

# Age and Gender Differences in the Associations of Self-Compassion and Emotional Well-being in A Large Adolescent Sample

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**Abstract** Adolescence is a challenging developmental period marked with declines in emotional well-being; however, self-compassion has been suggested as a protective factor. This cross-sectional survey study ( $N = 765$ , grades 7th to 12th; 53 % female; 4 % Hispanic ethnicity; 64 % White and 21 % Black) examined whether adolescents' self-compassion differed by age and gender, and secondly, whether its associations with emotional well-being (perceived stress, life satisfaction, distress intolerance, depressive symptoms, and anxiety) also differed by age and gender. The findings indicated that older females had the lowest self-compassion levels compared to younger females or all-age males. Self-compassion was associated with all emotional well-being measures, and gender and/or age moderated the associations with anxiety and depressive symptoms. Among older adolescents, self-compassion had a greater protective effect on anxiety for boys than for girls. Additionally, older adolescents with low and average self-compassion had greater levels of depressive symptoms than those with high self-compassion. These results may inform for whom and at what age self-compassion interventions may be implemented to protect adolescents from further declines in emotional well-being.

**Keywords** Self-compassion · Emotional well-being · Depression · Anxiety · Perceived stress · Distress intolerance · Mindfulness

## Introduction

Successful negotiation of the challenges in adolescence is crucial for adolescents' health and emotional well-being in adulthood. During this developmental period, key shifts occur in physiology, including hormonal changes and maturation of brain structure and function, cognitive capabilities (i.e., growth in metacognition and abstract thinking), and emotional expression (i.e., increase in emotional volatility and depressive symptomatology) (Giedd 2008; Keating 2004; Susman and Dorn 2009). This vulnerable period is also characterized by increased manifestation of psychopathologies such as anxiety, depression, conduct disorders, substance abuse, and phobias (Costello et al. 2003), with gender-associated differences often found in their prevalence, presentation, and timing (Copeland et al. 2011; Zahn-Waxler et al. 2008). While subject to biological predispositions, these psychopathologies may be triggered or exacerbated by acute and chronic stressors that occur in childhood and adolescence, such as poverty, parental conflict and divorce, school transitions, and community disasters. Once established during adolescence, such disorders become risk factors for adult psychopathology (Hayden and Mash 2014). Therefore, successful navigation of this vulnerable period is crucial for success over the lifespan, and entails a combination of personality predispositions, health-promoting behaviors, and social support. Examples of protective factors for psychopathology over the life course include psychological factors

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(i.e., temperament, intelligence, high self-esteem and self-efficacy, positive coping strategies, high distress tolerance, and resilience), familial factors (i.e., positive parenting, spiritual beliefs, and availability of resources), and community factors (i.e., caring community relationships and positive role models). These factors are interrelated and often reciprocal in terms of cause and effect (Mash and Barkley, 2014).

According to Bronfenbrenner's bioecological framework, individual development occurs through the interplay of the individual and her contexts, and the interrelationships among those contexts (Bronfenbrenner 1979, Bronfenbrenner and Morris 2006). Thus, the aforementioned biological changes taking place within the individual (e.g., hormonal, brain, and cognitive development), microsystem level changes (e.g., school transitions, shifts in family, and peer relationships), and macrosystem level changes (e.g., awareness of gender-role cultural expectations) interact to create significant stressors for the adolescent. In addition, given the reported link between stress and depression in adolescence (Petersen et al. 1993), we would anticipate that an older adolescent who has faced more of these stressors would have a greater likelihood of experiencing emotional challenges (i.e., comorbid internalizing symptoms such as depression, anxiety, perceived stress) or behavioral challenges (i.e., comorbid externalizing symptoms such as substance use, conduct disorder) than a younger adolescent, who has not yet encountered these developmental changes; this has been well documented in adolescent literature (Merikangas et al. 2010; Petersen 1982). Further, as metacognitive ability increases with adolescent age, and adolescents become more introspective, egocentric and self-conscious, they may develop self-absorption tendencies, including the "imaginary audience," an extreme form of self-consciousness in which the adolescent believes she is the focus of others' attention, and the "personal fable" (Elkind 1967), the belief that the challenges and experiences they face are unique to them. Such self-absorption may lead to increases in rumination, particularly for females as they tend to ruminate more than males, which has been linked to depression and anxiety (Nolen-Hoeksema 2000). Finally, as adolescents are increasingly able to think abstractly and see a greater number of possible outcomes to situations, they may have difficulty enacting productive strategies to cope with stressful situations. In fact, nearly half of all adolescents report that they have difficulty dealing with stressors related to home or school (Gans 1990) and this may contribute to increases in anxiety or depression (Petersen et al. 1993). Indeed, the inability to tolerate aversive somatic and emotional states, known as distress intolerance, is linked with a broad array of psychopathological symptoms and disorders (Leyro et al. 2010) and distress tolerance has been shown to moderate the relationship between daily stressors

and affective symptoms, including depressive symptoms and worry, in undergraduate students, over a two-week period (Macatee et al. 2016).

### Self-Compassion

One promising protective and ameliorating psychological factor in adolescent populations is self-compassion, defined as non-judgmentally connecting with one's own suffering and failure as an inherent aspect of being human, and taking an active role in self-soothing when experiencing emotional challenges (Neff 2003). The concept of self-compassion differs from self-esteem, which often involves comparing one's abilities with others in a social hierarchy, whereas self-compassion involves connecting with others in appreciation of one's equal footing in the human condition (Neff and McGehee 2010). Additionally, self-compassion is generally considered to be a positive coping strategy; therefore, it may be associated with other similar positive coping strategies such as reappraisal, problem solving, and acceptance (Allen and Leary 2010). Self-compassion is both a trait and a psychological process, and is self-generated during times of emotional struggle. It is comprised of three interconnected dimensions: (1) Self-kindness, which entails taking an active role in cultivating care and warmth toward oneself; (2) appreciation of common humanity, or the understanding that there are underlying universal human emotions that we all experience during challenging times, and that these intimately connect us to other people; and (3) mindfulness, or the ability to attend to one's momentary experience with a sense of emotional equanimity. Through activating self-soothing behaviors, self-kindness addresses the precise feelings of emotional pain associated with internalizing symptoms such as depression and anxiety. Further, the common humanity component of self-compassion directly counters the adolescent phenomena of the "personal fable," as it assumes that one's experiences are universal and part of the human experience. Finally, as the mindfulness subcomponent of self-compassion focuses on developing equanimity and present-centered awareness, we would expect those who are more mindful to engage less in rumination.

