Title

Whose self-control development suffers or benefits in the face of adversity? A longitudinal study of Mexican-origin youth followed from age 10 to 16

Journal

European Journal of Personality, 36(4)

ISSN

0890-2070

Authors

Serrano, Surizaday
Atherton, Olivia E
Robins, Richard W
et al.

Publication Date

2022-07-01

DOI

10.1177/08902070221080278

Peer reviewed

Empirical Paper

EUROPEAN JOURNAL OF Personality

European Journal of Personality
2022, Vol. 36(4) 653–664

DOI: 10.1177/08902070221080278
journals.sagepub.com/home/ejop
SAGE

Whose self-control development suffers or benefits in the face of adversity? A longitudinal study of Mexican-origin youth followed from age 10 to 16

Surizaday Serrano[1], Olivia E Atherton[2], Richard W Robins[3] and Rodica Ioana Damian[1]

Abstract

This study assessed the co-development of adversity and effortful control based on a sample of Mexican-origin youth (N = 674) and their parents. We used a four-wave longitudinal design and followed target participants from age 10 to 16. At each time point, we measured adversity experienced by the children and their parents and children's effortful control (self- and parent-reported). We also assessed children's shift-and-persist coping strategies at ages 14 and 16. Across time, we found slight decreases in child-adversity and slight increases in parent-adversity. Based on bivariate LGC analyses, we found that the strongest effects surfaced for child- (vs. parent-) adversity. Specifically, we found that greater increases in child-adversity were associated with greater decreases in effortful control from ages 10 to 16. Moreover, we found a positive association between initial levels of child-adversity and the slope of effortful control, as well as a cross-sectional negative association between child- and parent-adversity and effortful control (at age 10). We found no evidence of moderation by shift-and-persist coping strategies. In sum, our results suggest that, on average, Mexican-origin youth exposed to more adversity might experience more maladaptive change with respect to effortful control.

Keywords

adversity, multicultural, effortful control, adolescence, longitudinal

Received 2 July 2021; Revised 13 December 2021; accepted 28 December 2021

> "I am thankful for the adversities, which have crossed my pathway, for they taught me tolerance, sympathy, self-control, perseverance and some other virtues I might never have known." (Napoleon Hill, self-help book writer, conman, 2008, p. 186)

The above anecdotal account of Mr. Hill thriving despite experienced adversity is similar to commonplace interpretations from public figures and laypeople alike (e.g., the redemptive self: McAdams, 2006). And while these common interpretations may be inspirational for some, they can also impart "toxic positivity" (Brown, 2021) by signaling to others that bouncing back and growing from adversity is the norm. Consequently, individuals can be set up with high expectations for the post-traumatic growth that they may experience following life setbacks. However, there has been little longitudinal work on the extent to which individuals may show post-traumatic *personality* growth, particularly during the early adolescent years. To fill this gap, the present paper investigates how multiple forms of adversity, including both child- and parent-experienced adversity, are related to self-control change in a sample of Mexican-origin youth, assessed at four time points across 6 years, from childhood to adolescence. Moreover, we examined the moderating role of shift-and-persist coping strategies to better understand *whose* self-control suffers and *whose* self-control benefits following adversity.

Conceptualizing adversity

Adversity has been defined as "negative life circumstances that are known to be statistically associated with adjustment difficulties" (Luthar & Cicchetti, 2000, p. 858). And while some researchers have made a distinction between adversities and trauma (Seery et al., 2010), others have used these, and other related terms, interchangeably (Tedeschi & Calhoun, 2004). Given that prior adversity and trauma

[1]Department of Psychology, University of Houston, Houston, TX, USA
[2]Department of Medical Social Sciences, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA
[3]Department of Psychology, University of California, Davis, Davis, CA, USA

Corresponding author:
Surizaday Serrano, Department of Psychology, University of Houston, 3695 Cullen Boulevard, Houston, TX 77204, USA.
Email: saserrano@uh.edu

literature have both focused on acute and chronic events (e.g., bereavement, health conditions, and poverty; Jayawickreme & Blackie, 2014; Vanderbilt-Adriance & Shaw, 2008), the present study used the terms adversity and trauma interchangeably.

Further, the present study focused on two forms of adversity (i.e., life events and acculturation-related stressors) experienced by the youth and their parents, respectively. Examining both life events and acculturation-related stressors is important because this allows us to better understand how life events, that may cut across important sociodemographic groups, impact developmental processes. In addition, acculturation-related stressors allow us to elucidate the cultural processes that may uniquely affect Mexican-origin adolescents' development. We used child- and parent-experienced and reported adversity to get a fuller picture of the environments in which adolescents are developing. Based on the Family Stress Model (FMS; Conger et al., 1992), parents' adversity experiences (e.g., economic stress) can ultimately affect adolescents' development through a series of cascading events. For example, if a parent loses their job (and thus, their economic stability), they are more likely to also experience marital strain, which can then trickle down to affect an adolescent's development, either through them directly witnessing marital strain or by experiencing less than ideal parenting practices as a result of marital strain. Therefore, it is possible that both adolescents' *personal* adverse experiences and their parents' adverse experiences (indirectly) could affect adolescents' development.

Adversity and change in self-control

Self-control can be defined as: "the capacity for altering one's own responses, especially to bring them into line with standards such as ideals, values, morals, and social expectations, and to support the pursuit of long-term goals" (Baumeister et al., 2007, p. 351). Moreover, self-control is sometimes used as an umbrella term that includes many different self-regulatory traits including: effortful control, delay of gratification, conscientiousness, executive function, impulsivity, constraint, and ego control (Carver, 2005; Duckworth & Kern, 2011; Roberts et al., 2014). Although the present paper focused on effortful control (i.e., the temperamental core of conscientiousness; Bogg & Roberts, 2004), due to the low number of prior studies on adversity and effortful control, when reviewing relevant literature, we included studies looking at adversity and effortful control as well as other closely related constructs, and we used the umbrella term of self-control to refer to these different related constructs including effortful control.

As a prominent predictor of key life outcomes like career and relationship success, happiness, health, and longevity (Moffitt et al., 2011; Roberts et al., 2005), it is perhaps no surprise that self-control is a highly coveted trait. Further, previous research suggests that increases in self-control from childhood to adolescence predict later positive outcomes across life domains, above and beyond initial levels of self-control (Allemand et al., 2019; Converse et al., 2018; Damian et al., 2020). Thus, understanding the contextual factors that might co-develop with self-control across adolescence is critical.

There are competing ideas about how adversity affects personality change among adolescents. On the one hand, early life adversity may inhibit positive maturation in self-control and lead adolescents to show disruptions in personality maturity (i.e., declines in self-control), primarily because difficult life circumstances often leave adolescents with fewer and fewer psychological, familial, and socioeconomic resources for developing effective self-control. On the other hand, theories of post-traumatic growth would posit that successfully overcoming the challenges associated with adverse events may help individuals to develop *better* self-control (Tedeschi & Calhoun, 2004). Post-traumatic patterns of change are often characterized as "adaptive" (i.e., resilience, recovery, and post-traumatic growth) or "maladaptive" (i.e., chronic and delayed) trajectories (Bonanno, 2004; Masten & Cicchetti, 2016; Masten et al., 2015; Masten & Narayan, 2012; Staab et al., 1999). We depicted these theoretical patterns of post-traumatic personality change in Supplementary Figure 1.

