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Self-Compassion: A Potential Path to Adolescent Resilience and Positive Exploration

Karen Bluth¹ · Michael Mullarkey² · Christine Lathren³

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Abstract

The adolescent developmental stage is characterized by multiple transitions, both physiological and environmental, and physical, cognitive and socioemotional growth that often leads to both challenges and opportunities. Developing coping strategies to contend with these challenges, such as strengthening resilience and being open to new experiences, can potentially facilitate traversing this developmental period with greater ease. Although previous research has supported the premise that self-compassion buffers the negative effects of these emotional challenges, little research to date has examined the link between strengths-based attributes such as resilience and curiosity/exploration (i.e., being open to and embracing new experiences) and self-compassion, and whether age or gender moderates these relationships. As such, the purpose of this study was to explore these relationships among a large adolescent sample. Results of 786 public school adolescents and 271 private school adolescents (68% white, 65% female, Mage = 15.6) who responded to questions in an online survey indicated that self-compassion was positively associated with both curiosity/exploration and resilience, and gender moderated the relationship between self-compassion and resilience such that this association was stronger among males than females. Age did not moderate the relationship between self-compassion and either resilience or curiosity/exploration, indicating that self-compassion is associated with both resilience and curiosity/exploration at all ages across adolescence. Implications are that interventions that cultivate self-compassion among adolescents may strengthen resilience and curiosity/exploration, offering new and healthy ways to cope with these challenges leading to improved emotional well-being.

Introduction

Adolescence is a developmental period characterized by rapid physical, cognitive, and socio-emotional growth, bringing both challenges and opportunities. The gradual maturation and expanding interconnection of multiple brain regions foster the development of sound judgment and decision-making skills, social perspective taking, moral

reasoning, and emotional regulation (Steinberg 2005). However, these processes may be uncoordinated, leaving some adolescents vulnerable to maladaptive behavior and psychopathology (Steinberg 2005). Indeed, the prevalence of anxiety, depression, substance use and behavior problems increase across the adolescent years, with one large prospective study of youth ages 9 through 16 finding nearly 37% developed at least one psychiatric disorder (Costello et al. 2003). Moreover, there is evidence that the types of psychopathologies, age of onset, and stress coping methods vary by gender, with boys more prone to externalizing problems like conduct disorder and post-pubescent females more prone to internalizing problems like depression (Copeland et al. 2011; Nolen-Hoeksema and Girgus 1994). Adolescent mental health issues are receiving national attention, with rising rates of adolescent depression (Mojtabai et al. 2016), outpatient mental health service and psychotropic medication use (Olfson et al. 2015) and alarming upward trend in adolescent suicide (Simon 2017).

Despite the inevitable challenges involved in the transition to adulthood, positive youth development research

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✉ Karen Bluth
bluth@med.unc.edu

¹ Department of Psychiatry, School of Medicine, University of North Carolina, CB 7200, Chapel Hill, NC, USA

² University of Texas, Austin, TX, USA

³ Department of Physical Medicine and Rehabilitation, School of Medicine, University of North Carolina, Chapel Hill, NC, USA

emphasizes factors that buffer against negative outcomes and promote well-being (Lerner et al. 2005). From this perspective, adolescence is a “window of opportunity” whereby development in multiple domains and brain plasticity are advantageous for cultivating adaptive coping skills and positive character traits (Roeser and Pinela 2014). As adolescents age, they are increasingly aware of inner thoughts and emotions (Weil et al. 2013) and formulate an organized and consistent self-concept (Byrne and Shavelson 1996). As they individuate from parents and connect more closely with peers, they may have expanding opportunities to develop unique interests, competencies, social support networks and self-confidence that can promote a productive and fulfilling life trajectory (Hay and Ashman 2003). By exploring adolescents’ key assets and strengths, programs can be developed that maximize potential despite inevitable risks and challenges of this life period (Catalano et al. 2004). To this end, this study explores the relationship between two such positive personal attributes, resilience and curiosity, with a third construct, self-compassion. All three traits have been independently associated with measures of positive mental health and well-being (Hu et al. 2015; Jovanovic and Brdaric 2012; Zessin et al. 2015), and therefore would be expected to promote positive adolescent outcomes. Since self-compassion is a modifiable trait (Bluth and Eisenlohr-Moul 2017; Bluth et al. 2016a; Galla 2016, 2017; Neff and Germer 2012), interventions can be created that cultivate and enhance self-compassion, and thereby potentially strengthening resilience and curiosity. Moreover, given the evolving and variable timeline of adolescent cognitive maturation and gender-specific vulnerabilities in mental health, we seek to explore whether these relationships are moderated by adolescent age or gender.

