

Comparing Adolescent Positive Affect and Self-Esteem as Precursors to
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REFERENCE:

Coffey, J. K., & Warren, M. (2020). Comparing adolescent positive affect and self-esteem as precursors to adult self-esteem and life satisfaction. *Motivation and Emotion*. Advance online publication. doi: 10.1007/s11031-020-09825-7

Comparing Adolescent Positive Affect and Self-Esteem as Precursors to
Adult Self-Esteem and Life Satisfaction

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The Fullerton Longitudinal Study (FLS) has been supported by grants from the Thrasher Research Fund; Spencer Foundation; California State University, Fullerton; California State University, Northridge; Kravis Leadership Institute; BLAIS Foundation; W. K. Kellogg Foundation and Army Research Institute (W911NF-17-1-0220). We thank all FLS participants for their involvement in this investigation. Special thanks to Allen Gottfried and the whole FLS team. The findings, interpretations, and conclusions contained in this article are exclusively those of the authors.

Conflict of Interests Statement: The authors report no conflicts.

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Abstract

Parents often hope for their children to be happy and to have high self-esteem, but little research has compared how these two constructs are related to long-term self-esteem and life satisfaction. Although self-esteem and positive affect are related, positive affect can be experienced independent of self-worth so it may not have the same limitations associated with self-esteem. We expected that over longer periods the benefits of self-esteem may be due to the positive affect that is a constitutive part of self-esteem. Using longitudinal data ($n = 112$) across 13 years, we compared age 16 self-esteem and positive affect as predictors of age 29 self-esteem and life satisfaction. Results indicated that *only* adolescent positive affect predicted adult self-esteem and life satisfaction; adolescent self-esteem did not predict either adult outcome. These findings suggest that positive affect may build key resources that adolescents carry into adulthood. Findings also indicate additional need for longitudinal comparisons of positive affect and self-esteem.

Keywords: positive affect, self-esteem, adolescence, longitudinal, life satisfaction

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Happiness is a top priority of adults throughout the world (Diener, 2000), and fostering the long-term happiness of one's children serves as a guiding light for parents (Diener & Lucas, 2004; Ryff, 1994). Similarly, many parents, teachers, and researchers espouse the importance of high self-esteem (i.e., the value or worth people place on themselves) as critical to healthy development (for a review, see Baumeister, Campbell, Krueger, & Vohs, 2003). Research suggests that happiness and self-esteem are interrelated constructs that involve feeling good, both act as indicators of 'life going well,' and both are associated with desirable outcomes central to adult thriving (e.g., Lyubomirsky, Tkach, & DiMatteo, 2006; Diener & Diener, 2009). Happiness is often measured by examining the frequency of positive emotions or positive affect (e.g., Fredrickson, 2001, 2013) whereas self-esteem is operationalized as feelings of self-worth (Rosenberg, 1965; Rosenberg & Simmons, 1972). A primary distinction between positive affect and global self-esteem is that self-esteem implies positive feelings but with a focus on the self (e.g., Baumeister et al., 2003; Myer, 2014; Uchida & Ogihara, 2012), whereas positive affect can be experienced without the self as the object. Thus, positive affect can be experienced as part of self-esteem or independent of it.

Despite calls for examining the long-term longitudinal consequences of self-esteem as well as direct comparisons of these constructs, no existing studies compare positive affect and self-esteem from adolescence to adulthood (Donnellan et al., 2012; Lyubomirsky et al., 2006). Of the limited studies comparing positive affect and self-esteem, they used cross-sectional or short-term (less than a year) longitudinal designs (Baumeister et al., 2003; Kok et al., 2013; Lyubomirsky et al., 2006; Neff & Vonk, 2009). These studies indicate that the positive affect and

self-esteem constructs are distinctive in the ways they relate to global indicators of adult thriving including life satisfaction (e.g., Diener & Diener, 2009; Lyubomirsky et al., 2006), but these studies do not illuminate long-term differences between positive affect and self-esteem a decade or more later. Factors that are central to self-esteem in adolescence (e.g., grades, athletics, current relationships) are less likely to be directly linked to adult self-esteem as priorities and interest shift in adulthood (e.g., Walker & Greene, 1986). Further, many studies have revealed that what is healthy or adaptive in the short-term may not be beneficial in the long-term (e.g., Coffey, 2018; John & Gross, 2004), highlighting further need for long-term comparisons. Single measurements of positive affect have predicted adult thriving indicators such as life-satisfaction, health, and relationships quality decades later (Coffey, Warren, & Gottfried, 2015; Danner, Snowden, & Friesen, 2001; Harker & Keltner, 2001; Abel & Kruger, 2010) but examinations of self-esteem across similar time frames are less common (cf. Trzesniewski et al., 2006).

The period from adolescence to adulthood involves many developmental and contextual changes, including puberty, graduation from high school, emerging adulthood, starting careers, and starting families. Adolescent self-esteem and identity are often predicted by contextual factors such as school contexts, academics, athletics, and peer relationships (Walker & Greene, 1986) that are likely to dramatically shift by adulthood. Further, transitions (e.g., going to college) have been linked to changes in self-esteem (e.g., Chung et al., 2014). Unsurprisingly, the period from adolescence to adulthood, with its many transitions, also presents substantial within-person variability in self-esteem (e.g., Donnellan, Kenny, Trzesniewski, Lucas, & Conger, 2012). Thus, in period spanning from adolescence to adulthood—with its many transitions taking place against a backdrop of significant identity development (e.g., Côté, 2006)—adolescents' self-esteem may not be anchored in identity narratives that provide enough

stability-inducing force to reliably carry similar feelings about the self into adulthood. In other words, it is natural to expect the changes that come with adult life to be much more central to adult self-esteem than adolescent life. Taken together, by age 29 when adults are more likely to be working and married, their self-esteem is less likely to be linked to adolescent grades, adolescent relationships, and athletic interests. Thus, a gap in the research exist in understanding if other parts of adolescent self-esteem predict adult thriving beyond the concurrent positive affect that is associated with self-esteem during adolescence.

In other words, a long-term (i.e., 10+ years) study is needed to understand the developmental consequences of self-esteem and whether such consequences are independent of positive affect. In this study, we compared self-esteem and positive affect across the highly transformative 13-year period from age 16 to 29, to determine whether positive affect is a salutary part of self-esteem when predicting adult life-satisfaction and self-esteem. Adult self-esteem was selected as an outcome because it is moderately linked to earlier self-esteem and serves as a global indicator of adult thriving (e.g., Donnellan et al., 2012; Orth, Robins, & Widaman, 2012). Life satisfaction (i.e., cognitive evaluation of own's own life) serves as a second indicator of adult thriving that has been linked to prior positive affect and self-esteem (e.g., Diener & Diener, 2009; Lyubomirsky & Lepper, 1999; Pavot & Diener, 2009). Importantly, some researchers are using more nuanced approaches to study positive affect (e.g., focusing on specific emotions; e.g., Fredrickson, 2013) and self-esteem (e.g., contingent vs non-contingent; e.g., Crocker & Luhtanen, 2003). Although these approaches are useful, research examining the long-term consequences, stability, or conceptual overlaps of these nuanced approaches is limited, so we argue that a reasonable starting point is to focus on global self-esteem and positive affect. This study will enable parents, researchers, and policymakers to

determine if a focus on adolescent self-esteem or positive affect is more promising for adult thriving.