Prior self-compassion research is consistent with these expectations. In adult populations, multiple cross-sectional studies have shown self-compassion to be negatively associated with psychopathology (see MacBeth and Gumley 2012 for a meta-analysis) and positively associated with emotional well-being (see Zessin et al. 2015 for a meta-analysis). For instance, higher levels of self-compassion are associated with greater life satisfaction, positive affect, and emotional intelligence and negatively associated with perceived stress, aggression, rumination, eating disorders, and symptoms of anxiety and depression (MacBeth and Gumley 2012;

Neff et al. 2007; Zessin et al. 2015). Fewer studies have been conducted with adolescents than with adults, but these have shown similar associations. For example, a cross-sectional study (Muris et al. 2016) with non-clinical adolescents aged 12–17 years found negative associations between self-compassion and anxiety and depression. In another cross-sectional study with at-risk adolescent males attending a residential program, self-compassion was found to be positively associated with self-esteem and negatively associated with aggression and narcissism (Barry et al. 2015). An additional cross-sectional study of middle and high-school students found self-compassion to be positively associated with life satisfaction and negatively associated with perceived stress (Bluth and Blanton 2015). Further, self-compassion has been reported to be positively associated with adolescents' sense of community (Akin and Akin 2015).

Furthermore, longitudinal studies, which provide a stronger test for examining these associations, suggest that self-compassion has a protective effect on various adverse psychological factors in young adults and adolescents. For instance, higher levels of self-compassion in undergraduate students predicted lower levels of depression five months later (Raes 2011). Similarly, in a large sample of Australian ninth graders, self-compassion was shown to moderate the relationship between self-esteem and mental health, such that it protected against negative self-judgments over the next year (Marshall et al. 2014). When assessing adjustment to a traumatic event, self-compassion exerted a protective effect on trauma-related psychopathology in Israeli high school students (Zeller et al. 2015). Further, in a study of adolescents receiving child protective services, where self-compassion and other psychological variables were assessed at the two-year follow-up, lower self-compassion was associated with greater psychological distress, problem alcohol abuse, and suicide attempts (Tanaka et al. 2011). In the only study to date on stress-related biomarkers in the context of adolescents' self-compassion, results demonstrated a trend towards overall lower physiological stress responses (i.e., lower systolic blood pressure, heart rate increase, and cortisol output) in the group with higher self-compassion (Bluth et al. 2016).

Intervention studies have also provided support for self-compassion's protective effect. In a five-day, intensive meditation retreat with adolescents, increases in self-compassion predicted reductions in perceived stress, ruminations, depressive symptoms, and negative affect (Galla 2016). Finally, in a pilot six-week intervention involving mindful self-compassion training for middle and high-school students, self-compassion predicted decreases in anxiety, depression, and perceived stress and increases in life satisfaction (Bluth et al. 2015). Overall, these studies' findings provide preliminary support for self-compassion as

a protective psychological factor among adolescents, by ameliorating stress responses and psychopathological symptomatology, and increasing positive emotional well-being.

### Gender and Age Differences in Self-Compassion

Given the significant role that self-compassion may play in emotional well-being, and acknowledging the challenges of the adolescent period and the differences in the development of males and females, it is important to understand how self-compassion may manifest in different stages of adolescence between genders. During adolescence, females tend to be more self-conscious than males, particularly in relation to changes in their physical development and their relationships with peers and romantic partners. This heightened self-consciousness may counteract notions of self-compassion, particularly as female adolescents become older and experience more of these developmental challenges (Hyde et al. 2008). Additionally, according to Gilligan et al. (1990), through their increased ability to think abstractly, adolescent females begin to realize that the female-specific values of being nurturing and relational are not valued in our male dominated culture, as a result, this may lead to increased vulnerability to a cluster of internalizing symptoms (i.e., depression, anxiety, stress). Relatedly, self-compassion may also be lower in females due to gender-role intensification, or the pressure to conform to stereotypical sex roles that takes place during adolescence (Hill and Lynch 1983). As female adolescents report more negative life events than males (e.g., females experience twice the rate of sexual abuse and more peer sexual harassment victimization than males), with an even greater disparity between females' and males' appraisals of these events (Hyde et al. 2008; Nolen-Hoeksema and Girgus 1994), we would expect internalizing symptoms in females to be negatively affected (Bronfenbrenner 1979; Bronfenbrenner and Morris 2006; Petersen et al. 1991) and their level of self-compassion also to be lower than that of males.

