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Gratitude and subjective well-being in early adolescence: Examining gender differences

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Abstract

Gratitude was examined among 154 students to identify benefits from its experience and expression. Students completed measures of subjective well-being, social support, prosocial behavior, and physical symptoms. Positive associations were found between gratitude and positive affect, global and domain specific life satisfaction, optimism, social support, and prosocial behavior; most relations remained even after controlling for positive affect. Gratitude demonstrated a negative relation with physical symptoms, but not with negative affect. Relational fulfillment mediated the relation between gratitude and physical symptoms. Gratitude demonstrated strong relations with the following positive affects: proud, hopeful, inspired, forgiving, and excited. The relation between gratitude and family support was moderated by gender, indicating that boys, compared with girls, appear to derive more social benefits from gratitude. Strengths, limitations, and implications are discussed.

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The goodness of the fairy tale was not affected by the fact that there might be more dragons than princesses; it was good to be in a fairy tale. The test of all happiness is gratitude.

G.K. Chesterton

If the only prayer you ever say in your entire life is “Thank you,” it will be enough.

Meister Eckhardt

Psychologists have recently emphasized the need for promoting adolescent well-being, beyond the existing focus on symptom reduction. Mitigating pathology is important, but its absence is different from mental health (Keyes, 2007). The traditional approach—identifying and fixing weaknesses—may be limited in fostering the “good life” (Sheldon & King, 2001). Therefore, psychologists should consider complementing existing practices by identifying and augmenting strengths, like gratitude.

There are two useful theories in studying gratitude. The first is Fredrickson’s (1998, 2001) broaden-and-build theory of positive emotions. Negative emotions narrow our focus and restrict our behavioral range. Positive emotions, however, yield nonspecific action tendencies beyond physical action. The theory asserts that positive emotions generate broad thought-action repertoires that ultimately build durable physical, intellectual, and social resources. A meta-analysis by Lyubomirsky, King, and Diener (2005), aggregating over 300 studies, suggests that success engenders positive emotions—but also that positive emotions engender success. Indeed, happy people tend to live longer, make more money, and enjoy enduring loving relationships. One reason positive emotions (e.g., happiness) might cause success could be because of the durable resources—physical, intellectual, and social—built over time. These resources can then be tapped into during times of adversity, as well as in times of growth.

The second theory describes gratitude as a moral emotion with three essential functions (McCullough, Kilpatrick, Emmons, & Larson, 2001). As a *moral barometer*, gratitude signals the beneficiary that a benefactor has bestowed a gift upon him. As a *moral motive*, gratitude encourages prosocial behavior in the beneficiary either directly toward the benefactor or others. Finally, as a *moral reinforcer*, gratitude increases the probability that the benefactor will act prosocially toward the beneficiary in the future. According to this conceptualization, by experiencing gratitude, a person is motivated to carry out prosocial behavior, energized to sustain moral behaviors, and inhibited from committing destructive interpersonal behaviors.

The psychological benefits of gratitude

Gratitude stems from the perception that one has experienced a positive outcome intentionally provided by another person or “moral agent,” often but not necessarily a person (Emmons & McCullough, 2003). The object of gratitude is other-directed to persons, or to impersonal (nature) or non-human sources (God, fate, the cosmos). Gratitude may be defined as “a sense of thankfulness and joy in response to receiving a gift, whether the gift be a tangible benefit from a specific other or a moment of peaceful bliss evoked by natural beauty” (Emmons, 2004, p. 554). As an emotion, grateful states result from recognizing that (a) one has obtained a positive outcome; and (b) there is an external source for this positive outcome. Recognizing that the benefactor has expended effort to give them a gift further amplifies grateful feelings; for this reason, gratitude is considered an empathic emotion (Lazarus & Lazarus, 1994). Because children develop

a theory of mind at 3–4 years of age, they are able to understand that human behavior is intentional and feel empathy (Leslie, 1987). Therefore, children seem capable of experiencing gratitude and its function as a moral emotion (e.g., prosocial behavior).

Recent experimental research has demonstrated that gratitude causes prosocial behavior, demonstrating its function as a moral motive (McCullough et al., 2001). Gratitude often causes direct reciprocity, leading individuals to respond prosocially to a benefactor (Bartlett & DeSteno, 2006; Tsang, 2006, 2007); and it can cause upstream reciprocity, leading them to act prosocially toward others (Bartlett & DeSteno, 2006). Grateful individuals may act prosocially as a way of expressing their gratitude; however, over time these actions can enhance social relationships (Emmons & Shelton, 2002; Harpham, 2004; Komter, 2004). Indeed, gratitude helps build trust in social relationships (Dunn & Schweitzer, 2005). Thus, gratitude may maintain and build resources of social support (Fredrickson, 2004).

