms (Burke, Ruppel, & Dinsmore, 2016). These results emphasized the importance of the parent-child relationship during the transition to college.

Additionally, several positive psychology constructs are examples of protective factors. Positive psychology research and interventions have been increasingly popular since the resurgence of the positive psychology movement in 2000 (Bolier et al., 2013; Seligman & Csikszentmihalyi, 2000). Gratitude, in particular, is prominent both in scientific literature and

popular culture, as evidenced by recent feature articles in the Wall Street Journal and Huffington Post (Kapp, 2013; Reiser, 2014). However, writings on gratitude have existed for centuries, with Marcus Cicero's *Pro Plancio* in 54 BC and Thomas Aquinas' *Summa Theologiae* in 1485 (Emmons & Shelton, 2002). More recently, gratitude has been used with college students to increase their sense of well-being and buffer against the development of psychopathology (Dickens, 2017).

### **Gratitude**

Gratitude has been defined and operationalized in numerous ways. Gratitude is “a generalized tendency to recognize and respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (McCullough, Emmons, & Tsang, 2002, p. 112). *The Character Strengths and Virtues: A Handbook and Classification* (CSV; Peterson & Seligman, 2004) provides a taxonomy of positive psychology constructs, much like the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; APA, 1994) does for psychopathology. The CSV dictates 10 criteria that are required for all character strengths and outlines how each criterion is true for the construct of gratitude. The criteria are listed and described in Table 1.

Constructs of positive psychology have less research clearly defining them in contrast to decades of research examining psychopathology constructs. Therefore, positive psychology constructs are sometimes thought of as ambiguously positive constructs that may not be truly distinct. McCullough, Emmons, and Tsang (2002) demonstrated that gratitude is, in fact, a distinct construct. Gratitude was moderately correlated with optimism, life satisfaction, subjective happiness, positive affect, and spirituality. When correlated with the Big Five

personality traits, correlations range from  $r = .23 - .39$  (McCullough, et al., 2002). Table 2 lists gratitude's correlations with the aforementioned variables.

Gratitude can be categorized hierarchically from discrete to enduring in duration (McCullough, Tsang, & Emmons, 2004). The categories are as follows: gratitude as an emotion, a mood, and an affective trait. Experiencing the emotion of gratitude is brief and typically occurs as a response to one's surroundings. The mood of gratitude varies over the course of a few days, rather than minutes or hours like the emotion of gratitude. People are often unaware of gratitude moods because they are less intense than the discrete emotional experience. Finally, gratitude can be an affective trait when the person has a persistent disposition of having a grateful schema (McCullough et al., 2004).

Gratitude as an affective trait, or disposition, is most commonly studied. Individual studies have found significant relations between dispositional gratitude and a vast number of variables, although sometimes with mixed results. For example, positive affect and life satisfaction have been impacted as a result of gratitude interventions, *Cohen's d* = .22 & .18, respectively (Dickens, 2017). However, a recent meta-analysis that considered the rigor of the studies found that most effect sizes, particularly for positive affect and life satisfaction, are inconsequential. Yet, well-being and depressive symptoms continued to show notable associations with gratitude. Gratitude was related to well-being with a moderate effect size (*Cohen's d* = .30) and to depressive symptoms with a small effect size (*Cohen's d* = .13) when compared to a neutral control group. Depressive symptoms were no longer related to gratitude when compared to a control group that evoked other positive emotions. Well-being was the only variable that had a remaining substantial effect when compared to a positive control group (Dickens, 2017).

### **Gratitude in parent-child relationship**

To date, there are only three studies on gratitude in the parent-child relationship. The existing research includes one study on familial links of gratitude (Hoy, Suldo, & Mendez, 2013), one study on gratitude moderating relations between parent and child (Stoeckel, Weissbrod, & Ahrens, 2015), and one study on gratitude socialization (Rothenberg et al., 2017).

The first study investigated correlates of gratitude between parents and children. Just as psychopathology is consistently positively correlated between parent and child (e.g., Kane & Garber, 2004), gratitude was similarly correlated. Mothers' report of gratitude was significantly related to children's gratitude ( $r = .23$ ). However, father and child gratitude were not significantly correlated ( $r = .07$ ; Hoy et al., 2013).

One study evaluated the impact of gratitude on college students' development of internalizing symptoms when they had a parent who suffered from any sort of illness. Parental illness increased the likelihood of children developing depression or anxiety (Armistead, Klein, & Forehand, 1995). They found that college students who expressed more gratitude had fewer internalizing symptoms (Stoeckel et al., 2015).

Parents teach gratitude to their children using four techniques, according to Hussong and colleagues (2017). First parents may socialize their children to gratitude through behavioral modeling, which is consistent with social learning theory (Bandura, 1977). Second, parents may explicitly discuss gratitude expressions and their importance (Eisenberg, Spinrad, & Smith, 2004). For example, parents may instruct their children to write thank you notes after receiving something from a benefactor. Third, emotion regulation socialization can occur when parents respond to their children's distress. It is possible that gratitude socialization may occur through



the three aforementioned processes, but there is no research on them yet. Finally, parents may use niche selection (Hussong et al., 2017).

One study has evaluated niche selection as the process by which gratitude socialization occurs. Niche selection involves the parent “selecting the types of activities and environments in which children participate” (Rothenberg et al., 2017, p. 106). In a sample of 101 parent-child dyads, with the child between the ages of 6-9 years, Rothenberg and colleagues (2017) tested whether parents used the niche selection strategy to increase gratitude in their children. They found that parents who set goals of teaching their children about gratitude and orchestrated activities to demonstrate the importance of gratitude had children with higher expressions of gratitude (Rothenberg et al., 2017).

### **Gratitude interventions**

To date, three approaches to gratitude interventions have been tested with college students (Wood, Froh, & Geraghty, 2010). First, and most common, was *gratitude listing*. This intervention involved participants writing a specified number of things for which they felt grateful. Often, participants listed three to five instances in which they experienced gratitude. *Gratitude listing* interventions were typically daily over the course of a few weeks or weekly over the course of a few months. The second type was *grateful contemplation*. This intervention involved participants writing for a discrete period of time (e.g., five minutes) about instances for which they feel grateful. The third type of gratitude intervention was *behavioral expressions of gratitude*. This included in-person visits to express gratitude toward another person or written thank you notes that were delivered to the benefactor (Wood et al., 2010).

When testing gratitude interventions, various types of control groups have been used. Initially, gratitude interventions were compared to a daily hassles group, in which participants

recorded negative events that occurred that day. Consistently, gratitude interventions outperformed daily hassles interventions at promoting well-being (Dickens, 2017). However as Dickens (2017) pointed out, comparing gratitude to daily hassles is not helpful for determining the effectiveness of gratitude interventions. With a negative comparison, it is unclear whether gratitude interventions increase well-being or if daily hassles interventions decrease well-being (Dickens, 2017).

To correct the problem of comparing gratitude interventions to negative emotion inducing control groups, neutral matched-activity groups have been used (Davis et al., 2016; Dickens, 2017). In comparison to *gratitude listing*, a neutral matched-activity group may be instructed to list daily events. This would control for the participants' change in daily routine by completing a listing activity. The neutral matched-activity is theorized to not evoke particularly positive nor negative emotion. Gratitude interventions outperformed neutral matched-activity groups on well-being and depressive symptoms (Davis et al., 2016; Dickens, 2017).

There are at least forty gratitude interventions studies aimed at increasing intrapersonal gratitude (Davis et al., 2016; Dickens, 2017). Fewer studies have evaluated interpersonal gratitude interventions; there are conflicting results. O'Connell and colleagues (O'Connell, Shea, & Gallagher, 2017) tested a two-week interpersonal gratitude intervention in college students that focused on friendships. Participants in the traditional gratitude condition were instructed to reflect daily on anything for which they experienced gratitude. Students in the friendship-directed gratitude intervention were asked to reflect on reasons why they felt grateful for their friend. They found that participants in the traditional gratitude intervention had greater perceived friendships post-intervention, compared to the friendship-directed intervention

(O'Connell et al., 2017). However, prior research found that expressing gratitude toward friends resulted in increases in relationship satisfaction (O'Connell, O'Shea, & Gallagher, 2016).

A parent-directed gratitude intervention has not yet been tested with college students. To date, only three gratitude intervention studies targeting the parent-child relationship have been developed; all studies focused on increasing the parents' sense of gratitude. The studies found mixed results about the effectiveness of the interpersonal gratitude interventions. The first published study (Ahmed, 2016) was a randomized control trial that had 87 parents of 2-to-5-year-old children engage in gratitude journaling either daily or weekly, depending on the group, for one month. The journal prompt allowed parents to express gratitude about anything and did not require that the gratitude to be specifically related to their children. Only 64% of participants returned their gratitude journals as instructed. Both gratitude conditions were compared to a control group of parents writing about daily events. They found that the conditions differed significantly on negative affect, but none of the other dependent variables: parenting stress, life satisfaction, positive affect, depressive symptoms, or self-compassion (Ahmed, 2016).

Using a similar intervention in a shortened time frame, the second study (Schiffman, 2017) involved 48 parents of school-aged children keeping gratitude journals for two weeks. There were two groups: a traditional gratitude intervention in which parents wrote about anything evoking gratitude and a child-focused intervention in which parents wrote about a child-specific topic that evoked gratitude. No significant differences were found on life satisfaction, parental beliefs, or positive emotion (Schiffman, 2017).

Although the third study (Timmons, Ekas, & Johnson, 2017) also used a gratitude journal intervention, the sample differed in that the all children had diagnoses of Autism Spectrum Disorder (ASD). There were three groups of parents with children (age  $M = 8.52$  years,  $SD =$

3.41 years) with ASD. All groups journaled for 15 minutes each week over the course of 8 weeks. The first group was instructed to journal about any feelings of gratitude. The second group was instructed to write about why the parent is thankful for their child diagnosed with ASD. The final group was a control. Thematic analyses were used. In the general gratitude condition, mothers mentioned social support (86%), close relationships (46%), person-specific characteristics (34%), and inspirational figures (28%). In the child-focused condition, the following four themes were discovered: child making progress (63%), personality characteristic (55%), parenting-related experience (40%), and inspired by child (35%; Timmons et al., 2017).