A recent meta-analysis on gender differences in self-compassion reported that self-compassion levels are slightly lower for women than men, with a larger difference in more ethnically diverse samples (Yarnell et al. 2015). However, as self-compassion research is nascent in adolescence with the first published study in 2010 (Neff and McGehee 2010), it is yet unclear whether this difference emerges in adolescence. For example, Muris et al. (2016) found no gender differences in self-compassion in their overall sample of Dutch adolescents, but when they differentiated between younger and older adolescents they found that among older adolescents, females exhibited lower levels of self-compassion than males. Bluth and Blanton (2015), in a

cross-sectional study of 90 adolescents in grades six through twelve drawn from a private middle school and public high school in the southern U.S., investigated differences in self-compassion between genders and across adolescence and their association with emotional well-being. Their findings suggested that gender and age differences in self-compassion and emotional well-being emerge between middle school and high school. Particularly, high school females reported significantly lower self-compassion and worse emotional well-being than middle school females and males from both schools. Furthermore, the negative association between self-compassion and negative affect was greater in older adolescents; however, there were no gender differences in this association (Bluth and Blanton 2015). This association suggests that self-compassion may have the potential to be protective with older adolescents when emotional well-being is at its lowest. However, the findings from this study are limited by a small sample size ( $n = 90$ ) and significantly different demographic backgrounds between the private middle school and public high school. That is, the private middle school students came from a higher socioeconomic background, as indicated by a significantly higher parental education (Lien et al. 2001). Potentially, such differing home environments and resources available at a private school versus a public school could influence the development of self-compassion and bias the study findings. Therefore, a better examination of age and gender differences in self-compassion during adolescence would include a middle school and high school with similar demographic backgrounds.

## Current Study

In the current study, we aimed to examine levels of self-compassion across adolescence in middle school and high school and their association with indicators of emotional well-being, including perceived stress, depressive symptoms, anxiety, life satisfaction, and distress intolerance. Furthermore, we sought to examine whether self-compassion and its associations with emotional well-being differed by age and gender. We expected self-compassion to be lower among older adolescents because this age group is associated with increases in comorbid internalizing symptoms (i.e., depressive symptoms, anxiety, stress, ability to tolerate distress) (Merikangas et al. 2010) and prior literature supports an inverse relationship between self-compassion and these symptoms. Additionally, as these internalizing symptoms are greater among older adolescent females (Merikangas et al. 2010), we expected older females to have lower self-compassion than males of the same age or younger adolescent females. As self-compassion serves as a protective factor and buffers

against such negative emotional states as depression and stress (Bluth et al. 2015; Muris 2016; Raes 2011), we also expected that self-compassion would be differentially associated with these constructs across age and gender. Further, prior research (Bluth and Blanton 2015) provides some support for these differences. In the current study we aimed to replicate and extend this prior study by addressing the previously mentioned limitations through utilizing a larger sample size and ensuring that the middle school and high school had similar demographic backgrounds.

Based on previous literature in both the domains of self-compassion and adolescent development, and guided by Bronfenbrenner's bioecological framework which emphasizes contextual influences on development, we hypothesized that: (1) adolescents' age and gender are differentially associated with levels of self-compassion such that older female adolescents would have lower levels of self-compassion than both males of the same age and younger female adolescents, and (2) self-compassion is associated positively with positive indicators of well-being and inversely with negative indicators of well-being, and that this association would differ according to age and gender.

## Method

### Participants

Students who participated in this study were enrolled in a public middle school or high school from the same school district in a small city (approximately 15,000 people) within a relatively rural area in the southeast U.S. Demographics for the sample are included in Table 1.

### Procedure

After receiving study approval from the university Institutional Review Board, we invited the school administration to have their students participate in the study. After school administration approval, letters went home to parents to inform them of the study and invite adolescents to participate. The study was explained as a one-time online survey with questions to assess whether emotional well-being differed across adolescence from 7th through 12th grade, and among boys and girls in these grades. Per IRB approval, if parents did not want their child to participate in the study, they returned a signed an opt-out form to the study staff. In all, parents of 37 students in middle school (grades 7–8) and 21 students in high school (grades 9–12) returned forms opting not to participate in the study. The student assent for the study was embedded in the online survey. Immediately upon logging onto the online survey, students read a description of the study and proceeded to the survey questions after providing assent. For middle school

**Table 1** Participants' demographics ( $N=765$ )

	Frequency (%)	
Gender		
Male	345 (44)	
Female	420 (53)	
Age years		
11–13	251 (33)	
14–16	366 (48)	
17–19	148 (19)	
Highest education level of parents	Mother	Father
Less than high school	60 (8)	99 (13)
High school graduate	175 (23)	225 (30)
Some college	136 (18)	135 (18)
College graduate	233 (31)	187 (24)
Master's degree	129 (17)	75 (10)
Doctorate or professional degree	24 (3)	25 (3)
Race/Ethnicity		
Hispanic	30 (4)	
White	490 (64)	
Black	161 (21)	
Native American	10 (1)	
Asian	25 (3)	
Other	48 (6)	

students, the online survey was administered during their first period class and all middle school participants completed the survey in a single day. For high school students, due to limited availability of computers, the survey was administered during the first period class over a week. In all, 1033 students completed the study survey.

## Survey Measures

### Self-Compassion

The Self-Compassion Scale, short form (Raes et al. 2011) is comprised of 12 items. Example items are: "I'm disapproving and judgmental about my own flaws and inadequacies" and "I try to see my failings as part of the human condition." Responses are indicated with a 5-point Likert scale ranging from 1 (*Almost Never*) to 5 (*Almost Always*). A total self-compassion score was computed by reverse scoring negatively worded items and then summing all 12 items. The potential total score range is 12–60, with a higher score indicating greater self-compassion. A factor analysis indicated that the short version of the scale has the same factor structure as that of the full 26-item scale. However, due to the brevity of the scale, it is recommended that only the total score be used, rather than the subscale scores (Raes et al. 2011). Convergent and discriminant

validity are good (Castilho et al. 2015) and the full scale has been validated with adolescents (Cunha et al. 2016). Reliability is also good; reported Cronbach's  $\alpha \geq .75$ . Correlation with the full scale is excellent;  $r = .97$  (Marshall et al. 2014; Raes et al. 2011). Reliability in this study sample was  $\alpha = .73$ .

