A preliminary study of the origins of early adolescents' gratitude differences

Hannah Reckart *, E. Scott Huebner, Kimberly J. Hills, Robert F. Valois

University of South Carolina, United States

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ABSTRACT

Extant research has focused on the consequences of individual differences in gratitude, especially among adults. We focused on addressing the antecedents of gratitude differences among early adolescents, which may be a critical time in gratitude development (Froh, Fan et al., 2011). Specifically, we examined the relations among personality variables (i.e., extraversion and neuroticism), social support (i.e., parents, teachers, peers), stressful life events, and gratitude in a sample of 647 middle school students from four middle schools in a Southeastern US state. Controlling for gender, socioeconomic status, and ethnicity, hierarchical multiple regression analyses revealed statistically significant relations for the personality variables of extraversion and neuroticism. Furthermore, after controlling for demographic and personality variables, students' perceptions of social support contributed significance incremental variance to early adolescents' gratitude scores, with both parent and teacher support accounting for unique variance. Finally, stressful life events added significant variance after controlling for the demographic, personality and social support variables. Contrary to expectations, neither students' levels of social support nor neuroticism scores moderated the association between stressful events and gratitude. The results suggest implications for the development of more sophisticated theories of the antecedents of gratitude as well as the design of more comprehensive interventions.

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Research on the construct of gratitude represents an emergent aspect of the field of positive psychology (Bono, Froh, & Forrett, 2014). Although a majority of the literature to date focuses on adults, some research is emerging regarding gratitude in youth. The extant literature indicates that high levels of gratitude in adults can be beneficial in a variety of ways, and such a conclusion is emerging in adolescent research as well (Froh et al., 2014). Specifically, individual differences in gratitude show various positive consequences. These consequences include psychosocial factors in adolescents, such as relational fulfillment (Froh, Yurkewicz et al., 2009), prosocial behavior, and social integration (Froh, Bono, & Emmons, 2010), suggesting that gratitude plays a role in the production and maintenance of social ties. Furthermore, gratitude displays meaningful relations with various mental health variables. For instance, gratitude has shown positive relations with life satisfaction and hope (Hoy, Suldo, & Mendez, 2012), positive affect (Froh, Yurkewicz et al., 2009), and self-esteem (Li, Zhang, Li, Li, & Ye, 2012). Conversely, gratitude has shown negative relations with negative affect (Froh, Yurkewicz et al., 2009), depressive symptoms (Gillham et al., 2011), and risk behavior (Froh, Emmons et al., 2011) Additionally, gratitude relates to important school-related factors, such as school grades

(Froh, Emmons et al., 2011; Ma, Kibler, & Sly, 2013), academic interest (Ma et al., 2013), and positive and negative emotions in school (Tian, Du, & Huebner, 2015). Finally, gratitude has demonstrated inverse relations with adolescents' physical health symptoms, such as headaches, stomachaches, and sore throats (Froh, Yurkewicz et al., 2009).

Various definitions and theories of gratitude have been proposed. Gratitude has been considered to be a mood, a moral virtue, a personality trait, a coping response, and a way of life reflecting mostly an innate reaction (Emmons, 2008). As a personality trait, gratitude is understood in terms of the grateful disposition. This disposition represents a generalized tendency to recognize beneficence and respond with an emotion of gratitude to the actions of other people's benevolence (McCullough, Emmons, & Tsang, 2002). Gratitude is characterized by Haidt (2003) as a moral emotion that is other-praising and is related to other people's or society's welfare. As an intrinsic value, gratitude can be felt beyond an interpersonal context (e.g., gratitude for a work of art, toward God, or for a scene in nature; Bono et al., 2014). Gratitude expressed as a result of an affective trait is considered to produce a stable predisposition toward grateful emotional responses (McCullough et al., 2002) or more generally, trait gratitude is "a life orientation toward noticing and appreciating the positive in life" (Wood, Froh, & Geraghty, 2010, p. 891).