Self-Esteem and Adult Thriving

Self-esteem broadly refers to thoughts and feelings about one's self-worth or value (with higher self-esteem indicating more positive feelings about the self), it motivates behavior, and is linked to future outcomes (Boden, Fergusson, & Horwood, 2008; Baumesiter, 1999; Orth et al., 2012). Several theoretical perspectives support the view that adolescent self-esteem is valuable both in terms of its intrinsic importance and its instrumental significance in bringing about long-term positive outcomes (e.g., Steiger et al., 2014). Self-esteem might be particularly critical during adolescence because teenagers are striving to establish their independence and identity in preparation for adulthood (Bolognini, Plancherel, Bettschart & Halfon, 1996; Newbegin & Owens, 1996). Self-esteem is closely linked to maintaining social acceptance (Leary, 1999) and (for adolescents) to competence in domains important to their parents (Harter & Marold, 1991), but many factors central to social esteem at age 16 (athletics, grades) are likely of less value to adults with families and careers (Walker & Greene, 1986). The transition between ages 16 and 29 includes the conclusion of puberty, enhanced cognitive abilities, possibly attending college, starting a career, and starting a family. Thus, even though self-esteem tends to be somewhat stable over several years, it appears to be less stable in the transition from adolescence to adulthood—when young people grapple with the task of constructing coherent and integrated identities that make meaning of significant changes across biological, cognitive, social, and multiple contextual domains (Donnellan et al., 2012; Steinberg, 2008; Trzesniewski, Donnellan, & Robbins, 2003).

In addition, various developmental perspectives position self-esteem as a fundamental need during adolescence when identity development takes a central role (e.g., Crocker & Park, 2004; Steinberg, 2008), which can set a motivational foundation for future behaviors and thriving (Abe & Izard, 1999; Rachele, Washington, Cuddihy, Barwais, & McPhail, 2013; Steiger et al., 2014; Steinberg, 2008). For example, the developmental assets literature identifies self-esteem among 40 factors that promote positive development (e.g., Leffert et al., 1998), the resilience literature identifies positive self-perceptions as a protective factor that staves off adverse outcomes in the context of substantial risk (Masten, Cutuli, Herbers, & Reed, 2009), and the Five C's model of positive youth development places self-worth at the core of its "confidence" pillar (Lerner et al., 2005).

In addition, according to terror management theory, self-esteem is a critical asset that people seek to maintain and restore in the face of identity threats. For example, when faced with information about their mortality, people are likely to reinforce their social identities (e.g., ethnic group) to the extent that doing so restores self-esteem (Arndt et al., 2002). Further, among people high (versus low) in self-esteem, threats to the self exert less influence on defensive behavior (Schmeichel et al., 2009), suggesting that high self-esteem is useful in transcending situational constraints by buffering stress and anxiety. Identity threats may be particularly salient and impactful during adolescence, both due to brain-based increases in threat sensitivity that accompany puberty (Urošević, Collins, Muetzel, Lim, & Luciana, 2014), and due to teenagers' heightened self-consciousness and need for self-understanding. Consequently, adolescents whose high self-esteem helps them successfully adapt to recurring instances of identity threat may form behavior patterns that support resilience and thriving over the short-term.

Some empirical research supports the view that self-esteem has a range of developmental implications for the mental and physical health of adolescents and adults. A 2-year longitudinal study found that self-esteem at age 11 was associated with fewer externalizing problems at age 13 (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). In a longitudinal study spanning over 10 years, low self-esteem in adolescence predicted poor health, criminal behavior, and constrained financial success in adulthood (Trzesniewski et al., 2006). In a multi-wave longitudinal investigation of people between 16-97 years of age, high self-esteem predicted fewer depressive symptoms and better health and job satisfaction over periods of 3 years (Orth et al., 2012). Finally, research indicates that those who have low self-esteem at the start of adolescence, or whose self-esteem decreases throughout adolescence, are more likely to present depressive symptoms as adults (Steiger et al., 2014).

Conversely, some evidence presents a modest or even cautionary tale regarding the promotion of self-esteem (e.g., Baumeister et al., 2003; Crocker & Park, 2004). Various scholars posit that when individuals explicitly pursue self-esteem and indiscriminately value their own self-worth, it may foster narcissistic tendencies, isolation, denial of one's failures, a lack of self-compassion, heightened social comparisons, and chronic evaluative dispositions toward one's successes and failures (e.g., Baumeister et al., 2003; Crocker & Park, 2004; Nussbaum & Dweck, 2008; Neff & Vonk, 2009). In addition, some evidence points to negative consequences of high self-esteem, for example, higher self-esteem in grade 6 was linked to *lower* school achievement one year later (Skaalvik & Hagtvet, 1990), highlighting additional complexity to the role of self-esteem in subsequent thriving.

Positive Affect and Self-Esteem

Ecologically, when parents promote self-esteem in children, they often simultaneously cultivate positive affect, although the opposite is not necessarily the case. For example, a parent may attempt to foster a child's self-esteem by taking her out for ice cream to celebrate scoring the winning goal in a sports game, simultaneously extending the positive affect generated by winning the game (not to mention from eating the ice cream). Conversely, after getting a bad grade on a test, parents might try to restore self-esteem by telling their children the test was unfair and that they are smart (an attempt to also elicit or restore positive affect). Although these attempts by the parents might boost self-esteem, they may also result in some of the aforementioned negative consequences.

By contrast, positive affect can be experienced in many ways that are not directed toward the self. For example, adolescents may feel excited about their mother's promotion, happy when their favorite sports team wins a game, or curious as they read a captivating book. When something goes wrong such as receiving a bad grade, a parent might comfort their child and focus on ways to improve without directly focusing on the self. These situations can still elicit positive affect even though they are not directly associated with the self or self-esteem. This lack of self-focused thought may help to explain why positive affect and self-esteem are related to different outcomes over time (Lyubomirsky & Lepper, 1999; Lyubomirsky et al., 2006). Thus, a direct longitudinal comparison of positive affect and self-esteem is needed.

Positive Affect and Positive Outcomes

Regardless of whether positive affect is generated while promoting self-esteem or in an experience not centrally related to the self, it has many short- and long-term benefits. The broaden-and-build theory of positive emotions (Fredrickson, 2001, 2013) posits that positive emotions served humans in our evolutionary history by facilitating group cohesion, enhancing

the likelihood of survival, and improving learning starting in infancy (Abe & Izard, 1999; Coffey, 2018; Coffey, Warren, & Gottfried, 2015; Fredrickson, 2013). Positive emotions help broaden thinking and open individuals to a wide array of possible actions (e.g., play, creative pursuits, socializing). In turn, these diverse behaviors build resources (e.g., social, cognitive, physical, physiological) that are useful in times of need (for a review, see Fredrickson, 2013). Importantly, positive emotions and affect motivate people to want to recreate the experiences that precipitated them (Fredrickson, 2013).

