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Mexican-Origin Adolescents' Cumulative Strengths Predict Baseline and Longitudinal Changes in Self-Growth Outcomes

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This study adopts a cultural ecological perspective to examine how cumulative effects of external transcultural and cultural strengths are related to baseline and changes in three markers of Mexican-origin adolescents' self-growth (i.e., resilience, life meaning, and discipline). Using a three-wave longitudinal data set (5 years) of 604 adolescents, cumulative strengths (CS) was calculated, and growth curve analyses showed a similar pattern of findings for both transcultural and cultural cumulative strengths models: Adolescents with higher CS showed higher baseline resilience, life meaning, and discipline. While there were no significant associations between adolescents' CS scores and the increase in resilience, adolescents with higher CS scores showed steeper declines in life meaning and discipline (although these declines were no longer significant for cultural CS when transcultural and cultural CS were simultaneously tested in the same model). The findings emphasize a cultural ecological understanding of Mexican-origin youths' positive development from early to later adolescence. They also provide support for a CS model and have implications for positive psychology theories.

Public Significance Statement

This study advances knowledge regarding the cumulative effects of external transcultural and cultural strengths on Mexican-origin adolescents' self-growth. Higher cumulative strengths are associated with increased baseline resilience, life meaning, and discipline. Our findings suggest that Mexican-origin youths can capitalize on cultural ecological factors to facilitate positive development in adolescence.

Keywords: cumulative strengths, immigrant families, Mexican-origin, adolescents

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Mexican-origin adolescents—the largest ethnic minority population in the United States (Pew Research Center, 2018)—are often exposed to socioeconomic and structural disadvantages that contribute adversely to their well-being and developmental trajectories (Alegría et al., 2015). The weight of existing research has devoted substantial efforts to identify risk factors that are related to Mexican-origin adolescents'

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maladjustment and various pathologies (Alegría et al., 2015); however, deficit perspectives undermine Mexican-origin adolescents' lived experiences and are insufficient in explaining how many Mexican-origin adolescents continue to show normative development, beat the odds, and show positive self-development and growths over time (Rodriguez & Morrobel, 2004). To understand the factors that contribute to Mexican-origin youths' positive development, the current study combines strength-based perspective of adolescent development alongside a multisystem ecological approach to investigate how the additive effects of external strengths—specifically, cultural strengths, environmental assets, and contextual protective factors—are linked to Mexican-origin adolescents' self-growth—a subset of intrinsic or psychological-level developmental factors that contribute positively to, and are adaptive for, adolescents' personal growth and thriving from early to later adolescence (Chen & Miller, 2012; Edberg et al., 2017).

Here, we note two important conceptual issues. First, many strength-based studies have focused their examinations on transcultural strengths (i.e., strengths that are general to most youth) across individuals' ecologies, which includes their social networks, relationships, and contexts (Benson et al., 2011; Peterson & Seligman, 2004). However, culture is a critical component of one's ecology and may be especially pertinent for youths of ethnic minority descent (Raffaelli et al., 2005; Rogoff, 2003). For instance, research on ethnic minority adolescent development has consistently linked cultural factors (e.g., cultural values, parental ethnic socialization, and adolescents' ethnic identities) to better youth outcomes and positive changes or growth in Mexican-origin youth development cross-sectionally and over time (Neblett et al., 2012; Updegraff et al., 2012). By combining both cultural and ecological factors together, researchers can more successfully provide a culturally sensitive (and more comprehensive) understanding of Mexican-origin youths' development and their trajectories of self-growth (Kuperminc et al., 2009; Lerner et al., 2005). Given also that the presence of external assets regulates adolescent experiences and varies opportunities for youths (Theokas & Lerner, 2006), adopting a broadened definition of ecological assets (one that spans ecology and culture) can demonstrate how minority adolescents can capitalize on multisystemic sources of extrinsic strengths to advance their psychological competencies such as resiliency, personal growth, and function when faced with adversity (i.e., external ecological and cultural assets → intrinsic markers of development).

Second, adolescents with multiple strengths are better situated to tap into their pool of assets and resources and show improved function and growth (Benson et al., 2011; Proctor et al., 2011). However, inclusion of multiple different indicators of adolescents' strengths in a singular model can run into several statistical issues (see below for elaboration). This may explain why relatively few researchers have examined the additive effect of cultural strengths in their research. Additionally, much of extant work has focused on cross-sectional associations, even though a developmental view that incorporates growths and changes in markers of adolescents' self-growth over time more accurately captures the dynamicity of positive adolescent development. Perhaps it is timely to test the (likely) hypothesis that cultural strengths function in the same way as other ecological transcultural strengths such that ethnic minority immigrant-origin adolescents who possess more cultural strengths also show optimal changes and growth in facets associated with their self-growth.

In the current study, the goal is to examine how the sum of Mexican-origin adolescents' external transcultural and cultural strengths, spanning across multiple system levels are linked with different psychological-level developmental factors related to their self-growth. A cumulative strengths model (CSM) was created to examine how (a) it compares with models of single, and with multiple strengths, and (b) transcultural versus cultural strengths compare when predicting baseline youth psychological attributes of self-growth alongside (potential) growths and declines in developmental trajectories of their self-growth. Specifically, this study examined the links between a CSM and growths in three markers of adolescents' self-growth (i.e., resilience, life meaning, and discipline) from early to later adolescence.

Mexican-Origin Adolescents' Self-Growth and Psychosocial Well-Being

Self-growth is a construct often used in humanistic theories to reflect the set of intrinsic psychological attributes that relate to higher levels of personal well-being (Kasser & Ryan, 1996). We adapt from this line of work and suggest that there is a set of intrinsic psychological attributes that relate to Mexican-origin adolescents' thriving that may be predicated by the strengths (including external strengths) they possess. Indeed, adolescence is a period of critical growth and plasticity as youth learn how to regulate and integrate their developing strengths from their external ecologies into their changing worlds (Lerner et al., 2012). Especially for Mexican-origin youth, their ecological assets (at both the transcultural level and cultural level) are likely to implicate intrinsic markers of self-growth that positively predict their ability for and the predisposition toward adaptive and healthy adolescent development (e.g., psychological adjustment, personal growth, and flourishing; Kuperminc et al., 2009; Lerner et al., 2005).

What are some of these intrinsic attributes related to adolescents' self-growth? It is important to point out that a lifetime of facing constraints with limited options—especially for immigrant ethnic minority adolescents who likely come from low social economic status (SES) families—can manifest in differentiated coping and adaptation strategies (Chen & Miller, 2012). In particular, for Mexican-origin adolescents who are subjected to immigrant-, ethnic minority-, and (likely) low SES-related constraints, these challenges can hinder their innate strive for primary control (i.e., the ability to change their environment and to meet own demands and desire) and instead prioritize specific attributes that relate to improved control over the self and psychological qualities that help them regain sense of autonomy. Specifically, adolescents may prioritize qualities that increase their ability to accept adversity via shifting (i.e., reappraisals and emotion regulation strategies) and persist despite disadvantaged odds. This postulation is rooted in the shift-and-persist model that has provided a psychobiological explanation to explain how low SES-related constraints are linked to better biological health outcomes (Chen & Miller, 2012).

We adapt from this model and reason that some important aspects of Mexican-origin adolescents' self-growth might take the form of their ability to endure against adversities (i.e., resilience) via search for purpose and meaning (i.e., life meaning), and their ability to manage and cope with stressors through appropriate regulation strategies (i.e., discipline) (see shift-and-persist theory for a more detailed elaboration; Chen & Miller, 2012). These markers (resilience, life meaning, and discipline) were selected also because there is a large body of empirical work concerning Mexican-origin adolescents' ability to overcome challenges (i.e., resilience), and

because these constructs are developmentally meaningful across adolescence (i.e., life meaning and discipline; Masten, 2011; Steger et al., 2006; Wilcox et al., 2021).