McCullough et al.' (2002) grateful disposition consists of four facets: intensity, frequency, span, and density. A dispositionally grateful person will feel more intensely grateful than a person who is less disposed

* Corresponding author at: Department of Psychology, University of South Carolina, Columbia, SC 29208, United States.
E-mail address: huebner@sc.edu (H. Reckart).

toward gratitude. Additionally, one who is grateful will report feeling grateful more frequently during the day, and gratitude may be easily elicited by simple favors or acts of kindness from a benefactor. Conversely, individuals who are lower in gratitude will report feeling less grateful during the day and will require more substantial favors to elicit gratitude. A grateful person will have higher numbers of life circumstances for which he or she feels grateful at a given time (e.g., feeling simultaneously grateful for family, job, friends, health). Finally, the grateful person will be grateful to a larger number of people for a single positive outcome, attributing a benevolent occurrence to more people than the person who has a less grateful disposition (McCullough et al., 2002). The definition of McCullough et al. provided the foundation for the development of their measure of gratitude, the Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002), which was modified based on previous research with children and adolescents and used as the criterion measure in this study (Froh, Fan et al., 2011).

Theories of the origins of gratitude are not well-specified. Nevertheless, various scholars suggest that differences in gratitude may develop through interactions in an individual's environment or may develop as the result of a naturally occurring predisposition. From the latter perspective, gratitude is fostered intrinsically, and the environment, especially the interpersonal environment, simply sparks individual growth of an already present disposition (e.g., Froh et al., 2010; McCullough et al., 2002; Rosenberg, 1998). Conversely, the find-remind-and-bind (Algoe, 2012) and moral paradigm (McCullough, Kilpatrick, Emmons, & Larson, 2001) theories of gratitude suggest that gratitude expression is fostered by an individual's interactions with her interpersonal environment, thus reflecting Bandura's (1977) social learning theory.

Dispositional gratitude is thought to appear as early as age eight (Froh et al., 2014), playing an integral role in identity development (Bono et al., 2014). Studies of gratitude among adolescents have been sparse, but may be particularly important because gratitude is thought to generally occur within an interpersonal context. Thus, it has been considered a "prime candidate" for improving students' school satisfaction and the quality of their peer relationships (Bono et al., 2014, p. 70). Higher levels of gratitude may thus be especially important during secondary school, when autonomy becomes more important and students are generally less interactive with family members and more interactive with peers (Hill & Holmbeck, 1986). In this study, we examined gratitude as a dispositional trait because trait measures of gratitude show the most robust and pervasive network of nomological relations (Froh, Fan et al., 2011).

Studies of the antecedents of individual differences in youth gratitude have been sparse, especially relative to studies of the consequences of individual differences. Nevertheless, the extant literature suggests several personal factors and environmental factors that may be involved in the development of individual differences. These personal factors include demographic variables, personality variables (e.g., extraversion and neuroticism), and environmental variables (e.g., social support and stressful life events).

Few studies have addressed relations between gratitude and demographic variables. To our knowledge, no studies have addressed the relations between adolescents' gratitude and race, ethnicity, or socioeconomic status (SES). Furthermore, the few existing studies fail to suggest age effects across students from grades 3–12 (Froh, Kashdan et al., 2009; Froh, Emmons et al., 2011). However, some, but not all, studies suggest gender differences in mean levels of gratitude among adolescents. In a study of students of ages 11 to 13, girls reported slightly higher levels of gratitude than boys (Froh, Yurkewicz, et al., 2009). Several other studies have obtained similar results, with adolescents from several countries demonstrating gender differences, in favor of females (e.g., Chan, 2012; Gordon, Musher-Eizenman, Holub, & Dalrymple, 2004; Tian et al., 2015).

The nature of the relations between adolescents' personality characteristics and gratitude has not been addressed. In adults, gratitude has been positively related to extraversion and inversely related to neuroticism suggesting the importance of biologically-based personality determinants of gratitude in adults (e.g., McCullough, Tsang, & Emmons,

2004; Wood, Joseph, & Maltby 2008; Wood, Joseph, & Maltby, 2009). Research with children seems warranted given the robust associations between personality variables and a variety of related positive psychology variables, such as hope and life satisfaction (e.g., Heaven, 1989).

