



An Empirical Investigation of the Relationship Between Resilience and Self-Esteem Among Adolescents

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ABSTRACT

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Adolescence is a developmental period during which personal resiliency and self-esteem are especially susceptible to change, yet the two constructs are rarely examined together using a validated, multidimensional resiliency framework. The present cross-sectional study examined the relationship between the three components of personal resiliency; Sense of Mastery, Sense of Relatedness, and Emotional Reactivity, and global self-esteem among adolescents, tested whether these components and age predicted self-esteem, and compared resiliency and self-esteem across grade levels and gender. A convenience sample of 597 adolescents (297 male, 300 female), aged 13 to 18 years, completed a demographic sheet, the Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006), and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Mastery and Relatedness were positively correlated, whereas both showed weak but significant negative correlations with self-esteem; Emotional Reactivity was positively correlated with self-esteem, and age was significantly negatively correlated with self-esteem. Multiple regression indicated that age, Mastery, Relatedness, and Emotional Reactivity together explained 5.9% of the variance in self-esteem, with age and Mastery emerging as significant negative predictors and Relatedness and Emotional Reactivity as significant positive predictors. One-way ANOVA revealed significant differences in Emotional Reactivity and self-esteem with eleventh-grade students reporting the lowest scores on both. A two-way MANOVA further revealed significant, though small, main effects of gender and grade level and a significant Gender $\times$ Grade Level interaction. These findings suggest that personal resiliency and self-esteem follow distinct developmental trajectories across adolescence and that their interrelationship may be more complex than traditionally assumed.

Introduction

Adolescence is also a time of significant psychological risk where young people are required to cope with physical maturation, changing roles and social expectations, and the growing demands of learning. In this context, two constructs are particularly well-researched, and both have consistently been linked to adolescent's ability to adapt positively to stress and to their psychological well-being: personal resiliency and self-esteem (Usán Supervía et al., 2022).

Personal resiliency has been traditionally defined not as an extraordinary capacity that only a select few have, but as a normal developmental process that can vary in context and individuality (González-Arratía López-Fuentes et al., 2025). Drawing from this developmental perspective, Prince-Embury (2006) developed a three factor model of personal resiliency: sense of mastery,

sense of relatedness, and emotional reactivity. sense of mastery and sense of relatedness are seen as protective factors; reflecting a young person's confidence in their own abilities and their feeling of trust, comfort and support from others; while emotional reactivity is conceptualised as a vulnerability factor capturing the intensity of a young person's emotional response and the quickness of recovery from emotionally arousing events. These three dimensions are hypothesized to act synergistically to shape a youth's global resilience and recovery from stress.

Self-esteem is a person's overall judgment of his/her worth and value, often measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Self-esteem in adolescents is perceived as being highly vulnerable to internal and external factors and their heightened sensitivity to the perception of others, including peers, family, and their social surroundings (Usán Supervía et al., 2025). There is a significant amount of research that has been conducted around self-esteem and constructs related to resiliency: some studies report that adolescents with higher levels of self-esteem tend to experience greater levels of resiliency (Usán Supervía et al., 2022; González-Arratia López-Fuentes et al., 2025); and, self-esteem has been shown to mediate the relationship between constructs related to resiliency and other indices of adjustment, including life satisfaction (Usán Supervía et al., 2022) and psychosocial adaptation (González-Arratia López-Fuentes et al., 2025). However, there is not a uniform pattern in the literature: while some studies report associations between certain aspects of resiliency and self-esteem, others do not, or the relationship is quite complex, and may vary depending on which component of resiliency is being considered, and on the wider sociocultural context of the sample (Usán Supervía et al., 2025).

Literature evidence shows that there are mixed findings regarding age and grade level as correlates of self-esteem and resiliency. In one of the largest cross-cultural studies of self-esteem to date, Bleidorn et al. (2016) found that self-esteem follows a broad curve across the life span with a relative dip often occurring during middle to late adolescence, which the authors attributed to heightened academic and socio-emotional pressures during the secondary school years. The resiliency and self-esteem differences between the sexes are also inconclusive with some studies reporting modestly higher resiliency for boys and others reporting no differences at all once resiliency-related variables are controlled for, and similar findings exist for gender differences in self-esteem with some studies reporting no difference between the sexes at all, and other studies reporting greater resiliency among female adolescents (Usán Supervía et al., 2025).