### Perceived Stress

Perceived stress was measured using the 10-item Perceived Stress Scale (Cohen and Williamson 1988), which is designed to assess the degree to which individuals find their lives "unpredictable, uncontrollable, and overloading" (Cohen et al. 1983, p. 387). Examples of items include: "In the last month, how often have you felt you were unable to control the important things in your life?" and "In the last month, how often have you felt nervous and stressed?" Responses are indicated using a 5-point Likert scale ranging from 0 (*Never*) to 4 (*Very often*). A total score is calculated by reverse-scoring positively-worded items and then summing all 10 items. The potential total score range is 0–40, with higher scores indicating greater perceived stress. Both convergent validity and discriminant validity have been established (Lee 2012; Roberti et al. 2006). Reported reliability is  $>.75$  in college and community samples (Lee 2012); Cronbach's  $\alpha$  for this study sample was  $\alpha = .82$ .

### Depressive Symptoms

The Short Mood and Feelings Questionnaire (Angold et al. 1995) is a 13-item self-report scale that assesses childhood and adolescent depressive symptoms. The scale asks participants if the items have been true for them over the last two weeks. Examples of items include: "I thought I could never be as good as other kids" and "I felt lonely." Responses are indicated with a 3-point Likert scale ranging from 0 (*Not true*) to 2 (*True*). Potential total score range is 0–26, with higher scores indicating greater depressive symptoms. Criterion validity and construct validity have been established (Rhew et al. 2010; Sharp et al. 2006). Reliability has been reported as 0.85 (Angold et al. 1995), and reliability for this sample was  $\alpha = .93$ .

### Anxiety

The Spielberger State-Trait Anxiety Inventory 6-item short form (Marteau and Bekker 1992) was used to assess general anxiety. Examples of items include: "I feel tense" and "I feel upset." Responses are indicated using a 4-point Likert scale of 1 (*Not at all*) to 4 (*Very much*). The potential prorated score range is 20–80, with higher scores indicating greater anxiety. Concurrent validity was determined when comparing the 6-item short form with the 20-item full form,



and reported reliability for the short form is  $\alpha = .82$  (Mar-teau and Bekker 1992). Cronbach's  $\alpha$  for this study sample was  $\alpha = .76$ .

### Life Satisfaction

Life satisfaction was measured using the 7-item Student Life Satisfaction Scale (Huebner, 1991), which implies an overall judgment about one's well-being, independent of context. Examples of items include: "I have a good life" and "My life is just right." Responses are indicated with a 4-point Likert scale ranging from 0 (*Never*) to 3 (*Almost always*). The total score was computed by reverse-scoring items 3 and 4 and then calculating a total average. The potential total score range was 0–3, with higher scores indicating greater life satisfaction. The scale has a uni-dimensional factor structure, adequate temporal stability over 1–2 weeks ( $r = .74$  with student samples from grades 4, 6, and 8) (Huebner, 1991). Further validation and test-retest reliability over 1 year was established in a study with high school students (Huebner et al. 2000). Concurrent validity was evidenced in parent reports (Dew and Huebner 1994; Gilman and Huebner 1997) and teacher reports (Huebner and Alderman 1993). Reliability is good; Cronbach's  $\alpha = .82$  with student samples from grades 4, 5, 6, and 8 (Huebner 1991); Cronbach's  $\alpha$  ranged between .79 and .86 in high school samples (Dew and Huebner 1994; Gilman and Huebner 1997; Huebner et al. 2000). Cronbach's  $\alpha$  in this study sample was  $\alpha = .84$ .

### Distress Intolerance

The 10-item Distress Intolerance Index (McHugh and Otto 2012) measures the degree to which one perceives their ability to tolerate challenging emotional states. Examples of items include: "Being upset is a major ordeal for me" and "Other people seem to be able to tolerate feeling upset better than I can." Responses are indicated on a 5-point Likert scale ranging from 1 (*Strongly agree*) to 5 (*Disagree*). Higher scores indicate greater ability to tolerate distress. Items for this scale were derived from a factor analysis of the four most commonly used distress intolerance scales, and 10 items loaded onto one factor and were thus used to form the scale. Construct validity was established with behavioral measures of distress intolerance (McHugh and Otto 2011). This scale has demonstrated strong reliability (Cronbach's  $\alpha = .92$ ) and construct validity (McHugh and Otto 2012). Cronbach's  $\alpha$  for this study sample was  $\alpha = .92$ .

### Demographics

Participants were asked their age, grade, race/ethnicity, level of parents' education, and gender. For gender, we

provided the following options: male, female, male transitioning to female, female transitioning to male, and 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. If students answered two out of three of these items incorrectly, they were excluded from all analyses. The three questions, answered with a 5-point Likert scale (1=*agree* to 5=*disagree*), were: (1) *In the last month, how often have you eaten a meal?*, (2) *The current President of the U.S. is Obama*, and (3) *I go to school in the southeast U.S.* Failure on question one was indicated by responding with "never" or "almost never" and failure on questions two and three were indicated by responding with "strongly disagree," "disagree," or "neutral."

### Data Analysis

First, we eliminated any participants who failed the validity check. Next, data were examined for outliers and regression assumptions (i.e., normality, linearity, independent errors, and homoscedasticity). To test for potential covariates, we conducted bivariate tests (i.e., Pearson correlation) with demographic variables and the dependent variables of well-being. Those that were significant were controlled for in the model of the associated dependent variable. To answer the first research question of whether age and gender were differentially associated with levels of self-compassion, we tested the interaction of age and gender (i.e., age  $\times$  gender) with bootstrapped multiple regression analyses using the PROCESS macro program (Hayes 2013). For the second research question that examined the association of self-compassion with well-being variables and whether this was moderated by gender and age, we also used bootstrapped multiple regression analyses with the PROCESS macro looking at both 3-way interactions (among self-compassion, age and gender) and 2-way interactions (between self-compassion and age, and between self-compassion and gender). The PROCESS program used in these analyses mean centers the variables used in the construction of the interaction term and generates 5000 bootstrap samples to calculate 95 % bias-corrected-accelerated confidence intervals (BCa CI). In this second research question, rather than using  $\alpha = .05$ , we interpret results with a Bonferroni adjustment of  $\alpha = .01$  to account for multiple comparisons. In all analyses, age was used as a continuous variable. Furthermore, since our aim for the gender analyses was to compare self-compassion between males and females, all the gender analyses included participants who identified as either male or female and we excluded those identifying as