### **Mechanisms**

Gratitude intervention research has consistently linked gratitude and well-being (Davis et al., 2016; Dickens, 2017). Wood and colleagues (2010) theorized four possible mechanisms linking gratitude and well-being: coping style, social support, positive affect, and cognitive schema.

Coping style is thought to mediate the relation between gratitude and well-being. Coping style can be considered adaptive, such as planning and use of support, or problematic, such as behavioral disengagement and denial (Carver, 1997; Wood, Joseph, & Liney, 2007a). People with higher reports of gratitude expressed using more adaptive coping strategies, including planning, identifying growth opportunities, and positively re-framing the situation. Further, grateful people engaged less in denial or escape coping strategies (Wood et al., 2007a).

Three studies have investigated coping style as a mediator between gratitude and well-being. The results were mixed. Two studies found that coping style mediated the relation between gratitude and well-being in Taiwanese undergraduate samples (Lin, 2016; Lin & Yeh, 2014). The final study used stress, happiness, and depressive symptoms as the dependent

variables and considered them proxy measures of well-being in the sample of 236 college students. This study used the Baron and Kenny (1986) approach to mediation analyses, which is outdated and less accurate than other tests of mediation. They found partial mediation between gratitude and stress, but no mediation with happiness and depressive symptoms as the dependent variables (Wood et al., 2007a). One common limitation was that all of the studies evaluating coping style as mediator used cross-sectional data.

The second theorized mediator was social support. Previous research found that social support moderated the relation between gratitude and well-being in samples of undergraduate students (Lin, 2016; Lin & Yeh, 2014). More specifically, this mechanism was tested in a sample of 291 adolescent athletes. Perceived support from both coaches and teammates mediated the relation between gratitude and well-being (Chen, 2013). In a sample of 793 Chinese undergraduate students, social support significantly mediated the relation between gratitude and well-being in school (Sun, Jiang, Chu, & Qian, 2014). Just like the previous studies evaluating coping style as a mediator, all of the studies examining social support used cross-sectional data.

A third possible mediator is positive affect. Gratitude is thought to evoke positive feelings, which then leads to greater life satisfaction and well-being (Watson & Naragon-Gainey, 2010). Consistently, gratitude has been related to well-being when controlling for agreeableness (Wood, Joseph, & Maltby, 2009; Wood et al., 2008). Notably, Wood and colleagues (2010) suggest that positive affect is subsumed under the Big Five trait, agreeableness, and therefore point to research on agreeableness, gratitude, and well-being as a lack of empirical evidence (Wood et al., 2010). However, studies have not yet examined positive affect as a mechanism using a measure of positive affect, rather than agreeableness.

The fourth potential mechanism was cognitive schema. Experiencing gratitude creates a schema in which one views help as beneficial, which in turn increases one's sense of well-being. One study (Rash, Matsuba, & Prkachin, 2011) provided supporting evidence for this theory by finding that people lower in trait gratitude benefit more from gratitude interventions. The authors stated that trait gratitude is equivalent to having a grateful cognitive schema because a prerequisite of trait gratitude is interpreting help as beneficial (Rash et al., 2011). However, the results did not include mediation analyses. Instead, the results indicated that trait gratitude moderates the effect that the intervention has on life satisfaction.

### **Moderators**

Two variables were considered to moderate the relation between intervention group and well-being: spiritual transcendence (McCullough et al., 2004) and trait gratitude (Rash et al., 2011). Spirituality and religion often accentuated the expression of gratitude (Wood et al., 2007b; Wood et al., 2009). Spiritual transcendence is "the capacity of individuals to stand outside of their immediate sense of time and place and view life from a larger, more objective perspective" (Piedmont, 1999, p. 988). This construct transcends any one religion and encompasses a broader view that acknowledges another force or power's influence. Gratitude and spiritual transcendence have a small, positive relation,  $r = .28$  (McCullough et al., 2002). McCullough and colleagues (2004) theorized that spiritual people are more likely to attribute positive occurrences to a higher power, thereby evoking a feeling of gratitude toward that higher power. In contrast, less spiritual people are more likely to attribute positive occurrences to chance and are less likely to feel gratitude as a result (McCullough et al., 2004). Higher levels of spirituality were related to higher reports of gratitude (Rosman, Krumrei, & Pargament, 2010).

As previously mentioned, trait gratitude moderated the relation between intervention group and life satisfaction. Rash and colleagues (2011) found that people with lower levels of trait gratitude prior to initiating the gratitude intervention benefited more than those with already high levels of trait gratitude. Interventions aiming to increase gratitude in individuals with already high levels of gratitude may have a ceiling effect on well-being, in that they are already receiving the benefits of high levels of gratitude. On the other hand, individuals with lower levels of gratitude have the possibility of increasing their sense of gratitude, and thereby benefitting from the change (Rash et al., 2011). Consequently, it is important to measure gratitude as an individual difference.

### **Current Study**

**Overview of Design.** After providing informed consent, participants completed baseline measures. Next, they were randomly assigned to one of three experimental conditions: (1) a traditional gratitude intervention; (2) a parent-directed gratitude intervention; or (3) a neutral matched-activity control group. Then, participants completed a 2-week daily listing intervention; the content of the intervention was based on which group the participant was randomly assigned. The interventions are described in the Procedure section. One week after the intervention ended, participants were contacted and asked to complete the post-intervention measures (time 2). Participants completed additional follow-up measures one-and-a-half weeks after the post-intervention measures (time 3) and three weeks after the post-intervention measures (time 4).

**Hypotheses.** The first research aim concerned group differences on well-being, positive affect, satisfaction with life, depressive symptoms, and quality of the parent-child relationship. The second research aim investigated potential mechanisms between gratitude and well-being.

The first research aim included five hypotheses that compared the three conditions and addressed potential moderators. All dependent variables were evaluated at post-intervention (time 2) and follow up (time 4). Table 3 lists the first research aim's five hypotheses and the variables involved. First, we expected the participants in the two gratitude conditions to report a greater increase in well-being, positive affect, and life satisfaction, compared to the control condition. The second hypothesis was that the participants in the gratitude conditions will report fewer depressive symptoms than those in the control condition. Third, it was expected that participants and parents of participants in the parent-directed gratitude intervention will report better quality of their parent-child relationships than those in the other conditions.

Next are the moderation hypotheses. The fourth hypothesis was that individual differences in gratitude will moderate the relations between group and well-being, positive affect, and life satisfaction, such that participants who are low in gratitude pre-intervention will show the largest gains in well-being, positive affect, and life satisfaction, if they are in the two gratitude conditions. Finally, it was hypothesized that spirituality will moderate the same aforementioned relations, such that those who are higher in self-reported spirituality will benefit more from gratitude interventions.

The second research aim concerned the mechanism by which gratitude influences well-being. Of the four theorized possible mechanisms, only three will be examined: coping style, social support, and positive affect. Cognitive schema will not be included due to difficulties in measurement accuracy. To date, only social support and coping style have been investigated as possible mechanisms, with all of the studies using cross-sectional samples (e.g., Chen, 2013; Lin, 2016; Lin & Yeh, 2014; Wood et al., 2007a). Therefore, the hypothesis is exploratory in an effort to determine which mechanism or mechanisms mediate the relation between gratitude and



well-being. The hypotheses from the second research aim are listed in Table 4 and the model is shown in Figure 1.

## Method

### Participants

A total of 267 students enrolled at a private university in a major southwestern metropolitan area (98.5% first year students, 1.5% sophomore transfer students) and 91 of their parents participated. Students were between 18-to 20-years-old ( $M = 18.15$ ,  $SD = .37$ ). Forty-nine percent self-identified as male and 49% identified as female. The remaining 2% listed their gender as one of the following: third gender, non-binary, prefer to self-describe, or prefer not to say). Most (75.3%) of the participants were single; 11.2% described their relationship status as not-exclusively dating and 13.1% reported they were in a committed relationship. Most (75.3%) participants reported family incomes of over \$100,000. The remainder (24.3%) of the participants reported the following family incomes: \$80-99k (4.9%), \$60-79k (6.7%), \$40-59k (5.6%), \$20-39k (4.5%), or less than \$20k (2.6%). Almost two-thirds of the participants (71.9%) reported their race/ethnicity as European-American/White. Regarding the race/ethnicity of other participants, 10.1% identified as Asian/Asian-American, 7.5% identified as Latino/a, 5.6% identified as multi-racial, 3.0% identified Black/African-American, and 1.9% identified as Other. Only four international students (1.5%) participated in the study. A majority (97.4%) of students lived on SMU campus and almost all (99.3%) were classified as full-time students. Table 5 lists the descriptive statistics regarding demographic information.

A total of 34% ( $n = 91$ ) of the primary caregivers identified by the students participated. The caregiver participants were mostly mothers (80.4%), but also included fathers (9.8%) and a

caregiver other than a parent (1.1%). Missing data accounted for the remaining 8.7%. For sake of convenience, the identified primary caregiver will be referred to as “parent” throughout.

Because this study concerned the quality of parent-child interactions, a series of questions were included to assess how far away they lived as well as how frequently students interacted with their parents. The full descriptive statistics are provided in Table 5. About half (56.6%) of the participants lived further than a 5-hour drive from their parent and reported communicating with him or her daily (56.6%). Additionally, just over half (53.9%) of the participants reported seeing their parent monthly. Regarding method of communication, about half (50.9%) of the participants reported talking on the phone or video chatting a majority of the time. Forty percent of the participants reported texting with their parent a majority of the time. Only 9.4% reported communicating in person with their parent a majority of the time. A majority (69.7%) of the participants reported that they both initiated conversation equally.

### **Measures**

A total of 11 measures were completed at the first time point. At the second time point, eight measures were filled out by student participants and one measure was filled out for their parents. At the third time point, four measures were completed. At the fourth time point, six measures were used. In addition, the primary caregiver filled out one survey. See Table 6 for a listing of the measures and when they were used. Copies of all measures and instructions are found in Appendix A.