Although the three factor resiliency model is theoretically central, few studies have focused on all three RSCA factors as well as self-esteem within a single sample of adolescents, and even fewer have examined the differences in age, grade-level and self-esteem in relation to the three RSCA factors. This study looked at the following: (a) the relationship between mastery, relatedness, emotional reactivity, and self-esteem; (b) the predictive power of mastery, relatedness and emotional reactivity on self-esteem; (c) the grade level differences on mastery, relatedness, emotional reactivity and self-esteem; and (d) The interaction or combined effects of gender x grade level on Mastery, Relatedness, and Emotional Reactivity.

Method

The current study employed cross-sectional research design.

Sample

A sample of 597 adolescents (297 males and 300 females) aged 13–18 years was selected using convenience sampling technique. Participants were selected from those schools and colleges who gave permission for data collection. After taking permission from school and college authorities, data were collected in classroom settings. Standardized instruments including Resiliency Scales for Children and Adolescents (RSCA) (Prince-Embury, 2006) and Rosenberg Self-Esteem Scale (Rosenberg, 1965) were used.

- Willing to participate and provide informed consent

Instruments

The present study used a self-developed demographic sheet and standardized self-report questionnaires to assess four psychological constructs: Mastery, Relatedness, Emotional Reactivity, and self-esteem among participants. All instruments were administered in paper and pencil format under supervised conditions. The reliability of each scale was examined using Cronbach's alpha in SPSS.

Demographic Sheet

A self-developed demographic sheet was used to collect participant information including age, gender, class, socioeconomic status, family status, residential type, birth order, chronic illness, and school/college type. These variables were used to describe the sample and to conduct group comparisons.

Resiliency Scales for Children and Adolescents (RSCA)

A 64-item self-report assessment tool developed to assess personal strengths, vulnerabilities, and psychological resiliency in youth. It explores three international dimensions: Sense of Mastery (optimism, self-efficacy, and adaptability), Sense of Relatedness (trust, perceived support, comfort, tolerance) and Emotional Reactivity (sensitivity, recovery, impairment)

Mastery Scale

The Mastery Scale is a subscale of The Resiliency Scales for Children and Adolescents (RSCA) Prince-Embury (2006). It is composed of 20 items and measures a person's self-efficacy, optimism, and problem solving skills. The scale measures the level of self-perceived control over events, problem-solving and coping ability in stressful situations. Overall score is 0-80, with higher scores reflecting a stronger sense of mastery and greater perceived ability to cope with challenges.

Relatedness Scale

The Relatedness Scale has been developed by Prince-Embury (2006) and is a subscale of the Resiliency Scales for Children and Adolescents (RSCA). It includes 24 items and assesses perceived social support, trust in others and comfort in interpersonal relationships. The scale measures the capability to form and keep up satisfying relationships, sense of belonging, and find and use social help when necessary. Total score is a range of 0-96, with higher scores representing higher perceived social connectedness and higher ability to access and utilize social support.

Emotional Reactivity Scale

The Emotional Reactivity Scale is a subscale of Prince-Embury's (2006) Resiliency Scales for Children and Adolescents. It has 20 items, and measures the intensity and duration of negative emotional reactions among others. The scale measures the extent to which the person is emotionally sensitive and the speed at which he/she recovers from the negative emotional events. The total score ranges from 0 to 80. Higher scores on the Emotional Reactivity Scale represent higher emotional reactivity and emotional dysregulation, or increased challenge in emotional regulation, as compared to the Mastery and Relatedness scales.