Fredrickson's (1998, 2001) broaden-and-build theory of positive emotions suggests that gratitude may also help individuals build other durable resources for well-being. Specifically, it may nurture creativity, intrinsic motivation, purposefulness (Froh & Bono, in press), and spark an upward spiral of positive emotions and outcomes. This may explain why grateful people tend to be higher in vitality, optimism, religiousness, spirituality, (McCullough, Emmons, & Tsang, 2002), well-being (Emmons & Shelton, 2002; Watkins, Van Gelder, & Frias, in press) and relationship quality (Algoe, 2006) and lower in negative affect (McCullough et al., 2002; Watkins, Woodward, Stone, & Kolts, 2003) and physical symptoms (Emmons & McCullough, 2003). The broaden-and-build theory might also help explain why gratitude would be positively linked to hope and forgiveness. When grateful, our mindset is broadened to include the role others play in aiding our welfare, increasing hope and optimism for a benevolent world with other people helping rather than hindering our personal strivings. Furthermore, beyond both gratitude and forgiveness being interpersonal emotions (McCullough & Witvliet, 2002), the common focus on goodwill might make these emotions strongly related; gratitude is experienced when you receive others' goodwill toward you whereas forgiveness is experienced when you give goodwill to others.¹

The present study aims to investigate relations between gratitude and subjective well-being, social support, prosocial behavior, and physical symptoms in early adolescence. Because positive outcomes have been examined in one known study of gratitude in adolescence (Froh, Sefick, & Emmons, 2008), we also sought to define gratitude within the context of other positive emotions. Prior studies of the structure of positive affect in children failed to include moral emotions such as gratitude (e.g., Laurent et al., 1999). We were interested in which discrete positive affects converge with gratitude. In the absence of prior factor analytic studies of the structure of gratitude and other positive affects in children, we consider this secondary focus to be exploratory.

Gratitude in children and adolescents

Several studies aside (e.g., Baumgarten-Tramer, 1938; Becker & Smenner, 1986; Gleason & Weintraub, 1976; Harris, Olthof, Terwogt, & Hardman, 1987; Russell & Paris, 1994), youth

¹ We are grateful to an anonymous reviewer for these insightful relationships between gratitude, hope, and forgiveness.

gratitude research is scant (see Bono & Froh, in press; Froh & Bono, in press, for reviews). Froh et al. (2008) made the first attempt at exploring the relation between gratitude and subjective well-being in early adolescents. In a daily gratitude journal-keeping exercise (i.e., counting blessings), students in the gratitude condition reported significantly more gratitude compared with those focused on irritants (i.e., the hassles group) and significantly greater satisfaction with their school experience compared with both the hassles and no-treatment control groups. Moreover, students in the gratitude condition reported significantly greater optimism for their upcoming week in relation to the hassles condition. Correlations computed across conditions indicated that feeling grateful toward receiving aid was significantly related ($p < 0.01$) with positive well-being. Counting blessings seems to be a promising intervention for adolescent well-being.

Gordon, Musher-Eizenman, Holub, and Dalrymple (2004) examined the content of school-aged children's responses to a countrywide essay assignment in which they were instructed to describe the objects of their gratitude. The most common themes were family, basic needs, friends, and teachers/schools. Gender differences were found, with girls tending to express more gratitude for interpersonal relationships and boys tending to express more gratitude for material objects. Older children included more themes than younger children, and they tended to show less appreciation for material objects in relation to their younger counterparts. Therefore, although evidence suggests a differential relation between gender and gratitude themes, gender differences in the experience and expression of gratitude in youth remains mysterious.

Gender differences in gratitude

While related to positive psychological outcomes, gratitude may be an emotion whose expression and experience men may seek to avoid because of its association with negative emotions and cognitions (Naito, Wangwan, & Tani, 2005; Solomon, 1995; Sommers & Kosmitzki, 1988). Men typically express emotions associated with power and status (Brody, 1997, 1999). Therefore, because gratitude, indebtedness, and dependency are associated with each other in some ways (Solomon, 1995) but not all (Watkins, Scheer, Ovnicek, & Kolts, 2006) men may view the experience and expression of gratitude as verification of weakness, which may threaten their masculinity and hurt their social status (Levant & Kopecky, 1995). Consequently, to protect themselves from any associated negative emotions or social consequences, men might avoid experiencing and expressing gratitude.

Women, compared with men, seem more likely to experience and express gratitude (Becker & Smenner, 1986; Gordon et al., 2004; Ventimiglia, 1982) and derive more benefit from it (Kashdan, Mishra, Breen, & Froh, in press). Indeed, across three studies with various methodologies, Kashdan et al. (in press) found support for this model. Women, compared with men, evaluated the expression of gratitude to be less novel, complex, uncertain, and conflicting, and more interesting and exciting (Study 1). When asked to describe a recent episode when they were the beneficiary, women, compared with men, reported less burden and obligation, and greater gratitude (Study 2). Finally, over the course of 3 months, women with greater gratitude, but not men, were more likely to satisfy the psychological needs of belongingness and autonomy. Furthermore, the willingness to openly express emotions, which was greater in women, mediated these gender differences (Study 3). Taken together, women might be at an advantage compared with men to

experience and derive benefit from gratitude. The current study is a novel attempt at investigating adolescent gender differences in gratitude.

The present study

We investigated the interplay among gratitude and subjective well-being, social relationships, prosocial behavior, physical symptoms, and gender in early adolescence. We expected gratitude to be positively related to positive affect and life satisfaction. With gratitude being an attribution-dependent emotion (McCullough & Tsang, 2004; Weiner, 1985) and life satisfaction the cognitive component of subjective well-being (Diener, Suh, Lucas, & Smith, 1999), we hypothesized that gratitude compared with positive affect would demonstrate a stronger relation with life satisfaction. We also predicted that negative affect and physical symptoms would be inversely related to gratitude and gratitude would demonstrate positive relations with subjective well-being, social support, relational satisfaction, and prosocial behavior. To address construct specificity, we examined these same relations controlling for positive affect. We conducted an exploratory analysis of the position of gratitude within the universe of other positive affects. Developmentally, emotions may show less differentiation in early childhood compared to adults. Thus, it seems reasonable to presume that although gratitude is considered a “moral” and “sacred” emotion with links to hope and forgiveness, these arbitrary categories may be less apparent in early childhood and instead, all high energy, positive affects may cohere onto a single, underlying factor. Finally, we predicted that girls, compared with boys, would experience and derive more benefit from gratitude, operationalized as stronger gratitude correlations with indices of well-being and positive social functioning.