**Background questionnaire.** The background questionnaire included 25 items about demographic variables and college-specific information. Examples include the number of current semester’s course credits and time commitment with extra-curricular activities and/or

jobs. Participants identified one primary caregiver about whom they answered questions about communication method and frequency.

**Gratitude Questionnaire-6** (GQ-6; McCullough et al., 2002). The GQ-6, which assesses gratitude as an affective trait or disposition, is a 6-item self-report measure. The items are rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Examples of items include “I have so much in my life to be thankful for” and “When I look at the world, I don’t see much to be grateful for.” McCullough and colleagues (2002) demonstrated this measure had discriminant validity from other constructs that are often compared to gratitude, such as agreeableness ( $r = .39$ ), positive affect ( $r = .31$ ), optimism ( $r = .51$ ), and spirituality ( $r = .28$ ). Further, they found that self-reported gratitude correlated ( $r = .33$ ) with other informants’ perception of the participant’s gratitude. The GQ-6 had adequate internal consistency when assessed at the three times in the study (time 1  $\alpha = .78$ , time 2  $\alpha = .76$ , time 3  $\alpha = .76$ ).

**Inventory of Depression and Anxiety Symptoms** (IDAS; Watson et al., 2007). The IDAS, which measures depressive symptoms and well-being, is a 64-item self-report measure with 10 scales. For this study, only the General Depression and Well-Being scales were used, which is a total of 26 items. Participants respond on a 5-point Likert scale with responses ranging from 1 = *not at all* to 5 = *extremely*. An example of an item from the General Depression scale is “I felt inadequate.” An example of an item from the Well-Being scale is “I look forward to things with enjoyment.” The IDAS was created using the construct validity approach to scale creation using an iterative process with multiple data collections. It has a more consistent factor structure than Beck’s Depression Inventory – II (BDI-II) and the Center for Epidemiological Studies Depression Scale (CES-D; Beck, Steer, & Brown, 1996; Radloff, 1977). The IDAS has been validated on college students (Watson et al., 2007). The internal

consistency, measured with both alpha and average inter-item correlation, for both scales is adequate on a sample of college students (general depression  $\alpha = .89$ , AIC = .30 & well-being  $\alpha = .84$ , AIC = .34; Watson et al., 2007). In this study, the general depression scale alphas were strong (time 1  $\alpha = .90$ , time 2  $\alpha = .90$ , time 3  $\alpha = .91$ ). Similarly, the well-being scale had good internal consistency (time 1  $\alpha = .89$ , time 2  $\alpha = .90$ , time 3  $\alpha = .94$ , time 4  $\alpha = .93$ ).

**Interpersonal Support Evaluation List – 12** (ISEL-SF; Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The ISEL-12 measures social support with a 12-item self-report measure with a 4-point Likert scale (1 = *definitely false*, 4 = *definitely true*). Items include, “If I wanted to have lunch with someone, I could easily find someone to join me” and, “When I need suggestions on how to deal with a personal problem, I know someone I can turn to.” The measure can be used as a total score or as three subscales: appraisal support, belonging support, and tangible support. The ISEL-12 shows adequate internal consistency ( $\alpha = .76$ ) and convergent validity with perceived stress ( $r = -.36$ ), life engagement ( $r = .48$ ), anxiety ( $r = -.49$ ), and depression ( $r = -.45$ ; Merz et al., 2014). The internal consistency for the total score was good across time points (time 1  $\alpha = .86$ , time 2  $\alpha = .86$ , time 3  $\alpha = .88$ ).

**Brief COPE** (Carver, 1997). The Brief COPE, which assesses coping style, is a 28-item self-report measure. Participants respond on a 4-point Likert scale (0 = *I haven't been doing this at all*, 3 = *I've been doing this a lot*). Items include “I've been taking action to try to make the situation better” and “I've been getting comfort and understanding from someone.” The Brief COPE is a shortened version of the 60-item COPE inventory (Carver, Scheier, & Weintraub, 1989). Items for the Brief COPE were included based on their high factor loadings and understandability for participants. There are 14 subscales: Active Coping, Planning, Positive Reframing, Acceptance, Humor, Religion, Using Emotional Support, Using Instrumental

Support, Self-Distraction, Denial, Venting, Substance Use, Behavioral Disengagement, and Self-Blame (Carver, 1997). Wood, Joseph, and Liney (2007a) developed an Adaptive Coping scale based on multiple subscales. The Adaptive Coping subscale included the items from Active coping, Using Emotional Support, Using Instrumental Support, Planning, and Positive Reframing. The Adaptive Coping subscale had good internal consistency in the present study (time 1  $\alpha = .86$ , time 2  $\alpha = .87$ , time 3  $\alpha = .89$ ).

**Positive and Negative Affect Schedule** (PANAS; Watson, Clark, & Tellegen, 1988).

The PANAS measures positive affect. It is a 20-item self-report measure on which participants rate the extent to which they experience emotions over a specified time frame on a 5-point Likert scale (1 = *very slightly or not at all*, 5 = *extremely*). Example emotions include hostile, inspired, and distressed. There are two subscales: Positive affect and Negative Affect. Both subscales have adequate internal consistency ( $\alpha$ s = .84 & .90; Watson et al., 1988). For this study, participants were asked to rate their emotion over the past week. Only the Positive Affect subscale was included in analyses and found to have good internal consistency at each time point (time 1  $\alpha = .89$ , time 2  $\alpha = .89$ , time 3  $\alpha = .91$ , time 4  $\alpha = .92$ ).

**Satisfaction with Life Scale** (SWLS; Diener et al., 1985). The SWLW is a 5-item self-report measure assessing one's global judgement, or cognitions, in regards to life satisfaction. Participants rate the extent to which they agree on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). An example item is, "If I could live my life over, I would change almost nothing." The SWLS was developed with college students and is moderately stable over time ( $r = .45$  over 5 years) and is useful for capturing the impact of clinical interventions (Diener et al., 1985; Pavot & Diener, 1993). In the present study, the internal consistency for the scale was good (time 1  $\alpha = .88$ , time 2  $\alpha = .88$ , time 4  $\alpha = .91$ ).

**Quality of Relationships (QRI;** Pierce, Sarason, & Sarason, 1991). The QRI measures the quality of relationship between the self-reporter and an identified person. It is a 25-item self-report measure on which participants rate statements on a 4-point Likert scale (1 = *not at all*, 4 = *very much*). Example items respectively include: “To what extent could you turn to this person for advice about a problem?”, “How often do you need to work hard to avoid conflict with this person?”, and “How significant is this relationship in your life?” The Support subscale is negatively associated with loneliness ( $r = -.45$ ). This measure was validated on college students (Pierce et al., 1991). Participants were reminded to complete this survey concerning the primary caregiver they had identified in the background questionnaire. In the present study, the three subscales had good internal consistency: Support (time 1  $\alpha = .87$ , time 2  $\alpha = .85$ , time 4  $\alpha = .87$ ), Conflict (time 1  $\alpha = .91$ , time 2  $\alpha = .90$ , time 4  $\alpha = .92$ ), and Depth (time 1  $\alpha = .76$ , time 2  $\alpha = .78$ , time 3  $\alpha = .75$ ).

**Spiritual Transcendence Scale (STS;** Piedmont, 1999). The STS assesses spiritual transcendence. Piedmont described spiritual transcendence as “the capacity of individuals to stand outside of their immediate sense of time and place and view life from a larger, more objective perspective” (Piedmont, 1999, p. 988). Spiritual transcendence applies to all major religions. The STS is a 24-item self-report measure with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The measure was originally created to have three subscales: Prayer Fulfillment, Connectedness, and Universality (Piedmont, 1999). However, a recent psychometric study on an emerging adulthood sample used a confirmatory factor analysis to demonstrate that the STS should only use 21-items and has five factors. The new subscales are Prayer/Meditation Enjoyment ( $\alpha = .81$ ), Universal Connectedness ( $\alpha = .71$ ), Greater Purpose ( $\alpha = .82$ ), Wholeness of Humanity ( $\alpha = .74$ ), and Closeness to the Deceased ( $\alpha = .74$ ; Lace,

Haeberlein, & Handal, 2017). The total score from the adapted 21-item version was used in this study and had good internal consistency (time 1  $\alpha = .88$ ).

**Quality of Relationships – Parent Perception (QRI-PP;** Matos, Pinheiro, Costa, & Mota, 2016). One parent report questionnaire was included. Participants' parents were invited to complete the survey with regard to their student at post-intervention (time 2). The QRI-PP is an adaptation of the QRI for parents to complete about their children regarding the quality of their relationship. It is comprised of 16 items and two subscales: Support/Depth and Conflict. Parents rated their relationship on a 4-point Likert scale with responses ranging from 1 = *never or not at all* to 4 = *always or very much*. An example of a Support/Depth item is, "To what extent can your child count on you to help him when he has a problem?" An example of a Conflict items is, "How much does your child make you feel guilty?" (Matos et al., 2016). The Conflict subscale had good internal consistency ( $\alpha = .85$ ) in the present study, although the internal consistency of the Support/Depth was low ( $\alpha = .54$ ).

### **Procedure**

Participants were recruited through the SMU Wellness courses. The Wellness courses required first-year and transfer students to complete four out of class experiences (OCEs). Participants were given the option to participate in this study as an OCEs. If students chose to participate in the study, they received two OCE credits. Participants who chose to complete other OCEs were not penalized. A total of 430 students from 13 sections had the opportunity to complete the study.

Participants read and signed the informed consent form and then completed pre-intervention measures (time 1) online through Qualtrics. On the pre-intervention survey, participants identified a parent about whom they answered additional questions. Participants

were asked to provide their parent's e-mail address so the researcher could contact him or her to get consent in order to complete a measure of relationship quality (see Appendix A).

Next, the students were randomly assigned to one of the three conditions. Eighty-six students were assigned the parent-directed gratitude condition, 87 participants were in the traditional gratitude condition, and 94 participants were in the control condition. The traditional gratitude intervention required participants each day to list three things for which they felt grateful. The parent-directed gratitude intervention involved participants listing, each day, three things for which they felt grateful for in relation to their parent. In the neutral matched-activity control group, participants listed three activities they had done that day.