Rosenberg Self Esteem Scale

The Rosenberg Self-Esteem Scale (RSES), developed by Morris Rosenberg in 1965, is considered the benchmark for measuring global self-esteem and self-acceptance and has 10 items. It is one of the most widely used measures of Global Self-esteem (GSE) and is completed on a Likert scale ranging from 10 to 40, where scores of 30-40 are representative of a high level of esteem, 15-25 is considered normal and 10-14 is representative of low self-esteem. Importantly, five of these items were negatively worded, necessitating the use of reverse-scoring to obtain a valid total score, so that the scale would measure positive as well as negative aspects of self-regard.

Procedure

After selection of the research topic, permission was obtained from relevant educational institutions for data collection. The purpose of the study was explained to participants prior to data collection. Participants were provided with informed consent forms and only those who voluntarily agreed were included in the study. Data were collected in classroom settings using a group administration method. Clear instructions were given to participants to ensure independent and honest responses. Confidentiality and anonymity were strictly maintained throughout the process. After data collection, all questionnaires were checked for completeness. The responses were coded and entered into SPSS (Version 25) for statistical analysis.

Ethical Considerations

The present study adhered to the ethical guidelines set forth by the American Psychological Association (2017). All participants provided informed consent prior to enrollment and were assured that their responses would remain confidential and anonymous. Data collected were used strictly for research purposes, and the dignity, privacy, and psychological well-being of participants were safeguarded throughout the research process.

Results

Table 1. *Demographic Characteristics of Participants (N = 600)*

Variables	N	%
Age		
13-15	150	25.1
16-18	447	74.9
Gender		
Male	297	49.7
Female	300	50.3
Grade		
9 th	148	24.8
10 th	150	25.1
11 th	149	25.0
12 th	150	25.1
Socioeconomic Status		
Low	50	8.4
Middle	433	72.5
High	114	19.1
Family Status		
Nuclear	347	58.1
Joint	250	41.9

Variables	N	%
Area of Living		
Urban	380	63.7
Rural	217	36.3

The table shows the demographic characteristics of participants (N = 597). Most participants were aged 16–20 years (74.9%), with equal numbers of males and females. The majority belonged to middle socioeconomic status, living in urban area.

Table 2: Pearson Correlations among Age, Gender, Mastery, Relatedness, Emotional Reactivity, and Self-Esteem

Variable	1	2	3	4	5	6
1. Mastery	—					
2. Relatedness	.41**	—				
3. Emotional Reactivity	-.07	.04	—			
4. Self-Esteem	-.08*	.08	.13**	—		
5. Age	.004	-.028	.015	-.156**	—	
6. Gender	.009	-.080	.069	-.075	-.128**	—

Note. N = 597. * $p < .05$. ** $p < .01$ (two-tailed)

The above table showed the relationship among age, gender, mastery, relatedness, emotional reactivity, and self-esteem. There is a positive relationship between mastery and relatedness whereas negative weak relationship between mastery and self-esteem. The table also illustrated positive relationship between emotional reactivity and self-esteem. Moreover, age also showed negative significant relationship with self-esteem.

Table 3: Summary of Multiple Regression Analysis for Variables Predicting Self-Esteem

Predictor	B	SE B	β	t	p	95% CI	R ²	Tolerance	VIF
							.059		
(Constant)	28.09	1.54	—	18.22	< .001	[25.06, 31.12]		—	—
Age	-1.83	0.47	-.15**	-3.87	< .001	[-2.76, -0.90]		.999	1.00
Mastery	-0.06	0.02	-.12**	-2.73	.007	[-0.11, -0.02]		.828	1.21
Relatedness	0.05	0.02	.12**	2.67	.008	[0.01, 0.08]		.831	1.20
Emotional Reactivity	0.05	0.02	.12**	3.01	.003	[0.02, 0.09]		.989	1.01

The effects of age, mastery, relatedness and emotional reactivity on self-esteem in adolescents are displayed in Table 3. With an R² of .059 and $F(4, 592) = 9.25, p < .001$. ** $p < .01$, indicated that the predictors were able to explain 5.9% of the variance in the outcome variable. The results showed that age and mastery both significantly negatively predicted self-esteem ($\beta = -.15, p < 0.001$), ($\beta = -.12, p < 0.001$) respectively while relatedness and emotional reactivity significantly positively predicted resilience ($\beta = .12, p < 0.001$), ($\beta = .12, p < 0.001$) respectively.