Method

Participants

Participants were 154 middle school students (mean age = 12.14 years, $SD = 0.67$, range = 11–13 years). Students were in grades 6 (29.2%) and 7 (70.8%) within an affluent district (district median household income = \$94,339; state median household income = \$43,393). The majority was male (53.9%) and Caucasian (79.9%).

Measures

Gratitude

The Gratitude Adjective Checklist (GAC; McCullough et al., 2002) was used to assess gratitude. It is the sum of three adjectives: grateful, thankful, and appreciative. A Likert scale from 1 (not at all) to 5 (extremely) followed each item. Internal consistency is strong ($\alpha = 0.87$), and convergent and discriminant validity has been established in adolescent samples (Froh, Miller, & Snyder, 2007; Froh et al., 2008). Students were asked to rate the amount they experienced each feeling “since yesterday” ($\alpha = 0.70$).

Positive and negative affect

The following 22 affect adjectives were used: interested, distressed, excited, alert, irritable, ashamed, upset, strong, nervous, guilty, determined, attentive, forgiving, hostile, hopeful, enthusiastic, active, inspired, afraid, jittery, proud, and scared. A Likert scale from 1 (not at all) to 5 (extremely) followed each item. Students were asked to rate the amount they experienced each feeling “since yesterday” ($\alpha = 0.82$ for positive affect and 0.79 for negative affect).

Life satisfaction

Students were asked to consider their satisfaction “during the past few weeks.” We interpreted this as measuring contentment. Students were also asked, “How do you expect to feel about your life next week?” We interpreted this as measuring optimism. Both items used a Likert scale ranging from -3 (expecting the worst) to $+3$ (expecting the best).

Students completed the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS; Seligson, Huebner, & Valois, 2003). The BMSLSS is a five-item scale that assesses satisfaction with family life, friendships, school experience, self, and living environment. Response options are on a seven-point Likert scale ranging from 1 (terrible) to 7 (delighted). Life satisfaction was the sum of the five items ($\alpha = 0.75$); similar to prior studies of middle school and high school students (Huebner, Suldo, & Valois, 2003).

Gratitude in response to aid

Students were asked to “check off how you handled the most serious problem you dealt with over the past few weeks.” The options were accepted sympathy from someone, talked to someone about how you were feeling, and got help or advice from someone. Students who indicated engaging in one or more of these responses were asked, “Please rate how you felt toward the person who helped you using the following feelings.” The affect adjectives provided were: grateful, annoyed, embarrassed, surprised, understood, glad, frustrated, and appreciative. A Likert scale ranging from 1 (not at all) to 5 (extremely) followed all adjectives. The four feelings of grateful, appreciative, understood, and glad were summed ($\alpha = 0.76$).

Physical symptoms

Students were asked to check off “the following things you have experienced over the past 2 weeks.” The symptoms included: headaches, dizziness, stomach ache/pain, shortness of breath, chest pain, runny nose, feeling chilly or really hot, not feeling hungry or not eating, coughing/sore throat, stiff or sore muscles, nausea or felt like you were going to throw up, and other. A check was coded as 1, and no check was coded as 0. Higher numbers indicated more physical symptoms reported ($\alpha = 0.72$).

Prosocial behavior

Students were instructed to answer “Yes” or “No” to the following questions: “Have you helped someone with a problem since yesterday?” and “Have you offered someone emotional support since yesterday?” “Yes” was coded as 1, and “No” was coded as 0 ($\alpha = 0.40$). Because this alpha is unacceptable (George & Mallery, 2003), we examined these items independently.

Social support

Students completed single items high in content validity assessing supportive peer and familial relationships. A Likert scale from 1 (not very supportive) to 5 (very supportive) was used. The two items were: “How supportive is your family?” and “How supportive are your friends?”

Procedure

Students enrolled in mandatory curriculum were sought for participation to increase the odds of obtaining a representative sample. One week prior to data collection, the first author reviewed all measures and instructions with the teachers. Teachers were provided with a script to introduce the study to the students to ensure uniformity and control for potential demand characteristics. Teachers administered questionnaires in classrooms. Data packets were distributed by and collected from each teacher on the same day. Measures were counterbalanced via a Latin square to control for order effects.

Results

Data screening

Because interval data seemed to be missing at random (MAR), we imputed values via expectation maximization (EM) using EQS 6 (see [Appendix](#)). EM produces more precise estimates of imputed scores compared with other methods (e.g., mean imputation) ([Bentler, 2006](#)), especially when data are MAR ([McKnight, McKnight, Sidani, & Figueredo, 2007](#)).

Correlations and factor analysis with all students

The lower diagonal for [Table 1](#) shows zero-order correlations among gratitude, subjective well-being, and physical symptoms. With 12 correlations conducted, a Bonferroni adjustment indicated that alpha needed to be below 0.004 ($0.05/12 = 0.004$) in order to be significant. Gratitude demonstrated a significant relation with familial satisfaction, school satisfaction, life satisfaction, optimism, and positive affect.