Self-compassion is defined by three components: mindfulness, or maintaining a balanced perspective in the midst of struggle; common humanity, or acknowledging that struggling is a shared part of the human experience; and self-kindness, or responding to oneself with care and understanding when struggling (Neff 2003). In adults, self-compassion has been associated with less anxiety, depression and stress (MacBeth and Gumley 2012), and greater well-being (Zessin et al. 2015). Research on self-compassion with adolescents has paralleled these findings, with those high in self-compassion reporting less depression, anxiety, and stress (Bluth and Blanton 2015; Marsh et al. 2017), less engagement in self-injurious behavior and fewer suicide attempts (Xavier et al. 2016), less problem substance use (Tanaka et al. 2011) and less likelihood to experience shame or fear failure (Mosewich et al. 2011). These findings suggest self-compassion during adolescence is a particularly valuable attribute, as it appears to protect against typical developmental vulnerabilities such as increased self-consciousness (Rankin et al. 2004), feeling

isolated in their experience of personal struggle (Laursen and Hartl 2013), and mood instability such as increasing anxiety and depression (Maciejewski et al. 2014). Moreover, age and gender differences in self-compassion exist, with older adolescent females exhibiting the lowest self-compassion levels compared to younger adolescents and all males (Bluth et al. 2017). As a result of the positive correlations with emotional well-being, a self-compassion intervention was adapted from an adult program specifically for an adolescent population. Post-intervention, participants of this program reported lower stress (Bluth and Eisenlohr-Moul 2017), less anxiety and depression, and greater life satisfaction (Bluth et al. 2016a).

Another strengths-based attribute is resilience, a core character trait considered a key aspect of healthy child and adolescent development (Bethell et al. 2017). Resilient individuals have the ability to bounce back from setbacks, resist illness, and adapt or thrive when faced with adversity (Smith et al. 2008). The process of resilience in adolescence is described as the positive adaptation to adverse life experiences; in other words, successful navigation of challenges as evidenced by reaching age-appropriate competencies (such as having good peer relationships or holding a job) combined with positive (or lack of negative) mental health outcomes (Masten 2007). In this view, resilience is a fluid process that occurs over time, and may change as developmental expectations change. Moreover, evidence suggests that adolescents who are resilient adopt more health-promoting behaviors (Barger et al. 2017; Murphey et al. 2013), avoid negative risks such as substance use (Barger et al. 2017; Murphey et al. 2013), and experience fewer symptoms of anxiety and depression (Skrove et al. 2013).

There are three major theoretical models of adolescent resilience: compensatory, whereby a positive factor exerts a direct, independent and opposite impact on a negative outcome; protective, whereby a positive factor modifies the effect of risks; and challenge, an “inoculation” model whereby exposure to risk helps to develop coping mechanisms allowing for the successful navigation through future adversity (Zimmerman et al. 2013). To date, a number of factors have been linked to adolescent resilience, including: effective parenting, positive relationships with other caring adults, problem-solving skills, self-regulation skills, positive self-perception, spirituality or religiosity, connections to prosocial peer groups, talent valued by self or others, socioeconomic stability, and safe neighborhood environment (Masten 2007; Murphey et al. 2013). Many of these factors are summarized in the “7 Cs” model of adolescent resilience: competence, confidence, character, connection, contribution, coping, and control (or self-efficacy) (Barger et al. 2017).