The more frequently people experience positive affect, the more opportunities they have to build lasting resources that remain useful long after the emotion has passed – sometimes decades later (Fredrickson, 2013). Thus, even if identity¹ or self-esteem changes, the benefits of positive affect—in the form of physiological, social, and cognitive resources—may still be present. For example, research indicates higher positive affect is linked with greater social support and healthier vagal tone and immune system functioning, all of which are beneficial for long-term health (e.g., Cohen, Alper, Doyle, Treanor, & Turner, 2006; Kok et al., 2013). In adolescents, positive affect is associated with better coping, greater school engagement, seeking social support, and future aspirations and goals (Reschly, Huebner, Appleton, & Antaramian, 2008). Moreover, positive affect seems particularly important since the formative adolescent years are a key time to build interpersonal, cognitive, and physiological resources that they will be useful into adulthood (Abe & Izard, 1999; Steinberg, 2008). Thus, even as conceptualizations of the self might evolve or change course in the transition to adulthood, the wide array of social,

¹ In reality, identity is constructed as individuals are shaped by (and as they proactively shape) their own resources, emotions, environment, etc. Throughout our discussion we claim that there is no *direct* or *prima facie* implication of the self in the resources one has, although identity is certainly constructed in relation to one's resources, emotions, environment, and so on.

cognitive, and physiological skills and resources built by positive affect may have a stronger probability of being carried forward to support later thriving.

A growing body of research documents that the prospective benefits of positive affect (for review see Donaldson, Dollwet, & Rao, 2015) include many of the same benefits attributed to self-esteem. Just as the research suggests that self-esteem buffers against stressful circumstances (e.g., Schmeichel et al., 2009), other experimental research finds that positive affect buffers against the physiological effects of negative affect (Tugade & Fredrickson, 2004). Additionally, just as self-esteem is consistently correlated with life satisfaction, positive affect is associated with life-satisfaction and educational attainment years or decades later (Baumeister et al., 2003; Boden et al., 2008; Coffey, 2019; Coffey et al., 2015; Diener & Diener, 2009). For example, positive affect in infancy and adolescence predicts adult life satisfaction at age 29 (Coffey et al., 2015). Further, research has found prospective associations between positive affect and social relationships, prosocial behavior, physical health, mental health, success, and coping outcomes (Abel & Kruger, 2010; Coffey, 2018; Coffey, Wray-Lake, Mashek, & Branand, 2016; Danner et al., 2001; Lyubomirsky, King, & Diener, 2005).

The Current Study and Hypotheses

Both self-esteem and positive affect have been posited as avenues through which adolescents become thriving adults but no studies have compared them over this timeframe. Understandably, views of the self undergo broad changes during identity formation in the transition from adolescence to adulthood, but less is known as to whether adolescent self-esteem and positive affect are uniquely related to adult thriving. The literature on stability and benefits of self-esteem over extended periods is mixed (e.g., Baumeister et al., 2003; Donnellan et al., 2012). The skills and resources associated with positive affect can be adaptive long after the

affect has faded (e.g., Fredrickson, 2013) or the self has evolved. Positive affect can be experienced as part of self-esteem or independent of it.

Despite calls for long-term comparisons of self-esteem and positive affect (Donnellan et al., 2012; Lyubomirsky et al., 2006), this is the first study that compared the two between adolescence and adulthood to determine if the other elements of self-esteem extend beyond the benefits of self-esteem's inherent positive affect. This 13-year longitudinal comparative analysis examines the role of adolescent self-esteem and positive affect, when measured at the same time and controlling for each other, in predicting adult self-esteem and life satisfaction. This approach inherently tests whether the benefits of adolescent self-esteem are due to the positive affect that is a constitutive element of self-esteem and whether adolescent positive affect plays a role in long-term positive functioning, independent of adolescent self-esteem.

The longitudinal model in Figure 1 depicts the hypotheses for the current study. Based on the long-term benefits and enduring resources associated with positive affect (Abel & Kruger, 2010; Danner et al., 2001; Fredrickson, 2013) and limitations of the self-focus of self-esteem including its changing nature during identity development, we have two primary hypotheses:

Higher adolescent positive affect will predict higher adult self-esteem (H1a) and adult life satisfaction (H1b), above and beyond the effects of adolescent self-esteem. We did not expect adolescent self-esteem to explain variance in adult self-esteem (H2a) or adult life satisfaction (H2b) after adjusting for adolescent positive affect because of the array of life changes related to the self that can occur over this 13-year period. As people transition into adulthood, their identities and priorities undergo substantial formation. Whereas current friendships and athletic abilities are predictors of adolescent self-esteem (e.g., Harter & Marold, 1991; Walker & Greene, 1986), by the time people are 29 years old they are likely to have developed new relationships

and prioritize things like careers over athletics. Given that self-esteem is based heavily on the present factors such as social acceptance (Baumeister et al. 2003; Leary, 2005), the changes from age 16 to 29 may explain why the stability of self-esteem over this period is low to moderate (Donnellan et al., 2012). However, the associated positive affect of these distal experiences may explain any links between adolescent self-esteem and adult thriving. Although we expected adolescent self-esteem to positively correlate with adult life satisfaction and self-esteem (replicating previous work, e.g., Diener & Diener, 2009), we also expected these links to be explained by the associated positive affect.

Method

Participants

This study is based on adolescent and adult data from the 29-year Fullerton Longitudinal Study (FLS; Gottfried, Gottfried, & Guerin, 2006), which has followed 130 children (48% female) and their families from infancy through age 29. In 1979, families were recruited in Southern California using hospital birth notifications. Testing started at age 1 and continued every 6 months until children were 3.5 years old; testing from ages 5 to 17 was annual with follow up tests at ages 24 and 29. At least 80% of the participants completed each wave. Extensive attrition analyses were conducted for each wave using a wide range of variables, with no differences found between those who continued and those who did not for all standard measures (see Gottfried et al., 2006; Guerin, Gottfried, Oliver, & Thomas, 2003). Of age 29 participants, 39.6% had earned a bachelor's degree, 18.9% had attended graduate school, 12.3% had an associate degree, and 29.2% had a high school degree. Most (90.5%) were employed, 44.3% were married, and 41.5% reported having at least one child.

The current study ($n = 112$) includes participants self-reporting at ages 16 (in the lab) and 29 (internet survey). At age 16, 55.5% of the participants were in 11th grade and 45.5% were in the 10th grade (two did not answer this question). According to parents, 10.6% of the adolescents were receiving remedial educational services and 18% were in gifted classrooms. Socioeconomic status of families—as determined by factors including parents' occupation, employment status, and education level—varied widely from high school drop-outs to professionals. Most mothers reported being married (72.3%), with all but one adolescent living with the mother. Most fathers (90.6%) and mothers (58.1%) were working full time. Participants included in the analyses were 48% female and 90% European-American. See Gottfried et al. (2006) and Gottfried, Gottfried, Bathurst, & Guerin (1994) for more information about sample characteristics.

Measures

Adolescent self-esteem. Global self-esteem was measured at age 16 using the Rosenberg-Simmons Self-Esteem Scale (RSSSES; Rosenberg & Simmons, 1972). Following the development of the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), Rosenberg and Simmons developed this scale as a more suitable measure for adolescents (Wylie, 1989) and it was widely used at the time of our data collection (Blasovich & Tomaka, 1991). Notably, M. Rosenberg developed both scales and they contain similar items (e.g., in the RSSSES, “Another kid said, ‘I am no good at all.’ Do you ever feel like this?” and in the RSES, “At times I think I am no good at all). Participants responded to six items (e.g., “Another kid said, ‘I am not much good at anything.’ Do you ever feel like this?”) using a 3-point Likert scale (e.g., 1 = *A Little*, 2 = *Sometimes*, 3 = *A Lot*). In prior research, the RSSSES and a truncated version of the RSES (several items removed because they did not work as well with adolescents) relationship of gamma was .61 (Rosenberg & Pearlin, 1978). As in prior studies, scores on these six items

exhibited strong internal consistency (Cronbach's $\alpha = .82$). After reverse-scoring each item such that higher scores signaled higher self-esteem, they served as indicators for the adolescent self-esteem latent variable.