Gratitude has been related to adolescents' positive social relationships (Froh et al., 2010; Froh, Emmons et al., 2011; Poelker & Kuebli, 2014), but only one study has addressed the link between gratitude and perceived social support. Using single item measures of peer and social support of unknown reliability and validity, Froh, Yurkewicz et al., 2009, reported correlations of 0.18 and 0.20 between youth gratitude and parent and peer support respectively. Although social support was conceptualized as an outcome of gratitude in their study, given that the study was cross-sectional in nature, the directionality of the relation is unclear. It seems plausible that social support is an antecedent of gratitude or that the relations can be bidirectional as well.

The occurrence of major stressful life events has also been suggested as a potential antecedent of gratitude differences in adolescents. For example, some research has suggested that gratitude serves as a buffer against the negative impact of stressful life events (Isreal-Cohen, Uzefovsky, Kashy-Rosenbaum, & Kaplan, 2015; Li et al., 2012). The possibility of direct effects of stressful life events on gratitude is also suggested by the literature on its inverse relation with a variety of related variables, such as hope (Otis, Huebner, & Hills, 2016), life satisfaction (McKnight, Huebner, & Suldo, 2002) and emotional problems (Grant, Compas, Stuhlmacher, McMahon, & Halpert, 2003; Stern, McCants, & Pettine, 1982), all of which are consistent with the notion that the experience of stressful environmental events, especially uncontrollable ones, can exert direct and indirect effects on the well-being of youth (Hobfoll, 1989).

In sum, little research exists regarding personal and environmental antecedents of gratitude differences, especially in youth. Further investigation appears warranted to address the origins of gratitude differences in adolescents, taking into account individual difference variables (e.g., gender, personality) as well as environmental variables (e.g., stressful life events, ongoing social support).

1. The current study

This study addressed gaps in the literature regarding the origins of individual differences in gratitude among early adolescents by simultaneously exploring several possible antecedents of gratitude differences among middle school students. Lacking a well-specified theoretical model of the origins of gratitude, we investigated the relations of multiple, previously examined variables across studies of children and adults in an exploratory fashion. Based on the literature, these variables represented potentially important individual and environmental antecedents of trait gratitude in early adolescents. Specifically, in addition to demographic variables (i.e., age, gender, ethnicity, SES), we examined two major personality variables (extraversion and neuroticism), one chronic environmental variable (social support), and one acute environmental variable (i.e., occurrence of stressful life events). In the present study, personality was represented by the Big Five domains of neuroticism and extraversion because these domains of the Big Five personality model have robust support in the literature with inclusion in all of the major multidimensional models of personality (McAdams, 2009) and because these two domains are especially related to emotions (DeNeve & Cooper, 1998; Ng, 2017).

Our specific research questions and associated hypotheses included:

1. What are the relationships between gratitude and key demographic variables (gender, grade, ethnicity, and SES)? Given the inconsistent or non-existent findings, we did not formulate specific hypotheses for the relations between gratitude and the demographic variables.
2. When controlling for demographic variables, what is the relationship between gratitude and the personality characteristic of extraversion? Specifically, we hypothesized that gratitude would be positively related to extraversion.

3. When controlling for demographic variables, what is the relationship between gratitude and the personality characteristic of neuroticism? Specifically, we hypothesized that gratitude would negatively relate to neuroticism.

4. When controlling for demographic and personality variables, what are the relationships between gratitude and social support from parents, peers, and teachers? We hypothesized that gratitude would be positively related to social support from parents, peers, and teachers.

5. When controlling for demographic, personality, and support variables, what is the relationship between the occurrence of major stressful life events and gratitude? We hypothesized that gratitude would be inversely related to the frequency of major stressful life events.

6. Does the occurrence of major stressful life events add statistically significant variance beyond the temporally precedent demographic and personality variables (extraversion and neuroticism) and social support (parents, peers, and teachers) to the explanation of gratitude differences?

7. Does social support moderate the relation between gratitude and stressful life events? Based on previous studies (Cohen & Wills, 1985), we hypothesized that total social support would moderate the effects of stressful events on gratitude, such that the association between the occurrence of stressful life events and gratitude would be lower among early adolescents who were higher in social support.