Resilience researchers often have difficulty defining what resilience means because the construct has been used to refer to, among others, adolescents' tolerance against adversity, personal control, acceptance toward change, and availability of communal resource support (Chen & Miller, 2012; Ungar & Theron, 2020). That said, there is some level of consensus that resilience is a multidimensional process through which individuals thrive and show positive outcomes in the face of adversity (Masten, 2011). Beginning in early adolescence (and maybe even earlier), Mexican-origin adolescents (especially those from low-income families) are exposed to a set of adaptation challenges such as language barriers, socioeconomic disadvantage, ethnic, racial discrimination, and other adjustment-related issues (e.g., fitting in with a White majority; I. J. Park et al., 2018) that require greater levels of adaptive coping and increased resilience (Ellis et al., 2017). Mexican-origin adolescents' ability to positively accept changes, pick themselves up against adversity, and remain steadfast in their social relationships might reflect competence in positive coping skills (which we also adopt as our definition for resilience in the present work). Indeed, a meta-analytic review that included a total sample of 31,071 participants across 33 studies of resilience demonstrated that resilience-related assets have large effects (rs = .41–.61, all ps < .001) on baseline and growths in resilience (Lee et al., 2013). It is important to point out that this meta-analysis contained primarily intrinsic factors as predictors of resilience; thus, the role of external assets (as compared to intrinsic factors) remains relatively understudied. Pertinent to our research question, it is likely that a large body of strengths such as supportive parent–child and teacher–student dynamics, safe neighborhoods, and the accumulation of other (transcultural) strengths can provide adolescents with the necessary resource to tap on for support and learn how to effectively persist against these challenges. For example, healthy parenting practices characterized by warmth, trust, emotional closeness, and open communication are crucial for positive adjustment and they provide adolescents with a safe and secure base to withstand and overcome challenges (Stein et al., 2013). In parallel, adolescents' social connectedness with their peers, teachers, and even the school itself (i.e., positive peer groups and school connectedness) can contribute to the development of resilience, as they offer a healthy system of care and support (outside the family) that teaches critical life skills that promote adjustment against adversity (Kuperminc et al., 2009; Mirza & Arif, 2018). Furthermore, community violence exposure, gangs, and living in neighborhoods with high rates of economic hardship have been linked with Mexican-origin youths' diminished coping ability (Deane et al., 2020); safe neighborhoods can therefore act as safeguards that bolster adolescents' resilience and their adaptive coping. Taken together, it is not difficult to imagine how the additive effects of transcultural strengths might be more promotive for growths in adolescents' resilience.

Critically, we also argue that possessing multiple cultural strengths can provide alternative sources of resource from which Mexican-origin youth can draw strength from to aid in their adaptation and for them to persist to life adversities. In fact, it has been demonstrated that Mexican-American youths who hold high levels of cultural values such as familism and a strong ethnic identity possess additional buffers against adversities, which, in turn, have been linked with high levels of resilience (Morgan Consoli & Llamas, 2013). These converging pieces of evidence provide convergent support that adolescents with more cultural strengths might show highest levels of, and potentially growths in, resilience. Identifying cultural and environmental resources across adolescents' ecology can therefore provide scholars with the unique opportunity to understand how the additive effects of transcultural and cultural factors predicting resilience and how Mexican-origin youth can overcome their difficulties and flourish in later life.

Life meaning has been positively correlated with self-actualization, psychological and emotional health, as well as greater stability in daily well-being (Meeus, 2016). Notably, the construct is also commonly linked to the developmental task of identity development, which spans across early to later adolescence. Differing patterns of growths or declines may be observed for adolescents' life meaning: For Mexican-origin youth who succeed in facilitating meaning-making processes (e.g., as a form of coping against their adverse experiences; see C. L. Park, 2010), they are more likely to gain a coherent sense of self and show growths in life meaning; while adolescents who do not succeed may experience threats to their identity seeking and manifest in uncertainty and confusion, which can reduce growths, or even show declines, in adolescents' life meaning (Steger et al., 2006). Adolescents who report multiple strengths likely possess important experiences that can relate to their sense of purpose. For instance, adolescents with strong parental support and those who report warm family environments consistently show high levels of purpose and meaning (Crockett et al., 2007). Beyond the family nucleus, adolescents can derive meaningful interactions with positive role models such as peers and teachers that all serve to create opportunities for dialogue to help them clarify their own values, glean important life lessons from, and broaden perspectives on life (all of which can increase meaning in life; Loukas et al., 2016). In fact, positive peer groups and school connectedness has been related not only to improved academic achievement, but also enhanced socioemotional success (Ricard & Pelletier, 2016). Safe neighborhoods also provide a stable and predictable environment for growth, exploration, reduced uncertainty, and a more positive outlook in life; all of which serves to enhance adolescents' life meaning (Deane et al., 2020; Stein et al., 2013).

Similarly, the addition of cultural strengths can provide an alternative source of resource such that adolescents might draw inspiration and find motivation from. Prior work has revealed that adolescents who are also receptive of core cultural values from their parents (i.e., ethnic socialization, bien educardo) are also more likely to make life choices that align with their cultural upbringing and socialization, which, in turn, deepens their life perspectives and enriches their sense of purpose. It is likely that the accumulation of more external transcultural and cultural strengths may explain the underlying factors that facilitate adolescents' meaning-making abilities and contribute to the development of a personal sense of purpose and meaning.

Discipline captures youths' ability to voluntarily inhibit socially undesirable impulses and transform and modulate their own thoughts, behaviors, and actions (Finkenauer et al., 2005). Growing autonomy in adolescence, alongside training, maintenance, and development of adolescents' adaptive coping and regulatory processes, can lead to improvements and growths in one's discipline (Eisenberg et al., 2004); in fact, Mexican-origin adolescents may show greater variations (and potential fluctuations) in discipline in light of strong cultural values that underscore adherence to older family members (i.e., familism values; see O'Sullivan et al., 2000). Yet, increasing parental defiance in adolescence (i.e., teenage rebellion), and possibly parent–child conflicts in cultural orientations, can lead to reductions

and/or declines in discipline. For instance, across two cross-sectional studies, of about 600 participants, Tangney et al. (2004) showed that undergraduates who had greater self-discipline not only enjoyed higher grade point averages, but also demonstrated competence in impulse control, psychological adjustment and higher quality family relationships. Having a pool of transcultural strengths such as positive parent–child relationships suggests healthy familial dynamics with supportive parental figures that enable adolescents to learn from and develop competencies in their self-regulation and control strategies, in turn, building up adolescents' discipline. Adolescents' self-control may also improve through educational engagement, where engaging students in the learning process through school connectedness, and more positive peer groups not only enhance their learning experience, but also in terms of propelling adolescents' motivation and self-control (Gonzales et al., 2008; Miller et al., 2009). Notably, living in impoverished or disadvantaged neighborhoods can increase adolescents' vulnerability to contextual stressors that can weaken individual sense of control and discipline (Gibson, 2012; Taylor et al., 2002). It is likely then that safe neighborhoods provide a more positive environment for the development of their personal control and self-growth.

In parallel, Mexican-origin values also emphasize good control and deference (particularly to older family members; Armenta et al., 2011; Knight et al., 2018). With incremental addition of cultural strengths, it is likely that we would observe greater sense of control and improvements in adolescents' self-regulation, or their levels of discipline. Perhaps, ethnic minority adolescents who possess more transcultural and cultural strengths may show competence in personal regulation, which is adaptive for the development of self-control and, more importantly, adolescents' self-growth.

Cultural Ecological Models of Adolescent Development

Different strength-focused approaches have been proposed to understand positive development in adolescents. Among others, the Search Institute's developmental assets framework suggests that a set of (transcultural) strengths that may include environmental support and empowerment, for example, can aid in reducing adolescent risky behaviors, while promoting thriving and resilience (Benson et al., 2011). In general, adolescents who possess more strengths show the most optimal outcomes. This is not surprising considering that transcultural strengths are consistently related to improved psychosocial development in adolescents (including Mexican-origin youth). For instance, supportive and warm family environments have been positively related to improved resilience, life meaning, and control (Cardoso & Thompson, 2010; Sim et al., 2019). Social supports from one's peers and neighborhoods with positive structural qualities are also some common sources of assets that relate to growths in positive adolescent development.