All of the groups received a daily e-mail at 8:00 am with a Qualtrics link where they typed in the three items. Participants received a reminder e-mail at 8:00 pm that evening if they did not complete the morning daily report. Intervention prompts are listed in Appendix B.

One-week post-intervention (time 2), participants were asked to complete the eight measures online. The one-week delay was used to decrease the likelihood of their responses being affected by demand characteristics. At post-intervention (time 2), participants' parents were e-mailed and asked to complete an online questionnaire about their quality of relationship with their student. Parents received one reminder if they had not completed the survey after two days. If the parent did not complete the survey, it had no impact on the participant.

Ten days after the post-intervention measures were completed (time 3), participants received an email that requested them to complete four measures: well-being, social support, coping style, and positive affect. This measurement time was necessary to conduct the mediation analyses in the second research aim. Finally, three weeks after the post-intervention measures



(time 4), participants received a final e-mail requesting them to complete the follow-up measures online. See Table 6 for the list of which measures were given at each time point.

### **Analytic Strategy**

Post-hoc power analyses were conducted to determine if there was sufficient power. First, power analyses were computed for the first research aim, the group comparisons. Effect sizes listed below were derived from a recent meta-analysis comparing a gratitude intervention condition to a neutral control condition (Dickens, 2017). There was sufficient power for the following outcome variables: gratitude ( $d = .25$ , power = .92), well-being ( $d = .30$ , power = .98), positive affect ( $d = .22$ , power = .83), and impact on quality of relationship ( $d = .51$ , power = .99). However, the sample size was not large enough to adequately power analyses for two outcome variables: depressive symptoms ( $d = .13$ , power = .38) and satisfaction with life ( $d = .18$ , power = .65). Regarding the second research aim, the mediation analyses were underpowered. The model had a large alpha and small beta, which indicated that 397 participants are necessary for power = .80 (Fritz & MacKinnon, 2007). The analysis for the second research aim included only 215 participants.

In order to evaluate missing data, multivariate analysis of variance (MANOVA) and Chi-Square tests were computed on the demographic (i.e., age, gender, race, income, relationship status, condition) and baseline psychological variables (i.e., depressive symptoms, well-being) to determine whether the missing data were missing at random. All of the analyses were not significant, indicating the data were indeed missing at random. A total of 17.2% of the data were missing, which was above the 5% missing data threshold. Therefore, growth curve modeling was utilized instead of regressions or MANOVAs for the group difference analyses. Maximum likelihood estimation was used to estimate missing data in the growth curve modeling analyses.

Conceptually, growth curve analyses examine interindividual differences in intraindividual change. Each participant's data across all time points create a line of best fit for that person. Using all of the participants' individual lines, a mean line with a mean slope and intercept is created. The individual participants' lines differ from the mean line; this is the covariance. The predictors in the model attempt to explain why participants have different intercepts and slopes from the mean line.

Growth curve modeling was used to examine group differences. The predictor was group, which was dummy coded into two variables. The two dummy coded variables compared the parent-directed group to the control group and the traditional group to the control group. The dependent variables were change over time on five variables: well-being, positive affect, satisfaction with life, depressive symptoms, and components of the parent-child relationship (i.e., support, conflict, and depth). Time was dummy coded into two variables. One variable examined the change over time between pre-intervention (time 1) and post-intervention (time 2); the other variable examined the change over time between pre-intervention (time 1) and follow-up (time 4).

Two moderators, gratitude and spirituality, were hypothesized to impact for whom the intervention was most beneficial. In the growth curve model, three-way interactions were computed between group, time, and the moderator (i.e., gratitude or spirituality). Group and time were dummy coded as described above. Pre-intervention gratitude was centered one standard deviation below the mean to describe participants who reported lower levels of gratitude. Gratitude was centered below the mean because gratitude interventions have been found to be more effective for those who report lower levels of pre-intervention gratitude (Rash et al., 2011). Pre-intervention spirituality was centered one standard deviation above the mean to

describe participants who reported higher levels of spirituality. People reporting higher levels of spirituality often attribute more positive occurrences to a higher power, thereby experiencing more gratitude (McCullough et al., 2004).

To test the mechanisms, a mediation model was utilized. The mediation analysis had both parallel and serial properties and used the bootstrapping method through the PROCESS program, created by Hayes (2018). Because there was no existing PROCESS model with the hypothesized pathways, a customized model was created. Figure 1 depicts the planned mediation model.

## Results

### Preliminary Analyses

A majority (66.7%) of the participants did not have prior experience with a gratitude listing activity. Participants reported their perception of effort on the daily reports: a lot of effort (9.4%), some effort (51.3%), a little effort (26.6%), or no effort (2.2%). Over half of the participants (56.6%) completed all 14 daily reports. The remaining participants completed the following: between 1-7 reports (6.0%), between 8-11 reports (12.7%), between 12-13 reports (23.9%). There was a significant positive correlation ( $r = .19$ ) between participant reported effort and daily report completion,  $p < .01$ . The three conditions did not significantly differ by participant reported effort on daily reports,  $F(2, 264) = .13, p = .88$ . Similarly, the three conditions did not significantly differ by completion of daily reports,  $F(2, 264) = .43, p = .65$ . Additionally, the groups did not significantly differ on any of the following baseline variables: gratitude ( $F[2, 264] = .27, p = .76$ ), well-being ( $F[2, 264] = 2.37, p = .10$ ), satisfaction with life ( $F[2, 264] = .75, p = .47$ ), positive affect ( $F[2, 264] = 1.65, p = .20$ ), parental support ( $F[2, 264] = .53, p = .59$ ), parent-child conflict ( $F[2, 264] = .273, p = .76$ ), depth in the parent-child relationship ( $F[2, 264] = .70, p = .50$ ), spirituality ( $F[2, 264] = .54, p = .58$ ), social support ( $F[2,$

264] = .63,  $p = .53$ ), and coping style ( $F[2, 264] = .37, p = .69$ ). A MANOVA analyzed the effect of group by gender on the dependent variables; there were no significant results. Most participants (72.3%) selected their mother as their identified primary caregiver. Table 7 lists the descriptive statistics for each measure.

### **Manipulation Check**

To determine whether participants in the gratitude conditions reported more gratitude post-intervention (time 2) than the control condition, an ANOVA was conducted with group as the independent variable and post-intervention gratitude (time 2) as the dependent variable. Post-intervention gratitude did not significantly differ across group,  $F(2, 265) = .895, p = .41$ . The mean and standard deviation for the groups are as follows: parent-directed group ( $M = 26.59, SD = 2.83$ ), traditional group ( $M = 26.03, SD = 4.34$ ), and control group ( $M = 26.76, SD = 3.59$ ).

### **First Research Aim: Group Comparisons**

The first research aim compared the groups on well-being, positive affect, life satisfaction, depressive symptoms, and components of the parent-child relationship (i.e., support, conflict, & depth). The model had an unstructured covariance matrix and used maximum likelihood estimation. The growth curve model investigated group differences between pre-intervention (time 1) and post-intervention (time 2) and between pre-intervention (time 1) and follow up (time 4). The third time point is not included in this analysis because only the mediator variables were assessed then.

Research aim one hypotheses included the following dependent variables: well-being, positive affect, satisfaction with life, depressive symptoms, and three components of the parent-child relationship (i.e., support, conflict, & depth). Pre-intervention levels of gratitude were

controlled for in these analyses. No significant group differences were found on any of the variables at either post-intervention or follow-up. Table 8 lists the results.

With regard to the parents' report, the groups did not significantly differ on parent-reported support/depth in the parent-child relationship,  $F(2, 89) = .04, p = .96$ . Additionally, the groups did not significantly differ on conflict in the parent-child relationship,  $F(2, 89) = .04, p = .96$ .

Next, the moderation analyses for pre-intervention levels of gratitude and spirituality were examined to determine if the intervention differentially impacted participants who were low in pre-intervention gratitude or high in pre-intervention spirituality. The moderation hypotheses included three dependent variables: well-being, positive affect, and satisfaction with life. None of the moderation analyses were significant. The results are listed in Table 9.

Because none of the three-way interactions were significant, they were dropped from the model. The models were re-run with all the two-way interaction components of the three-way interactions. There were no statistically significant results.

### **Second Research Aim: Mediation Model**

The second research aim tested the possible mechanisms involved in how gratitude impacts well-being. Figure 1 depicts the model. The mediation model was not dependent on whether the intervention worked. The model examined the direct effect of gratitude (time 2) on well-being (time 4) with three mediators: social support (time 3), coping style (time 3), and positive affect (time 3). Participation in the randomized intervention study prior to this longitudinal model is accounted for by the effect of condition on gratitude (time 2). The following covariates were included on the pathways depicted in Figure 1: gratitude (time 1), social support (time 2), coping style (time 2), positive affect (time 2), and well-being (time 3).

The standardized indirect effects were computed for each of the 5,000 bootstrapped samples. The 95% confidence interval was computed by determining the indirect effects at the 2.5<sup>th</sup> and 97.5<sup>th</sup> percentiles. The first pathway, which is the groups' impact on gratitude, was not statistically significant for any group,  $b = -.40$ ,  $p = .39$ , the 95% confidence interval ranged from -1.32 to .52, &  $b = -.70$ ,  $p = .14$ , the 95% confidence interval ranged from -1.64 to .24. Therefore, a new model was run that did not include the pathway between group and gratitude. This model, depicted in Figure 2, found a significant relation between gratitude and well-being. The pathway with positive affect as the mediator had an indirect effect of .07 and the 95% confidence interval ranged from .01 to .16, indicating statistical significance. The pathway with social support as the mediator has an indirect effect of -.01 and the 95% confidence interval ranged from -.04 to .01, indicating it was not statistically significant. The pathway with coping style as the mediator has an indirect effect of .03 and the 95% confidence interval ranged from -.01 to .08, indicating it was not statistically significant. Figure 2 lists the coefficients and significance of each pathway. In summary, positive affect was the only statistically significant mediator.