**Table 2** Descriptive statistics and correlations for well-being variables

Measure	Mean (SD)	1	2	3	4	5	6
1. SC	3.11 (.61)		.48**	-.65**	-.61**	-.53**	.39**
2. SLSS	2.89 (.70)			-.66**	-.65**	-.59**	.40**
3. PSS	20.43 (6.97)				.72**	.64**	-.48**
4. MFQ	20.24 (6.72)					.51**	-.50**
5. Anxiety	41.60 (13.25)						-.40**
6. DI	23.97 (10.15)						

\*\* $p < .01$ 

SC self-compassion, SLSS student life satisfaction scale, PSS perceived stress scale, MFQ mood and feelings questionnaire, DI distress intolerance

“male transitioning to female,” “female transitioning to male,” or “unsure at this time.” These will be investigated in a future manuscript. Power analyses for a multiple regression model with interaction terms and covariates indicated power of .99 to detect a small effect size ( $f^2 = .02$ ) in a sample size of 765 using an  $\alpha = .05$ . Analyses were conducted with SPSS version 22 (IBM Corporation, New York, NY, USA).

## Results

Ninety-three participants failed the first validity question (*In the last month, how often have you eaten a meal?*), 327 failed the second validity question (*The President of the U.S. is Obama*), and 445 failed the third validity question (*I go to school in the southeast U.S.*). In all, 244 failed 2 out of 3 of the questions and were excluded from all analyses, leaving 789 total participants. We also excluded those who indicated that they were male transitioning to female ( $n = 4$ ), female transitioning to male ( $n = 1$ ) or unsure at this time ( $n = 12$ ). Demographic data for the remaining 765 participants are in Table 1.

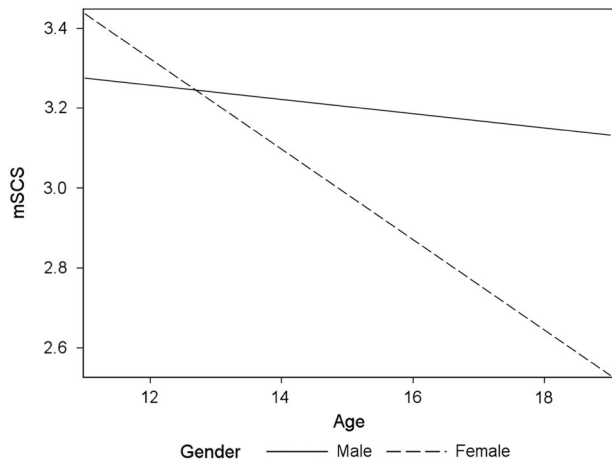
Correlations between the demographic and dependent variables indicated that mother’s and father’s education were significantly associated with life satisfaction, perceived stress, and depressive symptoms (mother’s education with life satisfaction:  $r = .13$ ,  $p < .001$ ; perceived stress:  $r = -.07$ ,  $p = .049$ ; and depressive symptoms:  $r = -.08$ ,  $p = .03$ ; father’s education with life satisfaction:  $r = .15$ ,  $p < .001$ ; perceived stress:  $r = -.11$ ,  $p = .003$ ; and depressive symptoms:  $r = -.09$ ,  $p = .01$ ). Additionally, father’s education was significantly associated with distress intolerance ( $r = .11$ ,  $p = .002$ ) and anxiety ( $r = -.08$ ,  $p = .04$ ). Race/ethnicity was significantly associated with distress intolerance ( $r = -.10$ ,  $p = .01$ ). These demographic variables were controlled for in the respective models. Descriptive statistics and correlations between variables are presented in Table 2. All correlations were in the expected directions.

The first research question examined whether age and gender interacted in their association with self-compassion. This regression model was statistically significant,  $F(3, 761) = 20.55$ ,  $p < .00001$  and accounted for 8 % of the variance. The age  $\times$  gender interaction was significant ( $b = -.095$ ,  $p < .00001$ , 95 % BCa CI:  $-.14, -.05$ ) and was probed by examining the conditional effect of age on self-compassion at values of gender. This indicated that for females, older age was significantly associated with lower levels of self-compassion ( $b = -.11$ ,  $p < .00001$ , 95 % BCa CI:  $-.15, -.08$ ); whereas this was not the case for males ( $b = -.02$ ,  $p = .24$ , 95 % BCa CI:  $-.05, .01$ ; see Fig. 1).

The second research question examined the association of self-compassion with well-being (i.e., life satisfaction, perceived stress, anxiety, distress intolerance, and depressive symptoms) and whether this association was moderated by gender and age. The regression model for life satisfaction, which controlled for mother’s and father’s education, was statistically significant [ $F(9, 736) = 34.02$ ,  $p < .00001$ ] and accounted for 28 % of the variance. There were no significant interactions (either 3-way or 2-way) with self-compassion ( $p$ ’s  $> .05$ ). However, self-compassion ( $b = .54$ ,  $p < .00001$ , 95 % BCa CI:  $.47, .62$ ) and being male ( $b = -.12$ ,  $p = .007$ , 95 % BCa CI:  $-.22, -.03$ ; males = 0, females = 1) were significantly associated with reporting greater life satisfaction.