Whereas transcultural strengths often show promotive effects on ethnic minority youth development, scholars, practitioners, and policy makers interested in positive adolescent development can still benefit from investigations of culturally relevant factors (Rogoff, 2003). Identification of variations by cultures (e.g., cultural values or parental socialization strategies) and adolescents' adaptations that are specific to the experiences and ecologies of Mexican-origin youth can provide critical information for how we can fine-tune wellness promotion interventions, enhance adolescents' competencies, and determine optimal strategies to empower ethnic minority youth (Ibañez et al., 2004; Kuperminc et al., 2009).

Researchers of ethnic minority children have argued for the importance of incorporating culture at the center of development models to provide a comprehensive account of Mexican-origin adolescents' lived experiences (Raffaelli et al., 2005). Researchers generally yield consistent findings that cultural strengths are promotive of Mexican-origin youths' psychosocial development. For instance, adolescents who hold strong familism attitudes (the cultural belief that underscores a strong connection with one's family) are more likely to accept close family members' positive counsel, advice, and emotional guidance, and interpret parental supervision as care and concern (O'Sullivan et al., 2000). Parental beliefs about strong moral character and valued social behaviors (i.e., bien educardo; Villenas & Deyhle, 1999) are also related to positive psychosocial development (Bridges et al., 2012). Indeed, expanding on culturally relevant ecological perspective of Mexican-origin adolescents' positive development, several strength-based theories have proposed numerous sources of cultural assets across multiple system levels that constitute Mexican-origin individuals' reservoir of resources (see cultural–ecological–transactional model of resilience and the positive youth development framework; Kuperminc et al., 2009; Lerner et al., 2005). Given the substantial role that culture plays in shaping Mexican-origin adolescents' attitudes, values, and worldviews, perhaps, cultural strengths may yield improved predictive ability over transcultural strength when predicting growth trajectories of Mexican-origin adolescents' positive developmental outcomes.

Here, 11 transcultural and cultural strengths spanning across Mexican-origin youths' ecology were examined as assets that likely precede developments in adolescents' self-growth. We were intentional in selecting for more external (as compared to internal) transcultural and cultural strengths in our work. Specifically, we selected five external transcultural strengths including maternal and paternal warmth (Nair et al., 2020), school connectedness, peer groups, and safe neighborhoods as these factors have been linked with greater psychological outcomes and health, cross-sectionally and over time (Sánchez et al., 2020; Sointu et al., 2017; Voight et al., 2015). For cultural strengths, our original intent was to select for only external cultural strengths. However, given that some cultural values such as identification with one's ethnicity (i.e., ethnic identity) has been argued to form the foundation for the development of cultural strengths (Williams et al., 2014), and that ethnic identity has often been linked with positive youth development outcomes (Williams et al., 2014), we opted to keep this (arguably more internal than external) cultural strength in our study. We also include adolescents' familism (again, arguably more internal than external) as it has been considered one of the most important cultural values in Mexican-origin families (Marin, 1993; Piña-Watson et al., 2019). As such, we were deliberate in selecting for more external (than internal) cultural strengths in the present study and the six cultural strengths examined in our study included Mexican-origin adolescents' ethnic identity and familism (Moise et al., 2019; Umaña-Taylor et al., 2009), and more external cultural strengths such as values and parental socialization goals that are rooted in ethnotheories such as maternal and paternal bien educado and ethnic socialization (Halgunseth et al., 2006; Huguley et al., 2019).

Current Study

This study examined how the accumulation of external transcultural and cultural strengths is associated with several areas of self-growth in a sample of Mexican-origin adolescents from low-income families. The sample is from low-income families, and thus, it

provides a unique opportunity to understand factors predicting adolescents' positive development, including their resilience, life meaning, and discipline.

Research with cumulative models (i.e., risk) consistently showed that cumulative factors are more predictive of developmental consequences, as opposed to models with singular factors. In similar vein, it is likely that the aggregated effects of adolescents' additive strengths contribute to greater-than-commensurate positive effects that improve adolescents' ability to overcome the odds and promote positive development. Methodologically, an aggregated indicator of strengths can also yield statistical advantages (e.g., parsimony). A CSM can also avoid issues compared to a multiple predictors model (MPM; i.e., a single model with multiple indicators incorporated), such as measurement error, model convergence, and multicollinearity that occurs when several factors that are highly correlated are included in the same model (see Evans et al., 2013 for research with cumulative risk markers that argue for similar shortcomings of ordinary least squares models). The MPM can also pose statistical challenges to power, especially with small samples. Thus, CSM might offer one way to examine many strengths without compromising statistical integrity. As no study has examined how cumulative cultural strengths compare against models with only singular strengths or MPM, a goal of the present study was to test whether models of cumulative strengths (CS), versus singular strengths, and CSM versus MPM are related to more positive developments in the three identified markers of adolescent self-growth.

First, the advantages (or predictive efficacy) of the CSM were examined by comparing a CSM against (a) individual strengths only and (b) MPM (through a multiple regression model that included all strengths), when predicting adolescents' resilience, life meaning, and discipline.

Next, growth curve modeling was used to test whether CSM is predictive of cross-sectional associations and longitudinal changes in adolescents' self-growth. It was hypothesized that adolescents' resilience, life meaning, and discipline would increase from early to later adolescence. Further, it was predicted that Mexican-origin adolescents' CS would be positively related to resilience, life meaning, and discipline both at baseline and growths over time.

Finally, three different CS models were compared when predicting adolescent growths in resilience, life meaning, and discipline: (a) a cultural strengths only model that included only culturally relevant strengths; (b) a transcultural strengths only model that included only strengths that are general to all adolescents that may not be culturally specific to Mexican-origin adolescents; and (c) a model that included both the aforementioned transcultural and cultural CSMs (i.e., two separate CSMs were included as two distinct predictors in the same analysis). Doing so allowed for examinations of whether cultural strengths had predictive value of Mexican-origin adolescents' self-growth, above and beyond transcultural strengths.

Method

Participants

The current study utilized a three-wave longitudinal data set collected from 604 Mexican American adolescents residing in a metropolitan city in central Texas (Wave 1 [W1]: 2012–2015; Wave 2 [W2]: 2013–2016; Wave 3 [W3]: 2017–2020; note that data collection ended before the pandemic). Participants were in sixth to eighth grades at W1 (age range = 11.00–15.00, $M_{age} = 12.92$, $SD = 0.91$). Approximately half the sample are female (54%, $N = 327$) and 76% ($N = 454$) of adolescents are U.S.-born, while the rest are Mexico-born (24%, $N = 150$). Mean family income for the sample ranged from $20,001 to $30,000 at W1, and the median for highest education level for parents was some middle/junior high school.

A total of 483 (80%) adolescents were retained at W2 ($M_{age} = 13.72$, $SD = 0.90$) and 334 (55%) adolescents at W3 ($M_{age} = 17.10$, $SD = 1.12$). Attrition analyses (based on W1 demographic variables including adolescent age, gender, nativity, family income, and parents' highest education level, as well as all study variables) showed that adolescents who were born in Mexico, $t(602) = 2.00$, $p = .047$, or whose parents reported higher education level, $t_{father}(291) = 3.68$, $p < .001$; $t_{mother}(591) = 2.41$, $p = .016$, were more likely to continue participating at W2. Adolescents who were younger, $t(602) = 3.49$, $p < .001$, whose parents reported higher education level, $t_{father}(291) = 3.69$, $p < .001$; $t_{mother}(591) = 3.45$, $p < .001$, or who had higher family income were more likely to participate at W3, $t(551) = 2.14$, $p = .033$.

Procedure

The three-wave longitudinal data set was collected for a larger project that targeted adolescents who translated for their parents with limited English proficiency in Mexican immigrant families. As many Mexican-origin families who require translation report low SES (as indexed by family income levels), we were able to examine how immigrant-, ethnic minority-, and low SES constraints were related to adolescents' self-growth in our sample (which is in line with the shift-and-persist model). Families with parents of Mexican origin, with a child in middle school who translated for at least one parent, qualified for participation. Participants were recruited via school presentations, public records, and community recruitment. Informed consent (from parents) and informed assent (for adolescents) were obtained. Bilingual interviewers administered the questionnaires during family visits, read questions aloud and recorded participants' responses on a laptop computer. Questionnaires were presented in both English and Spanish, depending on which language participants felt most comfortable with. Families were compensated $60 at W1, $90 at W2, and $90 at W3.

