

Gratitude and Life Satisfaction in the United States and Japan

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Abstract Being grateful has been associated with many positive outcomes, including greater happiness, positive affect, optimism, and self-esteem. There is limited research, however, on the associations between gratitude and different domains of life satisfaction across cultures. The current study examined the associations between gratitude and three domains of life satisfaction, including satisfaction in relationships, work, and health, and overall life satisfaction, in the United States and Japan. A total of 945 participants were drawn from two samples of middle aged and older adults, the Midlife Development in the United States and the Midlife Development in Japan. There were significant positive bivariate associations between gratitude and all four measures of life satisfaction. In addition, after adjusting for demographics, neuroticism, extraversion, and the other measures of satisfaction, gratitude was uniquely and positively associated with satisfaction with relationships and life overall but not with satisfaction with work or health. Furthermore, results indicated that women and individuals who were more extraverted and lived in the United States were more grateful and individuals with less than a high school degree were less grateful. The findings from this study suggest that gratitude is uniquely associated with specific domains of life satisfaction. Results are discussed with respect to future research and the design and implementation of gratitude interventions, particularly when including individuals from different cultures.

Keywords Gratitude · United States · Japan · Life satisfaction · Relationship satisfaction · Cross cultural

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1 Introduction

Emmons and McCullough (2003) define gratitude as “the perception of a positive personal outcome, not necessarily deserved or earned, that is due to the actions of another person” (p. 377). Definitions of gratitude used across studies are generally variations on this theme, describing gratitude as crediting someone or something other than oneself for positive events. Being grateful, conceptualized either as an emotion or a trait, seems to have several beneficial consequences. The current study examined the association between gratitude and several domains of life satisfaction, including satisfaction with work, relationships, and health, as well as life overall, in the United States and Japan.

1.1 Gratitude and Indices of Well-Being

People who have high levels of trait gratitude tend to be happy, optimistic, and have higher self-esteem (Kong et al. 2014; McCullough et al. 2004). Gratitude has also been found to correlate negatively with motivation for revenge, avoidance motivation, and the perception that adverse events are permanent and ubiquitous (Szcześniak and Soares 2011). Having a grateful disposition is also associated with positive affect, prosocial behaviors, and spirituality (McCullough et al. 2002). In addition, grateful people tend to be more agreeable, extraverted, conscientious, open, and less neurotic (Wood et al. 2008a), and grateful adults have higher levels of well-being even when controlling for forgiveness and the Big Five factor personality traits (Hill and Allemand 2011). Trait gratitude is also negatively associated with mental health problems. For example, one study examined a sample of college students who had at least one parent with a serious illness and found that students with high dispositional gratitude experienced less anxiety and depression than students with lower levels of dispositional gratitude (Stoeckel et al. 2014).

In addition, some studies have been successful in using interventions to increase gratitude and, as a result, increase subjective well-being (Emmons and McCullough 2003). Gratitude manipulations have been found to increase life satisfaction, positive affect, and subjective well-being and decrease materialism (Lambert et al. 2009; Watkins et al. 2003). Overall, results from past research create a clear picture of the positive associations and effects of gratitude on life satisfaction and well-being across a variety of populations.

1.2 The Association Between Gratitude and Specific Domains of Life Satisfaction

Although prior studies have demonstrated that gratitude is associated with overall life satisfaction (Hill and Allemand 2011; Wood et al. 2008a), very few studies have examined specific domains of life satisfaction and no studies, to our knowledge, have evaluated the incremental associations between gratitude and a variety of satisfaction domains (i.e., whether gratitude is associated with life satisfaction in one domain when statistically controlling for life satisfaction in other domains).

Gratitude has been most commonly examined in association with satisfaction in social relationships, and the results from these studies suggest that gratitude is positively associated with satisfaction across several types of social relationships. For example, Froh et al. (2009) found a correlation between gratitude and family support, friend support, and life satisfaction in a college population. The authors also found that individuals who reported higher levels of gratitude had more relationship fulfillment and fewer physical symptoms,

such as headaches, stomach aches, or nausea than those with lower levels of gratitude. Another study found that participants who expressed gratitude to a friend during an exercise were more likely to feel comfortable in voicing relationship concerns and to report increased positive perceptions of a close friend 3 weeks later, compared to participants who engaged in an unrelated positive interaction (Lambert and Fincham 2011).