To address construct specificity, we reexamined relations between gratitude, subjective well-being, and physical symptoms using partial correlations controlling for trait positive affect. Using a Bonferroni adjustment for 11 correlations, alpha needed to be below 0.005 ($0.05/11 = 0.005$). The relation between gratitude and family satisfaction was significant ($p = 0.002$) and reached traditional significance for school satisfaction ($p = 0.017$), life satisfaction ($p = 0.008$), and optimism ($p = 0.045$). The upper diagonal in [Table 1](#) represents these partial correlations.

Zero-order correlations were conducted between gratitude and prosocial behavior, gratitude in response to aid, family support, and friend support. The Bonferroni adjustment with six variables indicated that alpha needed to be below 0.008 ($0.05/6 = 0.008$). Gratitude was related with being grateful in response to aid. Friend support approached the cutoff ($p = 0.013$), and family support ($p = 0.026$) and providing emotional support ($p = 0.021$) reached traditional significance. Controlling for positive affect, gratitude was only related with gratitude in response to aid. In

Table 1
Intercorrelations, partial correlations, means, and standard deviations among gratitude, subjective well-being, and physical symptoms.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gratitude	—	0.25 ^c	0.12	0.19 ^b	0.04	0.12	0.21 ^b	0.03	0.16 ^b	—	−0.09	−0.12
2. Family LS	0.33 ^c	—	0.42 ^c	0.44 ^c	0.44 ^c	0.30 ^c	0.75 ^c	0.48 ^c	0.37 ^c	—	−0.29 ^c	−0.30 ^c
3. Friends LS	0.23 ^b	0.45 ^c	—	0.40 ^c	0.39 ^c	0.23 ^b	0.70 ^c	0.29 ^c	0.24 ^c	—	−0.22 ^b	−0.13
4. School LS	0.30 ^c	0.47 ^c	0.43 ^c	—	0.32 ^c	0.33 ^c	0.77 ^c	0.30 ^c	0.32 ^c	—	−0.42 ^c	−0.22 ^b
5. Self LS	0.23 ^b	0.48 ^c	0.43 ^c	0.37 ^c	—	0.21 ^b	0.68 ^c	0.39 ^c	0.31 ^c	—	−0.26 ^c	−0.18 ^b
6. Community LS	0.22 ^b	0.33 ^c	0.26 ^c	0.36 ^c	0.26 ^c	—	0.57 ^c	0.32 ^c	0.32 ^c	—	−0.15 ^a	−0.09
7. LS	0.37 ^c	0.76 ^c	0.71 ^c	0.78 ^c	0.71 ^c	0.59 ^c	—	0.51 ^c	0.45 ^c	—	−0.40 ^c	−0.27 ^c
8. Contentment	0.21 ^b	0.51 ^c	0.34 ^c	0.34 ^c	0.45 ^c	0.36 ^c	0.55 ^c	—	0.55 ^c	—	−0.22 ^b	−0.15 ^a
9. Optimism	0.35 ^c	0.42 ^c	0.29 ^c	0.38 ^c	0.39 ^c	0.36 ^c	0.51 ^c	0.59 ^c	—	—	−0.21 ^b	−0.14 ^a
10. Positive Affect	0.67 ^c	0.22 ^b	0.21 ^b	0.24 ^c	0.31 ^c	0.20 ^b	0.33 ^c	0.29 ^c	0.36 ^c	—	—	—
11. Negative Affect	−0.09	−0.29 ^c	−0.22 ^b	−0.41 ^c	−0.26 ^c	−0.15 ^a	−0.39 ^c	−0.22 ^b	−0.21 ^b	−0.03	—	0.23 ^b
12. Physical Symptoms	−0.16 ^b	−0.31 ^c	−0.15 ^a	−0.24 ^c	−0.20 ^b	−0.10	−0.29 ^c	−0.18 ^b	−0.17 ^b	−0.11	0.23 ^b	—
<i>M</i>	12.01	6.21	6.23	5.49	6.18	6.47	30.60	6.13	6.21	44.39	17.04	4.28
<i>SD</i>	2.50	0.93	0.87	1.20	0.92	0.78	3.38	0.86	0.88	7.63	5.38	2.73

Note. LS = life satisfaction. Correlations below the diagonal represent zero-order correlations, and correlations above the diagonal represent partial correlations controlling for positive affect.

^a $p < 0.10$, ^b $p < 0.05$, ^c $p < 0.004$ is used for the lower diagonal, which was the alpha set by the Bonferroni adjustment for 12 correlations. ^c $p < 0.005$ is used for the upper diagonal, which was the Bonferroni adjustment for 11 correlations—because positive affect is controlled for here.

Table 2

Intercorrelations, partial correlations, means, and standard deviations among gratitude, prosocial behavior, gratitude in response to aid, and relational support.

Variable	1	2	3	4	5	6
1. Gratitude	—	−0.02	0.12	0.31 ^c	0.10	0.14 ^a
2. Helped someone	0.09	—	0.23 ^c	0.03	0.00	0.00
3. Gave someone emotional support	0.19 ^b	0.25 ^c	—	0.01	0.01	0.13 ^a
4. Gratitude in response to aid	0.55 ^c	0.10	0.08	—	0.09	0.21 ^b
5. Family support	0.18 ^b	0.02	0.03	0.16 ^a	—	0.11
6. Friend support	0.20 ^b	0.02	0.15 ^a	0.26 ^c	0.13 ^a	—
<i>M</i>	12.01	0.34	0.46	16.23	4.86	4.38
<i>SD</i>	2.50	0.47	0.50	3.11	0.35	0.62

Note. Correlations below the diagonal represent zero-order correlations, and correlations above the diagonal represent partial correlations controlling for positive affect.