Table 4: One-Way Analysis of Variance for Mastery, Relatedness, Emotional Reactivity, and Self-Esteem by Grade Level

Variables	9th (N=148)		10th (N=150)		11th (N=149)		12th (N=150)		$F(3,593)$	p
	M	SD	M	SD	M	SD	M	SD		
Mastery	43.23	9.331	43.34	10.698	45.19	10.088	43.17	9.279	1.45	0.227
Relatedness	48.43	12.503	49.98	11.199	48.11	12.854	49.17	12.922	0.67	0.569
Emotional reactivity	42.71	12.831	42.41	10.511	39.21	12.406	42.98	10.890	3.37	0.018
Self esteem	28.47	5.423	28.23	5.240	24.70	4.186	25.63	4.684	21.83	< .001

A one-way ANOVA was used to determine whether differences existed between grade levels in the areas of mastery, relatedness, emotional reactivity, and self-esteem in 9th through 12th grade. The tests showed no significant grade-level differences for mastery, $F(3, 593) = 1.45, *p^* = .227$, or relatedness, $F(3, 593) = 0.67, *p^* = .569$, suggesting that this construct is relatively stable across high school grades. In contrast, significant main effects emerged for both emotional reactivity, $F(3, 593) = 3.37, *p^* = .018$, and self-esteem, $F(3, 593) = 21.83, *p^* < .001$.

Table 5: Post Hoc Comparisons (LSD) of Grade-Level Differences for Mastery, Relatedness, Emotional Reactivity, and Self-Esteem

Comparison	MD	SE	p	95% CI
<i>Emotional Reactivity</i>				
9th vs. 10th	0.30	1.36	.823	[-2.36, 2.96]
9th vs. 11th	-3.50*	1.36	.010	[-6.16, -0.83]
9th vs. 12th	-0.27	1.36	.842	[-2.93, 2.39]
10th vs. 11th	-3.19*	1.35	.019	[-5.85, -0.54]
10th vs. 12th	-0.57	1.35	.671	[-3.23, 2.08]
11th vs. 12th	3.77*	1.35	.006	[1.11, 6.42]
<i>Self-Esteem</i>				
9th vs. 10th	0.23	0.57	.682	[-0.88, 1.35]
9th vs. 11th	-3.76*	0.57	< .001	[-4.88, -2.64]
9th vs. 12th	-2.83*	0.57	< .001	[-3.95, -1.72]
10th vs. 11th	-3.53*	0.57	< .001	[-4.64, -2.41]
10th vs. 12th	-2.60*	0.57	< .001	[-3.71, -1.49]
11th vs. 12th	0.93	0.57	.102	[-0.19, 2.04]

Note. MD = mean difference. SE = Standard Error, * $p < .05$.

In emotional reactivity, however, post-hoc comparisons in above table indicated that the differences of mean between 9th and 11th grade students, 10th and 11th grade student and 11th and 12 grade student. In self-esteem both 9th and 10th class student showed differences with 11th and 12 class students.