The regression model for perceived stress, which also controlled for mother’s and father’s education, was statistically significant [ $F(9, 736) = 77.72$ ,  $p < .00001$ ] and accounted for 48 % of the variance. The interaction terms (3-way or 2-way) were not significant in this model ( $p$ ’s  $> .05$ ). For the main effects, self-compassion was associated with lower levels of perceived stress ( $b = -7.11$ ,  $p < .00001$ , 95 % BCa CI:  $-7.75, -6.46$ ), and being female ( $b = 2.41$ ,  $p < .00001$ , 95 % BCa CI:  $1.63, 3.19$ ) and older age ( $b = .32$ ,  $p = .004$ , 95 % BCa CI:  $.10, .54$ ) were associated with higher levels of perceived stress.

The regression model for anxiety, which controlled for father’s education, was statistically significant [ $F(8, 735) = 39.38$ ,  $p < .00001$ ] and accounted for 30 % of the variance.

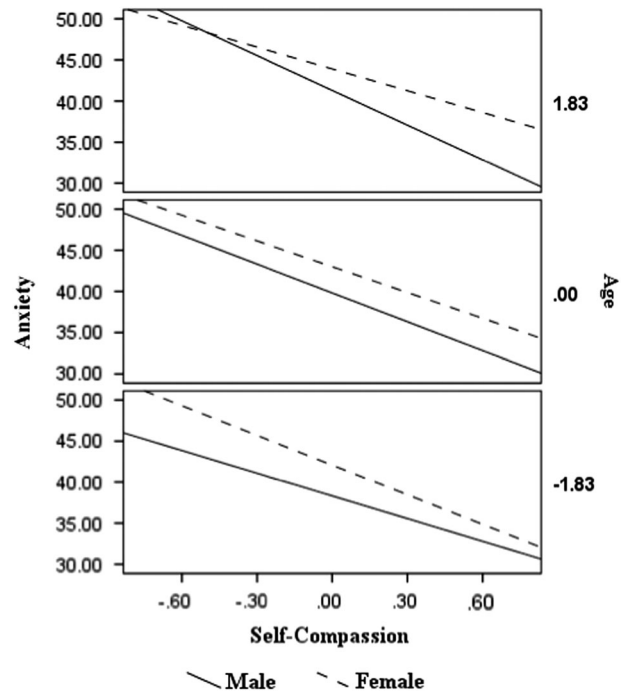


**Fig. 1** Interaction of age and gender on self-compassion. *mSCS* mean of self-compassion

In this model, the 3-way interaction of self-compassion  $\times$  age  $\times$  gender interaction was significant ( $b = 2.21, p = .008, 95\% \text{ BCa CI: } .58, 3.83$ ). To probe the interaction, we examined the conditional effect of gender  $\times$  self-compassion on anxiety at values of age at the mean and  $\pm 1$  standard deviation (SD). This indicated that among older adolescents (not at average or younger age), there was a trend for the protective effect of self-compassion on anxiety to be greater for boys than for girls ( $p = .013$ , see Fig. 2).

The regression model for distress intolerance, which controlled for father’s education and race/ethnicity, was statistically significant [ $F(9, 735) = 16.54, p < .00001$ ] and accounted for 18 % of the variance. The interaction terms were not significant ( $p > .01$ ). Examination of main effects indicated that self-compassion was associated with greater perceived ability to tolerate challenging emotional states ( $b = 6.53, p < .00001, 95\% \text{ Bca CI: } 5.37, 7.69$ ), and a trend for girls to report less of an ability to tolerate distress than that reported by boys ( $b = -1.42, p = .04, 95\% \text{ Bca CI: } -2.79, -.05$ ).

Finally, the regression model for depressive symptoms, which controlled for mother’s and father’s education, was statistically significant [ $F(9, 736) = 59.52, p < .00001$ ] and accounted for 42 % of the variance. In this model, the 3-way interaction was non-significant ( $p = .23, 95\% \text{ Bca CI: } -.27, 1.09$ ); however, the self-compassion  $\times$  age interaction was significant. Gender was not a moderator of the effect of self-compassion on depressive symptoms (i.e., self-compassion  $\times$  gender,  $p = .09, 95\% \text{ Bca CI: } -2.31, .16$ ). Examination of the main effect indicated that females reported greater depressive symptoms than males ( $b = 1.35, p = .0004, 95\% \text{ Bca CI: } .61, 2.09$ ). We re-ran the model without the 3-way interaction and the significant self-compassion  $\times$  age interaction ( $b = -.49, p = .005, 95\% \text{ Bca CI: } -.85, -.14$ ) was probed by examining the conditional effect



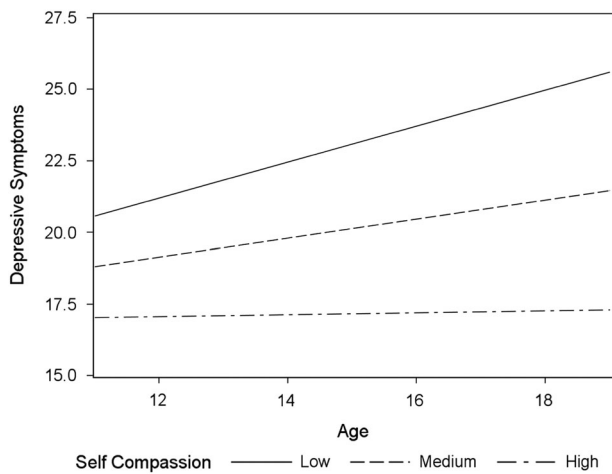
**Fig. 2** Moderation of the effect of self-compassion on anxiety by age and gender (gender  $\times$  age  $\times$  self-compassion interaction). Age is presented at the mean and  $\pm 1$  SD. Self-compassion is presented at the mean and  $\pm 1/2$  and 1 SD

of age on depressive symptoms at self-compassion’s mean and  $\pm 1$  SD above the mean. These tests indicated the effect of age on depressive symptoms was significant at average and low levels of self-compassion ( $p$ ’s  $< .003$ , see Fig. 3).