Adolescent positive affect. Positive affect was measured at age 16 using the Revised Dimensions of Temperament Survey (DOTS-R; Windle & Lerner, 1986). The DOTS-R was previously validated as a measure of positive mood (Windle & Lerner, 1986). Participants responded to seven items (e.g., "Generally, I am happy.") using a 4-point Likert scale (1 = *Usually False*, 2 = *More False Than True*, 3 = *More True Than False*, 4 = *Usually True*). These seven items exhibited strong internal consistency (Cronbach's $\alpha = .89$) and served as indicators for the adolescent positive affect latent variable.

Adult self-esteem. Global self-esteem was measured at age 29 using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Participants responded to 10 items (e.g., "I feel that I have a number of good qualities.") using a 7-point Likert scale (1 = *Very Strongly Disagree*, 7 = *Very Strongly Agree*). Item scores were averaged² into a single variable such that higher scores indicated higher adult self-esteem. Internal consistency was strong (Cronbach's $\alpha = .87$).

Adult life satisfaction. Life satisfaction was measured at age 29 using the Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985). Participants responded to five items (e.g., "In most ways my life is close to my ideal.") using a 7-point Likert scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). Scores were summed into a single variable with higher scores indicating higher adult life satisfaction. Internal consistency was strong (Cronbach's $\alpha = .92$).

² Summed scores were used for adult life satisfaction and self-esteem to limit model complexity due to moderate sample size. We also examined models in which adult self-esteem and life satisfaction were modeled as latent variables and found results that were commensurate with the present analysis. However, considering our moderate sample size, we chose to limit model complexity per the recommendations of Bentler (2007) by using summed/averaged scores for the two commonly-used outcome measures.

Analytic Plan

Structural equation modeling (SEM) was conducted using Mplus version 7.0 (Muthén & Muthén, 1998-2012) to appraise the longitudinal progression of self-esteem and positive affect in adolescence as they relate to adult self-esteem and life satisfaction. Our sample size was sufficiently large for longitudinal SEM analyses where the model is relatively simple (Bentler, 2007; Liu, Rovine & Molenaar, 2012). Covariance coverage was high (ranging from .91-.98) for both the measurement and structural models. The weighted least squares means and variance-adjusted (WLSMV) estimator, which is appropriate for small samples (Beauduvel & Herzberg, 2006), was used due to the ordered categorical nature of the data and to minimize the potential for inaccurate results due to non-normality (Brown, 2006). Model fit was determined using established standards (e.g., Byrne, 2012). Means, standard deviations, and bivariate correlations are displayed in Table 1.

Results

Measurement model. We started by testing the parameter and goodness of fit estimates of the measurement model, which included age 16 self-esteem and positive affect, and age 29 life satisfaction and self-esteem (see Table 1). Model ($n = 112$) fit was adequate, $CFI = .96$, $TLI = .96$, $RMSEA = .10$ (90% CI = .08 to .12), $\chi^2(86) = 180.46$, $p < .001$. All correlations can be found in Table 1. Age 16 positive affect was associated with age 16 self-esteem ($r = .51$, $p < .001$), adult life satisfaction ($r = .35$, $p < .001$), and self-esteem ($r = .32$, $p = .001$). Age 16 self-esteem was significantly associated with adult self-esteem ($r = .27$, $p = .004$), but age 16 self-esteem and adult life satisfaction were not significantly associated ($r = .18$, $p = .06$). Adult life satisfaction

and self-esteem were significantly correlated ($r = .40, p < .001$).

Table 1

Means, Standard Deviations, and Intercorrelations of Primary Variables (n = 112)

Variable	M	SD	Correlation Coefficient			
			1	2	3	4
<hr/>						
Age 16						
1) Self-esteem	2.55	.44	---	.51**	.27**	.18
2) Positive affect	3.56	.47		---	.32**	.35**
Age 29						
3) Self-esteem	3.41	.67			---	.40**
4) Life satisfaction	25.11	6.64				---

Note. Age 16 self-esteem and positive affect means and standard deviations were estimated based on averaged scores across their respective indicators.

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

Comparison models. To examine whether adolescent positive affect or self-esteem was a better *unique* predictor of adult self-esteem and life satisfaction, the theorized pathways were tested in the structural model (see Figure 2). Specifically, pathways were specified from each latent adolescent variable to each adulthood variable. Model ($n = 112$) fit for the structural model was adequate, $CFI = .96, TLI = .96, RMSEA = .10$ (90% CI = .08 to .12), $\chi^2(86) = 180.46, p < .001$.

In accord with our first hypothesis, positive affect had unique positive associations with (H1a) adult self-esteem ($\beta = .24, p = .036$) and (H1b) adult life satisfaction ($\beta = .35, p = .007$), over and above the effects of adolescent self-esteem. In accord with our second hypothesis, adolescent self-esteem did not uniquely predict (H2a) adult self-esteem ($\beta = .15, p = .19$) or

(H2b) adult life satisfaction ($\beta = .01, p = .96$) over and above the effects of adolescent positive affect³. The model accounted for 12% of the variance in adult self-esteem and 12% of the variance in adult life satisfaction. In summary, all hypotheses were supported.