^a $p < 0.10$, ^b $p < 0.05$, ^c $p < 0.008$, which was the alpha set by the Bonferroni adjustment for six correlations.

Table 2, zero-order correlations are below the diagonal, and partial correlations are above the diagonal.

A principal components factor analysis was conducted to determine gratitude's place among the positive affects. Three factors yielded eigenvalues greater than 1.0, with the eigenvalues dropping markedly from the first to second factor (i.e., 4.7–1.1). One factor seemed present. We then re-ran the factor analysis specifying that only one factor be extracted. The factor accounted for 35.87% of the variance. A scree plot provided more evidence for a one-factor solution because an elbow appeared beyond one factor. To enhance interpretability, Table 3 presents the varimax rotated component matrix for three factors. Using 0.40 as the factor loading cutoff, gratitude loads on the first factor with proud, hopeful, excited, forgiving, and inspired (see Table 3).

Table 3

Summary of factor loadings for gratitude and related positive affects using varimax rotation.

Positive affect	Factor loading			Communality
	1	2	3	
Proud	0.73	0.16	0.08	0.56
Gratitude	0.72	0.22	0.30	0.66
Hopeful	0.62	0.30	0.14	0.49
Excited	0.61	0.23	0.03	0.43
Forgiving	0.57	−0.11	0.44	0.53
Inspired	0.46	0.41	0.15	0.40
Active	0.26	0.79	−0.17	0.72
Determined	0.05	0.77	0.29	0.68
Strong	0.36	0.59	0.17	0.51
Enthusiastic	0.17	0.57	0.32	0.46
Alert	0.00	0.19	0.86	0.78
Attentive	0.39	0.12	0.61	0.54
Interested	0.33	0.21	0.39	0.31

Note. Boldface indicates highest factor loadings.

Relational fulfillment as a mediator of gratitude and physical symptoms

We tested the hypothesis that relational fulfillment would mediate the relationship between gratitude and physical symptoms following the statistical specification of Baron and Kenny (1986). Relational fulfillment was defined as the composite of four items ($\alpha = 0.68$): family satisfaction, friend satisfaction, family support, and friend support. Three regression equations must be run to show mediation. The first regression equation requires that the predictor (i.e., gratitude) has a significant effect on the mediator (i.e., relational fulfillment), which was true, $\beta = 0.332$, $R^2 = 0.11$, $F(1, 152) = 18.82$, $p < 0.001$. The second regression equation requires that the predictor (i.e., gratitude) has a significant effect on the criterion variable (i.e., physical symptoms), which also was true, $\beta = -0.162$, $R^2 = 0.03$, $F(1, 151) = 4.08$, $p = 0.045$. The third regression requires that the relation between the mediator and the criterion is significant when controlling for the predictor. Therefore, we simultaneously entered both gratitude and relational fulfillment as the predictors and physical symptoms as the criterion into a regression equation. As hypothesized, relational fulfillment remained significant, $\beta = -0.246$, $p = 0.003$, $\eta_p^2 = 0.05$. The final condition involved demonstrating a significant reduction in the effect of gratitude on physical symptoms after accounting for variance attributable to relational fulfillment. The Sobel test of mediation (Sobel, 1982) was used. A significant Sobel z indicates that the mediator accounts for the influence of a predictor on a criterion. When the beta weight of the predictor is non-zero in the third regression equation, partial mediation exists; when it is zero, full mediation exists. Because the beta weight for gratitude was -0.080 , relational fulfillment partially accounted for the significant relation between gratitude and physical symptoms, $z = -2.64$, $p = 0.008$. These data support our mediation model (see Fig. 1).

Alternative model

Relational fulfillment and physical symptoms were measured contemporaneously. Therefore, rather than relational fulfillment mediating the relation between gratitude and physical symptoms, gratitude could mediate the relation between relational fulfillment and life satisfaction. Thus, relational fulfillment might lead to more gratitude (Algoe, 2006) and consequently less physical

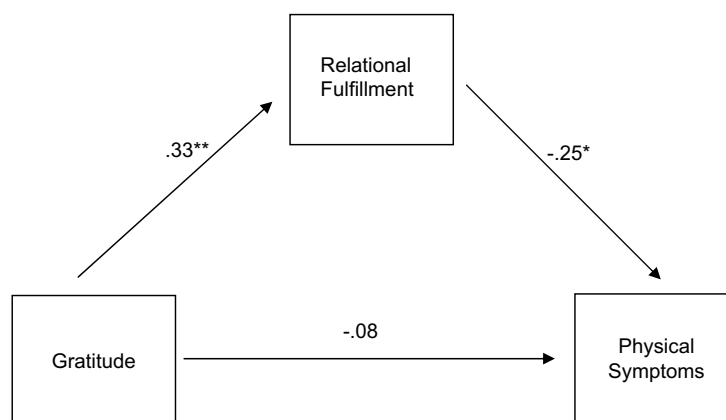


Fig. 1. Beta coefficients for the pathways among gratitude, relational fulfillment, and physical symptoms. * $p = 0.003$. ** $p < 0.001$.

symptoms (Emmons & McCullough, 2003, Study 1). There was no evidence in favor of this mediation model, as gratitude was not significantly related with physical symptoms when controlling for relational fulfillment, $p = 0.335$.