Despite rich prior theory, there is little *empirical* and *longitudinal* evidence on how adolescents' self-control changes in the face of adversity. Moreover, most prior work suffered from a lack of diversity in participant samples. Some evidence of *maladaptive* post-traumatic change comes from studies that have found decreases in self-regulation (or fewer increases) among youth from more disadvantaged backgrounds (e.g., living in poverty, a single-parent home, and having low birth weight; Hackman et al., 2015 (83.6% White, 10.7% African-American, 1.5% Asian/Pacific Islander, .2% American Indian, 4% Other, and 5.5% Hispanic); Lecheile et al., 2020 (Race: 84% White, 6% African-American, 5% Native American, 3% Asian, 1% Other/More than one race/Unknown; and Ethnicity: 23% Hispanic); Moilanen et al., 2009 (Race: 50.1% White, 27.9% African-American, 13% Biracial, 8.9% Other; Ethnicity: 13.4% Hispanic); Taylor et al., 2018; used present study data), living in more chaotic homes (Lecheile et al., 2020), and among those who experience parental hostility (Colman et al., 2006 (23% Hispanic, 38% Black, 39% non-Hispanic/non-Black); Van den Akker et al., 2014). Taken together, these studies suggest that adolescents' self-regulatory capacities may follow *chronic maladaptive* pathways following adverse experiences (aligned with panel D, Supplementary Figure 1).

In contrast, there is also some evidence for *adaptive* post-traumatic growth. For example, some research showed that adolescents who lived in more violent neighborhoods, attended more violent schools, endured more hostility from their parents, and experienced more ethnic discrimination exhibited greater declines in effortful control from age 10 to 14 (Atherton, Lawson, & Robins, 2020; used present study data); however, these adolescents also rebounded and increased much more rapidly in effortful control from age 14 to 19, when compared to other adolescents who experienced little adversity. Moreover, the adolescents who experienced the most adversity, on average, had higher levels of effortful control in young adulthood than they did at baseline. Others have found more intricate relationships between adversity and self-regulation. For example, while Lengua and colleagues (2015; 64% White, 10% Latino/Hispanic, 9% African American, 3% Asian American, 2%

Native or American Indian, and 12% Multiple Backgrounds) found an association between higher income and higher initial levels of effortful control, they also found that youth from higher-income homes demonstrated less growth in one effortful control trait (delay ability). This is to say, that youth from lower-income homes showed lower levels of effortful control, but they also showed higher increases (relative to youth from higher-income homes). Overall, these studies indicate that there is some evidence for *adaptive post-traumatic growth* in self-regulation (aligned with panel C, Supplementary Figure 1).

There is also some evidence for an *adaptive resilient* (defined here as "no change") pathway among youth experiencing parental hostility, as some studies (Lengua, 2006; Moilanen et al., 2009; 70% White, 16% African American, 3% Asian American, 4% Latino/Hispanic, 2% Native American, 5% Multiple Backgrounds) found no statistically significant associations between parental hostility and self-regulation change. Notably, these results are in contrast with those by Colman and colleagues (2006), who found that more physically punitive discipline was associated with more self-regulation disruptions (included above as indicating evidence of *maladaptive* post-traumatic change).

In sum, longitudinal research on adversity and *changes* in self-control in adolescence is limited or nonexistent (e.g., the link between acculturation stress and self-control has, to our knowledge, not been previously investigated), with studies showing evidence for multiple patterns of *adaptive* and *maladaptive* post-traumatic change. Across these studies, there were differences in conceptualizations of adversity, measures of self-regulation, number of measurement occasions, and age ranges that may be responsible for discrepant findings. Our review of longitudinal studies on self-control and adversity also highlighted a notable lack of diversity, as prior work included large proportions of White/European American participants. Additionally, except for Atherton and colleagues (2020b), no prior work, to our knowledge, has examined how *changes* in adversity are related to *changes* in self-control, a gap this study aimed to fill.

The moderating role of shift-and-persist strategies

Prior work suggests that coping may contribute to positive post-traumatic change. Indeed, meta-analytic research suggests that coping-focused interventions can promote post-traumatic growth (Prati & Pietrantoni, 2009). Among children and adolescents, the association between coping and post-traumatic growth has reportedly ranged in size between a .16 to a .47 correlation coefficient (as reported by a systematic review: Meyerson et al., 2011). Based on this research, coping has surfaced as a viable moderator for the link between adversity and post-traumatic change, though moderator studies in this area remain scarce (Meyerson et al., 2011).

Even so, not all coping strategies are made equal. For example, prior research has found the coping strategies of avoidance and passive coping to be respectively associated with poor health and increased helplessness (Evers et al., 2001; Penley et al., 2002). In contrast, shift-and-persist has recently surfaced as a particularly important coping mechanism, one which is characterized by the use of both effective coping strategies and by meaning and hope finding (Chen & Miller, 2012). Shift-and-persist couples the ability to *shift*, or divert cognitive resources away from uncontrollable stressors, and *persist*, or maintain a sense of optimism, orientation toward the future, and meaning in life. Shift-and-persist strategies are a combination of psychological and coping characteristics that have been discussed as a coping mechanism that should promote positive adaptation among adolescents who are exposed to uncontrollable stressors (Chen & Miller, 2012). Indeed, prior research suggests that adolescents who utilize shift-and-persist strategies may be protected from negative stress responses (Chen et al., 2015).

Although several studies have assessed the concept of shift-and-persist, the vast majority of these have focused on physical health with cross-sectional designs (Stein et al., in press). Among longitudinal shift-and-persist studies, some results suggest that the use of shift-and-persist strategies can benefit physical health, specifically among disadvantaged groups (Chen et al., 2015). Prior research also suggests that shift-and-persist can serve as a protective factor in the context of discrimination and mental health (more specifically, depressive symptoms: Christophe & Stein, 2021). Other longitudinal work found that shift-and-persist strategies were beneficial for both physical health and quality of life for youth experiencing unfair treatment (Heppner et al., 2014). Meanwhile, prior work with the present study dataset reported that adolescents equipped with shift and persist strategies also had fewer depressive symptoms cross-sectionally (though the same was not found longitudinally; Stein et al., in press). In sum, although shift-and-persist longitudinal studies are scarce, the existing literature highlights the promising nature of adopting these strategies, in the context of adverse life events.

Additionally, some research has demonstrated that stressful life events (La Greca et al., 2010) and poor coping skills (La Greca et al., 1996) are contributors of post-disaster distress among youth, suggesting the presence of a *maladaptive* pattern of change. Results from these prior findings suggest that experiencing adverse life events, especially when coupled with poor coping skills, might lead to disruptions in adolescents' normative development.

The present study

The present study used data from a sample of 674 Mexican-origin youth and their parents to examine the co-development of adversity with effortful control from age 10 to 16 (using four biennial assessments), as well as the moderating role of shift-and-persist strategies on the co-developmental pathways (Chen & Miller, 2012). This research is unique because it included: (a) a longitudinal study with a large sample and four waves of data across a 6-year time span, which allowed us to observe potential growth as well as co-developmental processes (using bivariate latent growth curve models); (b) a multi-method approach (self- and parent-reports of effortful-control and adverse life events); (c) multiple types of adversity including general adverse life events as well as acculturation-related stressors; (d) a novel moderator of co-development (shift-and-persist strategies);

and (e) an understudied ethnic minority sample that is particularly at risk for experiencing significant adversity.

Methods

Study analysis scripts and result outputs are publicly available on the Open Science Framework at the following address: [https://osf.io/pe9qm/?view_only=82429cb6e530408ca60050653aef509c]. The present study was not formally preregistered.

Participants and procedures

Data for the study came from the California Families Project, a longitudinal study of Mexican-origin youth and their parents designed to examine risk and protective factors of drug use and other behavioral problems. Supplemental footnote 1 Our sample size was 674 families, which was large enough to provide 80% power to detect effects as small as $r = .11$ (which is a correlation smaller than average psychological research effects of .20: Paterson et al., 2016). Children were drawn at random from rosters of students from the Sacramento and Woodland, CA. school districts. The focal child had to be in the 5th grade, of Mexican origin, and living with his or her biological mother to be eligible to participate in the study. 72.6% of the eligible families agreed to participate in the study, which was granted approval by the University of California, Davis Institutional Review Board (Protocol # 217484-21). The children (50% female) were interviewed, by trained staff members, in their homes in Spanish or English, depending on their preference.