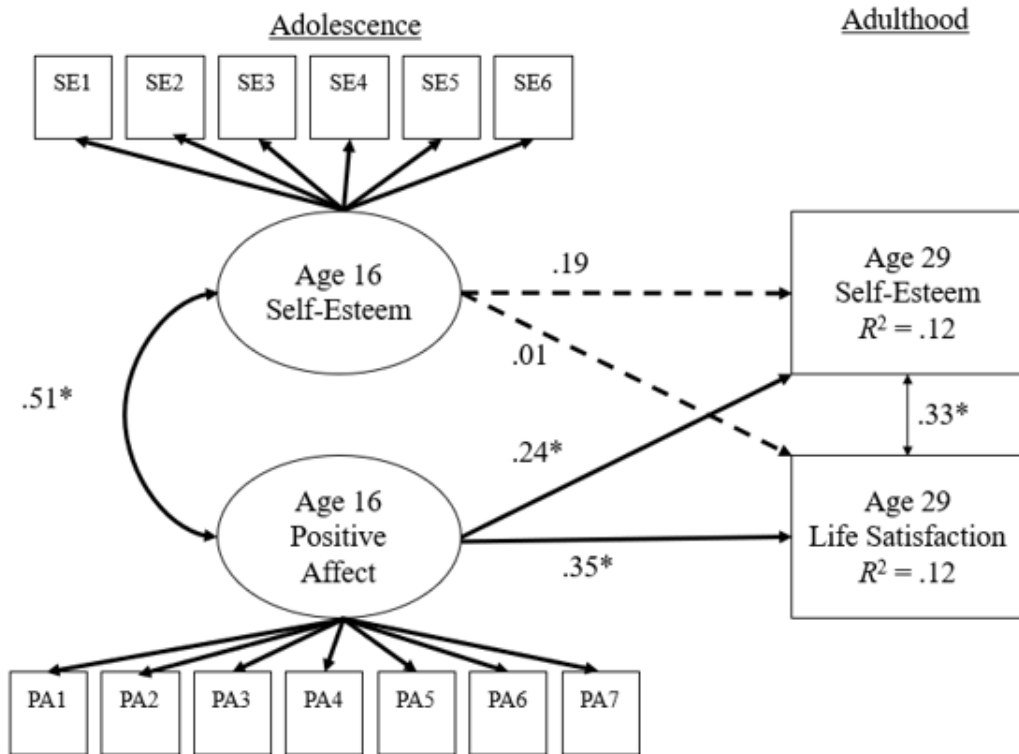


Figure 2. Final structural model displaying longitudinal associations between age 16 self-esteem, age 16 positive affect, gender, age 29 self-esteem, and age 29 life satisfaction Model ($n = 112$) fit for the structural model was adequate, $CFI = .96$, $TLI = .96$, $RMSEA = .10$ (90% CI = .08 to .12), $\chi^2(86) = 180.46, p < .001$. Standardized path coefficients appear on the arrows. Factor loadings were greater than .40 and all were statistically significant, $p < .001$. Broken pathways were modeled but not significant. SE = self-esteem items. PA = positive affect items.
* $p < .05$, two-tailed.

³ Although self-esteem gender differences are common in adolescence (e.g., Boden et al., 2008), gender was not associated with age 16 self-esteem or age 29 self-esteem in our sample. Further, in a comparison model in which gender was a covariate, gender did not predict either adult outcome variable or meaningfully change the model. Thus, gender was not included in the model to reduce chances of overcontrolling and for model parsimony.

Discussion

This study is the first to compare the relative contributions of adolescent positive affect and self-esteem as predictors of adult thriving 13 years later. Consistent with our predictions, we found that age 16 positive affect predicted age 29 self-esteem and life satisfaction even when accounting for prior levels of adolescent self-esteem. Most notably, self-esteem did not predict either adult life satisfaction or self-esteem after accounting for adolescent positive affect. In other words, adolescent positive affect, but not self-esteem, predicts adult self-esteem and life satisfaction. Given the mixed results of self-esteem promotion (for a review, see Baumeister et al., 2003), these findings have important applied and theoretical implications.

Some research suggests that global self-esteem positively associates with a range of important life outcomes (e.g., Orth & Robins, 2014), yet extensive reviews suggest that its *promotion* can be harmful if the motivation is centered on the maintenance of self-worth (Baumeister et al., 2003; Crocker & Park, 2004). Self-esteem is a multicomponent, package variable, and some of its constitutive elements may be the drivers of certain long-term positive outcomes (Myers, 2014). Our findings are consistent with the view that positive affect is a key element of self-esteem that may be responsible for its benefits over time, possibly because positive affect is known to build enduring resources (e.g., social connections; Fredrickson, 2013). Alternatively, developmental shifts over this 13-year period may indicate the changes in the self between adolescence and adulthood are significant enough that the self-focused foundations of adolescent self-esteem are of little consideration for adult self-esteem. That is, grades and athletic achievements in high school—some of the central underpinnings for adolescents' self-esteem—are no longer central to the adult who formed new relationships (e.g., family) and is working full-time (e.g., Walker & Greene, 1986). Our findings also align with

previous research showing significant within-person changes in self-esteem during the transition to adulthood (Donnellan et al., 2012), perhaps reflecting significant shifts in narrative identity that occur during this period of the lifespan (e.g., Côté, 2006). Such shifts in identity would likely provide a weak basis for stability in self-esteem from adolescence to young adulthood.

Our findings suggest that adolescent self-esteem does not hold long-term developmental significance independent of positive affect, at least not when considering the developmental targets of adult life satisfaction and self-esteem. Specifically, adolescent positive affect was positively associated with adult life satisfaction and adult self-esteem, above and beyond the effects of adolescent self-esteem. Thus, overall, our findings suggest not only that positive affect is a key element of self-esteem, but also that positive affect holds its own value in setting the foundation for positive development into adulthood.

Promoting Positive Affect

Importantly, positive affect and self-esteem share substantial overlap (Lyubomirsky et al., 2006), perhaps especially so during the adolescent years when the self and identity are central issues in adolescents' lives (Erikson, 1963; Steinberg, 2008). During adolescence, positive affect may assume a self-esteem "flavor" as adolescents interpret positive feelings in relation to who they are and whether they are an individual of worth. Indeed, we found that adolescent positive affect and self-esteem were moderately related. Nevertheless, those elements of adolescent positive affect that are independent of self-esteem seem to yield long-term benefits on their own, even for adult self-esteem, highlighting that positive affect and self-esteem elicit different long-term consequences.

While our study's design did not permit a direct test of the broaden-and-build theory (Fredrickson, 2001; Kok & Fredrickson, 2013), our findings are nevertheless consistent with the

theory. In the lives of adolescents, those who experience frequent positive affect may think more broadly and flexibly in high-stakes social situations (e.g., peers experimenting with drugs), where it is imperative to act responsibly without undermining relationships with others. In the achievement domain, adolescents with more frequent positive affect may have more varied strategies for dealing with challenges, thus increasing the odds of building competencies that are beneficial in the future. Indeed, adolescent positive affect predicted better problem solving, peer support, teacher-student relationships, and future aspirations and goals (Reschly et al., 2008) that may translate to long-term adult thriving. Positive affect may also serve adolescents in the same way as adults, by buffering against the negative effects of stress and building physiological resources over time (Kok et al., 2013; Tugade & Fredrickson, 2004). In these ways, positive affect may play a critical role in the provision of cognitive and physiological resources that stave off health threats, build interpersonal relationship capital, and foster psychological health. These resources may, in turn, position adolescents for long-term self-esteem and satisfaction as they navigate transitions into marriage, child-rearing, working life, and other adult roles.

Self-esteem promotion comes with a range of concerns (Baumeister et al., 2003; Crocker & Park, 2004; Meyer, 1992; Neff & Vonk, 2009; Nussbaum & Dweck, 2008) that might not apply to positive affect promotion. Specifically, some of the ways in which people promote self-esteem might reduce chances for positive experiences to broaden and build resources or authentic emotional experiences. For example, self-esteem has been criticized for its individualistic nature that often involves a focus on social rewards and social comparisons that create isolation (e.g., Heine, Lehman, Markus, & Kitayama, 1999; Neff & Vonk, 2009).

Moreover, some methods of promoting self-esteem (e.g., praise for being intelligent even after a failed exam) may backfire because adolescents may perceive them as inauthentic, and

certain forms of high self-esteem can be unstable, contingent, narcissistic, and ego-defensive (Baumeister et al., 2003; Crocker & Luhtanen, 2003; Dweck, 1999; Kernis, 2005; Meyer, 1992; Neff & Vonk, 2009; Twenge, 2013). Thus, to protect self-worth, adolescents could resort to narcissistic tendencies that harm social relationships, or perhaps engage in maladaptive social comparison. Conversely, positive affect promotion is recognized for its role in building interpersonal connections and other adaptive resources (Fredrickson, 2001, 2013; Kok et al., 2013; Nelson-Coffey et al., 2017). We must note that our study did not examine self-esteem and positive affect interventions, so future studies should empirically test the relative efficacy of these two broad approaches.