Mediation models were also tested attempting to identify mechanisms linking gratitude and positive affect, life satisfaction, prosocial behavior, and relational fulfillment. No support was found for any of these models.

Gender differences in gratitude

An independent samples t -test was conducted to test the hypothesis that girls reported more gratitude than boys. Although the results were in the hypothesized direction, we only found support at a trend level, $t(152) = -1.86$, $p = 0.065$, $d = 0.30$. Girls, on average, reported slightly elevated levels of gratitude ($M = 12.41$, $SD = 2.39$) compared with boys ($M = 11.67$, $SD = 2.55$).

Subjective well-being and physical symptoms. The marginally significant difference between boys and girls in the experience of gratitude, coupled with the early stage of youth gratitude research (Bono & Froh, in press; Froh & Bono, in press), prompted us to examine if gender moderated the relationship between gratitude and subjective well-being and physical symptoms. Gratitude was centered because it is a continuous predictor (see Aiken & West, 1991). All subjective well-being variables and the physical symptoms composite served as criteria. Gender was dummy coded (boys = 0; girls = 1). We constructed three separate hierarchical regression models for each of the eleven dependent variables. At Step 1, gratitude was entered. At Step 2, gender was entered. Finally, at Step 3, the gratitude \times gender interaction term was entered. Gender failed to significantly moderate any of the relations (p values ranged from 0.19 to 0.73). The correlations in Table 4 below the diagonal represent data for girls, and the correlations above the diagonal represent data for boys.

Prosocial behavior and social support. Gender differences were also examined investigating gratitude's function as a moral motive and its association with gratitude in response to aid and social support. Gratitude was centered because it is a continuous predictor (see Aiken & West, 1991). Helping someone with a problem since yesterday, offering someone emotional support since yesterday, gratitude in response to aid, family support, and friend support were the criteria. Gender was dummy coded (boys = 0; girls = 1). We constructed three separate hierarchical regression models for each of the five dependent variables. At Step 1, gratitude was entered. At Step 2, gender was entered. Finally, at Step 3, the gratitude \times gender interaction term was entered.

Gender only moderated the effects of gratitude on family support (p values ranged from 0.13 to 0.95 for the other four dependent variables), as the two-way interaction between gratitude and gender was significant, $F(1, 150) = 4.00$, $R^2 \Delta = 0.03$, $p = 0.047$. This significant interaction effect was explored with simple effect analyses (see Aiken & West, 1991). For boys, gratitude was positively related to family support, $\beta = .31$, $t(3, 150) = 2.93$, $p = .004$, whereas for girls, gratitude was not significantly related to family support, $\beta = -.01$, $t(3, 150) = -.11$, $p = .916$. Simple effects are plotted in Fig. 2. The correlations in Table 5 below the diagonal represent data for girls, and the correlations above the diagonal represent data for boys.

Table 4
Intercorrelations, means, and standard deviations among gratitude, subjective well-being, and physical symptoms for boys and girls.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gratitude	—	0.33 ^c	0.16	0.36 ^c	0.15	0.30 ^b	0.36 ^c	0.21 ^a	0.39 ^c	0.72 ^c	−0.12	−0.18
2. Family LS	0.30 ^b	—	0.37 ^c	0.55 ^c	0.52 ^c	0.42 ^c	0.79 ^c	0.50 ^c	0.44 ^c	0.27 ^b	−0.28 ^b	−0.38 ^c
3. Friends LS	0.27 ^b	0.55 ^c	—	0.49 ^c	0.37 ^c	0.21 ^a	0.67 ^c	0.32 ^c	0.26 ^b	0.20 ^a	−0.36 ^c	−0.18
4. School LS	0.16	0.34 ^b	0.31 ^b	—	0.46 ^c	0.37 ^c	0.82 ^c	0.34 ^c	0.45 ^c	0.32 ^c	−0.48 ^c	−0.28 ^b
5. Self LS	0.34 ^b	0.41 ^c	0.50 ^c	0.23 ^a	—	0.29 ^b	0.73 ^c	0.43 ^c	0.35 ^c	0.33 ^c	−0.26 ^b	−0.27 ^b
6. Community LS	0.09	0.17	0.30 ^b	0.33 ^b	0.20 ^a	—	0.60 ^c	0.37 ^c	0.37 ^c	0.30 ^b	−0.05	−0.17
7. LS	0.34 ^b	0.72 ^c	0.76 ^c	0.70 ^c	0.67 ^c	0.55 ^c	—	0.53 ^c	0.52 ^c	0.39 ^c	−0.41 ^c	−0.36 ^c
8. Contentment	0.20 ^a	0.53 ^c	0.34 ^b	0.33 ^b	0.46 ^c	0.33 ^b	0.58 ^c	—	0.50 ^c	0.33 ^c	−0.16	−0.16
9. Optimism	0.24 ^b	0.36 ^c	0.29 ^b	0.20 ^a	0.44 ^c	0.32 ^b	0.46 ^c	0.76 ^c	—	0.38 ^c	−0.26 ^b	−0.24 ^b
10. Positive Affect	0.63 ^c	0.16	0.25 ^b	0.14	0.29 ^b	0.08	0.27 ^b	0.24 ^b	0.35 ^c	—	−0.12	−0.15
11. Negative Affect	−0.04	−0.30 ^b	−0.03	−0.34 ^b	−0.25 ^b	−0.28 ^b	−0.36 ^c	−0.29 ^b	−0.12	0.08	—	0.30 ^b
12. Physical Symptoms	−0.15	−0.20 ^a	−0.13	−0.21 ^a	−0.08	0.00	−0.20	−0.22 ^a	−0.05	−0.05	0.14	—
<i>Girls</i>												
<i>M</i>	12.41	6.30	6.39	5.75	6.24	6.56	31.24	6.20	6.38	44.19	16.78	4.39
<i>SD</i>	2.39	0.85	0.82	1.12	0.85	0.71	2.98	0.75	0.74	7.61	5.48	2.35
<i>Boys</i>												
<i>M</i>	11.66	6.14	6.10	5.28	6.13	6.40	30.05	6.07	6.06	44.55	17.26	4.19
<i>SD</i>	2.55	0.99	0.89	1.23	0.98	0.83	3.61	0.95	0.97	7.69	5.32	3.02