### Discussion

The present investigation included two studies: (1) a randomized control trial looking at group differences and (2) a short-term longitudinal mediation model. First, the results from the first research aim, the group difference analyses, are discussed. Next, the second research aim, the mediation model, is reviewed. Finally, limitations and future directions are provided.

There were no significant differences between groups on gratitude post-intervention, indicating the manipulation did not work. Neither of the two gratitude interventions impacted participants' report of gratitude post-intervention. This result was found both in the manipulation check and in the first mediation model.

The lack of significant group differences indicates that the intervention did not work. Perhaps the dosage of the intervention as not potent enough. The dosage could be increased by requiring participants to list more than three items daily, list three items more than once a day, or increase the duration of the intervention. Although some studies have found significant results with a two-week intervention, other studies indicated that the intervention needed to occur over a month (Ahmed, 2016). The intervention prompts may not have been compelling enough to evoke adequate reflection and students may not have spent enough time or thought in the intervention each day to have an effect. Although the study followed dosage standards of previous research, it would have been particularly important to have an adequately strong manipulation to counteract the increasing work and social demands of the semester.

Additionally, students may not have taken the intervention seriously. A preliminary review of the content of the intervention responses suggests this could be an explanation. Although there was variability in the specificity and novelty of the responses, most students provided brief, vague responses. For example, several students listed the name of the college as something for which they felt grateful. The response was not specific about whether it was the landscaping they noticed that day or a thoughtful remark from a professor, for instance. It is possible that more specific responses would have evoked a greater feeling of gratitude. Despite the instruction to provide new responses each day, students tended to repeat items for which they felt grateful.

Another potential explanation for the lack of significant results is a ceiling effect for pre-intervention levels of reported gratitude. Students reported high levels of gratitude at pre-intervention, which remained consistently high throughout the intervention (see Table 7 for means). Rash and colleagues (2011) found that individuals who had high levels of pre-

intervention gratitude did not benefit in the same way as individuals with low levels of pre-intervention gratitude due a ceiling effect.

Further, there may be other methodological reasons why there were no significant results. Two of the dependent variables (i.e., depressive symptoms & satisfaction with life) were underpowered. More participants would be necessary to have sufficient power to detect an effect of those two variables. Also, well-being was measured differently in the present study than in previous research. The present investigation used the IDAS (Watson et al., 2007) due to its good reliability and validity. However, previous research has utilized proxy measures of well-being, such as happiness or a lack of depressive symptoms (e.g., Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011). Further, gratefulness in regards to parents, specifically, was not assessed. It is possible that the parent-directed gratitude condition increased this specific type of gratefulness that did not transcend across to an increase in general gratitude.

Finally, gratitude may not be an important construct in relation to the dependent variables. Although previous research has mixed results on gratitude's relation to positive affect and satisfaction with life, two recent meta-analyses indicated a consistent significant relation with depressive symptoms and well-being (Davis et al., 2016; Dickens, 2017). Therefore, it is likely that gratitude is a meaningful construct, at least in relation to well-being and depressive symptoms.

The lack of difference between the parent-directed gratitude condition and the traditional gratitude condition is surprising. Despite the mixed results regarding the effectiveness of parents engaging in child-focused gratitude interventions, interpersonal gratitude interventions between two adults have been effective. For example, one study examined an interpersonal



gratitude intervention in a romantic relationship and found an increase in relationship satisfaction for both partners (Algoe, Gable, & Maisel, 2010).

The second research aim investigated three possible mechanisms between gratitude and well-being using a mediation model. The three theorized mediators were coping style, social support, and positive affect. The present study was the first to test Wood and colleagues (2010) theorized mechanisms between gratitude and well-being in a short-term longitudinal model, according to the author's literature review. Previous research has tested coping style and social support as mechanisms between gratitude and well-being (Chen, 2013; Lin, 2016; Lin & Yeh, 2014). However, the studies used cross-sectional data which is problematic due to the importance of time and sequencing with mediation models (Maxwell & Cole, 2007).

Positive affect significantly mediated the relation between gratitude and well-being, whereas social support and coping style did not. It may be that gratitude changes one's affective state to emphasize the experience of positive emotions. The tendency to experience more appreciation for others may transcend into an increase in other types of positive emotions as well. This increase in positive affect then contributes to one's overall sense of well-being. Positive affect was the only theorized mediator that focused on emotions. Both coping style and social support were action-oriented, behaviorally-focused mediators. Gratitude may impact one's emotional experience more than behaviors, which is why only positive affect was a significant mediator.

Conversely, it is possible that experiencing gratitude dampens people's typical experience of negative affect. A strong sense of appreciation may restructure people's cognitive patterns into dwelling less on negative emotions. Although negative emotions occur and arise, those experiencing a strong sense of gratitude reorient their focus away from the negative

emotions. It may be that the decrease in negative affective experiences is appearing to the person as an increase in positive emotion. The person is not actually increasing in their experience of positive affect, but the diminished focus on negative affects makes it feel that way.

The limitations of the first research aim were already mentioned in the explanation for the lack of significant results. Future studies should vary different aspects of the gratitude intervention to understand the conditions under which gratitude interventions are effective. For example, studies should change the total duration of the intervention and the degree of daily involvement to determine how that impacts results.

Also, the intervention may only be effective for a subset of the population. Do participants need more coaching before beginning a gratitude intervention to ensure they are maximizing the possible benefits? Individual or group sessions at pre-intervention may aid in participant engagement in the study. A different sample should be tested; perhaps second-year college students would be a better sample. Second-year college students still have a significant stress load, but are not as focused as first-year students on adjusting to college. They may have more time for ample reflection that the intervention may require. Psychological variables as well, such as psychiatric diagnoses, may influence the intervention. For example, people with depression may be experiencing cognitive distortions that make it difficult to adequately engage in the intervention. Finally, it may be that gratitude interventions are only effective for a subset of the population who choose complete a gratitude intervention. Gratitude interventions may not be as effective when participants are not eager to engage in them.

Further, the content of each condition should be examined. After a brief review of responses, participants had variability in how specific, complex, and reflective their responses were. Perhaps gratitude interventions are only effective for those who write with a certain

degree of depth or write about a specific content area. Additionally, the control group may have been writing about instances throughout the day during which they felt grateful, despite them not being prompted to do so. The content of the responses can be coded for degree of reflection, specificity, complexity, and novelty. A subset of the sample, based on the coded content, can be analyzed for change in the dependent variables.

Additionally, future studies evaluating a parent-directed gratitude condition should determine a broader assessment of quality of the parent-child relationship. It is possible that the parent-directed intervention is only beneficial for those with a strong parent-child relationship pre-intervention. Conversely, there may be a ceiling effect if participants start with a strong parent-child relationship. Perhaps it is best if there is more apparent room for growth in the relationship.

Regarding the mediation model, future studies should replicate the present study with longitudinal study designs. The model should be evaluated with different samples (e.g., age range, community sample, at-risk sample) to determine if the pathway differs based on developmental levels, psychological factors, or life stressors. Future tests of the mediation model should evaluate the same model over a longer duration of time to understand if the change can be more gradual.

Each research aim had a novel component. The first research aim tested a new interpersonal gratitude intervention that involved children expressing gratitude toward their parent. The second research aim was the first to test the widely cited theorized mechanisms of gratitude and well-being in a short-term longitudinal sample (Wood et al., 2010). The mediational analyses found that gratitude impacts well-being through an increase in positive affect. This finding has beneficial implications with regard to basic science in understanding positive psychology

phenomena and with regard to applied science in attempting to increase psychological well-being.

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Table 1

*Criteria from the Character Strengths and Virtues Handbook*

Criteria	Description
Fulfilling	Requires effort; the willful choice and pursuit of praiseworthy activities
Morally valued	Choosing what is right for you, others, and society
Does not diminish others	Elevates or acknowledges in a positive way somebody or something
Nonfelicitous opposite	Has negative antonyms (e.g., unthankful)
Traitlike	General across situations and stable over time
Distinctiveness	Not synonymous or a combination of other positive attributes
Paragons	Model of excellence
Prodigies	Some develop character strengths more rapidly than others
Selective absence	Some do not exhibit any traces of the character strength
Institutions and rituals	Programs or traditions that promote character strengths

*Note.* Descriptions are from the CSV (Seligman & Peterson, 2004).

Table 2

*Correlations of Gratitude and Other Variables*

Variable	Correlation
Life Satisfaction	.53
Subjective Happiness	.50
Optimism	.51
Positive Affect	.31
Depression	-.30
Spiritual Transcendence	.28
Social Desirability – Impression Management	.21
Agreeableness	.39
Conscientiousness	.27
Extraversion	.20
Neuroticism	-.30
Openness	.23

*Note.* Correlations from McCullough et al., 2002.



Table 3

*Five Hypotheses of First Research Aim*

Hypotheses	IV	DV(s)	Moderator
1. Both gratitude conditions will report significantly more well-being, positive affect, and satisfaction with life at post-intervention and follow up than the control condition.	Condition	Well-Being, Positive Affect, & Satisfaction with Life	None
2. Both gratitude conditions will report fewer depressive symptoms than the matched-activity control group.	Condition	Depressive Symptoms	None
3. The parent-directed gratitude intervention will report greater quality of parent-child relationships at post-intervention compared to the other three conditions.	Condition	Parent-Child Relationship - Support, Conflict, & Depth	None
4. Pre-intervention gratitude will moderate the relation in hypothesis one, such that those low in gratitude pre-intervention will report greater well-being, positive affect, and satisfaction with life.	Condition	Well-Being, Positive Affect, & Satisfaction with Life	Gratitude
5. Spirituality will moderate the relation in hypothesis one, such that those higher in spirituality pre-intervention will report greater well-being, positive affect, and satisfaction with life.	Condition	Well-Being, Positive Affect, & Satisfaction with Life	Spirituality

Table 4

*Second Research Aim Hypotheses*

Hypotheses	IV	Mediators	DV
1. Group will be significant related to gratitude.	Group (T1)	None	Gratitude (T2)
2. Direct Pathway –Gratitude is significantly positively relation to well-being.	Gratitude (T2)	None	Well-Being (T4)
3. Gratitude is related to well-being, through the mechanism of social support.	Gratitude (T2)	Social Support (T3)	Well-Being (T4)
4. Gratitude is related to well-being, through the mechanism of coping style.	Gratitude (T2)	Coping Style (T3)	Well-Being (T4)
5. Gratitude is related to well-being, through the mechanism of positive affect.	Gratitude (T2)	Positive Affect (T3)	Well-Being (T4)

*Note.* T1 = Time 1. T2 = Time 2. T3 = Time 3. T4 = Time 4.