As many correlates of self-compassion are also factors that promote resilience, we would expect these two attributes to be positively associated. For example, both resilient and self-

compassionate adolescents use adaptive coping skills, often have a positive self-perception, and experience high levels of connection to others. Similarly, the self-compassionate person's balanced perspective and lack of harsh self-criticism may promote “bouncing back” from life's difficulties (Warren et al. 2016) in the same way a resilient person might recover from a challenging situation. Several studies have demonstrated this through lab-based experiments in undergraduate populations. For example, those responding to academic failure in a warm, accepting, and self-compassionate manner were more likely to forgive themselves and move on from the incident motivated to self-improve (i.e., change study habits) (Breines and Chen 2012). Likewise, Leary et al. (2007) demonstrated that self-compassion predicted positive coping and attenuated negative reactions to unpleasant life events among college students. Both of these studies support the hypothesis that self-compassion and trait resilience are positively correlated in young people.

Curiosity also appears to confer benefit to mental health. Curiosity has been defined as having two components: stretching and embracing. Stretching refers to actively seeking new experiences and knowledge, while embracing entails a willingness to accept the new and unpredictable nature of daily life (Kashdan et al. 2009). In adults, curiosity is positively correlated with life satisfaction (Park et al. 2004) positive emotions (Kashdan et al. 2011), satisfaction and social support in existing relationships (Gallagher and Lopez 2007), less aggression in romantic relationships (Kashdan et al. 2013) and less sensitivity to social rejection (Kawamoto et al. 2017). Regarding the positive interpersonal outcomes associated with curiosity, a curious mindset encourages openness, flexibility and interest in one's own inner experience as well as the experiences and motivations of others; thus a curious person is more likely to respond thoughtfully and inquisitively to interpersonal difficulties rather than perceiving them as threats (Kashdan et al. 2013).

Curiosity is also particularly pertinent to adolescence, a developmental stage where exploration, novelty-seeking and risk-taking are common and essential for growth and individuation from the family unit (Siegel 2015). While some have cautioned that the embracing aspect of curiosity may be associated with negative adolescent risk-taking behaviors under certain circumstances (Jovanović and Gavrilov-Jerković 2014), research has highlighted the many benefits of the constructive risks curious people seek, including motivation, feelings of accomplishment and pleasure, and personal growth (Kashdan et al. 2004). Similar to adult findings on curiosity, a study of over 400 Serbian adolescents showed that high levels of curiosity are significantly associated with multiple measures of well-being, including positive affect and hope (Jovanovic and Brdaric 2012), leading some to conclude that encouraging natural curiosity in this age group can be beneficial.

Findings from research with adults indicate that self-compassion and curiosity are positively correlated (Neff et al. 2007), and we would expect the same relationship to occur with adolescents. For example, in an undergraduate academic setting, those with higher self-compassion were more intrinsically motivated, goal-driven and had less fear of failure (Neff et al. 2005). This suggests that people high in self-compassion may also be innately more curious and apt to follow their interests despite the risk of potential “failure”, reaping the benefits of personal growth and satisfaction. Moreover, as the self-compassionate person takes a mindful, open and non-judgmental perspective on thoughts, emotions and experiences, it is plausible that she would be receptive to new or unpredictable experiences in the same way a highly curious individual seeks novel experiences, skills or knowledge.

Not surprisingly, recent research in adult populations report associations between self-compassion and resilience and curiosity (Boonlue et al. 2016; Hayter and Dorstyn 2014; Neff et al. 2007); however, few studies have directly measured the interrelationships between self-compassion and resilience and curiosity in adolescents. Given their parallels, the exploration of the direct correlations between self-compassion and both resilience and curiosity respectively in an adolescent sample is an important contribution to the field. Further, as self-compassion has been reported to be lower in older adolescent females (Bluth and Blanton 2015), with evidence supporting gender and age differences in well-being, stress, and coping styles (Nolen-Hoeksema and Girgus 1994), it is important to determine if these associations differ across age or between males and females.

The present study examines the relationship between self-compassion and resilience and self-compassion and curiosity, and investigates whether age or gender moderates these relationships for an adolescent sample. Our first hypothesis is based on findings in adults; we posit that self-compassion will be positively related to both resilience and curiosity. Second, we posit that age will not moderate the relationship between self-compassion and resilience or self-compassion and curiosity; the link between these constructs will not differ across adolescence. However, we hypothesize that gender will moderate these relationships in that the association between self-compassion and resilience and self-compassion and curiosity will be stronger for males than for females.