Other studies have documented a positive association between gratitude and marital adjustment and satisfaction (Algoe and Way 2014; Gordon et al. 2012). For example, Gordon et al. (2012) found that individuals who felt appreciated were more grateful to their partners and more responsive to their partner's needs compared to individuals who did not feel appreciated. Individuals who were more grateful and appreciative of their partners were also more likely to stay in the relationship 9 months later. In addition, people who reported being highly appreciative of their partners were rated by outside observers as more responsive and committed. The association between gratitude and relationship satisfaction may even have a heritable component. One study found that variations in a gene that has been associated with oxytocin levels (a social or bonding hormone) were also associated with quality and frequency of expressions of gratitude and global romantic relationship satisfaction (Algoe and Way 2014). Overall, gratitude appears to have a strong association with relationship adjustment and satisfaction, especially with respect to romantic relationships.

Relative to the research on gratitude and relationship satisfaction, which has shown a robust link, there has been little research on the association between gratitude and life satisfaction in other domains, such as satisfaction with health, work, and finances. In addition, past studies have not examined the specificity of associations between gratitude and different domains of life satisfaction. Specificity analyses could build on past studies and reveal something about the nature of gratitude. For example, are people who are more grateful also generally more satisfied with their lives or is this particularly true of only some domains, such as satisfaction with their relationships? The current study aimed to build on the results from past studies that found associations between gratitude and specific domains of life satisfaction by (a) replicating the results regarding relationship satisfaction; (b) expanding the domains of life satisfaction to include satisfaction with health and work; and (c) examining the specificity of any observed associations between gratitude and specific domains of life satisfaction.

1.3 Cross-Cultural Research on the Association Between Gratitude and Life Satisfaction

Whereas much of the research on gratitude and life satisfaction has been conducted in individualist cultures such as the United States, only a few studies have examined gratitude and life satisfaction in collectivist cultures (Chen and Li 2007; Chen et al. 2014; Sun et al. 2014). Specifically, gratitude has been found to be associated with sports team cohesion and life satisfaction in Taiwan (Chen et al. 2014) and social support, school well-being, and marital satisfaction in China (Chen and Li 2007; Sun et al. 2014). However, other domains of life satisfaction have not been included in past studies examining the association between gratitude and life satisfaction domains in collectivist cultures. In addition, we are not aware of any studies that have examined whether the strength of the associations between gratitude and domains of life satisfaction vary across cultures.

Cross-cultural differences in the benefits of gratitude is an important topic to study because of cultural differences that exist between collectivist and individualist countries, especially when it comes to the importance of social relationships. The current study used

samples from the United States and Japan because these are economically similar but culturally different countries. In collectivist cultures, like Japan, pride is generally discouraged and success is measured by one's ability to give and receive assistance and ultimately to promote social harmony, whereas in individualist cultures, like the United States, autonomy and independence are generally valued along with personal achievement (Kitayama et al. 2000). One study comparing children in the United States and Japan found that children in Japan had a significantly greater propensity to experience guilt and children in the United States showed a greater propensity to experience pride (Furukawa et al. 2012). These past findings suggest that reported mean levels of gratitude and the associations between gratitude and specific domains of life satisfaction may differ in Japan and the United States, although how they may differ is an open question.

1.4 Alternative Explanations for the Association Between Gratitude and Life Satisfaction

In addition to evaluating cultural differences in the association between gratitude and specific domains of life satisfaction, another aim of this study was to rule out potential confounds of this association. Prior studies have found associations between demographic variables (such as age, gender, and education) and life satisfaction and gratitude (Calasanti 1996; Gordon et al. 2011; Kashdan et al. 2009; Meeks and Murrell 2015). For example, studies that are consistent with Socioemotional Selectivity Theory find that relative to young and middle aged adults, older adults report higher levels of life satisfaction and gratitude (Carstensen et al. 2003) and lower levels of regret (Bjälkebring et al. 2013). Therefore, it is important to account for the possible confounding associations between demographic variables and gratitude and life satisfaction. In addition, past studies have found that some personality traits, particularly neuroticism and extraversion, are associated with life satisfaction (Heller et al. 2004), subjective well-being, (Costa and McCrae 1980; Diener et al. 1985) and trait gratitude (McCullough et al. 2002; Wood et al. 2008b). As a result, neuroticism and extraversion are potential alternative explanations for any associations found between gratitude and domains of life satisfaction. Some past studies examining the correlates of gratitude have adjusted for neuroticism and extraversion for this reason (Hill and Allemand 2011; Wood et al. 2008a). Similarly, we evaluated whether the associations between gratitude and domains of life satisfaction were incremental to any shared association with these personality traits.