Table 5

*Demographic and Primary Caregiver Communication Descriptive Statistics*

Variable	Count	%	Variable	Count	%
Gender			Where do you live?		
Male	132	49.4	On campus	260	97.4
Female	130	48.7	Greek house	0	0
Non-binary/Third gender	2	0.7	Off campus by myself	1	0.4
Prefer to self-describe	1	0.4	Off campus with friends	1	0.4
Prefer not to say	2	0.7	Off campus with family	5	1.9
Transgender			When does PC live?		
Yes	0	0	DFW area	68	25.5
No	264	98.9	1-5 hr drive	41	15.4
Prefer not to say	3	1.1	Further than 5 hr drive	151	56.6
Relationship Status			Different county	7	2.6
Single	201	75.3	Communication with PC?		
Dating	30	11.2	Daily	151	56.6
In committed relationship	35	13.1	2-3 week	86	32.2
Married	1	0.4	Once a week	19	7.1
Divorced/widowed	0	0	Once a month	7	2.6
Family Income			Never	4	1.5
Less than \$20k	7	2.6	See PC in person?		
\$20-39k	12	4.5	Daily	7	2.6
\$40-56k	15	5.6	Weekly	40	15
\$60-79k	18	6.7	Monthly	144	53.9
\$80-99k	13	4.9	Once a semester	71	26.6
\$100k +	201	75.3	< once a semester	5	1.9
Race/Ethnicity			PC communication method?		
Black/African-American	8	3	Text	106	39.7
Latino	20	7.5	Talk/video chat	136	50.9
Euro-American/White	192	71.9	In person	25	9.4
Asian/Asian-American	27	10.1	Conversation Initiator		
Native American	0	0	Me	19	7.1
Multiracial	15	5.6	PC	62	23.2
Other	5	1.9	Equal	186	69.7
Year in School			Relation to PC		
Freshman	263	98.5	Mother	193	72.3
Sophomore	4	1.5	Father	36	13.5
International Student			Grandmother	0	0
Yes	4	1.5	Grandfather	1	0.4
No	263	98.5	Other	9	3.4
Student classification					
Full-time	265	99.3			
Part-time	2	0.7			

Note. PC = identified primary caregiver.

Table 6

*When Measures were Given*

Measure	Time 1	Time 2	Time 3	Time 4
Background	✓			
Gratitude Questionnaire-6	✓	✓		✓
Inventory of Depression and Anxiety Symptoms – Well-Being	✓	✓	✓	✓
Inventory of Depression and Anxiety Symptoms – General Depression	✓	✓		✓
Interpersonal Support Evaluation List	✓	✓	✓	
Brief COPE	✓	✓	✓	
Positive and Negative Affect Schedule	✓	✓	✓	✓
Satisfaction with Life Scale	✓	✓		✓
Quality of Relationship Inventory	✓	✓		✓
Spiritual Transcendence Scale	✓			
Quality of Relationship Inventory – Parent Perception		✓		

Table 7

*Measure Descriptive Statistics*

Measure	<i>M</i>	<i>SD</i>	Observed Range	Theoretical Range
Time 1				
GQ-6	26.36	3.65	6 - 30	6 - 30
IDAS: Well-Being	30.16	6.3	12 - 40	8 - 40
IDAS: Depression	44.78	12.88	21 - 92	20 - 100
SWLS	26.49	6.53	5 - 35	5 - 35
Adaptive Coping	27.79	5.95	10 - 40	10 - 40
Positive Affect	36.5	7.48	14 - 50	10 - 50
QRI: Support	23.69	4.46	7 - 28	7 - 28
QRI: Conflict	23.46	7.45	12 - 47	12 - 48
QRI: Depth	20.76	3.08	6 - 24	6 - 24
ISEL: Total	20.39	6.49	12 - 48	12 - 48
STS: Total	68.82	13.1	22 - 104	21 - 105
Time 2				
GQ-6	26.47	3.59	10 - 30	6 - 30
IDAS: Well-Being	28.94	6.78	9 - 40	8 - 40
IDAS: Depression	44.62	12.63	20 - 93	20 - 100
SWLS	26.66	6.32	5 - 35	5 - 35
Adaptive Coping	28.92	6.22	14 - 40	10 - 40
Positive Affect	35.17	7.48	10 - 50	10 - 50
QRI: Support	24.09	3.96	8 - 28	7 - 28
QRI: Conflict	23.23	7.05	12 - 48	12 - 48
QRI: Depth	20.71	3	9 - 24	6 - 24
ISEL: Total	20.37	6.41	12 - 42	12 - 48
Time 3				
IDAS: Well-Being	29.11	7.09	10 - 40	8 - 40
Adaptive Coping	29.11	6.03	13 - 40	10 - 40
Positive Affect	34.56	7.8	10 - 50	10 - 50
ISEL - Total	21.01	7.01	12 - 48	12 - 48
Time 4				
GQ-6	26.16	3.78	11 - 30	6 - 30
IDAS: Well-Being	29.24	7.34	8 - 40	8 - 40
IDAS: Depression	42.93	13.15	20 - 95	20 - 100
SWLS	27.05	6.94	5 - 35	5 - 35
Positive Affect	34.33	8.13	10 - 50	10 - 50
QRI: Support	24.15	4.1	7 - 28	7 - 28
QRI: Conflict	23.18	7.47	12 - 48	12 - 48
QRI: Depth	20.56	2.86	8 - 24	6 - 24
Parent Report				
QRI: Support/Depth	30.53	1.69	25 - 32	8 - 32
QRI: Conflict	13.57	3.79	8 - 24	8 - 32

Table 8

*Group Difference Hypotheses Results*

Variable	Groups Compared	Post-intervention		Follow-up	
		<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Well-Being	A	$t(251.89) = .06$	$p = .95$	$t(240.23) = -1.76$	$p = .08$
	B	$t(252.54) = .91$	$p = .36$	$t(243.67) = -1.01$	$p = .31$
Positive Affect	A	$t(245.06) = .94$	$p = .35$	$t(238.11) = .74$	$p = .46$
	B	$t(246.20) = .55$	$p = .59$	$t(241.60) = -1.09$	$p = .28$
Satisfaction with Life	A	$t(243.59) = .82$	$p = .42$	$t(243.61) = -.77$	$p = .44$
	B	$t(244.73) = .32$	$p = .75$	$t(246.59) = -1.17$	$p = .24$
Depressive Symptoms	A	$t(248.13) = -.25$	$p = .80$	$t(250.21) = .65$	$p = .51$
	B	$t(248.84) = -1.43$	$p = .16$	$t(253.94) = .76$	$p = .45$
Parent-Child Support	A	$t(245.77) = .40$	$p = .69$	$t(244.25) = .26$	$p = .80$
	B	$t(246.35) = -1.36$	$p = .17$	$t(248.11) = -.56$	$p = .57$
Parent-Child Conflict	A	$t(239.23) = -.17$	$p = .87$	$t(245.85) = .01$	$p = .99$
	B	$t(240.41) = 1.30$	$p = .20$	$t(249.13) = .91$	$p = .36$
Parent-Child Depth	A	$t(240.07) = 1.13$	$p = .26$	$t(250.65) = 1.23$	$p = .22$
	B	$t(240.86) = -.23$	$p = .82$	$t(254.59) = .58$	$p = .56$

*Note.* A = parent-directed group and control group are compared. B = traditional group and control group are compared.

Table 9

*Moderation Analyses Results*

Moderator	Variable	Groups Compared	Post-intervention		Follow-up	
			t	p	t	p
Gratitude	Well-Being	A	$t(257.16) = -.67$	$p = .51$	$t(237.86) = -.14$	$p = .89$
		B	$t(261.73) = -.96$	$p = .34$	$t(241.55) = -.67$	$p = .50$
	Positive Affect	A	$t(254.58) = .74$	$p = .46$	$t(240.24) = 1.85$	$p = .07$
		B	$t(260.01) = -.33$	$p = .74$	$t(241.46) = .24$	$p = .81$
	Satisfaction with Life	A	$t(246.56) = .55$	$p = .59$	$t(242.99) = -.48$	$p = .63$
		B	$t(251.38) = -1.51$	$p = .13$	$t(244.62) = -1.92$	$p = .07$
Spirituality	Well-Being	A	$t(257.33) = .16$	$p = .87$	$t(240.37) = .88$	$p = .39$
		B	$t(259.34) = .69$	$p = .49$	$t(237.13) = .44$	$p = .66$
	Positive Affect	A	$t(257.48) = -1.24$	$p = .22$	$t(240.94) = .86$	$p = .40$
		B	$t(256.49) = .03$	$p = .98$	$t(237.01) = -.72$	$p = .47$
	Satisfaction with Life	A	$t(249.19) = -.71$	$p = .48$	$t(243.62) = -.41$	$p = .68$
		B	$t(248.45) = -.09$	$p = .93$	$t(241.42) = -.39$	$p = .69$

*Note.* A = parent-directed group and control group are compared. B = traditional group and control group are compared.