Ethical approval for the study was provided by the Institutional Review Board from the University of Texas at Austin. Data for the current study are not publicly available, but data files and related tables can be obtained from the Lester Sim. No aspect of the study was preregistered.

Measures

Three markers of adolescent self-growth (i.e., resilience, life meaning, and discipline) were included, and they were all measured on a scale from 0 (*strongly disagree*) to 4 (*strongly agree*) via self-reports at W1, W2, and W3 (all scales had been validated in prior research with Mexican-origin adolescents; Kim et al., 2017).

Indicators for the CSMs were measured at W1. Eleven CS indicators across adolescents' ecology were included, including five transcultural strengths (i.e., adolescents' perceived sense of maternal and paternal warmth, school connectedness, positive peer groups, and

safe neighborhood), and six cultural strengths (i.e., adolescents' Mexican identity centrality, familism, maternal and paternal bien educado, and maternal and paternal ethnic socialization).

To create the two CSM indexes (i.e., transcultural CSM and cultural CSM), adolescents' reports on each measure were first converted into the ratio of received scores to the total possible scores so that adolescents' scores for each measure had the same range from 0 to 1 (Lengua et al., 2020). The proportion scores of the CSM indicators were then summed to derive the corresponding CSM scores (Lengua et al., 2020). Tables 1 and 2 present the descriptive statistics and correlations between all study variables and covariates.

Self-Growth, Transcultural, and Cultural Strengths

Resilience. Resilience was assessed using three /items from the Connor-Davidson Resilience Scale (Connor & Davidson, 2003; e.g., "I can deal with whatever comes"). Higher mean scores captured higher levels of resilience ($\alpha_{wave1} = .64$, $\alpha_{wave2} = .73$, $\alpha_{wave3} = .77$).

Life Meaning. Life meaning was assessed using three items from the presence subscale of the meaning in life questionnaire (Steger et al., 2006; e.g., "My life has a clear sense of purpose"). Higher mean scores reflected greater life meaning ($\alpha_{wave1} = .87$, $\alpha_{wave2} = .90$, $\alpha_{wave3} = .88$).

Discipline. Discipline was assessed using four items (Valiente et al., 2008; e.g., "I am good at self-discipline," "I can stick with my plans and goals"). Higher mean scores reflected higher self-discipline ($\alpha_{wave1} = .72$, $\alpha_{wave2} = .76$, $\alpha_{wave3} = .62$).

Culturally Relevant Ecological Strengths

Parental Warmth. Parental warmth was measured using seven items adapted from the Iowa Youth and Families Project (Conger et al., 1995). Adolescents reported maternal and paternal warmth separately on parallel items (e.g., "[Your mother/father] Let you know that she appreciates you, your ideas, or the things you do?") from 0 (*never*) to 6 (*always*). Higher mean scores represented higher parental warmth ($\alpha_{maternal} = .91$, $\alpha_{paternal} = .93$).

School Connectedness. Adolescents rated their positive school relationships via five items adopted from Loukas et al. (2009; e.g., "I feel like I am part of my school"). The rating scale ranged from 0 (*strongly disagree*) to 4 (*strongly agree*). Higher mean scores reflected greater school connectedness ($\alpha = .82$).

Positive Peer Groups. Three items were created to measure adolescents' affiliation with positive peer groups. Adolescents reported whether close friends "encouraged you and/or your friends to do well in school," "studied with you and/or your friends," and "talked about future plans (college)," during the past 6 months on a scale of 0 (*almost none*) to 4 (*almost all*). Higher mean scores reflected greater exposure to positive peer groups ($\alpha = .74$).

Safe Neighborhood. Adolescents rated neighborhood safety via four items adapted from the Neighborhood Quality Evaluation Scale (Roosa et al., 2005; e.g., "My neighborhood is safe for children during the daytime"). The rating scale ranged from 0 (*strongly disagree*) to 4 (*strongly agree*). Higher mean scores indicated higher agreement that their neighborhood is safe ($\alpha = .79$).

Table 1
Descriptive Statistics of Study Variables

Variable	*N*	*M*	*SD*
Transcultural cumulative strength index	558	3.21	0.72
Cultural-specific cumulative strength index	566	4.05	0.79
Indicators			
W1 maternal warmth	604	4.18	1.27
W1 paternal warmth	558	3.95	1.47
W1 school connectedness	604	2.95	0.64
W1 positive peer groups	604	1.94	0.96
W1 safe neighborhood	603	2.45	0.78
W1 maternal bien educado	604	2.99	0.57
W1 paternal bien educado	568	2.97	0.68
W1 maternal ethnic socialization	603	2.23	0.86
W1 paternal ethnic socialization	566	2.04	1.00
W1 Mexican identity centrality	604	2.74	0.66
W1 familism	604	3.23	0.57
Self-growth markers			
W1 resilience	604	3.51	0.65
W2 resilience	483	3.54	0.65
W3 resilience	334	3.62	0.68
W1 life meaning	604	3.73	0.77
W2 life meaning	483	3.69	0.78
W3 life meaning	334	3.55	0.79
W1 discipline	604	3.78	0.64
W2 discipline	483	3.74	0.63
W3 discipline	334	3.54	0.60
Covariates			
W1 adolescent age	604	12.41	0.97
Adolescent gender (0 = *male*, 1 = *female*)	604		54% female
Adolescent nativity (0 = *United States*, 1 = *Mexico*)	604		76% Mexican-born
W1 family income	553	2.35	1.54

Note. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

Table 2
Correlations Between Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Transcultural CSM index	—												
2. Cultural-specific CSM index	.649***	—											
3. W1 maternal warmth	.801***	.566***	—										
4. W1 paternal warmth	.793***	.586***	.687***	—									
5. W1 school connectedness	.584***	.370***	.342***	.291***	—								
6. W1 positive peer groups	.650***	.355***	.393***	.343***	.264***	—							
7. W1 safe neighborhood	.522***	.261***	.225***	.252***	.282***	.097*	—						
8. W1 maternal bien educado	.544***	.725***	.513***	.418***	.298***	.320***	.204***	—					
9. W1 paternal bien educado	.538***	.746***	.358***	.607***	.267***	.282***	.226***	.615***	—				
10. W1 maternal ethnic socialization	.444***	.803***	.481***	.309***	.239***	.274***	.160***	.507***	.364***	—			
11. W1 paternal ethnic socialization	.468***	.832***	.352***	.494***	.238***	.236***	.215***	.402***	.578***	.717***	—		
12. W1 Mexican identity centrality	.268***	.528***	.232***	.201***	.229***	.146***	.100*	.277***	.261***	.296***	.277***	—	
13. W1 familism	.607***	.651***	.599***	.525***	.385***	.330***	.184***	.500***	.461***	.417***	.374***	.237***	—
14. W1 resilience	.365***	.355***	.275***	.324***	.344***	.105**	.211***	.224***	.318***	.237***	.257***	.250***	.271***
15. W2 resilience	.259***	.228***	.247***	.260***	.175***	.016	.185***	.186***	.224***	.076	.181***	.157***	.178***
16. W3 resilience	.158**	.170**	.121*	.126*	.166**	.030	.156**	.158**	.181**	.081	.089	.107	.117*
17. W1 life meaning	.442***	.412***	.398***	.365***	.378***	.147***	.246***	.299***	.327***	.313***	.289***	.234***	.351***
18. W2 life meaning	.268***	.260***	.297***	.221***	.208***	.069	.147**	.232***	.214***	.128**	.196***	.129**	.249***
19. W3 life meaning	.115*	.170**	.130*	.105	.143**	.022	.093	.109*	.112*	.118*	.113*	.089	.124*
20. W1 discipline	.549***	.447***	.450***	.375***	.493***	.335***	.261***	.371***	.342***	.325***	.298***	.236***	.461***
21. W2 discipline	.316***	.300***	.328***	.243***	.318***	.145**	.084	.308***	.220***	.200***	.186***	.123**	.302***
22. W3 discipline	.184**	.124*	.129*	.150**	.193***	.161**	.037	.087	.154**	.105	.026	.101	.134*
23. W1 age	–.096*	–.083*	–.054	–.041	–.104*	–.122**	–.011	–.082*	–.041	–.077	–.065	–.024	–.101*
24. Gender (0 = *male*, 1 = *female*)	.112**	.035	.095*	.049	.072	.148***	–.022	.092*	.006	.023	–.002	.010	.063
25. Nativity (0 = *United States*, 1 = *Mexico*)	–.016	.004	–.041	–.012	.031	–.066	.061	–.037	.015	–.032	.003	.083*	–.020
26. W1 family income	.016	–.023	–.035	.012	–.039	.019	.064	.024	.012	–.064	–.020	–.039	.038