A strength of our study is the focus on long-term adult outcomes using longitudinal data to predict two global indicators of adult thriving. While cross-sectional and shorter research periods are useful, they do not provide an adequate picture in terms of healthy development over time. For example, promotion of self-esteem might lead adolescents to suppress emotions or deny failures. Such behaviors may have short-term benefits, but long-term they are linked to maladaptive outcomes such as outcome-focused self-theories and poor emotion regulation (e.g., Dweck, 1999; Gross & Thompson, 2007; John & Gross, 2004). Conversely, factors associated with positive affect such as developing social skills, healthy emotion regulation, and relationships can have long-term benefits years or decades later (Belsky et al., 2007; John & Gross, 2004).

Limitations and Future Directions

Despite the strengths, there were several limitations in this study. First, the causal processes were modeled using non-experimental longitudinal data. While longitudinal data are invaluable in shedding light upon long-term developmental processes, it is possible that other

unobserved variables may factor into the observed longitudinal associations. Realistically, positive affect and self-esteem are parts of a much larger constellation of assets that help adolescents become thriving adults, so other outcome variables (as well as assets) should be tested alongside positive affect and self-esteem. Although adolescent positive affect, but not self-esteem, achieved statistical significance in predicting adult self-esteem, the magnitudes of these pathways were somewhat similar, underscoring the need for future research to compare the predictive strength of these constructs (with respect to adult self-esteem) in larger samples. Nevertheless, examining long-term outcomes across 13 years of development helps shed light on the relative predictive value (for adult self-esteem and life satisfaction) of what might otherwise seem to be equally compelling adolescent assets. Second, while the broaden-and-build theory is consistent with our findings, the present study did not explicitly test the proposed mechanisms of the theory. Prospective longitudinal studies that examine the mechanisms of the theory (i.e., broadened thought-action repertoire, resources that increase over time) are necessary to test whether adolescent positive affect leads to adult life satisfaction and self-esteem through the proposed mechanisms. Cultural conceptions of happiness and self-esteem can vary (Diener & Diener, 2009; Uchida & Ogiwara, 2012), so cross-cultural examinations are also needed. Fourth, ideally we would have used the same self-esteem measure during adolescence and adulthood, although a close comparison finds that the scales contain similar items (and were developed by Rosenberg). Finally, we measured global self-esteem, positive affect, and life satisfaction, rather than looking at nuances any of these factors, so further comparisons of these nuances are needed.

Conclusions

Given that fostering children's long-term happiness is a high priority for parents (Diener & Lucas, 2004), focusing extensively on self-esteem may be of limited long-term value. On the

other hand, adolescent positive affect seems to be a more prominent building block for adult life satisfaction and self-esteem. As researchers advocate for policy focused on thriving (Adler & Seligman, 2016; Howell et. al, 2016), a logical next step is to develop and test the efficacy of positive affect interventions in adolescents, examining short and long-term outcomes. Given the hazards of fostering self-esteem in unhealthy ways (Crocker & Park, 2004; Meyer, 1992; Neff & Vonk, 2009; Nussbaum & Dweck, 2008), research on positive affect interventions should be circumspect about methods through which positive affect is cultivated in adolescents. First, promotion of positive affect should be part of a greater focus on healthy emotional functioning and regulation. Research with primarily undergraduate samples suggests that engaging in meaningful activities such as writing gratitude letters and loving-kindness meditation may be effective in promoting positive affect in healthy ways (Cohn & Fredrickson, 2010; Layous, Nelson, & Lyubomirsky, 2013). Accordingly, future work that tests the efficacy of such positive psychological interventions as gratitude, loving-kindness meditation, and writing about one's best possible self as ways to promote adolescent positive affect in diverse populations may ultimately give parents and youth workers sound tools for promoting adolescents' long-term happiness.

Open Practice Statement and Compliance of Ethical Standards

The authors of this article are responsible for its content. The findings, interpretations, and conclusions contained in this article are exclusively those of the authors. Neither author reports any conflict of interest. This study uses archival data from as far back as 1979 and was not formally preregistered. Permission for using the FLS data is required to limit researchers using the data for the same topic and to protect participant privacy because the study continues to collect data. As such, neither data nor materials have been made available in a third-party archive. Please email the lead author to request data or materials. The manuscript represents original empirical work based on archival data from the FLS. Our manuscript has not been published and is not under review elsewhere. The study was conducted in accordance with ethical guidelines and California State University, Fullerton and Claremont Graduate University IRB approval. The FLS study has been supported by grants from the Thrasher Research Fund; Spencer Foundation; California State University, Fullerton; California State University, Northridge; Kravis Leadership Institute; BLAIS Foundation; W. K. Kellogg Foundation and Army Research Institute (W911NF-17-1-0220).

References

- Abe, J. A., & Izard, C. E. (1999). The developmental functions of emotions: An analysis in terms of differential emotions theory. *Cognition and Emotion*, 13(5), 523-549. <https://doi.org/10.1080/026999399379177>
- Adler, A., & Seligman, M. E. (2016). Using wellbeing for public policy: Theory, measurement, and recommendations. *International Journal of Wellbeing*, 6(1). <https://doi.org/10.5502/ijw.v6i1.429>
- Arndt, J., Greenberg, J., & Cook, A. (2002). Mortality salience and the spreading activation of worldview-relevant constructs: Exploring the cognitive architecture of terror management. *Journal of Experimental Psychology*, 131(3), 307-324. <https://doi.org/10.1037/0096-3445.131.3.307>
- Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1-44. <https://doi.org/10.1111/1529-1006.01431>
- Beauduvel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling*, 13, 186–203. doi:10.1207/s15328007sem1302_2
- Belsky, J., Vandell, D. L., Burchinal, M., Clarke-Stewart, K. A., McCartney, K., & Owen, M. T. (2007). Are there long-term effects of early child care? *Child Development*, 78(2), 681-701. <http://dx.doi.org/10.1111/j.1467-8624.2007.01021.x>
- Bentler, P. M. (2007). On tests and indices for evaluating structural models. *Personality and Individual Differences*, 42, 825–829. <http://dx.doi.org/10.1016/j.paid.2006.09.024>
- Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. *Measures of personality and social psychological attitudes*, 1, 115-160.
- Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: Guildford.
- Boden, J. M., Fergusson, D. M., & Horwood, L. (2008). Does adolescent self-esteem predict later life outcomes? A test of the causal role of self-esteem. *Development and Psychopathology*, 20(1), 319-339. <https://doi.org/10.1017/S0954579408000151>
- Bolognini, M., Plancherel, B., Bettschart, W., & Halfon, O. (1996). Self-esteem and mental health in early adolescence: Development and gender differences. *Journal of Adolescence*, 19(3), 233-245. <https://doi.org/10.1006/jado.1996.0022>
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge/Taylor & Francis Group.
- Chung, J. M., Robins, R. W., Trzesniewski, K. H., Nofle, E. E., Roberts, B. W., & Widaman, K. F. (2014). Continuity and change in self-esteem during emerging adulthood. *Journal of Personality and Social Psychology*, 106(3), 469.
- Coffey, J. K. (2018). Positive psychology among infants and young children. To appear in S. J. Lopez, L. M. Edwards, & S. C. Marques (Eds.), *The Handbook of Positive Psychology*. New York: Oxford University Press.
- Coffey, J.K. (2019). Cascades of infant happiness: Infant positive affect predicts childhood IQ and adult educational attainment. *Emotion*. Advance online publication. doi: 10.1037/emo0000640