Based on our key constructs of interest, the present study uses data from four assessments, when the children were 10.8, 12.8, 14.7, and 16.8 years old (on average). Missing data for both our target participants (youth) and their parents were as follows: 0.4% for child data, 0.4% for mother data, and 35% for father data at (children's) age 10; 14.2% for child data, 14.7% for mother data, and 42.6% for father data at (children's) age 12; 10.2% for child data, 11% for mother data, and 40.4% for father data at (children's) age 14; 11.0% for child data, 13.1% for mother data, and 45% for father data at (children's) age 16. Below we provide details about all the measures used in the current study.

Measures

Effortful control. Children and their mothers completed the Effortful Control scale from the short form of the Early Adolescent Temperament Questionnaire–Revised when the child was 10, 12, 14, and 16 years old (EATQ-R; Ellis & Rothbart, 2001). Self- and informant-reports are the most common methods for assessing temperament during adolescence, and the EATQ-R is the most widely used and well-validated scale (Capaldi & Rothbart, 1992). The Effortful Control scale assesses various aspects of self-control including the capacity to anticipate and suppress inappropriate responses; the capacity to focus attention and shift attention when desired; and the capacity to perform an action when there is a strong tendency to avoid it. This 16-item scale includes items such as, "When someone tells [you/your child] to stop doing something, it is easy for [you/your child] to stop." and "[You/your child] pay close attention when someone tells [you/your child] how to do something." Ratings were made on a 4-point scale ranging from 1 (not at all true of you/your child) to 4 (very true of you/your child). Child- and mother-reports of effortful control correlated between .40 and .45 across data collection time points. We computed a latent factor of "effortful control" using four indicators, which were computed by creating parcels of randomly selected items and then averaging across child and mom reports of those items. We used item parcels as indicators for the latent variables because they typically produce more stable solutions, are less likely to share specific sources of variance, and reduce the likelihood of spurious correlations (Little et al., 2002; Little, et al., 2013). The omega reliabilities (ω) of the latent factors ranged from .75 to .87. The loadings of the indicators ranged from .71 to .80 across waves.

Adverse life events. This study included both child- and parent-reported adversity assessed at four time points from ages 10 to 16. Due to the nature of the measures (event checklists), we used manifest (rather than latent) variables for each of the adverse life event scales.

Adverse events (child-reported). Adverse events were assessed with a total of 36 items from the Multicultural Events Schedule for Adolescents (MESA; Gonzales et al., 1995; Gonzales et al., 2006). Supplemental footnote 2 Target participants reported whether or not they had experienced various adverse events during the past 3 months (0 = No; 1 = Yes; e.g., "Your friends criticized you for hanging out with other ethnic or racial groups."). We computed an adverse events sum score at each wave. Alpha reliabilities ranged from .77 to .81.

Adverse events (parent-reported). Parents' reports of personally experienced adverse events were measured with 38 items from the Major Events Index (MEIN) Supplemental footnote 3, which was developed for the Iowa Youth and Families Project (Elder & Conger, 2000). Participants indicated whether they experienced specific negative events in the past 3 months. The life events checklist included items such as "You got laid off" and "You were physically assaulted or attacked." These items were assessed on a dichotomous scale (0 = No, 1 = Yes) and an item was considered endorsed if either parent (when data for more than one parent were available) reported having experienced said event (this approach also helped us account for fathers' missing data). An adversity index was computed as a sum score across parent-endorsed items at each wave. The alpha reliabilities ranged from .71 to .78.

Acculturation stress (parent-reported). Using the 19-item immigrant version of the Hispanic Stress Inventory (HSI-I; Cervantes et al., 1990, 1991), parents indicated whether they experienced specific psychosocial stressors in the past 3 months. Items included occupational- (e.g., "Your legal status has been a problem in getting a good job"), relational- (e.g., "[Your partner] and you have disagreed on which language is spoken by your children at home"), and

immigration-related stressors (e.g., "You feared the consequences of deportation"). The acculturation stressor items were assessed on a dichotomous scale (0 = No, 1 = Yes), and an item was considered endorsed if either parent (when data for more than one parent were available) reported having experienced said item (this approach also helped us account for fathers' missing data). An acculturation stress index was computed as a sum score across parent-endorsed items at each wave. The alpha reliabilities ranged from .81 to .87.

Shift-and-persist strategies. Following prior work (Stein et al., in press), we selected eight items that reflected "shift" and "persist." Children reported on these items at ages 14 and 16 (the only ages where both scales were available). All items used for this scale can be found in Table S5 of the Supplemental Materials.

We drew five items from a measure of adolescents' coping (Sandler et al., 2000) which we determined reflected aspects of shift (i.e., diverting attention to focus on the positive rather than dwell on the negative; "You tried to notice or think about only the good things in your life"; "You told yourself that it would be ok"; "You thought about what you could learn from the problem," "You told yourself that things would get better," "You reminded yourself about all the things you have going for you"). Response options ranged from 1 (almost never or never) to 4 (almost always or always). Alpha reliabilities of the five items were .87 and .88 for ages 14 and 16, respectively. We computed an average of the five items at each wave to represent "shift."

We measured the persist domain, that is, the ability to preserve an optimistic state, meaning in life, and a future-focused mindset, with three items drawn from a measure of optimism (Scheier et al., 1994; "in uncertain times you usually expect the best"; "you are always optimistic about your future"; "overall, you expect more good things to happen to you than bad"). Response options ranged from 1 (strongly disagree) to 4 (strongly agree), and alpha reliabilities of the three items were .53 and .56 for ages 14 and 16, respectively. We computed an average of the three items at each wave to represent "persist."

Then, we averaged across waves for "shift" and we averaged across waves for "persist." To obtain a composite measure of shift-and-persist strategies, we first standardized and then averaged "shift" and "persist" scores. Lastly, the standardized overall measure was median split to create the high versus low shift-and-persist groups for the multiple group analysis to test for moderation (0 = Minimum to Median; 1 = Median to Maximum).

Data analysis

Study analyses were conducted using Mplus version 6 (Muthén & Muthén, 1998–2010). We used full information maximum likelihood procedure (FIML) to account for missing data (Allison, 2003; Schafer & Graham, 2002).

Measurement invariance and mean-level change in effortful control

As reported in previous published work (see Atherton et al., 2019, 2020b), we conducted longitudinal measurement invariance tests of effortful control (where 50% of the parcels were constrained) across all the time-points simultaneously with the goal of trying to establish strong invariance whenever possible (Widaman et al., 2010). Effortful control had partially strong invariance over time (RMSEA = 0.02, CFI = 0.99, TLI = 0.99; see Table S1 in the supplemental material for measurement model comparisons).

To examine change over time in effortful control, we used second-order, univariate latent growth curve (LGC) models (Atherton et al., 2019, 2020a, 2020b; Damian et al., 2020). To find the best-fitting growth trajectory, model comparisons were conducted across the following three models: (1) no growth model, where the slope is fixed to be zero over time; (2) linear growth model, where the slope linearly increases by two units over time, with the first time point centered at "0," the second time point fixed at "2," the third time point fixed at "4," and the fourth time point fixed at "6"; and (3) a latent basis model, where the first and last time points of the slope are fixed (at "0" and "6," respectively) and the middle time points are freely estimated to the data.

Mean-level change in adversity. We used first-order, univariate latent growth curve (LGC) models to examine change over time in each of the three different measures of adversity (i.e., child- and parent-reported adverse events and parent-reported acculturation stress). We compared three models (i.e., no growth model, linear growth model, and latent basis model) and evaluated changes in the AIC and BIC criteria (where the model with the lowest AIC and BIC scores was retained). Because the adverse events were summed count variables, we used count estimation for the LGC models.