Variable	14	15	16	17	18	19	20	21	22	23	24	25	
15. W2 resilience	.382***	—											
16. W3 resilience	.224***	.305***	—										
17. W1 life meaning	.438***	.241***	.142**	—									
18. W2 life meaning	.226***	.509***	.111	.404***	—								
19. W3 life meaning	.190***	.176**	.413***	.265***	.327***	—							
20. W1 discipline	.407***	.240***	.158**	.414***	.228***	.087	—						
21. W2 discipline	.260***	.348***	.213***	.238***	.329***	.184**	.466***	—					
22. W3 discipline	.204***	.210***	.295***	.157**	.160**	.250***	.260***	.339***	—				
23. W1 age	.045	.050	.021	–.053	–.065	–.064	–.136***	–.010	.023	—			
24. Gender (0 = *male*, 1 = *female*)	–.073	–.163***	–.190***	–.057	–.101*	.094	.087*	.039	–.021	–.040	—		
25. Nativity (0 = *United States*, 1 = *Mexico*)	.016	.049	.095	–.027	.002	.006	.015	.045	.064	.202***	–.022	—	
26. W1 family income	–.004	.000	–.043	–.050	.030	–.141*	.017	–.053	–.074	.039	–.048	–.056	

Note. CSM = cumulative strengths model; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Parental Bien Educado. Parental bien educado was measured using four items concerning cultural socialization moral practices adapted from Calzada et al. (2010). Adolescents reported maternal and paternal bien educado separately on parallel items (e.g., "[My mother/father] teaches me to have good manners"). Rating scale ranged from 0 (*strongly disagree*) to 4 (*strongly agree*). Higher mean scores represented higher parental bien educado ($\alpha_{maternal} = .70$, $\alpha_{paternal} = .77$).

Parental Ethnic Socialization. Parental ethnic socialization was measured using three items concerning parents' overt efforts to educate their children about their heritage culture, adapted from the Familial Ethnic Socialization Measure (Umaña-Taylor & Fine, 2004). Adolescents reported their maternal and paternal ethnic socialization separately on parallel items (e.g., "[My mother/father] teaches me about my ethnic/cultural background") The rating scale ranged from 0 (*not at all*) to 4 (*very much*). Higher mean scores represented higher parental ethnic socialization ($\alpha_{maternal} = .77$, $\alpha_{paternal} = .82$).

Mexican Identity. Mexican identity centrality was measured using three items adapted from the centrality subscale in an adapted Multidimensional Inventory of Black Identity Scale (Sellers et al., 1997; e.g., "Being Mexican is an important part of who I am"). The three-item scale had been validated in prior research (Sim et al., 2019). The rating scale ranged from 0 (*strongly disagree*) to 4 (*strongly agree*). Higher mean scores represented greater perceived importance of Mexican identity ($\alpha = .66$).

Familism. Familism was measured using 13 items about attitudes toward the family (Fuligni et al., 1999) (e.g., "Treat your parents with respect"). The rating scale ranged from 0 (*not at all important*) to 4 (*very important*). Higher mean scores reflected higher familism ($\alpha = .88$).

Covariates

Covariates are demographic variables that have been shown to be associated with positive outcomes (e.g., De Feyter et al., 2020; Valiente et al., 2008), including adolescent age, gender, nativity, and family income. Family income was calculated by averaging annual family income reported by both parents on an 11-point scale (from 0 = *less than $10,000* to 11 = *more than $110,000 in $10,000 increments*).

Analytical Plan

Data analyses were conducted in three steps. First, predictive efficacy of CSMs were established by comparing the CSM against separate strength indicators via relative weight analysis (Johnson, 2000), following the procedures recommended by Relative Weight Analysis-Web (Tonidandel & LeBreton, 2015) using R 4.0.5. Relative weight analysis is a statistical method used to assess the relative importance or contribution of individual predictors in a multiple regression model by considering both the unique contributions of each predictor and their combined effects with other predictors. Relative weight analysis is used in the current study to determine whether CSM has a more substantial influence on the self-growth outcome compared to any indicators of CSM. Specifically, each CSM was coupled with each one of its strength indicators as predictors of adolescents' self-growth in separate multiple regression models. Relative weights are the proportion of the explained variance in the self-growth outcome variable that can be attributable to each predictor (R^2 based on 95% confidence intervals [CIs]), when accounting for the presence of other predictors in the model. Relative weights are calculated for each predictor (i.e., CSM and its strength indicator) in the model and compared. Past research has documented good performance of the relative weight statistic, especially when the predictors are correlated (Tonidandel & LeBreton, 2015).

Second, the parallel unconditional growth curve model were conducted to understand growth patterns of adolescents' self-growth, after achieving longitudinal invariance of each outcome variable (Little, 2013). All self-growth variables (i.e., resilience, life meaning, discipline) were included in one model with each own intercepts and slopes estimated.

Finally, three conditional growth curve models were conducted in which the latent intercept and slope of the three markers of self-growth were conditioned on (a) the transcultural only CSM, (b) the cultural only CSM, and (c) the inclusion of both the transcultural and the cultural CSM simultaneously, while controlling for all covariates. All growth curve models were conducted using Mplus 8.6 (Muthén & Muthén, 2018). Missing data were handled using the full information maximum likelihood estimation method in all steps, including relative weight analysis, longitudinal measurement invariance, and the growth curve models, to use all available information.

Results

Multiple Regression Analysis

Results showed that the CSMs for both CS indexes (see Table 3 for the transcultural only CSM, Table 4 for the cultural only CSM) were more predictive of adolescent self-growth than any single strength (except for familism, where the cultural CSM explained a little less than familism for the variability in the slopes for resilience and life meaning; see Table 4). When comparing CSM against an MPM (i.e., including all indicators as predictors in a multiple regression), MPM ran into issues with model fit and multicollinearity. These findings suggest the superiority of the CSM over the models with only single predictors and the MPM.