- Coffey, J. K., Warren, M. T., & Gottfried, A. W. (2015). Does infant happiness forecast adult life satisfaction? Examining subjective well-being in the first quarter century of life. *Journal of Happiness Studies*, 16, 1401-1421. <https://doi.org/10.1007/s10902-014-9556-x>
- Coffey, J. K., Wray-Lake, L., Mashek, D., & Branand, B. (2016). A longitudinal examination of a multidimensional well-being model in college and community samples. *Journal of Happiness Studies*, 17, 187-211. <https://doi.org/10.1007/s10902-014-9590-8>
- Cohen, S., Alper, C. M., Doyle, W. J., Treanor, J. J., & Turner, R. B. (2006). Positive emotional style predicts resistance to illness after experimental exposure to Rhinovirus or Influenza A virus. *Psychosomatic Medicine*, 68(6), 809-815. <https://doi.org/10.1097/01.psy.0000245867.92364.3c>
- Cohn, M. A., & Fredrickson, B. L. (2010). In search of durable positive psychology interventions: Predictors and consequences of long-term positive behavior change. *The Journal of Positive Psychology*, 5(5), 355-366. <https://doi.org/10.1080/17439760.2010.508883>
- Côté, J. E. (2006). Emerging Adulthood as an Institutionalized Moratorium: Risks and Benefits to Identity Formation. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century*. (pp. 85–116). Washington, DC: American Psychological Association. doi:10.1037/11381-004
- Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial problems in college freshmen. *Personality and Social Psychology Bulletin*, 29, 701-712. <https://doi.org/10.1177/0146167203029006003>
- Crocker, J., & Park, L. E. (2004). Reaping the benefits of pursuing self-esteem without the costs? Reply to DuBois and Flay (2004), Sheldon (2004), and Pyszczynski and Cox (2004). *Psychological Bulletin*, 130(3), 430-434. <https://doi.org/10.1037/0033-2909.130.3.430>
- Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: findings from the nun study. *Journal of Personality and Social Psychology*, 80(5), 804.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55(1), 34-43. <https://doi.org/10.1037/0003-066X.55.1.34>
- Diener, E., & Diener, M. (2009). Cross-cultural correlates of life satisfaction and self-esteem. In E. Diener (Ed.), *Culture and well-being: The collected works of Ed Diener* (pp. 71-91). New York, NY US: Springer Science and Business Media. https://doi.org/10.1007/978-90-481-2352-0_4
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13
- Diener, M. L., & Lucas, R. E. (2004). Adults' desires for children's emotions across 48 countries: Associations with individual and national characteristics. *Journal of Cross-Cultural Psychology*, 35(5), 525-547. <https://doi.org/10.1177/0022022104268387>
- Donaldson, S. I., Dollwet, M., & Rao, M. A. (2015). Happiness, excellence, and optimal human functioning revisited: Examining the peer-reviewed literature linked to positive psychology. *The Journal of Positive Psychology*, 10(3), 185–195. doi:10.1080/17439760.2014.943801

- Donnellan, M. B., Kenny, D. A., Trzesniewski, K. H., Lucas, R. E., & Conger, R. D. (2012). Using trait-state models to evaluate the longitudinal consistency of global self-esteem from adolescence to adulthood. *Journal of Research in Personality*, 46(6), 634–645. doi:10.1016/j.jrp.2012.07.005
- Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science*, 16(4), 328-335. <https://doi.org/10.1111/j.0956-7976.2005.01535.x>
- Dweck, C. S. (1999). *Self theories: Their role in motivation, personality and development*. Philadelphia, PA: Psychology Press
- Erikson, E. H., (1963) *Childhood and society* (Rev. ed.). NY, NY: Norton.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56(3), 218-226. <https://doi.org/10.1037/0003-066X.56.3.218>
- Fredrickson, B. L. (2013). Positive emotions broaden and build. In E. Ashby Plant & P.G. Devine (Eds.), *Advances on Experimental Social Psychology*, 47, 1-53. Burlington: Academic Press. <https://doi.org/10.1016/B978-0-12-407236-7.00001-2>
- Gottfried, A. W., Gottfried, A. E., Bathurst, K., & Guerin, D. W. (1994). *Gifted IQ: Early developmental aspects: The Fullerton Longitudinal Study*. New York, NY US: Plenum Press.
- Gottfried, A. W., Gottfried, A. E., & Guerin, D. W. (2006). The Fullerton Longitudinal Study: A long-term investigation of intellectual and motivational giftedness. *Journal for the Education of the Gifted*, 29(4), 430-450. <https://doi.org/10.4219/jeg-2006-244>
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-24). New York, NY, US. Guilford, Press.
- Guerin, D., Gottfried, A. W., Oliver, P. H., & Thomas (2003). *Temperament: Infancy through adolescence*. NY, NY: Kluwer Academic/Plenum Publishers.
- Harter, S., & Marold, D. B. (1991). A model of the determinants and mediational role of self-worth: Implications for adolescent depression and suicidal ideation. In *The self: Interdisciplinary approaches* (pp. 66-92). Springer, New York, NY.
- Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, 80(1), 112.
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106(4), 766. <http://dx.doi.org/10.1037/0033-295X.106.4.766>
- Howell, K. H., Coffey, J. K., Fosco, G. M., Kracke, K., Nelson, S. K., Rothman, E. F., & Grych, J. H. (2016). Seven reasons to invest in well-being. *Psychology of Violence*, 6(1), 8. <https://doi.org/10.1037/vio0000019>
- John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality*, 72(6), 1301-1334. <https://doi.org/10.1111/j.1467-6494.2004.00298.x>
- Kernis, M. (2005). Measuring self-esteem in context: The importance of stability of self-esteem in psychological functioning. *Journal of Personality*, 73(6), 1–37. <https://doi.org/10.1111/j.1467-6494.2005.00359.x>