**Alternate Model Analyses**

We also examined alternate moderation models to consider the reverse direction of effects; that is, whether the well-being variables predicted self-compassion. As in the prior analyses, we used Bonferroni adjustment of  $\alpha = .01$ . In these models, depressive symptoms ( $b = -0.05, p < .0001, 95\% \text{ Bca CI: } -.06, -.04, R^2 = .41$ ), distress tolerance ( $b = 0.02, p < .0001, 95\% \text{ Bca CI: } .02, .03, R^2 = .22$ ), anxiety ( $b = -0.02, p < .0001, 95\% \text{ Bca CI: } -.03, -.02, R^2 = .31$ ), perceived stress ( $b = -0.05, p < .0001, 95\% \text{ Bca CI: } -.06, -.05, R^2 = .44$ ), and life satisfaction ( $b = .39, p < .0001, 95\% \text{ Bca CI: } .33, .48, R^2 = .28$ ) were significantly associated with self-compassion in the expected directions. In the model for perceived stress, there was a trend interaction with gender ( $b = -0.01, p = .04, 95\% \text{ Bca CI: } -.02, -.0005$ ). At lower levels of stress ( $-1$  SD), girls had higher self-compassion than boys; whereas, at higher levels of stress ( $+1$  SD), girls had lower levels of self-compassion than boys ( $p$ ’s  $< .0001$ ). There were no significant or trend interactions of age or gender with any of the other well-being variables.





**Fig. 3** Moderation of the effect of self-compassion on depressive symptoms by age (age  $\times$  self-compassion interaction). Self-compassion is presented at the mean and  $\pm 1$  SD

## Discussion

Adolescence is a developmental period often associated with declines in emotional well-being such that anxiety and depression have been considered significant public health concerns (Johnson and Greenberg 2013). In recent research, self-compassion has emerged as a potential protective factor of negative emotional states in both adults and adolescents (Bluth et al. 2016; Galla 2016; Marshall et al. 2014; Raes 2011; Samaie and Farahani 2011; Zeller et al. 2015). In this study, we aimed to contribute to the adolescent self-compassion literature by investigating: (1) whether age and/or gender in adolescence were differentially associated with self-compassion, and (2) if self-compassion was associated with indicators of well-being, whether this association differed according to age and gender. As such, our intent was to contribute to our understanding of ways in which adolescents can contend with the stressors and potential negative emotional states which often occur during adolescence. This involved replicating and extending the findings of Bluth and Blanton (2015) by using a larger sample and one in which the demographics were similar among the middle school and high school (i.e., in our study the middle school is a feeder for the high school, and the only feeder school for that high school whereas Bluth and Blanton (2015) used a private middle school and a public high school from different areas of the city).

Consistent with our first research question's hypothesis, we found gender and age differences in self-compassion. Males' level of self-compassion was similar across all ages, whereas older females had the lowest levels of self-compassion. These findings parallel the depression literature indicating a dramatic increase in depression in females during high school that is not found in males (Nolen-

Hoeksema and Hilt 2009). Theories on the etiology of gender differences in the onset of depression in adolescence are complex and inconclusive, including biological factors (hormonal changes, genetic factors), psychological factors (interpersonal orientation, rumination), and social factors (traumatic events, childhood adversity, interpersonal stress) (Nolen-Hoeksema and Hilt 2009). It may be the case that the decline in self-compassion among females during these years has similar roots.

Our second research question investigated the association between self-compassion and emotional well-being. Findings confirmed our hypothesis that self-compassion is positively related to positive indicators of well-being and inversely related to negative indicators of well-being. For example, self-compassion was associated with greater life satisfaction and ability to tolerate distress, and less perceived stress at all ages, among both males and females. This is consistent with prior literature in which self-compassion was associated with positive indicators of well-being among both adults and adolescents (Bluth and Blanton 2015; MacBeth and Gumley 2012; Neff and McGehee 2010; Zessin et al. 2015).

We also found that the association between self-compassion and anxiety and depressive symptoms differed across age and/or between genders. Self-compassion was similarly associated with lower anxiety levels for males and females at average and younger age (i.e., 14 years or younger). However, among older adolescents, there was a statistical trend (after Bonferroni adjustment) for self-compassion to be associated with lower anxiety levels (i.e., protective effect) to a greater extent in males than in females. There are several possible explanations for this differential association. First, literature on anxiety indicates that beginning at age six, anxiety is twice as prevalent in females as in males, and increases with age more so for females than for males (Lewinsohn et al. 1998). Although, in our study, self-compassion was inversely associated with anxiety in both males and females at all ages, the strength of the association was less with older females, when anxiety was highest. It is conceivable that the protective influence of self-compassion is limited at this higher level of anxiety. That is, there may be a "ceiling effect" of the benefits of self-compassion in relation to anxiety and this becomes more apparent in older female adolescents. Another possible explanation is that older female adolescents are more resistant to being self-compassionate. In other words, they may have a harder time believing in the "self-compassion message" that they are deserving of kindness and that others experience similar doubts, challenges, and obstacles as they do. Hence, they may be somewhat more reluctant to be compassionate to themselves and are therefore not able to experience the benefits of self-compassion to as great a degree as males of the same age or as younger females.

Future studies should explore these possible explanations to further elucidate the effects of self-compassion on anxiety. However, despite the difference in the strength of the associations with age and gender, self-compassion still appears to have an overall protective effect on anxiety at all ages and in both genders.

When examining depressive symptoms as an outcome, we found an interaction for age such that self-compassion again appears to have a protective effect. While adolescents with high self-compassion had similar low levels of depressive symptoms across all ages, older adolescents with low or average levels of self-compassion evidenced greater depressive symptoms than those with high self-compassion. These findings suggest that higher levels of self-compassion may be essential in older adolescents in order combat the rising levels of depression in older adolescents (Rudolph and Flynn 2009).