Growth Patterns

Longitudinal Invariance of Adolescent Self-Growth

Latent growth curve modeling assumes structural invariance of the same latent construct across time points (Little, 2013). Therefore, we first evaluated whether partial invariance (at least) was achieved for adolescents' resilience, life meaning, and discipline across the three waves. Model fits of three measurement models were compared for each marker of self-growth separately: (a) a configural model with no constraints on factor loadings or item intercepts across time points; (b) a metric invariance model which constrained the factor loadings equal across time points; and (c) a scalar invariance model which constrained both factor loadings and item intercepts equal across time points. A latent construct achieves metric invariance if Model 2 is not significantly better than Model 1 and it meets scalar invariance if Model 3 is not significantly better than Model 2. A construct is considered longitudinally invariant if the aforementioned comparisons meet at least two out of the three following criteria: $\Delta\chi^2$ is not significant ($p > .05$),

Table 3
Comparisons of Partial R^2 for Transcultural Cumulative Strengths Versus Individual Indicators

	Wave 3 resilience			Wave 3 life meaning			Wave 3 discipline		
Variable	Partial R^2	Confidence interval	Comparison	Partial R^2	Confidence interval	Comparison	Partial R^2	Confidence interval	Comparison
CSM	.19	[.14, .24]		.18	[.13, .23]		.22	[.17, .27]	
M Warmth	.11	[.08, .15]	CSM > V	.12	[.08, .15]	CSM > V	.13	[.09, .17]	CSM > V
CSM	.19	[.15, .25]		.19	[.14, .24]		.25	[.19, .3]	
P Warmth	.10	[.07, .14]	CSM > V	.10	[.07, .13]	CSM > V	.10	[.07, .13]	CSM > V
CSM	.20	[.15, .26]		.20	[.15, .25]		.23	[.18, .28]	
SchRltn	.13	[.08, .18]	CSM > V	.13	[.08, .18]	CSM > V	.16	[.11, .22]	CSM > V
CSM	.30	[.24, .36]		.30	[.23, .35]		.31	[.25, .37]	
PeerGrp	.04	[.03, .05]	CSM > V	.04	[.02, .05]	CSM > V	.05	[.03, .07]	CSM > V
CSM	.25	[.19, .31]		.25	[.19, .31]		.31	[.24, .37]	
SafeNbh	.04	[.02, .07]	CSM > V	.04	[.02, .07]	CSM > V	.04	[.02, .06]	CSM > V
CSM	.03	[.01, .05]		.05	[.02, .08]		.10	[.05, .13]	
M Warmth	.02	[.00, .05]	CSM > V	.02	[.01, .04]	CSM > V	.07	[.03, .10]	CSM > V
CSM	.03	[.00, .06]		.05	[.02, .08]		.12	[.08, .17]	
P Warmth	.01	[.00, .03]	CSM > V	.02	[.00, .03]	CSM > V	.04	[.02, .07]	CSM > V
CSM	.03	[.00, .07]		.05	[.02, .08]		.11	[.06, .15]	
SchRltn	.02	[−.01, .04]	CSM > V	.02	[.00, .05]	CSM > V	.07	[.04, .13]	CSM > V
CSM	.04	[.01, .08]		.06	[.03, .10]		.15	[.10, .21]	
PeerGrp	.01	[−.01, .01]	CSM > V	.01	[.00, .02]	CSM > V	.02	[.01, .03]	CSM > V
CSM	.05	[.02, .09]		.06	[.02, .10]		.13	[.08, .19]	
SafeNbh	.00	[−.01, .01]	CSM > V	.01	[.00, .02]	CSM > V	.02	[.00, .05]	CSM > V

Note. The upper panel displays results for the intercepts of markers of self-growth. The bottom panel displays results for the slopes of the markers of self-growth. Confidence intervals that do not include zero indicate that the corresponding estimates for partial R^2 are significant. CSM = cumulative strengths model; V = variable that is included in the model to compare with CSM; M = maternal, P = paternal, A = adolescent; SchRltn = school connectedness; PeerGrp = positive peer groups; SafeNbh = safe neighborhood.

Δcomparative fit index (CFI) < .01, and Δroot mean square error of approximation (RMSEA) < .01 (Widaman et al., 2010). A construct shows partial invariance if most factor loadings and item intercepts are invariant across time points. The partial invariance models were selected following the sequential search procedure based on the largest modification index (Yoon & Kim, 2014). As shown in Table 5, metric invariance and partial scalar invariance were supported for all positive outcomes, which allowed for estimations of the growth curves for resilience, life meaning, and discipline.

Growth Trajectories of Adolescent Self-Growth

An unconditional latent growth curve model was fitted with all three positive outcomes included in the same model. The parallel unconditional latent growth curve model showed good fit, $\chi^2(16) = 41.252$, $p < .001$, CFI = .973, RMSEA = .051, 90% CI [.032, .071], standardized root mean square residual (SRMR) = .039. As displayed in Table 6, Mexican-origin adolescents started off with relatively high levels of resilience ($b = 3.512$, $SE = .024$, $p < .001$), life meaning ($b = 3.731$, $SE = .029$, $p < .001$), and discipline ($b = 3.785$, $SE = .024$, $p < .001$) in early adolescence. Resilience increased ($b = 0.022$, $SE = .008$, $p = .006$), while life meaning ($b = -.037$, $SE = .009$, $p < .001$) and discipline ($b = -.047$, $SE = .007$, $p < .001$) decreased, over time. As the variance for all latent intercepts and slopes were significantly different from zero, the study proceeded with the conditional latent growth curve models.

CSM and Growth Trajectories of Adolescent Self-Growth

Here, the latent intercepts and slopes were conditioned on the transcultural only CS index (Model 1), the cultural only CS index (Model 2), and the simultaneous inclusion of both transcultural and cultural indexes as separate indicators in the same analysis (Model 3), while controlling for all covariates in each model (Table 7; Tables S1–S3 in the online supplemental materials show the full results with covariates). All models fitted well—transcultural CSM: $\chi^2(31) = 67.513$, $p < .001$, CFI = .971, RMSEA = .044, 90% CI [.030, .059], SRMR = .045; cultural CSM: $\chi^2(31) = 58.274$, $p = .002$, CFI = .977, RMSEA = .038, 90% CI [.023, .053], SRMR = .037; both transcultural and cultural CSMs: $\chi^2(34) = 69.509$, $p < .001$, CFI = .978, RMSEA = .042, 90% CI [.027, .056], SRMR = .043.

Across Models 1 and 2, Mexican-origin adolescents with higher CS, either transcultural or cultural, showed higher baseline resilience, life meaning, and discipline; however, they showed slower increases in resilience, and steeper declines in life meaning and discipline (see Table 7 for details). Although the patterns across Models 1 and 2 were somewhat similar, it is important to note that the transcultural only CSM explained more variance in the developmental trajectory of adolescents' positive outcomes than the cultural only CSM (ΔR^2 ranges from .006 to .107).

In Model 3, which included both the transcultural and cultural CSMs, there was slightly more variance explained for the developmental trajectory of adolescents' self-growth than the transcultural or cultural CSM (ΔR^2 ranges from .001 to .045 when compared with the transcultural CSM; ΔR^2 ranges from .011 to .137 when compared with the cultural CSM). However, there were notable differences when compared with Models 1 and 2: Although all associations in Model 3 were in the same direction as observed in Models 1 and 2, only the associations between the transcultural CSM and the slopes of life meaning and discipline remained significant, suggesting some level of increased predictive efficacy of the transcultural CSM over the cultural CSM. Subsequent empirical testing of the

Table 4
Comparisons of Partial R^2 for Cultural-Specific Cumulative Strengths Versus Individual Indicators