1.5 The Current Study

We hypothesized that three domains of life satisfaction—health, work, and relationships—and overall life satisfaction would all be associated with gratitude in middle-aged and older adults from the United States and Japan, and that these associations would remain statistically significant when adjusting for demographics (age, gender, and education) and personality characteristics (neuroticism and extraversion). We made this prediction because most domains of life satisfaction that have been examined in prior research—such as family support, friend support, and romantic relationship satisfaction, in addition to overall life satisfaction, school well-being, and sport team cohesion—have been associated with gratitude. Given these past findings, we hypothesized that a similar pattern would exist for the associations between gratitude and satisfaction with health and work, which have been previously unexplored. We also hypothesized that each domain of life satisfaction would be incrementally associated with gratitude given that each domain is at least

partially unique and would likely capture a distinct part of the variance in the association between gratitude and overall life satisfaction. In addition, we hypothesized that there would be differences between the United States and Japan in the mean levels of gratitude and domains of life satisfaction and in the magnitude of the associations between these variables. Specifically, because the concept of gratitude is more consistent with social cohesion than individual achievement, we predicted that relative to people in the United States, people in Japan would report higher levels of gratitude. Furthermore, we conducted exploratory analyses evaluating the relative strengths in associations between gratitude and domains of life satisfaction in the United States and Japan, although we did not make any specific predictions as a result of the limited literature examining the associations among these variables across cultures.

2 Method

2.1 Participants

Participants were drawn from samples of middle aged and older adults from the United States and Tokyo, Japan. The American sample consisted of married respondents from the Biomarker Project of the Midlife Development in the United States (MIDUS; Ryff et al. 2013) which was collected during the follow-up (MIDUS II) that took place from 2004 to 2006. The participants were recruited during the first stage of the project (MIDUS) using random-digit-dialing with oversampling from five cities (Boston, Atlanta, Chicago, Phoenix, and San Francisco) and an additional oversampling from Milwaukee for the follow-up. The sample included in this analysis consisted of the 371 married individuals with children who completed all of the life satisfaction items. The Japanese sample was drawn from the Midlife Development in Japan (MIDJA; Ryff et al. 2011) study. A probability sample of Japanese-speaking adults from the Tokyo metropolitan area were selected for the study and data were collected in 2008. The Japanese sample included 574

Table 1 Demographic characteristics of sample participants from the United States and Japan

| Demographic variable | United States (<i>n</i> = 371) | Japan (<i>n</i> = 574) |
|---------------------------------------|---------------------------------|-------------------------|
| Gender | | |
| Men | 203 | 295 |
| Women | 168 | 279 |
| Age (years) | | |
| Mean | 56 | 56 |
| Standard deviation | 11.37 | 13.18 |
| Range | 34–83 | 30–79 |
| Education | | |
| Less than high school diploma (%) | 3 | 13 |
| High school diploma or GED (%) | 21 | 29 |
| Some college or associates degree (%) | 28 | 24 |
| Bachelors degree or higher (%) | 48 | 34 |

married respondents with children who completed all of the life satisfaction items. See Table 1 for demographic information from both samples.

2.2 Measures

Gratitude was assessed using two items taken from a longer measure used in McCullough et al. (2002). Both items were answered on a 7-point scale, where 1 = *strongly disagree* and 7 = *strongly agree*. The first item asked about being thankful for what one has in life and the second item asked about being grateful to a variety of people. The two items were correlated in participants from the United States, $r = .53$, $p < .001$, and Japan, $r = .86$, $p < .001$.