8. Does the personality trait of neuroticism moderate the relation between gratitude and stressful life events? Although speculative, some research has suggested that (low) neuroticism serves as a buffer against the effects of stressful events (e.g., de Beurs et al., 2005). Thus, we also hypothesized that the association between the occurrence of stressful life events and gratitude would be lower among adolescents who were lower in neuroticism than among those who were higher in neuroticism.

2. Method

2.1. Participants

Questionnaires were distributed to students at four middle schools in the Southeastern US as part of a school-wide survey of school climate and student well-being conducted by the school administration. The sample consisted of 1506 students in grades six through eight. The students not included in the survey were absent from school on one or more of the days on which the surveys were administered. Students ranged in age from 10 to 16 years and identified as African American, Caucasian, Asian American or Pacific Islander, Biracial, or another racial identity. Students were also asked to self-report their gender, grades, and whether they receive free or reduced lunch prices as a proxy for socioeconomic status (SES). The demographic characteristics of the

Table 1
Frequencies for the demographic variables.

Demographic variables		n	%
Grade	6th	527	28.0
	7th	641	34.1
	8th	689	36.6
Gender	Male	978	52.0
	Female	891	47.3
Race	African American/Black	420	22.3
	Caucasian/White	1026	54.5
	Native American/Indian	31	1.6
	Asian American/Pacific Islander	25	1.3
	Hispanic/Latino	148	7.9
	Bi-racial	156	8.3
	Other	39	2.1
SES	Regular lunch	974	51.8
	Free or reduced lunch	727	38.6

SES: socioeconomic status.

sample are presented in Table 1. Sums of percentages do not all add to 100% due to missing data.

2.2. Procedures

Approval for this study was obtained from the referent university's Institutional Review Board. School teachers administered the surveys in homerooms during October 2015. School personnel provided de-identified survey results to the authors for subsequent data analysis.

2.3. Measures

2.3.1. Gratitude

Gratitude was assessed using the Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002). The GQ-6 is a 6-item measure of trait gratitude based on McCullough et al.' (2002) aforementioned theory of the qualities that distinguish grateful people from less grateful people. The GQ-6 has shown adequate reliability with reports of coefficient αs ranging from 0.76 to 0.85 along with a three-month test–retest coefficient of 0.59 (Wood, Maltby et al., 2008) and factorial validity based on confirmatory factor analyses with youth and adolescents (see Froh, Fan et al., 2011). The results of confirmatory factor analyses have supported its construct validity (Froh, Fan et al., 2011). Furthermore, evidence of convergent validity has been provided through significant correlations with the Gratitude Adjective Checklist (GAC; McCullough et al., 2002) and Gratitude Resentment Appreciation Test-short form (GRAT-short; Watkins, Woodward, Stone, & Kolts, 2003).

The GQ-6 has been demonstrated to be more valid for adolescents when only the first five items are used due to the weak factor loading and abstract nature of the sixth question (Froh, Fan et al., 2011). Therefore, only the first five items were employed. Example items are "I have so much to be thankful for," and "I am grateful to a wide variety of people." Participants responded to the statements using a 7-point Likert scale ranging from 1 = "strongly disagree" to 7 = "strongly agree."

2.3.2. Extraversion and neuroticism

Extraversion and neuroticism were assessed using the Abbreviated Junior Eysenck Personality Questionnaire (JEPQR-A; Francis, 1996). The JEPQR-A is a widely used 12-item self-report scale that measures extraversion and neuroticism. Students responded to items in a "yes" or "no" format, and higher scores indicated higher levels of both extraversion and neuroticism. The JEPQR-A has support for internal consistency on the extraversion (α = 0.66) and neuroticism subscales (α = 0.70). Convergent validity has been supported by correlations between the JEPQR-A and the original, lengthier version with for the Extraversion (r = 0.91) and Neuroticism (r = 0.92) subscales (Francis, 1996). On the JEPQR-A, three-month test-retest reliabilities of 0.66 for extraversion and 0.65 for neuroticism have been reported (Roy, 2012). For this study, items were coded, such that 1 = 0 and 2 = 1, to create composite variables.