Bivariate LGC analyses. To examine the co-development of adversity and effortful control from age 10 to 16, we conducted bivariate latent growth curve models (which consisted of first-order adversity univariate LGCs and second-order effortful control univariate LGCs) Supplemental footnote 4, where we tested correlations among levels, slopes, and level-to-slopes of adversity and effortful control. We conducted a separate bivariate LGC for each type of adversity (child- and parent-reported adverse events, and parent-reported acculturation stress).

Moderating effects of shift and persist. For each of the bivariate LGC models, we compared a model where the correlations between the levels, the slopes, and the levels and slopes were freely estimated across high versus low shift-and-persist groups with a model where these correlations were constrained to be equal across the two groups (Little et al., 2009). If constraining the correlations across groups did not fit significantly worse (based on AIC and BIC model fit statistics), then we concluded that the co-development of adversity and effortful control was similar across groups, and there were no moderation effects by shift-and-persist strategies. At the request of a reviewer, to supplement our original analysis plan (test of moderation via median-split and multiple group models), we also conducted regression analyses to assess the continuous

moderating effect of shift-and-persist. Because these additional moderation analyses were requested by one of the reviewers, they were unplanned and performed after the initial main analyses. Nevertheless, the results were consistent with those from the multiple group moderation analyses, and they are presented in Tables S8 to S10 (Supplemental footnote 5).

Results

Descriptive statistics

To investigate the potential impact of attrition, we compared individuals who did and did not participate in the age 16 assessment on study variables assessed at age 10. No statistically significant differences were found in effortful control or any of the life adversity measures (see Table 1). Table 2 includes means, standard deviations, and correlations between study variables. Several correlational patterns stood out. First, across ages, the correlations suggested that higher levels of adverse events (child-reported) were associated with less effortful control (ages 10-16; $r = -.10$ to $-.28$, $p = .000$ to $.025$). Results also suggested a cross-sectional association between adverse events (parent-reported) and effortful control, such that more adversity at age 16 was associated with less effortful control also at age 16 ($r = -.06$, $p = .039$). But, there were no statistically significant concurrent associations between parent-reported adverse events and effortful control at age 10, 12, and 14. Further, results suggested that more acculturation stress (parent-reported) at ages 10, 12, and 14 was associated with lower levels of effortful control at age 10 ($r = -.12$ to $-.13$, $p = .002$ to $.008$), and more adverse events (parent-reported) at ages 14 and 16 were also associated with lower levels of effortful control at age 10 ($r = -.06$ to $-.09$, $p = .043$ to $p = .049$).

Main analyses

Development of effortful control (mean-level change). Table S2 (supplemental material) shows the model comparisons of the univariate LGC analyses for effortful control. Mean-level changes in effortful control have previously been reported in various papers (Atherton et al., 2019, 2020a, 2020b; Damian et al., 2020). A linear change trajectory was retained for effortful control, with individuals (on average) *decreasing* in effortful control over time. Supplementary Figure 2 shows the best-fitting trajectory for effortful control from age 10 to 16. On average, effortful control showed a slight decline between the ages of 10 to 16 ($b_{1\,=} -.01$, $p = .010$). There was also statistically significant variance in effortful control trajectories (Var(b_1) $_{=}$ .002, $p = .000$), suggesting individual differences in change across time.

Development of adverse life events (mean-level change). Table S3 (supplemental material) shows the model comparisons of the univariate LGC analyses for the three types of adverse life events. Across all three measures of adverse life events (child- and parent-reported adverse events, and parent-reported acculturation stress) the latent basis model was retained, with individuals (on average) *decreasing* in child-reported adverse events and *increasing* in parent-reported adverse events and acculturation stress over time. Supplementary Figures 3–5 show the best-fitting trajectories for the three different types of adverse life events from age 10 to 16. On average, child-reported adverse events showed a decrease from age 10 to 12, a slight increase from age 12 to 14, and then a slight decrease again from age 14 to 16 ($b_1 = -.07$, $p = .000$). Parent-reported adverse events showed, on average, an increase from age 10 to 12 before declining from ages 12 to 16 ($b_1 = .02$, $p = .000$). On average, parent-reported acculturation stress showed increases from age 10 to 14 and a decrease from age 14 to 16 ($b_1 = .03$, $p = .132$). There were also statistically significant variances across the three types of adversity trajectories (Var(b_1) $_{=}$ .02 to .06, $p = .000$ to $.002$), suggesting individual differences in change across time.

Co-development of adversity and effortful control

Adverse events (child-reported). Consistent with the concurrent correlations in Table 2, the intercepts (i.e., initial levels) of effortful control and adversity were negatively correlated, $r = -.41$, $p = .000$, indicating that higher levels of adversity were associated with lower levels of effortful control at age 10 (i.e., children who experienced more adverse events were more likely to be lower in effortful control; see Supplementary Figure 7). In terms of the slope-slope association, child-reported adverse events and

Table 1. Attrition analyses based on participation across study baseline (age 10) and the age 16 follow-up.

	N at Age 16	Age 10 Only versus Completed Follow-up at Age 16		
Variable		Mean Difference	95% CI	*d*
Child variables				
Effortful control	600	.02	[−.07, .12]	−.06
Adverse events-CR	594	−.12	[−1.13, .89]	.03
Parent variables				
Adverse events-PR	601	.32	[−.45, 1.09]	−.11
Acculturation stress-PR	601	.57	[−.32, 1.46]	−.17

Note. For the continuous variables, we provide mean differences, 95% confidence intervals, and effect sizes (Cohen's d), where negative mean differences indicate lower scores for the people who discontinued their participation versus those who stayed in the study at age 16. In addition, for the dichotomous variables, we provide frequency distributions for the people who dropped (age 10 only) and the people who stayed in the study at age 16. Effortful control was represented by the latent factors. N/A indicates that the respective statistics are not available because the variable is continuous. Listwise deletion was used for these analyses. CR = child-reported, PR = parent-reported.

Table 2. Descriptive statistics and inter-correlations for variables of study.

	M	*SD*	1	2	3	4	5	6	7
1. Adverse events-CR (age 10)	4.57	4.10	—	—	—	—	—	—	—
2. Adverse events-CR (age 12)	3.29	3.35	**.31**	—	—	—	—	—	—
3. Adverse events-CR (age 14)	3.49	3.60	**.29**	**.46**	—	—	—	—	—
4. Adverse events-CR (age 16)	2.99	3.33	**.20**	**.36**	**.60**	—	—	—	—
5. Adverse events-PR (age 10)	3.00	3.09	**.21**	.04	**.13**	.05	—	—	—
6. Adverse events-PR (age 12)	3.59	3.20	.03	**.16**	**.13**	.07	**.33**	—	—
7. Adverse events-PR (age 14)	2.62	2.75	**.12**	**.11**	**.20**	**.12**	**.33**	**.35**	—
8. Adverse events-PR (age 16)	2.25	2.69	**.15**	**.10**	**.16**	**.24**	**.26**	**.32**	**.41**
9. Acculturation stress-PR (age 10)	3.60	3.57	**.10**	.01	.03	.03	**.37**	**.17**	**.18**
10. Acculturation stress-PR (age 12)	4.34	4.14	**.15**	−.01	.04	.002	**.21**	**.17**	**.15**
11. Acculturation stress-PR (age 14)	4.87	4.42	**.10**	.02	.03	.05	**.20**	**.17**	**.21**
12. Acculturation stress-PR (age 16)	4.32	4.18	.07	.03	.02	**.10**	**.17**	**.14**	**.14**
13. Shift and persist (ages 14 and 16)	.50	—	−.07	**−.12**	**−.13**	−.09	.001	.08	−.03
14. Effortful control (age 10)	−.01	.39	**−.28**	**−.14**	**−.10**	**−.12**	−.07	−.06	**−.09**
15. Effortful control (age 12)	−.001	.38	**−.25**	**−.25**	**−.17**	**−.17**	−.02	−.06	−.06
16. Effortful control (age 14)	−.05	.40	**−.20**	**−.21**	**−.23**	**−.20**	−.06	−.06	−.07
17. Effortful control (age 16)	−.06	.37	**−.20**	**−.19**	**−.23**	**−.23**	−.04	−.05	−.07