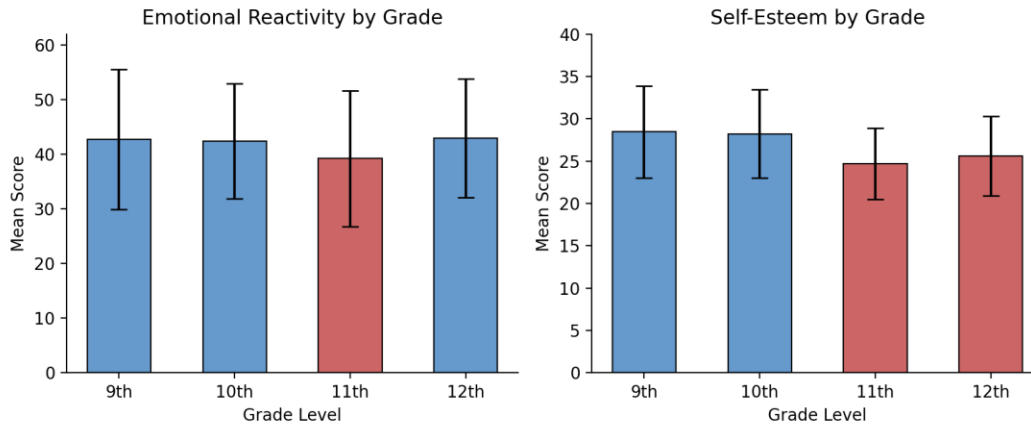


Figure 1: Graphical comparison among different grades on emotional reactivity and self-esteem

The above figures showed that 11th grade students showed the lower mean among all the grades showing the distinct decrease in the construct across the 11th grade.

Table 6: Multivariate Tests of the Effects of Gender and Grade Level on Mastery, Relatedness, and Emotional Reactivity

Effect	Statistic	Value	F	df (hyp., error)	p	η^2_p
Intercept	Pillai's Trace	.976	7827.05	3, 587	< .001	.976
Gender	Pillai's Trace	.015	2.98	3, 587	.031	.015
Grade Level	Pillai's Trace	.030	1.98	9, 1767	.038	.010
Gender × Grade Level	Pillai's Trace	.068	4.55	9, 1767	< .001	.023

Two-way MANOVA assessed the combined effects of gender and grade level on the set of dependent variables, revealing a significant main effect for Gender, $V = .015$, $F(3, 587) = 2.98$, $*p^* = .031$, $\eta^2_p = .015$, and for Grade Level, $V = .030$, $F(9, 1767) = 1.98$, $*p^* = .038$, $\eta^2_p = .010$. However, these main effects are qualified by a significant Gender × Grade Level interaction, $V = .068$, $F(9, 1767) = 4.55$, $*p^* < .001$, $\eta^2_p = .023$. This very strong interaction suggests that the overall pattern of outcomes for males and females varies across the high school grades and therefore should be treated with great caution as the main effects are not consistent across the dependent variables; gender differences are not consistent across the high school grades. Statistically significant, all effect sizes are small (between 1.0% and 2.3% variance explained), indicating that the multivariate patterns are statistically reliable but not necessarily of great practical importance.

Discussion

The interrelationship between the three facets of personal resiliency (Mastery, Relatedness and Emotional Reactivity) with self-esteem was explored among adolescents, its predictive contribution to self-esteem when controlling for age was examined, and the relationship between resiliency and self-esteem across grade level and gender was compared. Some findings emerged which were consistent with, and in part challenge, the current body of literature on adolescent resiliency and self-esteem.

As predicted on theoretical grounds, mastery was significantly positively correlated with relatedness as these two factors are conceptualized as complementary protective factors in Prince-Embury's three-factor model. This linkage between these resiliency components and self-esteem, however, was not as simple as much of the literature would have it be. Although the current study revealed only a weak correlation between resiliency and self-esteem, most of the previous research has reported a positive correlation between resiliency and self-esteem (González-Arratia López-Fuents et al., 2025; Usán Supervía et al., 2022), while significant, but weak, negative correlation between mastery and self-esteem was found, and significant positive correlation between emotional reactivity and self-esteem was found. This pattern was confirmed in the regression analyses, with mastery being a negative predictor of self-esteem and emotional reactivity a positive predictor of self-esteem along with the positive predictor of relatedness and negative predictor of age. A certain discrepancy between the components of resiliency and self-esteem is not new: a number of studies have reported that there is no uniformity and/or a uniquely positive relationship between certain resiliency components and self-esteem, and that results may differ depending on the resiliency component, the method of measurement and the cultural context of the studied sample (Usán Supervía et al. 2025). However, the seemingly paradoxical direction of the mastery and emotional reactivity findings within the current sample suggest that extreme caution must be used when interpreting the findings, and they are certainly worthy of replication, preferably in conjunction with qualitative or mixed methods studies that can shed light on how the items in the current study are experienced and reported by adolescents in this cultural context.