2.3.3. Social support

Social support was assessed using the Child and Adolescent Social Support Scale (CASSS; Malecki & Demary, 2002). The CASSS is a 40-item self-report scale including subscales measuring perceived support from parents, teachers, classmates, and close friends. Participants responded to items using a 6-point Likert scale ranging from 1 = "never" to 6 = "always." The CASS shows acceptable reliability, with coefficient αs ranging from 0.93 to 0.96 and eight-week test-retest coefficients ranging from 0.60 to 0.76 for the subscales. Validity is supported by a positive correlation (r = 0.70) with the Social Support Scale for Children (Harter, 1985) and positive correlations with measures of adaptive skills, teacher-rated social skills, and self-esteem and negative correlations with measures of internalizing and externalizing behaviors (Malecki & Demary, 2002). For the purposes of this study, the Close Friend subscale was not included.

2.3.4. Stressful life events

The occurrence of stressful life events was assessed with the widely used Stressful Life Event Scale (SLES; Johnson & McCutcheon, 1980). The SLES is a 45-item self-report scale in which students indicate whether they have experienced specific life events during the past year. The scale includes controllable and uncontrollable life events, but because of time and space considerations and the particular interests of the school personnel, this study included only the 18 items assessing the uncontrollable stressful life events items. Moreover, this study focused on uncontrollable life events as research has demonstrated that they are more strongly correlated with mental well-being than controllable life events (Stern et al., 1982). Students responded using one of three options: 1 = "no, it did not happen", 2 = "yes, it was good" and 3 = "yes, it was bad." The total score was thus the sum of all the "bad" items marked. This scoring system represented a modification of the original scoring system that included only the first two options. Brand and Johnson (1982) were among the first scholars to score the SLES in this manner with adolescents and they reported a two-week test-retest correlation of 0.66 for negative events.

3. Results

3.1. Preliminary analyses

The data were assessed initially for possible violations of model assumptions. This examination revealed that missingness ranged from 0% to 7.9%, which can influence results by way of standard errors and significance (Cohen, Cohen, West, & Aiken, 2003). Missing data were managed using multiple imputation, which predicts and replaces any missing values using existing values within the dataset, in R 3.0.3 (Rose & Fraser, 2008). Forty new datasets were created to achieve the most realistic dataset, and one dataset was chosen for analysis using a random number generator. All subsequent analyses were conducted using IBM SPSS Statistics for Windows, Version 22.0 (2013).

The dataset consisted included four separate schools. To determine appropriateness for collapsing data across schools, the data were examined for clustering within schools. The intraclass correlation (ICC) for gratitude was -0.07, suggesting that variance within schools was larger than variance between schools. These findings indicated that clustering across the schools would not downwardly bias the standard errors in the study, and therefore a multi-level model was not utilized in subsequent analyses.

Skewness, kurtosis, histograms, and Q-Q plots were examined to screen for normality and further violation of model assumptions after multiple imputations were conducted. The assessments of skewness revealed no statistically problematic features in the dataset, as the magnitude of skewness for each of the predictor and criterion variables was within the acceptable range (Lomax, 2001). The assessments of kurtosis revealed possible statistically problematic features in the dataset, as the kurtosis values for extraversion (2.72) and stressful life events (2.28) exceeded the acceptable range of between -2 and 2 (Lomax, 2001). However, when these variables were transformed, correlation coefficients reflecting the association between predictors and the criterion variable did not significantly differ from correlation coefficients using the original dataset using logarithmic, $t(5) = -1.02$, $p = 0.36$, square root, $t(5) = -1.33$, $p = 0.24$, and inverse transformations, $t(5) = -0.13$, $p = 0.90$. Because these results indicated satisfactory integrity within the data set, further analyses were conducted using the original dataset.

3.2. Descriptive statistics

Descriptive statistics are presented in Table 2. The means for parent, teacher, and peer social support were 4.70, 4.69, and 4.09 on the 6-point scale, suggesting relatively high levels of support among all three sources. The mean number of stressful life events reported was 1.91.

Table 2
Descriptive statistics.

Variables	M	SD
Gratitude	5.80	1.19
Parent social support	4.69	1.19
Teacher social support	4.66	1.23
Peer social support	4.08	1.37
Extraversion	0.80	0.35
Neuroticism	0.48	0.41
Stressful life events	1.91	2.22

N = 1506.