Life Satisfaction across domains was assessed using items from the life satisfaction scale taken from Prenda and Lachman (2001). The items assessed satisfaction across the domains of work, finances, health, relationship with child(ren), and relationship with spouse/partner, as well as overall satisfaction with life. Each was measured using a single item that was rated on an 11-point scale, where 0 = *worst possible* and 10 = *the best possible*. Similar single item measures have been used to assess life-satisfaction (Campbell et al. 1976) and subjective-well being (Diener 1984; Sandvik et al. 1993) and have high correlations with multi-item measures of life satisfaction and good test–retest reliability up to 8 months later. Specifically, a study estimating the reliability of single-item life satisfaction measures in four large probability samples, which took into account occasion-specific changes in the measures over time, found that reliabilities varied from .68 to .74, with a mean of .72 (Lucas and Donnellan 2012). With respect to validity, ratings of life satisfaction were positively and significantly (all $ps < .001$) associated with the Satisfaction with Life Scale (Diener et al. 1985) in the current samples, with correlations ranging from .29 to .41 for individual domains and a correlation of .53 for life overall in the MIDUS II sample and correlations ranging from .24 to .42 for individual domains and a correlation of .62 for life overall in the MIDJA sample.

Neuroticism was assessed using a four item measure. Participants were asked how much “moody”, “worrying”, “nervous”, and “calm” described them on a four point scale from 1 = *a lot* to 4 = *not at all*. These items were developed using existing personality trait lists and inventories, and adjectives that were used the most consistently in the literature and had the highest factor loadings were selected (Lachman and Weaver 1997). This measure had been found to have good construct validity (Mroczek and Kolarz 1998) and significantly correlates with the neuroticism scale from the NEO Personality Inventory Short Form (NEO-PI-SF) (see <http://www.brandeis.edu/departments/psych/lachman/pdfs/revised-midi-scales.pdf>), which is a frequently used measure of the Five Factor Model of personality. The *calm* item was weakly associated with the other three items in the MIDJA sample and so it was not included in this study. An average of the three remaining items was calculated, with higher scores indicated higher neuroticism. Cronbach’s alpha for the 3-item measure was .74 for the United States and .68 for the Japanese sample.

Extraversion was assessed using a five item measure. Participants were asked how much “outgoing”, “friendly”, “lively”, “active”, and “talkative” described them on a four point scale from 1 = *a lot* to 4 = *not at all*. All items were reverse coded and then averaged so that higher scores indicated higher standing on the scale. Similar to neuroticism, the scale was developed using existing personality trait lists and inventories (Lachman and Weaver 1997) and it significantly correlates with the extraversion scale from the NEO-PI-SF (see <http://www.brandeis.edu/departments/psych/lachman/pdfs/revised-midi-scales.pdf>).

The five items showed high internal consistency in the MIDUS II ($\alpha = .76$) and MIDJA ($\alpha = .84$) samples.

Education was measured using a single item assessing participants' highest educational attainment. Participants' educational attainment was dummy coded using 4 categories: *less than GED or high school degree*; *high school degree*; *some college*; *bachelor's degree or a professional/advanced degree*. Bachelor's degree or professional/advanced degree was set as the reference group.

2.3 Analyses

To rule out the possibility of including redundant subcomponents in the model, a principle component analysis was performed on the six measures of satisfaction [relationship with child(ren), relationship with spouse/partner, work, finances, health, and life overall] on each of three samples: United States, Japan, and the two samples combined. Promax rotation was used in these analyses because we expected the measures to correlate with one another.

To examine whether there were mean differences between countries in gratitude and life satisfaction, we computed independent samples *t* tests. Next, generalized linear models (GLM) were used to test for bivariate and multivariate associations between gratitude and different measures of life satisfaction. To test whether the associations between gratitude and measures of life satisfaction were incremental to any shared associations with demographic variables and personality traits, these models were run a second time, statistically adjusting for demographics (age, gender, education, and country), neuroticism, and extraversion. To test for differences between Japan and the United States in the strength of the association between gratitude and the measures of life satisfaction, Satisfaction \times Country interaction terms were added to the models; satisfaction scores were mean deviated (i.e., centered) prior to creating the interaction terms.

Finally, because the two items from the gratitude scale assess different targets of gratitude, specifically "I have so much in life to be thankful for" (thankful for) and "I am grateful to a wide variety of people" (grateful to), we tested whether these items showed different patterns of association with the different measures of life satisfaction. Specifically, we examined whether the "grateful to" item would more strongly correlate with relationship satisfaction and "thankful for" would correlate with all areas of satisfaction. Because some of the analyses conducted in this study were exploratory, a more conservative alpha of .01 was used for all analyses to reduce the likelihood of spurious results.