Method

Participants

Students who participated in this study were enrolled in two different school settings: a public middle and high school (grades 7–12; Sample 1), and a private all-girls' preparatory

Table 1 Participants' demographics ($N = 1057$)

	Frequency (%)	
Gender		
Male	344 (32.5)	
Female	690 (65.3)	
Male transitioning to female	4 (0.4)	
Female transitioning to male	1 (0.1)	
Unsure at this time	12 (1.1)	
Missing	6 (0.5)	
Age years		
11–12	138 (13.1)	
13–14	369 (34.9)	
15–16	335 (31.7)	
17–18	206 (19.5)	
19	4 (0.4)	
Missing	5 (0.5)	
Highest education level of parents	Mother	Father
Less than high school graduate	62 (5.9)	103 (9.7)
High school graduate	185 (17.5)	234 (22.1)
Some college	154 (14.6)	152 (14.4)
College graduate	349 (33.0)	273 (25.8)
Master’s degree	209 (19.8)	158 (14.9)
Doctorate or professional degree	82 (7.8)	109 (10.3)
Missing	16 (1.5)	28 (2.6)
Race/Ethnicity		
White	722 (68.3)	
Black	174 (16.5)	
Native American	11 (1.0)	
Pacific Islander/Asian	46 (4.4)	
Hispanic/Latino	37 (3.5)	
Other	62 (5.9)	
Missing	5 (0.5)	

school (grades 7–12; Sample 2), both located in the southeast U.S. Demographics for the combined samples are included in Table 1.

Procedure

After the university IRB and school administration approved the study, parents were informed of the purpose and protocol of the study via a letter that was sent home with students. Specifically, the letter explained that the purpose of the study was to determine how emotional well-being changed across adolescence from 7th through 12th grade and differed between males and females, and that questions would be asked in an online survey pertaining to emotional well-being. The university had approved passive consent; parents returned signed forms only if they did *not* want their child to participate. In Sample 1, parents of

56 students chose not to have their students participate; in Sample 2, all parents agreed to have their children participate. The student assent form was embedded into the online survey; students indicated their assent by proceeding to the survey questions.

All students in Sample 1 took the online survey during their first-period class. Seventh and eighth graders took the survey on 1 day, and 9–12 grade students took it over the course of 1 week (due to limited computer access). In total, 1030 students took the survey in Sample 1. In Sample 2, 277 students took the survey at different times during the course of 1 day.

Measures

The following measures were included in the online survey:

Self-compassion

The Self-Compassion Scale, short form (SCS: Raes et al. 2011) is comprised of 12 items, e.g., *I'm intolerant and impatient towards those aspects of my personality that I don't like* (reverse scored). Responses to each item use a 5-point Likert scale ranging from 1 (*Almost Never*) to 5 (*Almost Always*). A total self-compassion score is computed by reverse scoring negatively worded items and then summing all 12 items. The potential range in values is from 12–60; higher score indicates greater self-compassion. Reported Cronbach's alphas are good, $\geq .75$ (Marshall et al. 2014; Raes et al. 2011). Correlation with the full scale is excellent; $r = .97$ (Raes et al. 2011). Reliability for the sample in this study is .72.

Resilience

The 6-item Brief Resilience Scale (BRS: Smith et al. 2008) describes resilience as the ability to bounce back or recover from stress, e.g., *I tend to bounce back quickly after hard times*. Respondents use a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Total score was calculated by reverse scoring items 2, 4, and 6 and computing mean. Potential range of values is 1–5. Internal reliability in university students = .84 and .87 (Smith et al. 2008). Test-retest reliability, convergent and discriminant predictive validity were also established (Smith et al. 2008). Cronbach's alpha for this study is .72.

Curiosity/exploration

The curiosity and exploration inventory II (CEI: Kashdan et al. 2009) determines the degree to which individuals are "recognizing, embracing, and seeking out knowledge and new experiences" (Kashdan et al. 2009, p. 988). Factor analysis

identified the two factors of “stretching”, i.e., being motivated to seek knowledge and novel experiences, and “embracing”, i.e., willingness to embrace the new and uncertain nature of everyday life, in this 10-item scale (Kashdan et al. 2009). Scoring is on a Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). Range of total score is from 10–50, with higher scores indicating greater curiosity and willingness to embrace new experiences. Examples of items are *I actively seek as much information as I can in new situations* (stretching) and *I am the type of person who really enjoys the uncertainty of everyday life* (embracing). Cronbach’s alpha coefficient for total score is .86; the stretching subscale $\alpha = .80$ and embracing subscale $\alpha = .79$ (Kashdan et al. 2009). Cronbach alphas for this sample were .87 (full scale), .73 (embracing), .76 (stretching).