	Wave 3 resilience			Wave 3 life meaning			Wave 3 discipline		
Variable	Partial R^2	Confidence interval	Comparison	Partial R^2	Confidence interval	Comparison	Partial R^2	Confidence interval	Comparison
CSM	.18	[.00, .06]		.18	[.13, .24]		.18	[.12, .23]	
M BEdu	.07	[.00, .05]	CSM > V	.07	[.04, .11]	CSM > V	.09	[.05, .14]	CSM > V
CSM	.17	[.11, .21]		.17	[.12, .23]		.18	[.13, .23]	
P BEdu	.10	[.06, .13]	CSM > V	.10	[.06, .06]	CSM > V	.09	[.05, .13]	CSM > V
CSM	.08	[.15, .26]		.20	[.15, .26]		.21	[.15, .26]	
M EthSoc	.06	[.04, .09]	CSM > V	.06	[.04, .09]	CSM > V	.05	[.05, .1]	CSM > V
CSM	.20	[.14, .25]		.20	[.14, .25]		.22	[.07, .27]	
P EthSoc	.07	[.05, .09]	CSM > V	.07	[.05, .1]	CSM > V	.07	[.05, .09]	CSM > V
CSM	.21	[.15, .28]		.22	[.15, .28]		.23	[.15, .29]	
A MexId	.04	[.02, .08]	CSM > V	.04	[.02, .07]	CSM > V	.04	[.01, .06]	CSM > V
CSM	.17	[.12, .22]		.17	[.12, .23]		.17	[.11, .22]	
A Familism	.10	[.07, .13]	CSM > V	.11	[.07, .14]	CSM > V	.14	[.1, .17]	CSM > V
CSM	.03	[.01, .06]		.02	[.00, .05]		.08	[.04, .12]	
M BEdu	.01	[.00, .02]	CSM > V	.01	[−.01, .03]	CSM > V	.04	[.02, .08]	CSM > V
CSM	.03	[.00, .06]		.02	[.00, .05]		.09	[.05, .14]	
P BEdu	.01	[.00, .02]	CSM > V	.01	[.00, .04]	CSM > V	.03	[.01, .05]	CSM > V
CSM	.02	[.00, .05]		.03	[.01, .06]		.09	[.05, .14]	
M EthSoc	.01	[.00, .03]	CSM > V	.01	[.00, .03]	CSM > V	.03	[.01, .05]	CSM > V
CSM	.03	[.01, .05]		.03	[.00, .05]		.09	[.04, .13]	
P EthSoc	.01	[.00, .02]	CSM > V	.01	[−.01, .02]	CSM > V	.03	[0, .05]	CSM > V
CSM	.03	[.01, .06]		.03	[.00, .06]		.10	[.05, .16]	
A MexId	.01	[.00, .02]	CSM > V	.01	[−.01, .02]	CSM > V	.02	[.01, .04]	CSM > V
CSM	.02	[.00, .05]		.02	[.00, .05]		.07	[.04, .12]	
A Familism	.02	[.01, .05]	CSM < V	.02	[.00, .05]	CSM < V	.07	[.04, .11]	CSM > V

Note. The upper panel displays results for the intercepts of markers of self-growth. The bottom panel displays results for the slopes of the markers of self-growth. Confidence intervals that do not include zero indicate that the corresponding estimates for partial R^2 are significant. CSM = cumulative strengths model; V = variable that is included in the model to compare with CSM; M = maternal; P = paternal; A = adolescent; BEdu = bien educado; EthSoc = ethnic socialization; MexId = Mexican identity centrality.

predictive efficacy of the transcultural versus cultural CSM was therefore conducted to examine the relative importance of transcultural versus cultural CSM when they were included in one model. Specifically, six constrained models were estimated by constraining the association between CSM and intercept/slope of each self-growth variable (i.e., two parameters of intercept/slope times three outcomes) to be equal for transcultural and cultural CSM. Then, the constrained model was compared to the unconstrained model (i.e., Model 3 in Table 7) using the chi-square difference test. Results were generally consistent, except one significant difference; the positive effect on the intercept for discipline was stronger for the transcultural only index ($\beta = .509$, $p < .001$) than the cultural only index ($\beta = .232$, $p < .001$), $\chi^2(1) = 8.702$, $p = .003$, $\Delta CFI = .005$, $\Delta RMSEA = .003$.

Discussion

The aim of the present study was to investigate whether the cumulative effect of Mexican-origin adolescents' transcultural and cultural strengths were positively associated with the initial levels and trajectories of three intrinsic markers of self-growth. As prior research has typically focused on internal psychological strengths, we wanted to expand this line of work in the current study and instead explore how external strengths and assets are related to adolescents' resilience, life meaning, and discipline. Generally consistent with extant literatures, the findings here underscore the role that culture plays in affecting Mexican-origin adolescents' development. There were noted increases in resilience, and decreases in life meaning and discipline over time, which demonstrates the dynamic patterns of growths and declines in youths' self-growth across adolescence. Partially supporting the study's hypotheses, these changes were conditioned on adolescents' CS: Adolescents with more CS showed slower increases in resilience and more declines in their life meaning and discipline. There was support for the CSM as (a) the CSM was more predictive of the growth curves of Mexican-origin adolescents' self-growth when compared against independent strengths; (b) further comparisons of the CSM against a MPM that included all strengths in the same model showed that the latter ran into issues with model convergence. These findings provide preliminary support for the CSM and how CS are associated with dynamic trajectories of Mexican-origin adolescents' self-growth and positive development.

The current study saw changes in trajectories of the three identified markers of Mexican-origin youths' self-growth. Growth curves showed that the adolescents' resilience increased from early to later adolescence. In line with previous work, changing parent–adolescent relationships and exposure to discrimination during adolescence builds up Mexican-origin adolescents' adjustment and adaptive coping, which likely translates to improvements in their resilience (Ellis et al., 2017; Wilcox et al., 2021). It is interesting that Mexican-origin adolescents with higher CS showed less growths in resilience. Resilience, as defined in our study, pertains to Mexican-origin adolescents' ability to positively accept changes and pick themselves up in the face of adversities (Chen & Miller, 2012). Perhaps adolescents with high, as compared to low, CS, are indeed more mentally prepared in accepting these changes and have greater capacity to pick themselves up from the challenges

Table 5
Goodness-of-Fit for Measurement Models for Adolescent Self-Growth

Level of measurement invariance	χ^2	*df*	*p*	CFI	RMSEA	$\Delta\chi^2$	Δdf	*p*	ΔCFI	ΔRMSEA
Resilience										
Configural	36.415	24	.050	.987	.029	—	—	—	—	—
Metric invariance	41.411	28	.049	.985	.028	4.996	4	.288	−.002	−.001
Scalar invariance	63.198	34	.002	.968	.038	21.787	6	.001	−.017	.010
Partial scalar invariance	52.923	33	.015	.978	.032	11.512	5	.042	−.007	.004
Life meaning										
Configural	30.262	24	.176	.997	.021	—	—	—	—	—
Metric invariance	32.446	28	.257	.998	.016	2.184	4	.702	.001	−.005
Scalar invariance	55.592	34	.011	.991	.032	23.146	6	.001	−.007	.016
Partial scalar invariance	43.975	32	.077	.995	.025	11.529	4	.021	−.003	.009
Discipline										
Configural	33.462	19	.021	.981	.035	—	—	—	—	—
Metric invariance	36.150	23	.040	.983	.031	2.688	4	.611	.002	−.004
Scalar invariance	176.712	29	<.001	.810	.092	140.562	6	<.001	−.173	.061
Partial scalar invariance	46.167	26	.009	.974	.036	10.017	4	.036	−.009	.005

Note. For resilience, all item factor loadings were invariant across time points; most intercepts were invariant across time points except the intercept of the first item at Wave 3. For life meaning, all item factor loadings were invariant across time points; most intercepts were invariant across time points except the intercept of the first item at Wave 1 and the second item at Wave 3. For discipline, all item factor loadings were invariant across time points; most intercepts were invariant across time points except the intercept of the first item at Wave 3. CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

that come their way, but they may also experience fewer difficult situations in which they can demonstrate this capability. In other words, the possibility that having a reservoir of transcultural and cultural strengths translates to reduced exposure to adversities that inadvertently slows growths in adolescents' resilience trajectories. That said, the findings do not discount the benefits of resilience (i.e., high levels of subjective well-being, maintenance of adaptive coping responses, community support; Kuperminc et al., 2009; Masten, 2011). The results here may be indicative of the uniqueness of the resilience construct (as compared to other markers of self-growth) and has implications on resiliency theory (Masten, 2011). More research is needed to understand how CS are linked to growths in resilience and more generally, to other domains of Mexican-origin adolescents' self-growth and positive development.