3 Results

Results from the principal components analyses were similar in the United States, Japan, and the two samples combined (see Fig. 1 for the results from the combined sample analysis). Satisfaction with relationship with child(ren) and relationship with spouse/partner mapped onto the first component and satisfaction with work and finances mapped onto the second component. Satisfaction with one's health and life overall did not map onto either component strongly. Based on these findings, a composite measure was created for relationships by calculating a mean score of satisfaction with relationship with child(ren) and spouse/partner. A second composite measure for work was created by

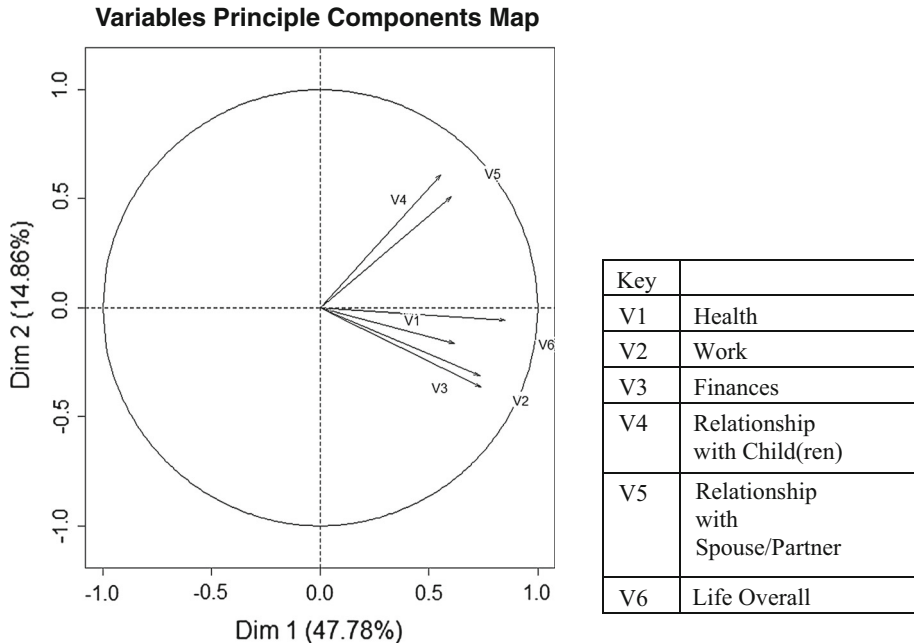


Fig. 1 Principal components analysis of the 6 areas of satisfaction

calculating a mean score of satisfaction with work and finances. Satisfaction with health and life overall were kept as separate measures.

There were significant differences between the United States and Japan on mean levels of gratitude and satisfaction across the domains of life satisfaction and in overall life satisfaction: compared to participants from Japan, participants from the United States reported higher mean levels of gratitude and satisfaction. Means, standard deviations, results from the *t* tests, and effect sizes [Cohen's (1988) *d*] can be found in Table 2. According to Cohen's conventions for interpreting effect sizes, differences in means between the United States and Japan on gratitude, relationship satisfaction, work

Table 2 Descriptive information for gratitude and life satisfaction variables

| Measure | United States | | Japan | | <i>t</i> | <i>d</i> |
|--|---------------|-----------|-------|-----------|----------|----------|
| | Mean | <i>SD</i> | Mean | <i>SD</i> | | |
| Gratitude | 6.31 | 0.74 | 5.59 | 1.09 | 11.38** | .74 |
| Relationship satisfaction ^a | 8.36 | 1.44 | 7.46 | 1.56 | 8.88** | .58 |
| Work satisfaction ^b | 7.23 | 1.74 | 5.78 | 1.96 | 11.58** | .75 |
| Health satisfaction | 7.53 | 1.51 | 6.40 | 1.88 | 9.75** | .64 |
| Life satisfaction | 8.05 | 1.41 | 6.58 | 1.86 | 13.00** | .85 |

* $p < .01$; ** $p < .001$

^a Average score of satisfaction with child(ren) and spouse/partner. ^b Average score of satisfaction with work and finances

satisfaction, and health satisfaction demonstrated medium effect sizes (i.e., $d > .50$), whereas differences in means for overall life satisfaction demonstrated a large effect (i.e., $d > .80$).

Results from the separate GLMs conducted to test the bivariate associations between gratitude and each measure of life satisfaction indicated that gratitude was significantly and positively associated with satisfaction with relationships, work, health, and life overall (see Table 3). In addition, the associations between gratitude and each measure of life satisfaction, except for health satisfaction, remained statistically significant when adjusting for demographics (age, gender, education attainment, country), neuroticism, and extraversion; these results are available upon request from the first author.