	8	9	10	11	12	13	14	15	16
1. Adverse events-CR (age 10)	—	—	—	—	—	—	—	—	—
2. Adverse events-CR (age 12)	—	—	—	—	—	—	—	—	—
3. Adverse events-CR (age 14)	—	—	—	—	—	—	—	—	—
4. Adverse events-CR (age 16)	—	—	—	—	—	—	—	—	—
5. Adverse events-PR (age 10)	—	—	—	—	—	—	—	—	—
6. Adverse events-PR (age 12)	—	—	—	—	—	—	—	—	—
7. Adverse events-PR (age 14)	—	—	—	—	—	—	—	—	—
8. Adverse events-PR (age 16)	—	—	—	—	—	—	—	—	—
9. Acculturation stress-PR (age 10)	**.09**	—	—	—	—	—	—	—	—
10. Acculturation stress-PR (age 12)	.06	**.52**	—	—	—	—	—	—	—
11. Acculturation stress-PR (age 14)	**.12**	**.56**	**.58**	—	—	—	—	—	—
12. Acculturation stress-PR (age 16)	**.18**	**.53**	**.55**	**.78**	—	—	—	—	—
13. Shift and persist (ages 14 and 16)	.02	**−.11**	−.05	−.09	−.06	—	—	—	—
14. Effortful control (age 10)	**−.06**	**−.12**	**−.12**	**−.13**	−.06	**.18**	—	—	—
15. Effortful control (age 12)	**−.06**	−.06	−.08	−.08	−.01	**.28**	**.75**	—	—
16. Effortful control (age 14)	**−.12**	−.06	−.04	−.08	−.01	**.34**	**.67**	**.78**	—
17. Effortful control (age 16)	**−.06**	**−.08**	−.06	−.07	−.04	**.38**	**.61**	**.75**	**.80**

Note. Bold font indicates $p < .05$. Ages listed pertain to the children. CR = child-reported, PR = parent-reported. Effortful control was represented by the latent factors.

effortful control slopes were negatively correlated, $r = -.47$, $p = .000$, indicating that greater *increases* in adversity were associated with greater *decreases* in effortful control from age 10 to 16 (see Supplementary Figure 6)

Regarding the relationship between the level of adversity and slope of effortful control, we found a positive association ($r = .23$, $p = .003$). Further, for interpretation purposes of the level/slope correlation, we separated participants into groups based on their initial levels of adversity (i.e., bottom, middle, and top levels; see Supplementary Figure 8). Here, we found that, on average, children with the highest adversity at age 10 showed the lowest trajectories of effortful control from age 10 to 16, whereas children with the lowest adversity at age 10 showed the highest trajectories of effortful control from age 10 to 16 (Supplementary Figure 8). Additionally for these children, and in terms of patterns of change, as shown in Supplementary Figure 8, we found mostly stable effortful control trajectories from age 10 to 16 (i.e., child-reported adverse events impacted effortful control trajectories mostly in terms of the *level* rather than the *direction* or *degree* of change).

For the correlation between the level of effortful control and slope of adversity, we also found a positive association ($r = .19$, $p = .001$). Here, we also separated participants into groups (for interpretation purposes) based on their initial levels of effortful control (i.e., bottom, middle, and top levels; see Supplementary Figure 9) and found that, on average, children with the highest effortful control at age 10 showed the lowest trajectories of adversity from age 10 to 16, whereas children with the lowest effortful control at age 10 showed the highest trajectories of adversity from age 10 to 16 (Supplementary Figure 9).

Adverse events (parent-reported). As seen in Table 3, there were no statistically significant associations between levels, slopes, and levels and slopes between parent-reported adverse events and effortful control from age 10 to 16.

Table 3. Results from bivariate latent growth curve models of adverse life events and effortful control from age 10 to 16.

	r (Level$_1$, Level$_2$)	r (Level$_1$, Slope$_2$)	r (Slope$_1$, Slope$_2$)	r (Level$_2$, Slope$_1$)
Adverse life events				
Adverse events-CR	**−.41** [−.51, −.31]	**.23** [.08, .39]	**−.47** [−.65, −.29]	**.19** [.07, .31]
Adverse events-PR	−.11 [−.23, .01]	−.03 [−.18, .13]	.03 [−.13, .20]	.001 [−.14, .14]
Acculturation stress-PR	**−.16** [−.27, −.05]	.09 [−.06, .24]	−.02 [−.21, .18]	.06 [−.10, .21]

Note. r = Correlation. Values in brackets are the 95% confidence intervals. "1" and "2" in subscripts of the level and slope correspond to the adverse life event ("1") and effortful control ("2") variables, in order to distinguish which constructs are the levels and which are the slopes in the analyses. Bold font indicates $p < .05$. CR = child-reported, PR = parent-reported.

Table 4. Model comparisons of shift-and-persist coping strategies differences in the bivariate latent growth curve models.

	Free Parameters	AIC	BIC
Adverse events-CR			
All free	94	17260.35	17677.50
Constrained	90	17255.11	17654.51
Adverse events-PR			
All free	94	16720.99	17138.14
Constrained	90	16722.77	17122.16
Acculturation stress-PR			
All free	94	17190.96	17608.10
Constrained	90	17186.49	17585.89

Note. CR = child-reported, PR = parent-reported.

Acculturation stress (parent-reported). With regard to parent-reported acculturation stress and effortful control, the only statistically significant association was between the initial levels, consistent with the concurrent correlation at age 10 in Table 2 (where concurrent correlations at other ages were not statistically significant). As shown in Supplementary Figure 10, higher levels of acculturation-related stress were associated with lower levels of effortful control at age 10 ($r = -.16$, $p = .004$). No other statistically significant associations between slopes, and levels and slopes emerged, indicating a lack of evidence for co-development between parent-reported acculturation-related stressors and effortful control (see Table 3).

Moderation by shift and persist

Across all types of adversity assessed (i.e., child- and parent-reported adverse events and parent-reported acculturation stress), constraining the correlations to be equal across levels of shift-and-persist strategies did not fit significantly worse than allowing these correlations to be freely estimated across high and low shift-and-persist groups (see Table 4). Thus, these findings indicate that the co-development of effortful control and adversity from ages 10 to 16 did not differ for adolescents with high versus low levels of shift-and-persist strategies.

Discussion

This study investigated the co-development between adversity and adolescents' effortful control in a longitudinal sample of Mexican-origin youth and their parents. Participants were assessed four times across 6 years, and at each wave we measured adversity experienced by both adolescents and their parents and we measured adolescents' effortful control using both self- and parent-reports. We also tested the moderating role of shift-and-persist strategies self-reported by the adolescents.

Prior research and theory suggested different possible developmental post-adversity adaptive (i.e., resilience, recovery, and post-traumatic growth) and maladaptive (i.e., chronic and delayed) pathways among adolescents. Our study results contribute to this literature with evidence suggesting the presence of both maladaptation and resilience post-adversity pathways among adolescents.

Univariate LGC analyses showed that, on average, effortful control and child-reported adverse events showed slight decreases across time, whereas parent-reported adverse events and acculturation stress showed slight increases across time. Further, bivariate LGC analyses provided some insight into the co-development between adversity and effortful control. Here, we found a negative association between the slopes of adversity and effortful control (i.e., more positive adversity slopes were associated with more negative effortful control changes). This was consistent with what prior studies have found (Van den Akker et al., 2014; Atherton, et al., 2019), and is suggestive of post-adversity maladaptive developmental patterns. Moreover, and in line with prior cross-sectional studies (Lengua et al., 2007; Li-Grining, 2007; Raver et al., 2013), we found a negative association between initial levels of adversity and effortful control (i.e., higher adversity at age 10 was associated with lower effortful control also at age 10). Notably, this association was in the same direction and of similar magnitude across the different forms of adversity assessed (child- and parent-reported adverse events and parent-reported acculturation stress) but was not statistically significant for parent-reported adverse events.