The overall regression model accounted for a small amount of variance (5.9%) in self-esteem. Although statistically significant, the relatively small proportion of variance explained in this sample suggests that the determinants of adolescent self-esteem were more diverse (including family relations, academic achievement, peer acceptance and body image) and were not included in the present model. This aligns with the body of self-esteem literature as a whole, which generally suggests that resiliency-related constructs can be seen as important, but less salient factors of self-esteem.

Age was significantly negatively associated with self-esteem and that there was a significant decline in emotional reactivity and in self-esteem when comparing grade levels to those of other students, it was consistent with the overall developmental literature on self-esteem trajectories. One of the largest cross-cultural studies of self-esteem to date, Bleidorn et al. (2016) found a similar drop in self-esteem in middle-to-late adolescence, which the researchers attributed to the increased academic and social demands of the later years of secondary school. The present results replicate this trend for emotional reactivity, with academic, social, and developmental stressors unique to the 11th grade also negatively affecting self-esteem while the two more trait-like protective factors of resiliency, the relatedness and mastery scores, were relatively stable across grades. This dissociation itself is informative in that it indicates a separation between self-esteem and emotional reactivity, which tend to be more susceptible to the situational and temporary pressures of a school's grade level, and a more enduring sense of mastery and relatedness, which adolescents bring to school.

The MANOVA results showed significant (although minimal) main effect of gender and grade level on the overall resiliency variable, as well as a significant Gender $\times$ Grade Level interaction. This finding is inconsistent with Usán Supervía et al. (2025) who found that there was no significant difference between the levels of resilience, self-efficacy, and self-esteem of a large sample of Spanish secondary school students for gender, and highlights the claims of that study that gender differences in these constructs could be very context dependent. This is not to say there is a definite gender difference in resiliency, but rather this is an important interaction effect which could not be detected if only gender and grade were looked at as separate main effects, a distinction that may be lost in the noise when analyzing only two main effects.

These results had several implications for school mental health practitioners and educators. The self-esteem dropped and emotional reactivity increase found in 11th-grade students indicated that this transition period in secondary schooling should be taken seriously, and that a more proactive approach to assisting with social-emotional development during this time should be undertaken, irrespective of gender. Meanwhile, the small, and sometimes counterintuitive, relationships between each of the

resiliency components and self-esteem indicate that interventions designed to increase self-esteem should not expect that any single resiliency factor, for instance, Mastery would translate automatically into increased self-esteem, but should rely on the fuller complex of a psychosocial profile of each adolescent.

There are several limitations of the present study that should be noted. First findings are constrained by convenience sampling in the generalizability of the results to the wider adolescent population and beyond the schools and colleges from which participants were drawn. Secondly, all measures were self-reported, and as such may be subject to recall and social desirability bias. Last, the directions of the relationships found between mastery and emotional reactivity and self-esteem were counterintuitive, and should be interpreted with care and repeated in future studies using longitudinal designs which could separate developmental changes from between-person differences, and also include other psychosocial factors (academic stress, peer relationships, family functioning, etc.) that might explain the unexpected findings.

Conclusion

The present study demonstrated that personal resiliency and self-esteem follow distinct and only partially overlapping patterns across adolescence. Mastery and Relatedness remained stable across grade levels and were positively correlated with one another, yet their relationships with self-esteem were weaker, and in the case of Mastery, opposite in direction, to what much of the existing literature would predict. In contrast, both Emotional Reactivity and self-esteem showed a pronounced and statistically significant dip specific to the 11th grade, while gender and grade level jointly, though modestly, shaped the broader resiliency profile. These findings underscore the importance of examining personal resiliency as a multidimensional construct, of attending closely to specific transition points within secondary schooling, and of exercising caution before assuming that any single resiliency component will straightforwardly predict adolescent self-esteem.

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