Cultivating self-compassion may be advantageous in ameliorating the emotional challenges that adolescents face as they traverse this difficult developmental stage. Self-compassion is malleable in adolescents and can be cultivated through teaching mindfulness and self-compassion skills (Bluth et al. 2015; Edwards et al. 2014; Galla 2016). Mindfulness and self-compassion intervention studies with adolescents indicate significant increases in self-compassion and decreases in depressive symptoms and perceived stress at post-intervention. Interestingly, these findings occur whether the intervention focused on teaching self-compassion skills (Bluth et al. 2015) or mindfulness skills (Edwards et al. 2014; Galla 2016). That is, in both a self-compassion intervention (Bluth et al. 2015) and mindfulness intervention (Galla 2016) increases in self-compassion predicted reductions in indicators of negative well-being and increases in indicators of positive well-being. Therefore, self-compassion skills that are taught through self-compassion or mindfulness interventions may serve a protective function for adolescents' emotional well-being.

Furthermore, our differential findings indicating that self-compassion may operate differently for males and females at differing ages has implications for designing interventions. For example, it may be that it is important to intervene at an early age with females, before levels of self-compassion plummet and anxiety becomes too great. Additionally, thus far, intervention studies with adolescents that measure self-compassion have assessed mostly internalizing symptoms (Bluth et al. 2015; Edwards et al. 2014; Galla 2016). It may be that, in males, the beneficial effects of self-compassion operate through a different pathway that is related less to internalizing symptoms and related more to behavioral outcomes, such as decreasing substance use, violent behaviors, and improving school attendance. Future studies should investigate how self-compassion is

associated with behavioral or externalizing outcomes that may be more relevant to males than internalizing outcomes.

Finally, these findings should be considered in the context of a few limitations posed by our study. First, the cross-sectional design precludes the ability to make conclusions related to causality or directionality of the associations between self-compassion and the well-being variables. Likewise, our alternate model analyses indicated that the well-being variables predicted self-compassion. It may be that negative emotional states, such as depression and anxiety, diminish the ability to feel compassion for oneself. Or, that self-compassion and negative emotional states have bidirectional feedback influences on one another. Yet, there is some evidence that self-compassion may precede negative emotional states and serve a protective function. A recent cross-lagged panel analysis (Krieger et al. 2016) indicated that self-compassion predicted lower depression, yet depression did not predict self-compassion. Similarly, in experimental study designs, self-compassion has been reported to be protective when experiencing unpleasant events (Leary et al. 2007), anxiety (Neff et al. 2007) and laboratory social stressors (Arch et al. 2014; Breines et al. 2014, 2015). When experiencing laboratory social stressors, those higher in self-compassion or those who had experienced a self-compassion induction prior to the laboratory assessment evidenced a lower physiological stress response to the stressor (Arch et al. 2014, Bluth et al. 2016, Breines et al. 2014, 2015). Additional longitudinal studies are needed to help determine the direction of these effects.

Secondly, as this study was conducted in one area in the southeast U.S., generalizability may be limited to this cultural region. As the self-compassion research base in adolescent populations is nascent, there is even more limited literature that addresses self-compassion in varied cultural contexts (i.e., Akin and Akin 2015; Cunha et al. 2016; Játiva and Cerezo 2014; Zeller et al. 2015). Future studies should replicate these findings in different cultural contexts.

Despite these limitations, this study had several notable strengths. First, there has been limited literature on self-compassion in adolescents and this study, which utilized a large sample, contributes to our understanding of how self-compassion may be differentially associated with adolescents' emotional well-being, depending on age and gender. Second, considering the importance of examining self-compassion and emotional well-being in underserved populations, another strength of our study was that the sample was moderately racially diverse consisting of 37% non-Caucasian race in a relatively rural school district. Finally, by utilizing validity questions to exclude participants who may not have carefully answered the survey, we had more confidence in the validity of our findings.

## Conclusion

This study extends the limited literature on self-compassion in adolescents and provides preliminary support for the potential protective effect of self-compassion on declines in emotional well-being that often occur during this developmental stage. Noting that depression and anxiety among adolescents are considered public health concerns (Johnson and Greenberg 2013) and that adolescents' stress levels have reached unhealthy levels, with many reporting an inability to manage stress (American Psychological Association [APA] 2014), intervening at this critical developmental period is essential to help prevent development of adulthood psychopathologies. Consistent with prior research (Bluth and Blanton 2015), our findings indicate that self-compassion, which is associated with positive well-being (i.e., higher life satisfaction and lower depressive symptoms, anxiety, perceived stress, distress intolerance), is lower in older adolescent females than males of the same age and both younger males and female adolescents. As self-compassion has been demonstrated to be a modifiable trait in both adults (Albertson et al. 2015; Kelly and Carter 2015; Neff and Germer 2013; Smeets et al. 2014) and adolescents (Bluth et al. 2015; Galla 2016), it would be vital to intervene early with adolescent females in particular, utilizing programs that cultivate self-compassion. *Making Friends with Yourself: A Mindful Self-Compassion Program for Teens* is an 8-week intervention that has been adapted from the adult Mindful Self-Compassion course (Neff and Germer 2013) and has been demonstrated as an effective self-compassion intervention for adolescents (Bluth et al. 2015). Implementing this program, or other similar mindfulness and self-compassion programs, has the potential to have positive effects on emotional well-being (Bluth et al. 2015; Galla 2016), helping to deter maladaptive behavioral and emotional trajectories.

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**Authors' Contributions** KB conceived of and designed the study, directed data collection, and coordinated and participated in drafting the manuscript; RC conducted statistical analyses, interpretation of data, and participated in drafting the manuscript; WF and SG participated in data collection and drafting the manuscript. All authors read and approved the final manuscript.

## Compliance with Ethical Standards

**Conflicts 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*. Other authors have no conflicts of interest to declare.

**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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