Figure 1

*Planned Mediation Model*

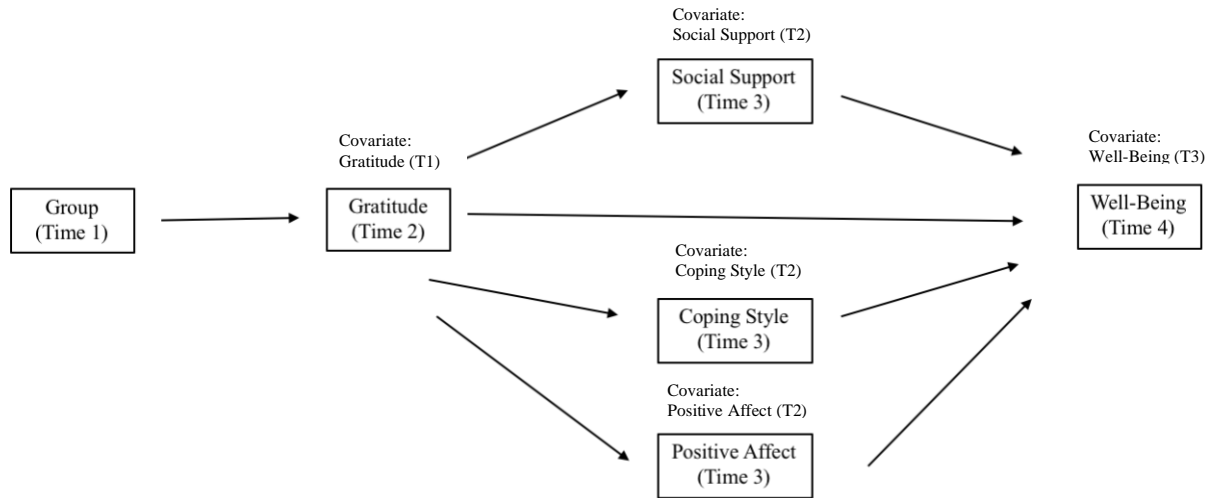
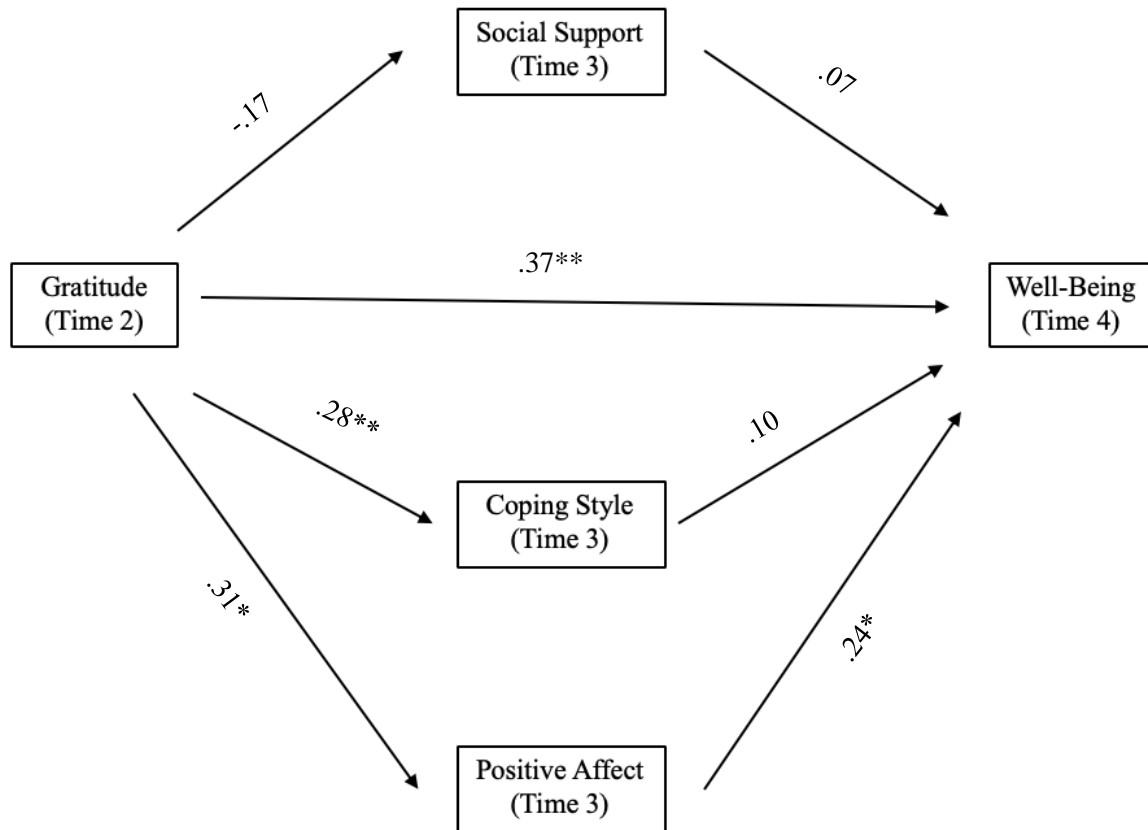




Figure 2

*Mediation Model*



Note.  $**p < .01$ ,  $*p < .05$ .

## Appendix A

## Measures

All measures will be given at time 1, time 2, and time 4. If an item is only given at time 1, it will be notated with a “T1.” The Quality of Relationship – Parent Perception measure will only be given to the identified primary caregiver at time 2. This is noted with “T2.” The well-being scale of the IDAS, the BriefCOPE, the ISEL-12, and the PANAS are the only measures given at time 3. This is denoted with “T3.”

**Background Questionnaire T1**

1. SMU ID: \_\_\_\_\_
2. Age: \_\_\_\_\_
3. What is your gender  
Male  
Female  
Non-binary/Third gender  
Prefer to self-describe \_\_\_\_\_  
Prefer not to say
4. Do you identify as transgender?  
Yes  
No  
Prefer not to say
5. Relationship status  
Single  
Dating (i.e., dating one or more people not exclusively)  
In a committed relationship (i.e., in an exclusive relationship)  
Married  
Divorced or Widowed
6. Family income  
Less than \$20,000  
\$20,000-39,999  
\$40,000-59,999  
\$60,000-79,999  
\$80,000-100,000  
\$100,000 or more
7. What is your race/ethnicity?  
Black/African-American

Latino  
European-American/White  
Asian/Asian-American  
Native American  
Multiracial  
Other

8. What is your nationality? \_\_\_\_\_
9. Year in school  $\tau_1$   
Freshman  
Sophomore  
Junior  
Senior  
Graduate Student
10. Are you an international student?  
Yes  
No
- If yes, where does your family live? \_\_\_\_\_
11. Where do you live?  
On campus  
Greek house  
Off campus by myself  
Off campus with friends  
Off campus with my family
12. Please estimate how many close friends you have. Consider a close friend someone with whom you feel comfortable talking about most topics. \_\_\_\_\_
13. How does SMU classify you as a student?  
Full-time  
Part-time
14. How many credit hours are you taking this semester? \_\_\_\_\_
15. Approximately how many hours do you spend on extracurricular activities and/or a job each week? \_\_\_\_\_
16. Are you a member of Greek life?  
Yes  
No
17. Are you working on a job application or graduate school application?

Yes  
No

18. Do you have any mental health diagnoses?

Yes  
If yes, \_\_\_\_\_  
No

*Identify primary caregiver instructions*

For the remainder of the survey, please identify your primary caregiver to respond to the questions about.

Please enter in the initials of the primary caregiver: \_\_\_\_\_

*[Note: if participant is later randomly assigned to the parent-focused gratitude intervention, they will be instructed to focus the intervention on this previously identified primary caregiver (using the initials as a reminder).]*

19. How close do you live to your primary caregiver?

He or she lives in DFW area  
He or she lives 1-5 hour drive away  
If he or she lives in US, he or she lives further than 5 hour drive away  
He or she lives in a different country

20. Which best describes how often you communicate with your primary caregiver?

Daily  
2-3 times/week  
Once a week  
Once a month

21. Which best describes how often you see your primary caregiver in person?

Daily  
Weekly  
Monthly  
Once a semester  
Less than once a semester

22. Which best describes the method of communication you have with your primary caregiver?

A majority of the time we text  
A majority of the time we talk on the phone or video chat  
A majority of the time we talk in person

23. When talking with your identified primary caregiver, who initiates the conversation?

A majority of the time it is me  
A majority of the time it is my primary caregiver

We initiate conversation equally

24. In 3 weeks, your identified primary caregiver will receive an e-mail with a link to a brief questionnaire about your relationship with them. If you feel comfortable, please provide your identified primary caregiver's e-mail address.
- 

25. You will be randomized to participate in a daily intervention that lasts 2 weeks. It should take you 1-2 minutes each day. Please provide the e-mail that you want the prompts to be sent to each day for 2 weeks. \_\_\_\_\_

**Grateful Questionnaire-6 (GQ-6; McCullough, Emmons, & Tsang, 2002)** T1, T2, & T4

Use the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

- 1 = strongly disagree
- 2 = slightly disagree
- 3 = neutral
- 4 = slightly agree
- 5 = strongly agree

1. I have so much in my life to be thankful for.
2. If I had to list everything that I felt grateful for, it would be a very long list.
3. When I look at the world, I don't see much to be grateful for.
4. I am grateful to a wide variety of people.
5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.
6. Long amounts of time can go by before I feel grateful to something or someone.

Scoring: Items 3 & 6 are reverse scored.

**Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007)**

Instructions:

Below is a list of feelings, sensations, problems, and experiences that people sometimes have. Read each item to determine how well it describes your recent feelings and experiences. Then select the option that best describes **how much** you have felt or experienced things this way **during the past two weeks, including today**. Use this scale when answering:

- 1 = Not at all
- 2 = A little bit
- 3 = Moderately

4 = Quite a bit

5 = Extremely

General Depression Scale: T1, T2, & T4

1. I felt exhausted (2)
2. I felt depressed (3)
3. I felt inadequate (4)
4. I felt fidgety, restless (5)
5. I had thoughts of suicide (6)
6. I slept very poorly (7)
7. I blamed myself for things (8)
8. I had trouble falling asleep (9)
9. I felt discouraged about things (10)
10. I thought about hurting myself (11)
11. I did not have much of an appetite (12)
12. I felt like eating less than usual (13)
13. I looked forward to things with enjoyment (16)\*
14. I felt like I had a lot of energy (20)\*
15. I had little interest in my usual hobbies or activities (21)
16. I had trouble concentrating (22)
17. I had trouble making up my mind (23)
18. I talked more slowly than usual (24)
19. I found myself worrying all the time (25)
20. It took a lot of effort for me to get going (26)

Well-Being Scale: T1, T2, T3, & T4

1. I was proud of myself (1)
2. I felt optimistic (14)
3. I felt that I had accomplished a lot (15)
4. I looked forward to things with enjoyment (16)
5. I felt hopeful about the future (17)
6. I felt that I had a lot to look forward to (18)
7. I felt like I had a lot of interesting things to do (19)
8. I felt like I had a lot of energy (20)

If you are having thoughts of harming yourself, please call the National Suicide Prevention Lifeline at 1-800-273-8255.