- Kok, B. E., & Fredrickson, B. L. (2013). Positive emotion: How positive emotions broaden and build. In J. J. Froh, A. C. Parks (Eds.), *Activities for teaching positive psychology: A guide for instructors* (pp. 61-63). Washington, DC US: American Psychological Association. <https://doi.org/10.1037/14042-010>
- Kok, B. E., Coffey, K. A., Cohn, M. A., Catalino, L. I., Vacharkulksemsuk, T., Algoe, S. B., & ... Fredrickson, B. L. (2013). How positive emotions build physical health: Perceived positive social connections account for the upward spiral between positive emotions and vagal tone. *Psychological Science, 24*(7), 1123-1132. <https://doi.org/10.1177/0956797612470827>
- Layous, K., Nelson, S. K., & Lyubomirsky, S. (2013). What is the optimal way to deliver a positive activity intervention? The case of writing about one's best possible selves. *Journal of Happiness Studies, 14*(2), 635-654. doi.org/10.1007/s10902-012-9346-2.
- Leary, M. R. (1999). Making sense of self-esteem. *Current Directions in Psychological Science, 8*(1), 32-35.
- Leary, M. R. (2005). Sociometer theory and the pursuit of relational value: Getting to the root of self-esteem. *European review of social psychology, 16*(1), 75-111.
- Leffert, N., Benson, P. L., Scales, P. C., Sharma, A. R., Drake, D. R., & Blyth, D. A. (1998). Developmental assets: Measurement and prediction of risk behaviors among adolescents. *Applied Developmental Science, 2*(4), 209-230. https://doi.org/10.1207/s1532480xads0204_4
- Lerner, R. M., Almerigi, J. B., Theokas, C., & Lerner, J. V. (2005). Positive youth development a view of the issues. *The Journal of Early Adolescence, 25*(1), 10-16. <https://doi.org/10.1177/0272431604273211>
- Liu, S., Rovine, M. J., & Molenaar, P. C. M. (2012). Selecting a linear mixed model for longitudinal data: repeated measures analysis of variance, covariance pattern model, and growth curve approaches. *Psychological Methods, 17*, 15-30. <https://doi.org/10.1037/a0026971>.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*(6), 803-855. <https://doi.org/10.1037/0033-2909.131.6.80>
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research, 46*(2), 137-155. <https://doi.org/10.1023/A:1006824100041>
- Lyubomirsky, S., Tkach, C., & DiMatteo, M. (2006). What are the differences between happiness and self-esteem? *Social Indicators Research, 78*(3), 363-404. <https://doi.org/10.1007/s11205-005-0213-y>
- Masten, A. S., Cutuli, J. J., Herbers, J. E., & Reed, M.-G. J. (2009). Resilience in development. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology, 2nd ed.* (pp. 117-131). New York, NY: Oxford University Press.
- Meyer, W. (1992). Paradoxical effects of praise and criticism on perceived ability. In W. Stroebe, M. Hewstone (Eds.), *European Review of Social Psychology, Vol. 3* (pp. 259-283). Oxford, England: John Wiley & Sons. <https://doi.org/10.1080/14792779243000087>
- Muthén, L. K., & Muthén B. O. (1998-2017). *Mplus User's Guide*. Seventh Edition. Los Angeles, CA: Muthén & Muthén. <https://www.statmodel.com/html Ug.shtml>
- Myers, D. G. (2014). Teaching current directions in psychological science: Let's hear a good word for self-esteem. *Observer, 27*(10).

- Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality*, 77(1), 23-50. <https://doi.org/10.1111/j.1467-6494.2008.00537.x>
- Nelson-Coffey, S. K., Fritz, M., Lyubomirsky, S., & Cole, S. W. (2017). Kindness in the blood: A randomized controlled trial of the gene regulatory impact of prosocial behavior. *Psychoneuroendocrinology*, 81, 8-13. <https://doi.org/10.1016/j.psyneuen.2017.03.025>
- Newbegin, I., & Owens, A. (1996). Self-esteem and anxiety in secondary school achievement. *Journal of Social Behavior and Personality*, 11(3), 521.
- Nussbaum, A. D., & Dweck, C. S. (2008). Defensiveness versus remediation: Self-theories and modes of self-esteem maintenance. *Personality and Social Psychology Bulletin*, 34(5), 599-612. <https://doi.org/10.1177/0146167207312960>
- Orth, U., Robins, R. W., & Widaman, K. F. (2012). Life-span development of self-esteem and its effects on important life outcomes. *Journal of Personality and Social Psychology*, 102(6), 1271-1288. <https://doi.org/10.1037/a0025558>
- Orth, U., & Robins, R. W. (2014). The development of self-esteem. *Current Directions in Psychological Science*, 23(5), 381-387. <https://doi.org/10.1177/0963721414547414>
- Pavot, W., & Diener, E. (2009). Review of the satisfaction with life scale. *Psychological Assessment*, 5(2), 164-172.
- Rachele, J. N., Washington, T. L., Cuddihy, T. F., Barwais, F. A., & McPhail, S. M. (2013). Valid and reliable assessment of wellness among adolescents: Do you know what you're measuring?. *International Journal of Wellbeing*, 3(2). <https://doi.org/10.5502/ijw.v3i2.3>
- Reschly, A. L., Huebner, E., Appleton, J. J., & Antaramian, S. (2008). Engagement as flourishing: The contribution of positive emotions and coping to adolescents' engagement at school and with learning. *Psychology in the Schools*, 45(5), 419-431. <https://doi.org/10.1002/pits.20306>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M., & Pearlman, L. I. (1978). Social class and self-esteem among children and adults. *American Journal of Sociology*, 84(1), 53-77.
- Rosenberg, M., & Simmons, R. G. (1972). *Black and white self-esteem: The urban school child*. Washington, D. C.: American Sociological Association
- Ryff, C. D., Lee, Y. H., Essex, M. J., & Schmutte, P. S. (1994). My children and me: Midlife evaluations of grown children and of self. *Psychology and Aging*, 9(2), 195-205. <https://doi.org/10.1037/0882-7974.9.2.195>
- Skaalvik, E. M., & Hagtvet, K. A. (1990). Academic achievement and self-concept: An analysis of causal predominance in a developmental perspective. *Journal of Personality and Social Psychology*, 58(2), 292-307. <https://doi.org/10.1037/0022-3514.58.2.292>
- Schmeichel, B. J., Gailliot, M. T., Filardo, E., McGregor, I., Gitter, S., & Baumeister, R. F. (2009). Terror management theory and self-esteem revisited: The roles of implicit and explicit self-esteem in mortality salience effects. *Journal of Personality and Social Psychology*, 96(5), 1077-1087. <https://doi.org/10.1037/a0015091>
- Steiger, A. E., Allemand, M., Robins, R. W., & Fend, H. A. (2014). Low and decreasing self-esteem during adolescence predict adult depression two decades later. *Journal of Personality and Social Psychology*, 106(2), 325-338. <https://doi.org/10.1037/a0035133>
- Steinberg, L. (2008). *Adolescence*. New York, NY: McGraw-Hill.

- Trzesniewski, K. H., Donnellan, M., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental Psychology, 42*(2), 381-390. <https://doi.org/10.1037/0012-1649.42.2.381>
- Trzesniewski, K. H., Donnellan, M. B., & Robins, R. W. (2003). Stability of self-esteem across the life span. *Journal of Personality and Social Psychology, 84*, 205–220. <https://doi.org/10.1037/0022-3514.84.1.205>
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320-333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Twenge, J. M. (2013). The evidence for Generation Me and against Generation We. *Emerging Adulthood, 1*(1), 11-16. <https://doi.org/10.1177/2167696812466548>
- Uchida, Y., & Ogihara, Y. (2012). Personal or interpersonal construal of happiness: A cultural psychological perspective. *International Journal of Wellbeing, 2*(4). <https://doi.org/10.5502/ijw.v2.i4.5>
- Urošević, S., Collins, P., Muetzel, R., Lim, K. O., & Luciana, M. (2014). Pubertal status associations with reward and threat sensitivities and subcortical brain volumes during adolescence. *Brain and Cognition, 89*, 15-26. <https://doi.org/10.1016/j.bandc.2014.01.007>
- Walker, L. S., & Greene, J. W. (1986). The social context of adolescent self-esteem. *Journal of Youth and Adolescence, 15*(4), 315-322.
- Windle, M., & Lerner, R. M. (1986). Reassessing the dimensions of temperamental individuality across the life span: The revised dimensions of temperament survey (DOTS-R). *Journal of Adolescent Research, 1*, 213-230. <https://doi.org/10.1177/074355488612007>