Demographics

The online survey included questions about age, grade, race/ethnicity, level of mother and father’s education, and gender. For gender, the following options were provided as requested by adolescents in previous studies: male, female, male transitioning to female, female transitioning to male, unsure at this time.

Validity check

Three questions were embedded in the survey as a validity check to determine if students carefully read the questions: 1) *In the last month, how often have you eaten a meal?* (5-point Likert scale from 1 = never to 5 = very often), 2) *The President of the U.S. is Obama* (5-point Likert scale from 1 = agree to 5 = strongly disagree), and 3) *I go to school in the southeast U.S.* (5-point Likert scale from 1 = agree to 5 = strongly disagree). If a participant answered “never” or “almost never” on question one or “strongly disagree, disagree, or neutral” on questions two or three, this was considered failing that question. If students failed two out of three of these items, they were removed from all analyses.

Data Analyses

First, we removed any cases that failed the validity check, as even small changes in attention can shift aggregate results (Hauser and Schwarz 2016). We then tested to see if being in the private school vs. public school sample moderated any of the planned analyses to determine whether the samples should be analyzed separately. We also ran sensitivity tests to see if the outcomes of moderations by gender were affected by whether youth identified as gender-transitioning or gender-unsure. We next screened dependent variables for normality, and followed with conducting

Pearson correlations with demographic variables and outcome variables to test for potential covariates. Correlations that were significant were controlled for in the model for the associated dependent variable.

We then used multiple regression analyses to assess the direct associations between self-compassion and both curiosity and resilience and controlled for demographic variables that were found to be associated with the outcome of interest. We also evaluated the interaction term in separate multiple regressions to evaluate whether age or gender moderated the relationships between self-compassion and both curiosity and resilience.

Results

In Sample 1, 93 participants failed the first validity question, 327 failed the second validity question, and 445 failed the third validity question; 244 failed 2 out of 3 questions, and were eliminated from all analyses, leaving 786 cases. In Sample 2, 1 participant failed the first validity question, 17 failed the second question, and 15 failed the third question; 6 failed two out of three questions and were removed from all analyses, leaving 271 cases. Sample did not moderate any of the tested associations (Tables S1–S4 in Supplementary Materials) so the samples were combined for all analyses, resulting in a sample size of 1057 adolescents. All analyses remained significant regardless of how gender transitioning and gender-unsure youth were categorized, included, or excluded from analyses so the displayed results include all participants coded as their post-transition gender where applicable (e.g., male transitioning to female was coded as female) with the exception of the moderation by gender analyses. In these analyses only students who identified as either male or female were included, though the results stayed the same when participants who identified as transgender were included as either their pre or post transition gender. All variables included in analyses fell within -2 to $+2$ on both skewness and kurtosis, indicating that all variables were within acceptable levels of normality to conduct parametric tests (Gravetter and Wallnau 2014; Trochim and Donnelly 2006). Mother’s education level and father’s education level were significantly associated with full-scale CEI-II, subscales of the CEI-II (father’s education for both stretching and embracing subscales, mother’s education for embracing subscale only), and the BRS. Gender was associated only with the BRS ($r = 0.17$, $p < .01$) (Table 2). These demographic variables were controlled for in the appropriate subsequent analyses where they were not a variable of interest.