Regarding initial level/slope correlations, we only found statistically significant results across the child-reported adversity measure. A positive association was found between the initial level of adversity and the slope of effortful control. Further, and strictly for interpretation purposes, participants were separated by levels of adversity (i.e., bottom, middle, and top levels), where we saw that children who experienced the highest initial levels of adversity (at age 10) also had the lowest trajectories of effortful control (see Supplementary Figure 8). Though this result might initially be indicative of maladaptive change (and is similar to what prior studies have found, e.g., Hackman et al., 2015; Lecheile et al., 2020; Van den Akker et al., 2014), further inspection suggests that regardless of initial adversity level (bottom, middle, top), adolescents' effortful control

trajectories remained mostly stable from ages 10 to 16 (see Supplementary Figure 8). This latter result instead provides some evidence of post-trauma resilience, similar to a previous study which found that youth from lower versus higher socio-economic backgrounds showed the same self-regulation growth across time (Hackman et al., 2015). Still, and despite this seeming resilience, youth who experienced the most adverse events still had the lowest levels of effortful control at all ages (relative to youth who experienced no (or fewer) adverse events at age 10), which is ultimately still indicative of maladaptive post-trauma change.

Regarding which type of adversity (i.e., child- and parent-reported adverse events and parent-reported acculturation stress) would have the strongest effects, prior literature can offer some insight. Based on theoretical accounts (e.g., the Family Stress Model: Conger et al., 1992) one might expect the effects of parents' adverse experiences to trickle down and similarly affect their children as well. Instead, however, we found that the strongest and statistically significant effects primarily surfaced for child-reported adverse events, suggesting that adversity directly experienced by the adolescents themselves had a stronger effect on their effortful control (relative to adversity experienced by their respective mother and/or father). The only exception to this finding was the association between initial levels of parent-reported acculturation stress and effortful control (i.e., higher parent-reported acculturation stress at children's age 10 was associated with lower effortful control also at age 10), where a statistically significant negative effect also surfaced (albeit with a smaller effect size than that of child-reported adversity). Here, we could speculate that while more indirectly experienced adversity (parent-reported) potentially has a weaker effect on children's effortful control (relative to more directly experienced adversity), acculturation stress may be influential enough that even its more indirect exposure can have an effect on children's effortful control. Still, it should be noted that no other level/slope correlations between acculturation stress and effortful control were statistically significant.

Further, we found no evidence of moderation effects by shift-and-persist strategies. Possible reasons for this could be the lack of assessments across all waves (we only had this measure at two out of four waves) and the incompleteness of the measurement construct. Specifically, we did not have "meaning" and "purpose" subscales in our measure of shift-and-persist strategies (Stein et al., in press), and this issue is further discussed under limitations below.

Present study results help us better understand the co-development between adversity and effortful control, as our results provide further support towards the accounts of maladaptive post-trauma change and (to a lesser extent) post-trauma resilience. These findings are consistent with some prior adversity and self-control research, and we can extend the existing findings by contributing to the prior research that has assessed co-development (Atherton et al., 2019). Our study is unique because of its longitudinal nature extending across four waves of data, the consideration of both adolescent and parent accounts of adversity, the assessment of change in both adversity and effortful control, as well as their co-development across time, and a focus on a Mexican-origin youth sample (an underrepresented group).

Across study results, we found some relatively minor evidence of resilience, but as a whole our results largely suggest that adolescents exposed to higher levels of adversity are ultimately at a unique disadvantage (relative to adolescents with no or less adversity exposure) with regard to effortful control. To our knowledge, this is only the second study of its kind to assess the co-development of adversity and effortful control across four waves of data. Thus, our results are unique as they can contribute towards a more accurate account of the ramifications of adversity, with respect to effortful control.

Thinking back to our introductory statements about post-traumatic growth and toxic positivity, one can imagine the damaging effects this mindset can have on a young individual who is potentially facing the detrimental effects of an adverse situation. These unfortunate situations can be avoided in the future if we can more thoroughly understand the degree to which adverse experiences can affect one's personality and the expected timeline for such effects. Future studies can contribute to these endeavors by longitudinally assessing adversity and personality across different samples and with other supplementary methods (e.g., behavioral assessments and community-based participatory research). Conducting this type of research can then inform our conceptualization of trauma and allow adversity survivors to have clear expectations of its actual aftermath. Additionally, having more accurate depictions of post-trauma trajectories can help inform future interventions.

Limitations

The present study has several limitations. First, across the three types of adversity assessed, items were equally weighed regardless of the potential severity of each. Given that some adversity items may objectively be more disruptive than others, future studies might benefit from instead investigating adversity by severity level. Second, the nature of our study design precludes us from establishing causality between adversity and effortful control. Third, since our study followed youths' trajectories from ages 10 to 16, the degree to which our results can generalize to other ages is unclear. Fourth, our study assessed both child-reported and parent-reported adverse events, and though there was some item content overlap (e.g., parent's job loss and financial instability), youth and their parents were administered different adverse event scales. As such, our results cannot be interpreted as a direct test of whether direct versus indirect exposure to adverse events has a greater influence on adolescents' effortful control. Fifth, and as mentioned above, our measure of shift-and-persist strategies may not be ideal given the lack of complete measurement time points and missing subscales. The missing "meaning" and "purpose" subscales may be an issue because they have been considered contributors for the "persist" portion of shift-and-persist (Chen & Miller, 2012). Moreover, prior research suggests that meaning and purpose subscales may be especially important for disadvantaged adolescents (Sumner et al., 2018). As such, future studies would benefit from including meaning and purpose subscales when measuring shift-and-persist strategies and from including more waves of data. Sixth, the extent to

which our study results can generalize beyond our recruited sample of Mexican-origin adolescents and their parents also remains unclear. Seventh, because data sampling focused on the children's ages (among other factors) at selection (because the children were the target participants), there was variability in the parents' ages; thus, it could be argued that one reason why we did not observe meaningful effects of parental adversity on children's effortful control development was the increased variability in parental age and the possibility that parents of different ages might navigate adversity differently, which might differentially affect the youth. Further research is necessary to help elucidate these limitations.

Conclusion

This four-wave longitudinal study provides insight into the co-development between adversity and effortful control in a sample of Mexican-Origin youth. Our study results overall suggest the presence of maladaptive post-trauma change with respect to effortful control, particularly for adolescents' directly experienced adversity. Given our results, what, then, can we make of the commonplace idea that adversity can promote personal growth, as cited by many, from Nietzsche, with the famous quote "what doesn't kill you makes you stronger," to Napoleon Hill quoted at the start of this paper? Although it is possible that some types of adversity may promote growth in some personality aspects, adversity might not help adolescents positively develop in effortful control. Another possibility is that commonplace expectations for growth following adversity are simply overly idealistic.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a grant from the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism (DA017902) to Richard W. Robins.

Data accessibility statement

This article earned Open Materials badge through Open Practices Disclosure from the Center for Open Science. The study materials and analysis scripts used for this article can be accessed at [https://osf.io/pe9qm/?view_only=82429cb6e530408ca60050653aef509c]. Additionally, we are not legally or ethically allowed to publicly post data for this project because the participants in the study have not given informed consent to have their personal data publicly shared, and we do not have IRB approval to post data publicly. Researchers interested in replicating findings can contact the California Families Project Director, Richard Robins (rwrobins@ucdavis.edu) to gain access to individual-level data.

ORCID iDs

Surizaday Serrano https://orcid.org/0000-0002-3198-4079
Rodica Ioana Damian https://orcid.org/0000-0002-0046-0627

Supplemental Material

Supplemental material for this article is available online.