3.3. Correlations

Pearson correlations were all statistically significant ($p < 0.05$; see Table 3). The correlation with extraversion was small (Cohen, 1988), but positive, $r(1879) = 0.21$, whereas the correlation with neuroticism was small, $r(1878) = -0.20$, but negative. The correlations between gratitude and support were all positive: parent support, $r(1879) = 0.53$, teacher support, $r(1878) = 0.35$, and peer support, $r(1878) = 0.38$. According to Cohen's criteria, the correlations represented large, moderate, and moderate effect sizes respectively. Finally, a small, inverse correlation was observed between gratitude and stressful events, $r(1700) = -0.22$.

3.4. Multiple regression analyses

To determine which demographic variables to include as covariates, a preliminary simultaneous regression analysis was conducted incorporating all demographic variables as predictors of gratitude. Gender, $t(10, 1643) = 2.15$, $p = 0.03$, $\beta = 0.05$, SES, $t(10, 1643) = -6.76$, $p < 0.001$, $\beta = -0.17$. Also, self-identification as Hispanic related significantly to gratitude, $t(10, 1643) = -2.95$, $p < 0.01$, $\beta = -0.08$.

Next, hierarchical multiple regression analyses were conducted to assess the additive and interactive effects of the predictor variables. First, we addressed whether environmental factors (i.e., social support and stressful life events) accounted for significant incremental variance in gratitude reports beyond the variance accounted for by personality factors (i.e., extraversion and neuroticism). To account for the contribution of extraversion and neuroticism to individual differences in gratitude, after controlling for demographic variables, a hierarchical multiple regression analysis was conducted. To control for demographics, the variables of SES, gender, and ethnicity were entered into the first step of the analysis. The second step assessed the contributions of the personality characteristics. Gratitude was uniquely related to extraversion ($\beta = 0.26$) and neuroticism ($\beta = -0.27$), together accounting for an additional 11% of the total variance, $F(4, 1501) = 46.89$, $p < 0.001$, $R^2 = 0.11$ (Table 4).

The third step addressed the contributions of the social support variables to gratitude, after controlling for demographic and personality variables. Cumulatively, social support accounted for a significant

Table 3
Intercorrelations.

Variables	1	2	3	4	5	6	7
1. G	–						
2. PaSS	0.53**	–					
3. TSS	0.35**	0.50**	–				
4. PeSS	0.38**	0.51**	0.59**	–			
5. EX	0.21**	0.13**	0.06**	0.19**	–		
6. N	−0.20**	−0.24**	−0.13**	−0.21**	0.23**	–	
7. SLE	−0.22**	−0.26**	−0.13**	−0.15**	−0.06**	0.21**	–

G: gratitude; PaSS: parent social support; TSS: teacher social support; PeSS: peer social support; EX: extraversion; N: neuroticism; SLE: stressful life events.
* $p < 0.05$.
** $p < 0.01$.

Table 4
Hierarchical multiple regression results.

Variable	Step 1			Step 2			Step 3			Step 4			Step 5			Step 6		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Gender	0.12	0.06	0.05*	0.26	0.06	0.11**	0.21	0.05	0.09**	0.21	0.05	0.09**	0.20	0.05	0.09**	0.21	0.05	0.09**
Socioeconomic status	−0.43	0.06	−0.18**	−0.37	0.06	−0.16**	−0.25	0.05	−0.11**	−0.24	0.05	−0.10**	−0.23	0.05	−0.10**	−0.23	0.05	−0.10**
Race: Hispanic	−0.34	0.11	−0.08**	−0.30	0.10	−0.07**	−0.27	0.09	−0.06**	−0.30	0.09	−0.07**	−0.30	0.09	−0.07**	−0.30	0.09	−0.07**
Extraversion				0.92	0.08	0.26**	0.58	0.08	0.17**	0.57	0.08	0.16**	0.56	0.08	0.16**	0.56	0.08	0.16**
Neuroticism				−0.81	0.07	−0.27**	−0.41	0.07	−0.14**	−0.38	0.07	−0.13**	−0.38	0.07	−0.13**	−0.35	0.09	−0.12**
Parent social support							0.38	0.03	0.38**	0.37	0.03	0.37**	0.36	0.03	0.36**	0.36	0.03	0.36**
Teacher social support							0.09	0.03	0.10**	0.09	0.03	0.09**	0.08	0.03	0.08**	0.08	0.03	0.08**
Peer social support							0.05	0.02	0.05	0.05	0.02	0.05	0.04	0.02	0.05	0.04	0.03	0.05
Stressful life events										−0.03	0.01	−0.06**	−0.08	0.04	−0.16*	−0.07	0.04	−0.13
Social support × stressful life events													0.01	0.01	0.10	0.01	0.01	0.09
Neuroticism × stressful life events																−0.02	0.03	−0.03
R^2	0.05			0.16			0.35			0.35			0.35			0.35		
F for change in R^2	18.38**			99.11**			147.19**			8.18**			1.62			1.04		