Descriptive statistics for key study variables and Pearson correlations are presented in Table 2. Multiple linear

Table 2 Means, standard deviations, and correlations with confidence intervals

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. SCS	3.05	0.64							
2. CEI	31.27	8.17	.24**						
			[.19, .30]						
3. CEI-S	16.20	4.46	.25**	.94**					
			[.19, .31]	[.93, .94]					
4. CEI-E	15.07	4.28	.20**	.93**	.75**				
			[.15, .26]	[.92, .94]	[.72, .77]				
5. BRS	3.17	0.71	.49**	.27**	.28**	.23**			
			[.44, .53]	[.21, .33]	[.22, .33]	[.17, .29]			
6. Age	14.71	1.79	−.18**	.03	.03	.02	−.05		
			[−.23, −.12]	[−.03, .09]	[−.03, .09]	[−.04, .08]	[−.11, .01]		
7. Father Ed	3.46	1.50	−.07*	.10**	.09**	.10**	.08*	−.03	
			[−.13, −.01]	[.04, .16]	[.03, .16]	[.04, .16]	[.02, .14]	[−.09, .03]	
8. Mother Ed	3.68	1.34	−.06*	.06*	.05	.06*	.07*	−.04	.57**
			[−.12, −.00]	[.00, .12]	[−.01, .11]	[.00, .13]	[.01, .13]	[−.10, .02]	[.52, .61]

Note: *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation

SCS self-compassion scale, *CEI* curiosity and exploration inventory full scale, *CEI-S* curiosity and exploration inventory stretching subscale, *CEI-E* curiosity and exploration inventory embracing subscale, *BRS* brief resilience scale, *Father Ed* father's level of education, *Mother Ed* mother's level of education

*indicates $p < .05$; ** indicates $p < .01$

regression results for curiosity are depicted in Table 3. As predicted in our first hypothesis, self-compassion is positively associated with full scale curiosity ($\beta = 3.27$, $sr^2 = 0.07$, $p < .01$), the curiosity stretching subscale ($\beta = 1.82$, $sr^2 = 0.07$, $p < .01$), and the curiosity embracing subscale ($\beta = 1.45$, $sr^2 = 0.05$, $p < .01$) above and beyond demographic covariates. Similarly, self-compassion is positively associated with resilience ($\beta = 0.55$, $sr^2 = 0.24$, $p < .01$) when controlling for covariates.

In relation to our second hypothesis, age and gender did not moderate the relationships between self-compassion and either the total curiosity scale or either of the subscales (Tables S5–S10 in Supplementary Materials) but the positive association between self-compassion and resilience is moderated by gender ($\beta = -0.18$, $sr^2 = 0.01$, $p < .01$; Table 4). At higher levels of self-compassion, resilience is greater in males than in females (Fig. 1). While both slopes differed significantly from zero, the simple slope for males ($\beta = 0.65$, $SE = 0.05$, $p < .001$) was steeper than the simple slope for females ($\beta = 0.50$, $SE = 0.04$, $p < .001$). Age does not moderate the relationship between self-compassion and resilience (Table S11 in Supplementary Materials).

Discussion

This study sought to investigate the relationships between self-compassion and both resilience and curiosity in

adolescents, and determine whether age or gender moderated these relationships. Since self-compassion is a modifiable trait in both adults and adolescents (Bluth and Eisenlohr-Moul 2017; Bluth et al. 2016a; Neff and Germer 2013), determining the associations between these constructs would have implications in the creation of interventions which would strengthen self-compassion, and thereby increase the levels of the associated strengths-based traits of resilience and curiosity.

In response to the first research question, results indicate that self-compassion is significantly positively linked to both resilience and curiosity. Adolescents who are more self-compassionate are more resilient; they have an easier time “bouncing back” from challenges. This is consistent with previous research which has shown that self-compassion buffers against stress both in adolescents (Bluth et al. 2016b) and young adults (Breines et al. 2015), and that adults with higher self-compassion use positive coping strategies when faced with stress (Allen and Leary 2010), while those lower in self-compassion tend to ruminate when faced with stress (Raes 2010). A possible explanation for the link between self-compassion and resilience is that the mindfulness component of self-compassion facilitates being grounded in challenging moments and therefore being able to respond in a constructive manner, rather than ruminating or reacting impulsively (Roeser and Pinela 2014). Also, as self-compassionate adolescents are actively kinder to themselves at times of struggle (i.e., self-

Table 3 Self-compassion is positively associated with curiosity as indexed by CEI, CEI-S, and CEI-E