To test whether gratitude was uniquely associated with the domains of life satisfaction (relationships, work, health) and overall life satisfaction, the measures of life satisfaction were entered simultaneously in a single GLM predicting gratitude. Results from this multivariate analysis can be found in Table 3. Results showed that gratitude was uniquely associated with relationship satisfaction and overall life satisfaction: higher levels of gratitude were associated with higher levels of relationship satisfaction and overall life satisfaction (Model 1). These associations remained statistically significant when adjusting for demographics, neuroticism, and extraversion (Model 2). In addition, bivariate analyses between the covariates and gratitude showed that women and individuals who lived in the United States and were more extraverted reported being more grateful and individuals with less than a high school degree reported being less grateful (see Table 3).

Table 3 Multivariate associations between gratitude and measures of life satisfaction

| Variable | r^a | Model 1 | | | Model 2 | | |
|------------------------------------|--------|---------|------|--------|---------|------|--------|
| | | B | SE | pr^b | B | SE | pr^b |
| Relationships ^c | .35** | .11** | .02 | .16 | .08** | .02 | .12 |
| Work ^d | .29** | -.01 | .02 | .01 | -.04 | .02 | .06 |
| Health | .20** | -.01 | .02 | .02 | -.04 | .02 | .06 |
| Life overall | .45** | .22** | .02 | .29 | .16** | .02 | .22 |
| Gender (women) | .16** | | | | .33** | .06 | .18 |
| Age | .00 | | | | .00 | .00 | .00 |
| Less than high school ^e | -.14** | | | | -.22 | .11 | .06 |
| High school degree ^e | -.04 | | | | -.17 | .08 | .08 |
| Some college ^e | .04 | | | | -.11 | .07 | .05 |
| Country (United States) | .35** | | | | .17** | .03 | .16 |
| Neuroticism | -.07 | | | | -.08 | .04 | .06 |
| Extraversion | .38** | | | | .28** | .04 | .20 |

* $p < .01$; ** $p < .001$

^a Bivariate associations between the variable and gratitude. ^b Partial correlations between the variable and gratitude, adjusting for all other variables in the model. ^c Average score of satisfaction with child(ren) and spouse/partner. ^d Average score of satisfaction with work and finances. ^e Variables were dummy coded with Bachelor's degree or professional/advanced degree set as the reference group. Model 1 includes only the four measures of life satisfaction. Model 2 includes the four measures of life satisfaction and all the covariates listed in the table. For Model 1, $F(4, 940) = 68.29$, $R^2 = 0.23$. For Model 2, $F(12, 932) = 35$, $R^2 = 0.31$

When the Satisfaction \times Country interaction terms were added to the models to test for differences in the associations between gratitude and the measures of life satisfaction between the two countries, none of the interaction terms were statistically significant (all $p > .05$). This suggests that the associations between different measures of life satisfaction and gratitude were of similar magnitude in the American and Japanese samples.

Finally, results for the separate analyses for the two individual gratitude items (“thankful for” and “grateful to”) were nearly identical to those presented for the composite measure of gratitude; these results are available upon request from the first author. Only one difference emerged, which was that “grateful to” was not significantly associated with work satisfaction when controlling for demographics and personality traits.

4 Discussion

We hypothesized that gratitude would be associated with three domains of life satisfaction (work, health, relationships) and overall life satisfaction in people from the United States and Japan. Consistent with our hypotheses, the bivariate associations between gratitude and the four measures of life satisfaction were all statistically significant, such that people who reported higher levels of gratitude also reported higher levels of satisfaction in each domain. These findings build on prior research by demonstrating that gratitude is associated with domains of life satisfaction other than relationship satisfaction, including work and health satisfaction, which have not been previously examined. Three of the four associations (relationships, work, and life overall) also remained statistically significant even when adjusting for demographics, neuroticism, and extraversion.