* $p < 0.05$.
** $p < 0.01$.

increment in variance, $F(9, 1496) = 89.47$, $p < 0.001$, $R^2 = 0.19$. Furthermore, parent and teacher support, but not peer support, made unique contributions.

The fourth step assessed the contribution of the occurrence of stressful life events. The results revealed that stressful life events added statistically significant variance beyond the presumed temporally precedent personality variables (extraversion and neuroticism) and social support (parents, peers, and teachers), $F(10, 1495) = 81.73$, $p < 0.001$, $R^2 = 0.004$.

The fifth step assessed whether social support moderated the relation between stressful life events and gratitude. An interaction term was created to represent the interaction between stressful events and total social support by multiplying the two terms together. However, the interaction term was not statistically significant.

The final step assessed whether neuroticism moderated the relation between stressful events and gratitude. Again, the interaction was not significant.

4. Discussion

Several definitions and models of gratitude have been proposed; however, none has become widely accepted. One of these definitions refers to trait gratitude, which is thought to appear as early as 8 years old (Froh et al., 2014). Although prior investigations have supported the role of trait gratitude in a variety of positive psychosocial, school, and health outcomes in adults, research with children has been sparse. Studies of the antecedents of gratitude in children have been especially scarce (Bono et al., 2014). Therefore, we addressed the origins of individual differences in gratitude among early adolescents to contribute to the development of empirically-informed theoretical models to guide subsequent research. In doing so, we addressed several possible antecedents, including demographic, personality (extraversion and neuroticism), chronic environmental (social support), and acute environmental variables (occurrence of stressful life events).

The major findings were fourfold. First, key demographic correlates were identified: gender, SES, and ethnicity. Specifically, females indicated higher gratitude than males, which is commensurate with findings of some prior studies (e.g., Chan, 2012; Froh, Yurkewicz et al., 2009; Gordon et al., 2004; Tian et al., 2015). Froh, Yurkewicz and colleagues (2009) have suggested that males tend to report lower levels of gratitude than females because gratitude may suggest a male weakness, thus threatening their masculinity. Hence, in research where self-report measures are used for data collection, males may tend to report lower levels of gratitude to maintain greater perceptions of masculinity, particularly during the middle school years when gender differences become particularly salient. Additionally, one the one hand, adolescents from lower SES backgrounds and Hispanic students reported lower gratitude. On the other hand, the age of students was unrelated to gratitude levels. The reasons for the findings related to ethnicity and age unclear, although the findings may relate to unique aspects of the sample, including its relatively restricted age range. The reasons for the finding related to SES is also unclear; however, it seems plausible that students from lower SES backgrounds experience more adverse life events and hence experience lower well-being, (Moore & Ramirez, 2016), including lower gratitude. In order to explore this possibility, we conducted post hoc analyses. Specifically, we conducted an independent samples *t*-test comparing the means on the stressful events measure between students reporting lower and higher SES. The findings demonstrated that lower SES students ($M = 2.31$) reported more stressful events than higher SES students (($M = 1.65$), $t(1504) = -5.72$, $p < 0.05$). Thus, early adolescents' SES differences may relate to experiencing more life stressors, which may in turn contribute to gratitude differences; however, further research is needed to investigate such linkages.