Note. LS = life satisfaction. Correlations below the diagonal represent zero-order correlations for girls, and correlations above the diagonal represent zero-order correlations for boys.

^a $p < 0.10$, ^b $p < 0.05$, ^c $p < 0.004$, which was the alpha set by the Bonferroni adjustment for 12 correlations.

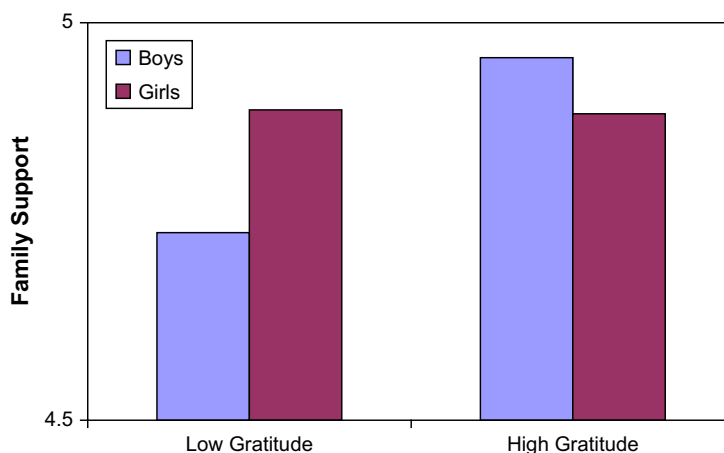


Fig. 2. Family support as a function of gratitude and gender.

Note. The graph reflects simple slopes of gratitude predicting family support for boys and girls. One standard deviation above the mean was used as the upper observed values of gratitude, and one standard deviation below the mean was used as the lower observed values of gratitude.

Discussion

Adolescents who reported grateful moods indicated greater subjective well-being, optimism, prosocial behavior, gratitude in response to aid, and social support. Thus, gratitude is likely an important ingredient for adolescent flourishing. But contrary to prior research (McCullough et al., 2002; Watkins et al., 2003), gratitude was unrelated to negative affect. Because pathology and flourishing are separable constructs (Keyes, 2007) gratitude interventions may enhance adolescent well-being, without necessarily relieving pain and distress. Froh et al. (2008), however, found that counting blessings was unrelated with increased positive affect, but was related with

Table 5

Intercorrelations, means, and standard deviations among gratitude, prosocial behavior, gratitude in response to aid, and relational support for boys and girls.

Variable	1	2	3	4	5	6
1. Gratitude	—	0.19 ^a	0.21 ^a	0.56 ^c	0.30 ^c	0.13
2. Helped someone	−0.06	—	0.15	0.17	0.00	0.04
3. Gave someone emotional support	0.07	0.37 ^c	—	0.13	−0.09	0.01
4. Gratitude in response to aid	0.54 ^c	−0.01	0.00	—	0.17	0.35 ^c
5. Family support	−0.01	0.05	0.16	0.14	—	0.19 ^a
6. Friend support	0.22 ^a	−0.06	0.15	0.09	−0.02	—
<i>Girls</i>						
<i>M</i>	12.41	0.31	0.30	16.38	4.89	4.59
<i>SD</i>	2.39	0.47	0.46	2.93	0.32	0.50
<i>Boys</i>						
<i>M</i>	11.66	0.36	0.60	16.11	4.83	4.20
<i>SD</i>	2.55	0.48	0.49	3.26	0.38	0.66

Note. Correlations below the diagonal represent zero-order correlations for girls, and correlations above the diagonal represent zero-order correlations for boys.

^a $p < 0.10$, ^b $p < 0.05$, ^c $p < 0.008$, which was the alpha set by the Bonferroni adjustment for six correlations.

decreased negative affect. Therefore, although promoting gratitude may be a useful intervention for youth, identifying theoretically meaningful moderators to understand the individual difference variables influencing the enhancement of positive experiences seems essential for optimal treatment outcomes.