In contrast, gratitude was not incrementally associated with each of the measures of life satisfaction as hypothesized. Instead, gratitude was uniquely associated only with relationship satisfaction and overall life satisfaction. The unique associations between gratitude and relationship satisfaction and overall life satisfaction remained statistically significant when additionally controlling for demographics, neuroticism, and extraversion. These results show an interesting specificity pattern that has not been directly tested in past studies. The pattern of results from the current study suggests that the experience of gratitude may be more closely related to satisfaction with relationships and life overall compared to satisfaction with health and work. Prior studies have found a robust association between gratitude and life satisfaction or well-being in a range of populations and cultures (Chan 2011; Emmons and McCullough 2003; Hill and Allemand 2011; Toussaint and Friedman 2009). Other studies have found associations between gratitude and social relationships (Algoe and Way 2014; Froh et al. 2009; Gordon et al. 2012). One study found that trait gratitude levels correlated with satisfaction with one’s relationship with family and friends in a college population (Froh et al. 2009), and several past studies have also found an association between gratitude and romantic relationship satisfaction, responsiveness to partner’s needs, and commitment to the relationship (Algoe and Way 2014; Gordon et al. 2012). The current study extends previous research by demonstrating that the associations between gratitude and satisfaction with relationships and life overall are incremental to (a) satisfaction in other domains; and (b) demographic variables, neuroticism, and extraversion.

The findings from the current study suggest that there may be a particularly important association between gratitude, social relationships, and overall life satisfaction that is not found in other domains of satisfaction, as gratitude was not uniquely associated with

satisfaction with work and health. Past studies have proposed a variety of ways that gratitude is related to satisfaction with social relationships and life overall that might help understand the current study's results (Algoe et al. 2008, 2013; Gino and Schweitzer 2008). For example, gratitude may facilitate relationship formation and maintenance. In a study examining sorority gift giving, gratitude expressed for gifts predicted future positive relationship outcomes between the sorority sisters (Algoe et al. 2008). Expressing gratitude seems to have an especially powerful impact on romantic relationship quality (Algoe et al. 2013). In this study, a person was asked to express gratitude to their partner for something he or she had done. The responsiveness of the partner receiving the expression of gratitude predicted relationship satisfaction 6 months later. The better the expression of gratitude was received by the partner, the higher relationship satisfaction was at the follow-up. Another study found that feeling grateful increases one's ability to trust and be receptive to advice (Gino and Schweitzer 2008).

Other studies have proposed that how people function in their social relationships and aspects of social support may mediate the association between gratitude and overall life satisfaction (Chen et al. 2014; Kong et al. 2014; Lin and Yeh 2014). Specifically, being grateful has been found to increase use of active coping styles and social support, which leads to increased overall well-being in the United States (Lin and Yeh 2014) and China (Kong et al. 2014). In these studies, gratitude levels fully mediated the association between social support and life satisfaction. In addition, higher levels of gratitude predicted higher levels of self-esteem and life satisfaction. Gratitude has also been found to be associated with higher quality social relationships and social support, which in turn is associated with higher levels of school well-being (Sun et al. 2014). The association between gratitude and life satisfaction has been found to be partly mediated by athletic team cohesion in a sample of adolescent athletes in Taiwan (Chen et al. 2014). The authors suggested that being grateful leads to better relationships among team members and subsequently higher levels of life satisfaction for the athletes. Consistent with the results from the current study, past research suggests that being grateful is positively associated with relationship quality and social support, which may influence life satisfaction and increase well-being.

Results from the current study showed that work satisfaction, which is a combination of satisfaction with work and finances, and health satisfaction were not incrementally associated with gratitude after adjusting for satisfaction with relationships and life overall. Given that the definition of gratitude refers to positive events that are not necessarily deserved or earned but due to the actions of another person or force, it may be that gratitude is not as strongly associated with how individuals think about their satisfaction with their work compared to their satisfaction with their relationships or life overall. Specifically, people may be more likely to believe they have earned their work and financial success through their own efforts and not because of the actions of others. A similar conceptualization may apply to health. People may not believe their good or bad health is a result of the actions of others in the same way that they think about their satisfaction with their relationships and life overall. Results remained nearly identical when the two gratitude items were analyzed separately, suggesting that these results are not an artifact of measuring only the social aspect of gratitude, being grateful to other people compared to being thankful in general.