*Note.* The number in parentheses next to the item is the item number on Qualtrics. The scales will not be separated, but instead listed in the order of the measure. \*Reverse Scored

**Brief COPE** (Carver, 1997) T1, T2, & T3

Instructions: We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to try to deal with stress. This questionnaire asks you to indicate what *you* generally do and feel, when *you* experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you *usually* do when you are under a lot of stress.

- 1 = I haven't been doing this at all
- 2 = I have been doing this a little
- 3 = I have been doing this often
- 4 = I've been doing this a lot

1. I have been concentrating my efforts on doing something about the situation I'm in.
2. I've been taking action to try to make the situation better.
3. I've been trying to come up with a strategy about what to do.
4. I've been thinking hard about what steps to take.
5. I've been trying to see it in a different light, to make it seem more positive.
6. I've been looking for something good in what is happening.
7. I've been accepting the reality of the fact that it has happened.
8. I've been learning to live with it.
9. I've been making jokes about it.
10. I've been making fun of the situation.
11. I've been trying to find comfort in my religion or spiritual beliefs.
12. I've been praying or meditating.
13. I've been getting emotional support from others.
14. I've been getting comfort and understanding from someone.
15. I've been trying to get advice or help from other people about what to do.
16. I've been getting help and advice from other people.
17. I've been turning to work or other activities to take my mind off things.
18. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
19. I've been saying to myself "this isn't real."
20. I've been refusing to believe that it has happened.
21. I've been saying things to let my unpleasant feelings escape.
22. I've been expressing my negative feelings.
23. I've been using alcohol or other drugs to make myself feel better.
24. I've been using alcohol or other drugs to help me get through it.
25. I've been giving up trying to deal with it.
26. I've been giving up the attempt to cope.
27. I've been criticizing myself.
28. I've been blaming myself for things that happened.

Adaptive Coping Scale items: 1, 2, 3, 4, 5, 6, 13, 14, 15, & 16

**Interpersonal Support Evaluation – Short Form (ISEL – SF;** Cohen, Mermelstein, Kamarck, & Hoberman, 1985) T1, T2, & T3

This scale is made up of a list of statements each of which may or may not be true about you. For each statement, circle “definitely true” if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should circle “definitely false” if you are sure the statement is false and “probably false” if you think it’s false but are not absolutely certain.

- 1 = definitely true
- 2 = probably true
- 3 = probably false
- 4 = definitely false

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.
2. I feel that there is no one I can share my most private worries and fears with.
3. If I were sick, I could easily find someone to help me with my daily chores.
4. There is someone I can turn to for advice about handling problems with my family.
5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.
6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.
7. I don’t often get invited to do things with others.
8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).
9. If I wanted to have lunch with someone, I could easily find someone to join me.
10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.
11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.
12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

**Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)** T1, T2, T3, & T4

Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past week. Use the following scale to record your answers.

- 1 = very slightly or not at all
- 2 = a little
- 3 = moderately
- 4 = quite a bit
- 5 = extremely

1. Interested



2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired
15. Nervous
16. Determined
17. Attentive
18. Jittery
19. Active
20. Afraid

Positive Affect Items: 1, 3, 5, 9, 10, 12, 14, 16, 17, & 19

**Satisfaction with Life Scale** (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) T1, T2, & T4

Instructions: Below are five statements that you may agree or disagree with. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding:

- 1 = strongly disagree
- 2 = disagree
- 3 = slightly disagree
- 4 = neither agree nor disagree
- 5 = slightly agree
- 6 = agree
- 7 = strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Scoring: Sum all the items. The following are cut-offs to be used at benchmarks: 5-9 extremely dissatisfied, 10-14 dissatisfied, 15-19 slightly dissatisfied, 20 neutral, 21-25 slightly satisfied, 26-30 satisfied, & 31-35 extremely satisfied.

**Quality of Relationships Inventory (QRI; Pierce, Sarason, & Sarason, 1991) T1, T2, & T4**

Instructions: Please use the scale below to identify your relationship with your primary caregiver that you identified in the beginning of the survey.

- 1 = Not at all
- 2 = A little
- 3 = Quite a bit
- 4 = Very much

1. To what extent could you turn to this person for advice about problems?
2. How often do you need to work hard to avoid conflict with this person?
3. To what extent could you count on this person for help with a problem?
4. How upset does this person sometimes make you feel?
5. To what extent can you count on this person to give you honest feedback, even if you might not want to hear it?
6. How much does this person make you feel guilty?
7. How much do you have to “give in” in this relationship?
8. To what extent can you count on this person to help you if a family member very close to you died?
9. How much does this person want you to change?
10. How positive a role does this person play in your life?
11. How significant is this relationship in your life?
12. How close will your relationship be with this person in 10 years?
13. How much would you miss this person if the two of you could not see or talk with each other for a month?
14. How critical of you is this person?
15. If you wanted to go out and do something this evening, how confident are you that this person would be willing to do something with you?
16. How responsible do you feel for this person’s well-being?
17. How much do you depend on this person?
18. To what extent can you count on this person to listen to you when you are very angry at someone else?
19. How much would you like this person to change?
20. How angry does this person make you feel?
21. How much do you argue with this person?
22. To what extent can you really count on this person to distract you from your worries when you are under stress?
23. How often does this person make you feel angry?
24. How often does this person try to control or influence your life?
25. How much more do you give than you get from this relationship?

Scoring:

Support Scale Items: 1, 3, 5, 8, 15, 18, 22

Conflict Scale Items: 2, 4, 6, 7, 9, 14, 19, 20, 21, 23, 24, 25

Depth Scale Items: 10, 11, 12, 13, 16, 17

**Quality of Relationship – Parents Perception (QRI-PP; Matos, Pinheiro, Costa, & Mota, 2016)** T2

Instructions: Please use the scale below to identify your relationship with your child who asked you to complete this survey.

- 1 = Not at all
- 2 = A little
- 3 = Quite a bit
- 4 = Very much

1. To what extent could your child count on you to help him when he has a problem?
2. How upset does your child sometimes make you feel?
3. How much does your child make you feel guilty?
4. To what extent can your child count on you to help you if a family member very close to you died?
5. How much does your child want you to change?
6. How positive a role does your child play in your life?
7. How significant is the relationship with your child in your life?
8. How close will your relationship be with your child in 10 years?
9. How much would you miss your child if the two of you could not see or talk with each other for a month?
10. How critical of you is your child?
11. How responsible do you feel for your child well-being?
12. To what extent can your child count on you to listen to him/her when he/she is very angry at someone else?
13. How much would you like your child to change?
14. How angry does your child make you feel?
15. How much do you argue with your child?
16. How often does your child make you feel angry?

Support/Depth Items: 7, 9, 4, 11, 12, 1, 6, 8

Conflict Items: 16, 15, 14, 13, 3, 2, 5, 10

**Spiritual Transcendence Scale (STS; Piedmont, 1999)** T1 only

Instructions: Please rate how much you agree with the following statements.

- 1 = strongly disagree
- 2 = disagree
- 3 = neither agree nor disagree
- 4 = agree
- 5 = strongly agree

1. Although dead, images of some of my relatives continue to influence my current life.
2. I mediate and/or pray so that I can reach a higher spiritual plane of consciousness.
3. I have had at least one “peak” experiences.
4. All life is interconnected.
5. There is a higher plane of consciousness or spirituality that binds all people.
6. It is important for me to give something back to my community.
7. I am a link in the chain of my family’s heritage, a bridge between past and future.
8. I am concerned about those who will come after me in life.
9. I have been able to step outside of my ambitions and failures, pain and joy, to experience a larger sense of fulfillment.
10. Although individual people may be difficult, I feel an emotional bond with all of humanity.
11. I still have strong emotional ties with someone who has died.
12. I believe that there is a larger meaning to life.
13. I believe that death is a doorway to another plan of existence.
14. I believe there is a larger plan to life.
15. When in prayer or meditation, I have become oblivious to the events of this world.
16. I have experienced deep fulfillment and bliss through my prayers or meditations.
17. I have had a spiritual experience where I lost track of where I was or the passage of time.
18. The desires of my body do not keep me from my prayers or meditations.
19. Although there is good and bad in people, I believe that humanity as a whole is basically good.
20. There is an order to the universe that transcends human thinking.
21. I believe that on some level my life is intimately tied to all of humankind.

## Appendix B

## Intervention Prompts

## Traditional Gratitude Intervention:

Writing is a great way to reflect on your daily events. There are many things in our lives, both large and small, which we might be grateful for. Please write three things for which you feel grateful for today. Try to think of new things and not things you've already written before. If possible, please avoid using someone's name. Instead you can refer to someone with a generic term like "friend," "mother," "professor," etc.

## Parent-Directed Gratitude Intervention:

Writing is a great way to reflect on your daily events. There are many reasons, both large and small, why you may be grateful for your previously identified primary caregiver. Please write three things for which you feel grateful about that person for today. Try to think of new things and not things you've already written before. If possible, please avoid using someone's name. Instead you can refer to someone with a generic term like "friend," "mother," "professor," etc.

## Neutral Activity-Matched Control Group:

Writing is a great way to reflect on your daily events. There are many things that happen in our lives, both large and small. Please write three things that happened today. Try to think of new things and not things you've already written before. If possible, please avoid using someone's name. Instead you can refer to someone with a generic term like "friend," "mother," "professor," etc.

*Note.* Intervention prompts were adapted from O'Connell et al., 2017.