This study helps identify gratitude's relation with other positive emotions in early adolescence. Gratitude was related with pride, hope, inspired, forgiveness, and excited. Pride is linked with the locus dimension of causality, whereas gratitude is connected with the controllability dimension (Weiner, 1985). Pride is experienced when attributing a positive outcome to the self and is thus classified as a self-reflective emotion. Gratitude is elicited *only* if the beneficiary perceives herself as the intended recipient of an intentionally bestowed benefit (McCullough et al., 2002). Thus, gratitude in relation to pride seems to be an other-focused emotion. This, however, does not necessarily mean that adolescents in grateful moods discount their own causal effort. Rather, adolescents in grateful moods may, like dispositionally grateful adults, "stretch their attributions to incorporate the wide range of people who contribute to their well-being" (McCullough et al., 2002, p. 113). In combination with showing students the importance of taking credit for one's successes, it makes sense to also consider teaching them grateful attributions. Doing so may provide positive self-esteem and the added bonus of relational enhancement.

In-line with Fredrickson's (1998, 2001) broaden-and-build theory of positive emotions, gratitude being grouped with hope and forgiveness could be explained in terms of broadening. The experience of gratitude might coincide with constructive and positive appraisals of the future or life circumstances, and thereby hope. This might be one reason why adolescents responded similarly to these emotion measures. Furthermore, gratitude might be linked with forgiveness because adolescents experiencing both emotions might be focused on being socially constructive.¹ The mediational analysis also seems to support this theory. To the extent that gratitude in early adolescence broadens one's view about life's circumstances, which might include relational fulfillment, gratitude may help adolescents flourish by means of enhancing their physical health and well-being. Experimental and longitudinal studies are needed to determine if gratitude causes the broadening of thought-action repertoires, which then builds intellectual, social, or physical resources. For example, does gratitude lead an adolescent to creatively repay their parents' kindness, which then bolsters and maintains strong parent-child bonds? If so, these social resources can then be utilized in times of need. We encourage researchers to help define youth gratitude within the context of other positive emotions.

Girls tended to report more gratitude than boys, but boys showed a stronger relation between gratitude and a single positive outcome out of several under study—family support. Although most of our results failed to find support for gender differences and these findings should be considered exploratory, we provide tentative speculation about these relations in hopes of further understanding gratitude in early adolescence (which may differ from the manifestation in adult samples; Kashdan et al., *in press*). Considering the potential causal relation between gratitude and family support might elucidate the positive relation found in boys, but not girls. Does family support cause gratitude? If so, perhaps boys experience more gratitude if they have high levels of familial support, but girls with less familial support might still experience gratitude because of their tendency to be more dispositionally grateful compared with boys. Does gratitude cause family support? This is possible because gratitude seems to promote relational strengthening

(Algoe, 2006). Or perhaps a third variable, like religiosity, explains the relation between gratitude and family support. Indeed, gratitude and religion go hand-in-hand (Emmons, 2005, 2007), and people who self-identify as religious also report strong social bonds (Myers, 2000). Longitudinal and experimental work is needed to clarify this relation. Furthermore, the trends favoring boys might be partially explained by the androgyny hypothesis, which suggests that psychologically androgynous individuals (i.e., those who possess both masculine and feminine characteristics in almost equal measure) are optimally healthy compared with their sex-typed counterparts (i.e., those who possess mainly masculine or feminine characteristics) (Lefkowitz & Zeldow, 2006). Therefore, to the extent that boys view gratitude as feminine, they might derive more benefit from its experience and expression, but only when predicting family support.

Strengths and limitations

This study adds to the gratitude literature in several ways. It is the first known study to examine the following in early adolescence: gratitude as a mood; gender as a moderator on numerous measures (e.g., prosocial behavior); and relational fulfillment as a potential mechanism accounting for an inverse relation between gratitude and physical distress.

Several limitations are noted. First, the correlational design precludes causal statements. Second, our study most clearly demonstrates that gratitude as a mood covaries with other positive emotions in early adolescence. Thus, any discussion of differential relations between gratitude and specific positive affects, such as stronger ties to hope and forgiveness, should be considered preliminary. To help elucidate the manifestation and developmental trajectory of gratitude within youth, researchers may consider including trait gratitude measures such as the Gratitude Questionnaire – 6 (GQ-6; McCullough et al., 2002) or the Gratitude Resentment and Appreciation Test (GRAT; Watkins et al., 2003). Third, to enhance reliability, future researchers should measure positive emotions via scales with multiple items (e.g., Dispositional Positive Emotions Scale; Shiota, Keltner, & John, 2006), not the single item approach used in this study. Fourth, demand characteristics could have been present; however, given that teachers used standardized scripts to introduce the study, daily ratings were completed before the gratitude and hassles listings, and the principal investigator and a school psychology intern conducted several random integrity checks, we think the effects, if any, were negligible. Finally, significant findings should be considered in context of the large number of tests conducted (and increased Type I error rate).

Conclusion

Gratitude in early adolescents was related with social, emotional, and physical benefits. Gratitude stems from and creates strong social bonds (Algoe, 2006), partly by encouraging people to create meaningful experiences for others (Fredrickson, 2004). For instance, the benefactor may experience happiness after being reinforced for behaving prosocially (McCullough et al., 2001), onlookers may experience awe (Haidt, 2000), and future benefactors may experience gratitude. “This socioemotional cycle centered on gratitude could continue indefinitely” (Fredrickson, 2004, p. 159). Therefore, with the benefits of gratitude extending beyond the self to enhance others’ lives, it makes sense for psychologists to foster it in youth.

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Appendix. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.adolescence.2008.06.006](https://doi.org/10.1016/j.adolescence.2008.06.006).

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