Criterion CEI			
Predictor	<i>b</i> (<i>SE</i>)	<i>sr</i> ²	Fit
(Intercept)	18.94 (1.43)**		
Father Ed	0.58 (0.20)**	.01	
Mother Ed	0.14 (0.22)	.00	
SCS	3.27 (0.38)**	.07	
			$R^2 = .077^{**}$ 95% CI [.05, .11]
Criterion CEI-S			
(Intercept)	9.55 (0.74)**		
Father Ed	0.34 (0.09)**	.01	
SCS	1.82 (0.21)**	.07	
			$R^2 = .078^{**}$ 95% CI [.05, .11]
Criterion CEI-E			
(Intercept)	9.47 (0.75)**		
Father Ed	0.27 (0.10)**	.01	
Mother Ed	0.09 (0.12)	.00	
SCS	1.45 (0.20)**	.05	
			$R^2 = .057^{**}$ 95% CI [.03, .08]

Note: *b* represents unstandardized regression weights; *sr*² represents the semi-partial correlation squared

SCS self-compassion scale, CEI curiosity and exploration inventory full scale, CEI-S curiosity and exploration inventory stretching subscale, CEI-E curiosity and exploration inventory embracing subscale, Father Ed father's level of education, Mother Ed mother's level of education

*indicates $p < .05$; **indicates $p < .01$

kindness component of self-compassion), this may promote an increased sense of self-worth, which would likely lead to less time spent ruminating and in other negative emotional states.

Further, adolescents who are more self-compassionate are also more curious; they more readily take positive risks, have more intrinsic motivation to learn new skills, and more easily embrace new situations. One potential explanation for this relationship is that through mindfulness practice one learns to observe momentary experiences with a sense of interest and curiosity; holding this non-judgmental stance creates some distance from the challenging situation at hand and allows one to not get caught up in the emotions related to the situation. Also, when adolescents know that they will be kinder to themselves in difficult situations, they are more comfortable taking positive risks because they know that if they fail they will not be recipients of harsh self-criticism. Rather, they will self-soothe and readily move on. Finally, the component of common humanity, i.e., knowing that

others fail too at times and experience negative emotions as a result, provides a sense of social support and a much needed sense of “belonging” (Roeser and Pinela 2014) which also promotes embracing new experiences. These results parallel findings with adults that reported correlations between self-compassion and both curiosity and personal initiative (Neff et al. 2007); adults who are more self-compassionate seem to have less fear of failure (Neff et al. 2005) and hence are more likely to be open to new challenges.

The second research question addressed whether age or gender moderated the relationships between self-compassion and resilience and self-compassion and curiosity. As expected, age did not moderate these relationships; the links between self-compassion and resilience and self-compassion and curiosity remained significant at all ages. Also as expected, gender moderated the relationship between self-compassion and resilience; this link was stronger in males than females. At greater levels of self-compassion, males experience greater increases in resilience than do their female counterparts. This may be because adolescent females often are contending with other factors that detract from their ability to be resilient, such as higher levels of depression (Petersen et al. 1991) and anxiety (Lewinsohn et al. 1998) which emerge during the adolescent years (Copeland et al. 2011). It may be that self-compassion is protective only up until a certain point, beyond which these mental health challenges make it more difficult for females to bounce back from stressful incidents. Another possible explanation is that males with greater self-compassion adhere less to traditional masculine norms (Reilly et al. 2014), and as less masculine norm adherence is associated with better mental health outcomes (Wong et al. 2012), it is plausible that these self-compassionate males also have greater ability to be resilient than their more gender norm-adhering male counterparts.

Contrary to our hypothesis, gender did not moderate the relationship between self-compassion and curiosity; the link between self-compassion and curiosity does not differ between males and females. At specific levels of self-compassion, males and females are equally likely to stretch their limits and delve into new areas of learning. It seems that the differences between genders that produce an interaction effect in the self-compassion and resilience association do not cause a similar effect in the self-compassion-curiosity association. If these differences are due to emotional health discrepancies, as posited, it seems that they do not influence the degree to which females are willing to take on new challenges. More research needs to be conducted in this area to parse out these gender differences.