Second, the personality characteristics of extraversion and neuroticism related to gratitude, beyond the effects of demographics. The findings revealed a statistically significant, but small (positive) association

with extraversion and a statistically significant, but small (negative) association with neuroticism. These findings are consistent with the notion that extraverts are more likely to seek out social encounters, and perhaps increasing the likelihood of receiving favors and acts of kindness from others and leading to more gratitude whereas the opposite would be expected for persons high on neuroticism (McAdams, 2015).

Third, early adolescents' perceptions of social support related to gratitude. Even after controlling for demographic and personality variables, parent and teacher support made unique contributions to adolescents' gratitude. Prior research has been limited to cross-sectional analyses, conceptualizing gratitude as an antecedent of support (Froh, Yurkewicz et al., 2009). Our cross-sectional findings provide further support for a link between gratitude and social support. It seems plausible that social support may also be an antecedent of gratitude; however, the question of directionality remains unresolved.

Fourth, the occurrence of perceived stressful events was inversely related to gratitude. The correlation was statistically significant, but small in magnitude. Nevertheless, stressful events added significant variance to gratitude, even after controlling for demographic, personality, and social support variables. Contrary to expectations, the effects of stressful life events on gratitude were consistent across levels of social support and neuroticism. Thus, although prior studies have investigated gratitude as a buffer against the negative effects of stressful life events (e.g., Kashdan, Uswatte, & Julian, 2006; Lies, Mellor, & Hong, 2014; Zheng, Fan, & Lou, 2011; Zhou & Wu, 2015), our study suggested generalizable, direct effects of prior stressful life events on gratitude as well. It seems plausible that individuals who experience more environmental stressors would be less likely to report higher levels of trait gratitude similar to their reports of lower levels of life satisfaction (McKnight et al., 2002) and hope (Otis et al., 2016), and higher levels of emotional problems (Grant et al., 2003), all of which may be responses to the perceived direct threats to an individual's valued resources (see Hobfoll, 1989).

Overall, our study extended previous research by identifying personal (i.e., demographic and personality) and environmental variables (i.e., social support and prior occurrence of stressful life events) related to individual differences in trait gratitude among early adolescents. These variables appear essential to include in subsequent model building to explain the origins of gratitude in this age group. The positive associations between extraversion and social support as well as the negative association between neuroticism and stressful life events were all consistent with previous findings for the relations between these predictor variables and a variety of other positive psychology criterion variables, such as hope, life satisfaction, and so forth (see Bono et al., 2014).

4.1. Limitations, future directions for research, and implications

Limitations of the study should be noted. First, the sample was not representative of the US with respect to ethnicity or geographic location. Future research would benefit from more nationally representative samples. Second, although this cross-sectional study provided direction for future analyses regarding temporally precedent variables, such as personality, prior stressful life events, and ongoing social support, future research would benefit from longitudinal designs to clarify the directionality of the relations. Third, self-report scales were used, yielding possible common method bias. Incorporating multiple assessment methods would also be beneficial in future research.

Our study also exhibited notable strengths, extending beyond previous studies by exploring a wider array of possible personal and environmental antecedents of gratitude in early adolescents. Furthermore, our study investigated possible interactions among the personal and environmental variables. Nevertheless, additional more comprehensive models are likely necessary to fully understand the origins and mechanisms explaining the development and consequences of individual differences in gratitude across development. For example, psychosocial mechanisms (e.g., coping behaviors, emotional intelligence variables,

self-esteem) may mediate the associations between personality traits and environmental experiences and gratitude (e.g., see Di Fabio & Saklofske, 2014; Kong, Ding, & Zhao, 2015). Moreover, further investigations of the antecedents of gratitude, child well-being professionals may not only develop a deeper understanding of the development of gratitude, but such investigations may also be able to eventually target specific, individual and environmental factors that can be manipulated (e.g., social support, coping) and/or moderators (e.g., personality) to consider in developing empirically-informed programs to promote gratitude in youth. Although early research had supported the efficacy of some gratitude interventions, Davis et al. (2016) recently concluded from their meta-analysis that there is insufficient support for gratitude interventions at this time. Nevertheless, research leading to greater understanding of the antecedents of gratitude in adults and children may inform more comprehensive, developmentally appropriate, and effective interventions.

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