References

Allemand, M., Job, V., & Mroczek, D. K. (2019). Self-control development in adolescence predicts love and work in adulthood. *Journal of Personality and Social Psychology*, *117*(3), 621–634. https://doi.org/10.1037/pspp0000229

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology*, *112*(4), 545–557. https://doi.org/10.1037/0021-843X.112.4.545

Atherton, O. E., Lawson, K. M., Ferrer, E., & Robins, R. W. (2020a). The role of effortful control in the development of ADHD, ODD, and CD symptoms. *Journal of Personality and Social Psychology*, *118*(6), 1226–1246. https://doi.org/10.1037/pspp0000243

Atherton, O. E., Lawson, K. M., & Robins, R. W. (2020b). The development of effortful control from late childhood to young adulthood. *Journal of Personality and Social Psychology*, *119*(2), 417. https://doi.org/10.1037/pspp0000283

Atherton, O. E., Zheng, L. R., Bleidorn, W., & Robins, R. W. (2019). The codevelopment of effortful control and school behavioral problems. *Journal of Personality and Social Psychology*, *117*(3), 659–673. https://doi.org/10.1037/pspp0000201

Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of selfcontrol. *Current Directions in Psychological Science*, *16*(6), 351–355. https://doi.org/10.1111/j.1467-8721.2007.00534.x

Bogg, T., & Roberts, B. W. (2004). Conscientiousness and health-related behaviors: A meta-analysis of the leading behavioral contributors to mortality. *Psychological Bulletin*, *130*(6), 887–919. https://doi.org/10.1037/0033-2909.130.6.887

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20–28. https://doi.org/10.1037/0003-066X.59.1.20

Brown, B. (Host) (2021, March 1). Brené with Dr. Susan David on The Dangers of Toxic Positivity, Part 1 of 2. [Audio podcast episode]. In *Dare to lead with Brené Brown*. Parcast Network. https://brenebrown.com/podcast/brene-with-dr-susan-david-on-the-dangers-of-toxic-positivity-part-1-of-2/

Capaldi, D. M., & Rothbart, M. K. (1992). Development and validation of an early adolescent temperament measure. *The Journal of Early Adolescence*, *12*(2), 153–173. https://doi.org/10.1177/0272431692012002002

Carver, C. S. (2005). Impulse and constraint: Perspectives from personality psychology, convergence with theory in other areas, and potential for integration. *Personality and Social Psychology Review*, *9*(4), 312–333. https://doi.org/10.1207/s15327957pspr0904_2

Cervantes, R. C., Padilla, A. M., & Salgado De Snyder, N. (1990). Reliability and validity of thehispanic stress inventory. *Hispanic Journal of Behavioral Sciences*. *12*(1), 76–82. https://doi.org/10.1177/07399863900121004

Cervantes, R. C., Padilla, A. M., & Salgado de Snyder, N. (1991). The hispanic stress inventory: A culturally relevant approach to psychosocial assessment. *Psychological Assessment*, *3*(3), 438–447. https://doi.org/10.1037//1040-3590.3.3.438

Chen, E., McLean, K. C., & Miller, G. E. (2015). Shift-and-persist strategies: Associations with socioeconomic status and the regulation of inflammation among adolescents and their parents. *Psychosomatic Medicine*, *77*(4), 371–382. https://doi.org/10.1097/psy.0000000000000157

Chen, E., & Miller, G. E. (2012). "Shift-and-persist" strategies: Why low socioeconomic status isn't always bad for health. *Perspectives on Psychological Science*, *7*(2), 135–158. https://doi.org/10.1177/1745691612436694

Christophe, N. K., & Stein, G. L. (2021). Shift-&-Persist and discrimination predicting depression across the life course: An accelerated longitudinal design using MIDUSI-III. *Development and Psychopathology*. https://doi.org/10.1017/S0954579421000146

Colman, R. A., Hardy, S. A., Albert, M., Raffaelli, M., & Crockett, L. (2006). Early predictors of self-regulation in middle childhood. *Infant and Child Development*, *15*(4), 421–437. https://doi.org/10.1002/icd.469

Conger, R., Conger, K., Elder, G. Jr., Lorenz, F., Simons, R., & Whitbeck, L. (1992). A family process model of economic hardship and adjustment of early adolescent boys. *Child Development*, *63*(3), 526–541. https://doi.org/10.1111/j.1467-8624.1992.tb01644.x

Converse, P. D., Beverage, M. S., Vaghef, K., & Moore, L. S. (2018). Self-control overtime: Implications for work, relationship, and well-being outcomes. *Journal of Research in Personality*, *73*, 82–92. https://doi.org/10.1016/J.JRP.2017.11.002

Damian, R. I., Atherton, O. E., Lawson, K. M., & Robins, R. W. (2020). The co-development of chores and effortful control among Mexican-origin youth and prospective work outcomes. *Journal of Research in Personality*, *84*, 103883. https://doi.org/10.1016/j.jrp.2019.103883

Duckworth, A. L., & Kern, M. L. (2011). A meta-analysis of the convergent validity of self-control measures. *Journal of Research in Personality*, *45*(3), 259–268. https://doi.org/10.1016/j.jrp.2011.02.004

Elder, G. H., & Conger, R. D. (2000). *Children of the land: Adversity and success in rural America*. University of Chicago Press.

Ellis, L. K., & Rothbart, M. K. (2001, April). *Revision of the early adolescent temperament Questionnaire*. [Poster presented]. Biennial meeting of the Society for Research in Child Development, Minneapolis, MN.

Evers, A. W., Kraaimaat, F. W., van Lankveld, W., Jongen, P. J., Jacobs, J. W., & Bijlsma, J. W. (2001). Beyond unfavorable thinking: The illness cognition questionnaire for chronic diseases. *Journal of Consulting and Clinical Psychology*, *69*, 1026–1036. https://doi.org/10.1037/0022-006X.69.6.1026

Gonzales, N. A., Deardorff, J., Formoso, D., Barr, A., & Barrera, M. Jr. (2006). Family mediators of the relation between acculturation and adolescent mental health. *Family Relations*, *55*(3), 318–330. https://doi.org/10.1111/j.1741-3729.2006.00405.x

Gonzales, N. A., Gunnoe, M. L., & Samaniego, R. Y. (1995, June 14–17). Validation of a stress schedule for adolescents living in multiethnic urban environments. In Biennial conference of the society for community research and action, Chicago, IL.

Hackman, D. A., Gallop, R., Evans, G. W., & Farah, M. J. (2015). Socioeconomic status and executive function: Developmental trajectories and mediation. *Developmental Science*, *18*(5), 686–702. https://doi.org/10.1111/desc.12246

Heppner, P. P., Wei, M., Neville, H. A., & Kanagui-Muñoz, M. (2014). A cultural and contextual model of coping. In *APA handbook of multicultural psychology, Vol. 2: Applications and training*. (pp. 83-106). American Psychological Association

Hill, N. (2008). *The law of success: The master wealth-Builder's complete and original lesson plan for achieving your dreams*. Penguin.