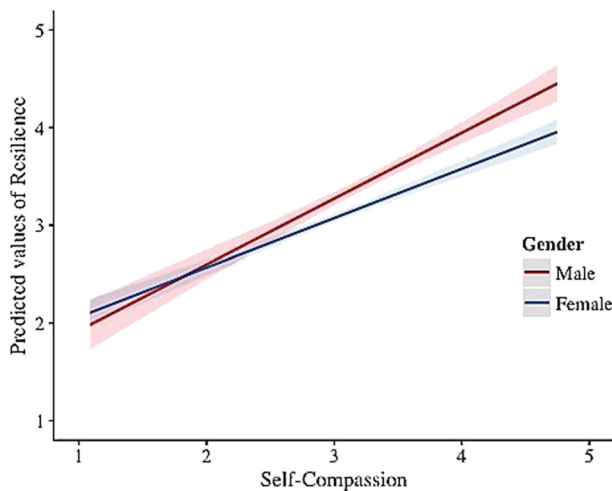
Knowing that greater self-compassion is linked with greater resilience and a greater ability to explore and investigate new areas of interest, and that this holds true

Table 4 Self-compassion is positively associated with resilience, and this relationship is moderated by gender

Criterion BRS				
Predictor	<i>b</i> (<i>SE</i>)	<i>sr</i> ²	Fit	Difference
(Intercept)	1.47 (0.13)**			
Father Ed	0.05 (0.02)**	.01		
Mother Ed	0.03 (0.02)	.00		
Gen	−0.14 (0.03)**	.01		
SCS	0.55 (0.03)**	.24		
			$R^2 = .279^{**}$	
			95% CI[.23, .32]	
(Intercept)	0.50 (0.30)			
Father Ed	0.05 (0.02)**	.01		
Mother Ed	0.03 (0.02)	.00		
Gen	0.39 (0.15)*	.00		
SCS	0.86 (0.09)**	.06		
SCS x Gen	−0.18 (0.05)**	.01		
			$R^2 = .288^{**}$	$\Delta R^2 = .01^{**}$
			95% CI[.24, .33]	95% CI[−.00, .02]

Note: *b* represents unstandardized regression weights; *sr*² represents the semi-partial correlation squared
BRS brief resilience scale, *Father Ed* father's level of education, *Mother Ed* mother's level of education, *Gen* gender, *SCS* self-compassion scale

*indicates $p < .05$; **indicates $p < .01$

**Fig. 1** Gender moderates the relationship between self-compassion and resilience; at higher levels of selfcompassion, relationship is stronger for males than for females

across adolescence, developing interventions to strengthen self-compassion during adolescence would facilitate resilience and exploration in teens, and provide a buffer against the stressors and mental health challenges during this period. One such program has been empirically tested and is demonstrating promising results in improving mental health (Bluth and Eisenlohr-Moul 2017; Bluth et al. 2016a). *Making Friends with Yourself* is an 8-week adaptation of the Mindful Self-Compassion program for adults (Neff and

Germer 2013) and is designed for ages 11–19. Additionally, mindfulness programs for adolescents in a retreat setting have also demonstrated increases in self-compassion which mediate positive emotional well-being outcomes, such as decreases in depression, perceived stress and increases in positive affect and gratitude (Galla 2017). Thus, it appears that the link between self-compassion and emotional well-being attributes can be instrumental in promoting well-being through strengthening self-compassion skills.

Limitations of this study are that all participants live in one area of the U.S.; therefore findings may not generalize across adolescents from other areas of the U.S. or other countries. Second, all data are self-report; however, eliminating cases that failed the validity check likely limited some questionable data. Third, although we found no differences between the two samples in demographic variables, it may be that the two samples differed in ways that were not measured, but may have affected outcomes.

In summary, it appears that the positive associations found between self-compassion and both resilience and curiosity/exploration across adolescence indicate that the ability to be self-compassionate may provide adolescents with ways in which they can build resilience, thereby buffering the effect of stressors, and promoting strengths-based behaviors such as stretching and embracing new challenges. These abilities allow them to transition more easily into young adulthood, and develop healthy and adaptive lifelong behaviors.

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Compliance with Ethical Standards

Conflict of Interest Dr. Bluth declares that she is the co-creator of Making Friends with Yourself: A Mindful Self-Compassion Program for Teens and Young Adults. The remaining authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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