In addition to testing the associations between gratitude and domains of life satisfaction, we also hypothesized that given the cultural differences between the United States and Japan, there would be significantly different patterns in the results between the countries. Specifically, we hypothesized that relative to the United States, mean levels of gratitude would be significantly higher in adults from Japan, given that collectivist cultures tend to

value social cohesion over pride and individual achievement. In addition, we conducted exploratory analyses to test for differences in the strength of the associations between gratitude and life satisfaction in Japan and the United States. Mean scores of gratitude and all four measures of satisfaction did differ between countries, but the means were all higher in the United States, which is opposite of what we had predicted. Diener et al. (1995) found that in Pacific Rim countries such as Japan, it is culturally desirable to suppress both positive and negative emotions so this may result in lower ratings on positive constructs such as gratitude and the domains of satisfaction. Results from the study further showed that the associations between gratitude and domains of life satisfaction and overall life satisfaction did not differ by country but rather showed a similar pattern of association in the United States and Japan. This is an interesting finding given the different cultural beliefs about a variety of similar emotions such as pride and guilt (Furukawa et al. 2012).

In reviewing the results of this study, several strengths and limitations should be taken into consideration. Strengths include the use of samples from both the United States and Japan and the focus on domains of life satisfaction that have not been studied, to our knowledge, in past studies. One limitation of the study is that most of the measures used were brief versions of longer measures. As a result, all of the satisfaction variables were measured using single items and gratitude was a composite of two items. The small number of items is likely to provide a less reliable measure of the constructs relative to longer, multi-item measures. Although single item relationship satisfaction measures have been found to correlate highly with longer measures (Sharpley 1982) and single item measures of life satisfaction have been found to be highly stable and reliable across time (Schimmack and Oishi 2005), the use of longer, multi-item measures of gratitude and domains of life satisfaction would provide a stronger test of the association between these constructs.

Another limitation of the study has to do with the study participants. In order to examine life satisfaction across multiple domains, the sample used in the current study only included participants who were married with children. Even though this limits the generalizability of the results, the current study focuses on satisfaction across multiple relationship domains that would not have been possible had we included people who were not married or did not have children. Future studies should aim to build on the results of this study and assess associations between gratitude and different areas of life satisfaction across a broader range of social relationships, which would allow for the use of a more heterogeneous sample. In addition, the current study is based on samples from a variety of locations in the United States but only one city (Tokyo) in Japan. Even though the two samples had very similar demographic characteristics and showed similar patterns of results, future studies should aim to use samples that are better matched on demographic characteristics such as urbanicity.

Another limitation of the study is that the results are based on data from one time point, so it is impossible to make any conclusions about causality. Future studies should investigate the associations among gratitude and domains of life satisfaction using a longitudinal design. It would then be possible to test if higher levels of gratitude are associated with increases in life satisfaction in specific domains over time or whether higher levels of life satisfaction are associated with increases in gratitude over time.

The findings that gratitude is significantly and positively associated with several domains of life satisfaction and overall life satisfaction in both the United States and Japan support continued investigation on the potential benefits of gratitude interventions across cultures, although caution may be needed particularly when conducting interventions in collectivist cultures. Several studies have proposed that individuals in collectivist cultures

may experience a mix of gratitude and indebtedness in response to acts of kindness and generosity of others (Furukawa et al. 2012; Kim et al. 2006). In general, individuals in Japan and South Korea are more prone to experience self-conscious emotions such as shame and guilt than are individuals in the United States (Furukawa et al. 2012). In addition, Asian Americans are less likely to want or to seek out social support in response to stressors because it may cause others to view them as a burden and may negatively affect social networks (Kim et al. 2006). Therefore, expressing gratitude may cultivate feelings of indebtedness by reminding the expresser of what he or she may owe the other individual and that he or she may be perceived as a burden. One study had participants from the United States and South Korea either express gratitude, perform kind acts, or engage in a neutral activity (Layous et al. 2013). Participants from the United States reported increases in well-being after expressing gratitude and performing kind acts, whereas participants from South Korea only reported significant increases in well-being after performing kind acts. This study and others suggest that interventions that increase trait level gratitude versus encouraging the expression of gratitude may result in greater increases in well-being. Being generally grateful for what one has in life may be more consistent with collectivist values such as social cohesion and being humble and may not increase feeling of indebtedness. Interventions that aim to increase expressions of gratitude through kind actions versus verbal or written expressions of gratitude may be more effective across cultures as well.

This is the first study known to us to examine the specificity of associations between gratitude and domains of life satisfaction in samples of adults from Japan and the United States. Future research should continue to investigate cultural differences in the cross-sectional and longitudinal associations between gratitude and domains of life satisfaction and how interventions can be used effectively across cultures to increase gratitude, which may in turn result in increases in life satisfaction across different domains.

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