Jayawickreme, E., & Blackie, L. E. (2014). Post–traumatic growth as positive personality change: Evidence, controversies and future directions. *European Journal of Personality*, *28*(4), 312-331. https://doi.org/10.1002/per.1963

La Greca, A. M., Silverman, W. K., Lai, B., & Jaccard, J. (2010). Hurricane-related exposure experiences and stressors, other life events, and social support: Concurrent and prospective impact on children's persistent posttraumatic stress symptoms. *Journal of Consulting and Clinical Psychology*, *78*(6), 794–805. https://doi.org/10.1037/a0020775

La Greca, A. M., Silverman, W. K., Vernberg, E. M., & Prinstein, M. J. (1996). Symptoms of posttraumatic stress in children after Hurricane Andrew: A prospective study. *Journal of Consulting and Clinical Psychology*, *64*(4), 712–723. https://doi.org/10.1037//0022-006x.64.4.712

Lecheile, B. M., Spinrad, T. L., Xu, X., Lopez, J., & Eisenberg, N. (2020). Longitudinal relations among household chaos, SES, and effortful control in the prediction of language skills in early childhood. *Developmental Psychology*, *56*(4), 727–738. https://doi.org/10.1037/dev0000896

Lengua, L. J. (2006). Growth in temperament and parenting as predictors of adjustment during children's transition to adolescence. *Developmental Psychology*, *42*(5), 819–832. https://doi.org/10.1037/0012-1649.42.5.819

Lengua, L. J., Honorado, E., & Bush, N. R. (2007). Contextual risk and parenting as predictors of effortful control and social competence in preschool children. *Journal of Applied Developmental Psychology*, *28*(1), 40–55. https://doi.org/10.1016/j.appdev.2006.10.001

Lengua, L. J., Moran, L., Zalewski, M., Ruberry, E., Kiff, C., & Thompson, S. (2015). Relations of growth in effortful control to family income, cumulative risk, and adjustment in preschool-age children. *Journal of Abnormal Child Psychology*, *43*(4), 705–720. https://doi.org/10.1007/s10802-014-9941-2

Li-Grining, C. P. (2007). Effortful control among low-income preschoolers in three cities: Stability, change, and individual differences. *Developmental Psychology*, *43*(1), 208–221. https://doi.org/10.1037/0012-1649.43.1.208

Little, T. D., Card, N. A., Preacher, K. J., & McConnell, E. (2009). Modeling longitudinal data from research on adolescence. In L. Steinberg (Ed.), *Handbook of adolescent psychology: Individual bases of adolescent development* (3rd ed., Vol. 1, pp. 15–54). Wiley.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, *9*(2), 151–173. https://doi.org/10.1207/S15328007SEM0902_1

Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcel controvery needn't be one. *Psychological Methods*, *18*(3), 285–300. https://doi.org/10.1037/a0033266

Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies.

Development and Psychopathology, *12*(4), 857–885. https://doi.org/10.1017/s0954579400004156

Masten, A. S., Narayan, A. J., Silverman, W. K., & Osofsky, J. D. (2015). Children in War and Disaster. In R. M. Lerner (Ed.), *Handbook of child psychology and developmental science*. Wiley

Masten, A. S., & Cicchetti, D. (2016). Resilience in development: Progress and transformation. In D. Cicchetti (Ed.), *Developmental psychopathology: Risk, resilience, and intervention* (pp. 271–333). John Wiley & Sons, Inc.

Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: pathways of risk and resilience. *Annual Review of Psychology*, *63*(1), 227–257. https://doi.org/10.1146/annurev-psych-120710-100356

McAdams, D. P. (2006). The redemptive self: Generativity and the stories Americans live by. *Research in Human Development*, *3*(2–3), 81–100. https://doi.org/10.1207/s15427617rhd0302&3_2

Meyerson, D. A., Grant, K. E., Carter, J. S., & Kilmer, R. P. (2011). Posttraumatic growth among children and adolescents: A systematic review. *Clinical Psychology Review*, *31*(6), 949–964. https://doi.org/10.1016/j.cpr.2011.06.003

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H. L., Houts, R., Poulton, R., Roberts, B. W., Ross, S., Sears, M. R., Murray Thomson, W., & Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, *108*(7), 2693–2698. https://doi.org/10.1073/pnas.1010076108

Moilanen, K., Shaw, D., Dishion, T., Gardner, F., & Wilson, M. (2009). Predictors of Longitudinal growth in inhibitory control in early childhood. *Social Development (Oxford, England)*, *19*(2), 326–347. https://doi.org/10.1111/j.1467-9507.2009.00536.x

Muthén, L. K., & Muthén, B. O. (1998–2010). *Mplus user's guide* (6th ed.). Muthén & Muthén.

Paterson, T. A., Harms, P. D., Steel, P., & Credé, M. (2016). An assessment of the magnitude of effect sizes: Evidence from 30 years of meta-analysis in management. *Journal of Leadership & Organizational Studies*, *23*(1), 66–81 https://doi.org/10.1177/1548051815614321.

Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A metaanalytic review. *Journal of Behavioral Medicine*, *25*(6), 551–603. https://doi.org/10.1023/a:1020641400589

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, *14*(5), 364–388. https://doi.org/10.1080/15325020902724271

Raver, C. C., Blair, C., & Willoughby, M. (2013). Poverty as a predictor of 4-year-olds' executive function: New perspectives on models of differential susceptibility. *Developmental Psychology*, *49*(2), 292–304. https://doi.org/10.1037/a0028343

Roberts, B. W., Lejuez, C., Krueger, R. F., Richards, J. M., & Hill, P. L. (2014). What is conscientiousness and how can it be assessed? *Developmental Psychology*, *50*(5), 1315–1330. https://doi.org/10.1037/a0031109

Roberts, B. W., Walton, K. E., & Bogg, T. (2005). Conscientiousness and health across the life course. *Review of General Psychology*, *9*(2), 156–168. https://doi.org/10.1037/1089-2680.9.2.156

Sandler, I. N., Tein, J.-Y., Mehta, P., Wolchik, S. A., & Ayers, T. S. (2000). Coping efficacyand psychological problems of children of divorce. *Child Development*, *71*(4), 1099–1118. https://doi.org/10.1111/1467-8624.00212

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the start of the art. *Psychological Methods*, *7*(2), 147–177. https://doi.org/10.1037//1082-989X.7.2.147

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism fromneuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, *67*(6), 1063–1078. https://doi.org/10.1037//0022-3514.67.6.1063

Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever does not kill us: Cumulative lifetime adversity, vulnerability, and resilience. *Journal of Personality and Social Psychology*, *99*(6), 1025–1041. https://doi.org/10.1037/a0021344

Staab, J. P., Fullerton, C. S., & Ursano, R. (1999). A critical look at PTSD: Constructs, concepts, epidemiology, and implications. In *Response to disaster: Psychosocial, community, and ecological approaches*, (pp. 101–127). Routledge.

Stein, G. L., Jensen, M., Christopher, N. K., Cruz, R. A., Romero, M. M., & Robins, R. W. (in press). Shift and persist in Mexican-American youth: A longitudinal test of depressive symptoms. *Journal of Research on Adolescence*.

Sumner, R., Burrow, A. L., & Hill, P. L. (2018). The development of purpose in life among adolescents who experience marginalization: potential opportunities and obstacles. *American Psychologist*, *73*(6), 740–752. https://doi.org/10.1037/amp0000249

Taylor, Z. E., Widaman, K. F., & Robins, R. W. (2018). Longitudinal relations of economic hardship and effortful control to active coping in Latino youth. *Journal of Research on Adolescence*, *28*(2), 396–411. https://doi.org/10.1111/jora.12338

Tedeschi, R. G., & Calhoun, L. G. (2004). Target article: "Posttraumatic Growth: Conceptual foundations and empirical evidence". *Psychological Inquiry*, *15*(1), 1–18. https://doi.org/10.1207/s15327965pli1501_01

Van den Akker, A. L., Deković, M., Asscher, J., & Prinzie, P. (2014). Mean-level personality development across childhood and adolescence: A temporary defiance of the maturity principle and bidirectional associations with parenting. *Journal of Personality and Social Psychology*, *107*(4), 736–750. https://doi.org/10.1037/a0037248

Vanderbilt-Adriance, E., & Shaw, D. S. (2008). Conceptualizing and re-evaluating resilience across levels of risk, time, and domains of competence. *Clinical Child and Family Psychology Review*, *11*(1–2), 30–58. https://doi.org/10.1007/s10567-008-0031-2

Widaman, K. F., Ferrer, E., & Conger, R. D. (2010). Factorial invariance with longitudinal structural equation models: Measuring the same construct across time. *Child Development Perspectives*, *4*(1), 10–18. https://doi.org/10.1111/j.1750-8606.2009.00110.x