Here, the trajectories for both life meaning and discipline decreased over the study period. As discussed earlier, adolescents experience a period of identity seeking and confusion which can manifest in normative reductions in life meaning levels across adolescence; in parallel, discipline can decrease as a function of growing adolescent defiance and insubordination (i.e., teenage rebellion; Shek et al., 2021; Tangney et al., 2004). Insofar as longitudinal decreases in life meaning and discipline observed here reflect normative developmental declines, it is interesting that we also observed greater decreases in life meaning and discipline in adolescents with high CS. It is difficult to conceptually understand why this might be the case, here, we offer two possibilities. First, it is important to note that our goal for the present study was to predict developments in intrinsic markers of adolescents' self-growth based on their reservoir of predominantly external transcultural and cultural strengths. Perhaps, our CSM would have yielded more success in predicting longitudinal changes in extrinsic markers of adolescent competence when both the source of predictors and outcomes are consistent. That is, given that we are adopting external strengths as our predictors in the CSM, we may have been more successful in predicting external markers of adolescent growth such as their social skills or more general markers of positive development such as academic achievement instead. It is therefore a limitation of the current study that we did not include assessments of internal strengths (e.g., character strengths) in our study, which would allow for more direct comparisons and demonstrate how internal versus external strengths are related to adolescents' self-growth. Second, it is also important to be mindful of the fact that our descriptive statistics revealed adolescents with high CS also showed highest levels of baseline meaning and discipline (as is the case for resilience), thus from a statistical standpoint, ceiling effects might explain the present findings (i.e., more room for declines in the two markers of self-growth). That said, the positive autoregressive correlations for life meaning and discipline suggest there might be some level of rank order stability.

Table 6
Unstandardized Estimates for Parallel Unconditional Growth Curve Models

Variable	Latent factor	*M* (*SE*)	*p*	Variance (*SE*)	*p*
Resilience	Intercept	3.512 (.024)	<.001	.184 (.024)	<.001
	Slope	0.022 (.008)	.006	.016 (.005)	.002
Life meaning	Intercept	3.731 (.029)	<.001	.278 (.034)	<.001
	Slope	−0.037 (.009)	<.001	.024 (.003)	<.001
Discipline	Intercept	3.785 (.024)	<.001	.217 (.023)	<.001
	Slope	−0.047 (.007)	<.001	.010 (.005)	.045

Table 7
Results for Conditional Growth Curve Models

Latent outcome	R^2	Standardized regression results: Transcultural strengths β	Transcultural strengths *p*	Cultural strengths β	Cultural strengths *p*
Model 1: Transcultural only index					
Resilience intercept	.334	**.565**	<.001	—	—
Resilience slope	.060	**−.192**	.007	—	—
Life meaning intercept	.391	**.616**	<.001	—	—
Life meaning slope	.116	**−.300**	<.001	—	—
Discipline intercept	.466	**.662**	<.001	—	—
Discipline slope	.207	**−.399**	<.001	—	—
Model 2: Cultural only strengths index					
Resilience intercept	.292	—	—	**.523**	<.001
Resilience slope	.054	—	—	**−.178**	.010
Life meaning intercept	.335	—	—	**.564**	<.001
Life meaning slope	.069	—	—	**−.202**	.001
Discipline intercept	.359	—	—	**.569**	<.001
Discipline slope	.196	—	—	**−.377**	<.001
Model 3: Transcultural and cultural strengths indexes					
Resilience intercept	.376	**.391**	<.001	**.268**	<.001
Resilience slope	.065	−.127	.150	−.098	.260
Life meaning intercept	.436	**.431**	<.001	**.281**	<.001
Life meaning slope	.117	**−.289**	<.001	−.015	.844
Discipline intercept	.496	**.509**	<.001	**.232**	<.001
Discipline slope	.226	**−.284**	.012	−.177	.059

Note. Significant standardized coefficients for CSMs at W1 predicting intercepts and slopes of latent growth curves of markers of self-growth are bolded. Covariates include adolescent age, gender, nativity, annual household income. CSM = cumulative strengths model; W1 = Wave 1.

Taken together with the positive cross-sectional associations for CSM with our markers of self-growth, we argue that adolescents with more transcultural and cultural strengths likely continue to show advantages in adaptive psychosocial development when compared to their peers with lower CS. Considering that more work has been dedicated to the former (internal strengths → intrinsic attributes of self-growth), our findings here highlight the importance for more research to examine how external strengths are also linked to extrinsic markers of adolescent competence in future work.

Relatedly, it is also important to note that a goal of the present study was to compare the predictive ability of both the transcultural versus cultural only CSM to ascertain whether the cultural only CSM yielded greater predictive ability (than the transcultural only CSM). Given that transcultural CS remain significant, whereas cultural CS were not, in the combined model might indicate that transcultural strengths are more critical (as compared to cultural strengths alone) for adolescents' self-growth. This is surprising considering that we had originally expected cultural strengths to operate in the same way as transcultural strengths such that Mexican-origin adolescents who possess more cultural strengths would also show high levels of and growths in their self-growth. How do we interpret our findings then? We point out that it is difficult to isolate transcultural versus cultural strengths from each other and make clear distinct dichotomies. For instance, it is not hard to imagine that adolescents who report high levels of cultural strengths (e.g., parental bien educardo and ethnic socialization) to also enjoy a larger reservoir of transcultural strengths such as strong supportive relationships with their parents (e.g., high maternal and paternal warmth). Thus, we interpret our findings to suggest that perhaps, adolescents who have a strong foundation of transcultural strengths, possess the competencies or are most receptive to their ethnic–cultural teachings, socialization, and identity development. This may provide some preliminary explanation for why the slopes for life meaning and discipline remained significant in the transcultural CSM, but not for the cultural CSM, when both transcultural and cultural strengths were combined in the same model. Providing some convergence evidence, the combined model explained more variance than the individual models, which emphasized the importance of simultaneously examining both external transcultural and cultural strengths that are promotive of Mexican-origin adolescents' self-development and growth. The findings may suggest that it remains important to be deliberate and intentional in including measurements of cultural strengths in future work.

Given that our findings showed that transcultural and cultural-only CSMs were somewhat similar in predicting adolescents' self-growth, these findings remain indicative of the saliency of cultural factors in affecting the life of Mexican-origin youth, and that in all likelihood, cultural strengths are equally important and contribute to Mexican-origin youths' development (Updegraff et al., 2012). That is, cultural strengths likely serve as an additional reservoir of resource for Mexican-origin youths to tap on to that can enhance their adaptation strategies through building purpose, meaning, and improving self-regulation, which is generally consistent with the larger literature that have demonstrated the high predictive ability of cultural strengths (Updegraff et al., 2012). Interestingly, cultural factors are somewhat absent in positive psychology literatures (Rodriguez & Morrobel, 2004) and have only recently gained traction in the literature. Incorporating cultural strengths across adolescents' ecologies complements positive developmental perspectives by providing a guide for which strengths and assets influence the trajectories of Mexican-origin adolescents' positive development and

details which cultural influences warrant further research consideration. For instance, we have shown the cumulative links between the cultural strengths identified in the present study to adolescents' self-growth trajectories, yet it may be important to further examine how familism is related to baseline and changes in adolescents' self-growth considering that our relative weight analysis showed that it was more predictive of resilience and meaning than the combined CSM; perhaps, specific cultural values play an even more critical role in building up Mexican-origin children's worldview and positive outcomes (also see below for elaboration). Considering also that only the slope for resilience (but not for life meaning and discipline) was significant in the combined CSM, perhaps Mexican-origin adolescents' resilience is highly plastic and relevant to their cultural strengths. In similar vein, there might be other cultural influences (i.e., neighborhood immigrant population, ethnic concentration, other cultural values, etc.) not examined in the present study that might function as vital cultural strengths that promotes Mexican-origin youths' self-growth. Ethnic minority researchers, practitioners, and policy makers can capitalize on the knowledge gleaned from the present findings to provide Mexican-origin youths with additional resources and buffers that can counteract the challenges in their lives so that they can shift and persist better, and eventually thrive and succeed despite living in a society that is fraught with discrimination and prejudice. On a conceptual level, the findings here provides fresh evidence and adds to existing theoretical frameworks such as the positive youth development framework and the cultural–ecological–transactive perspective of resilience (Kuperminc et al., 2009) which underscores the strengths, assets, and protective factors that interact with adolescents' culture and ecology.

The present findings with CSM have important implications for positive psychology theories. Here, it was demonstrated that the absolute number of Mexican-origin adolescents' strengths are predictive of baseline levels of and growths in their self-growth, as compared to the independent effects of any one single strength. These findings reaffirms positive psychology notions that strengths, assets, positive experiences, traits, and institutions are all influential for the good life (Peterson & Seligman, 2004). The findings here are also consistent with theories such as the developmental assets framework that have demonstrated that youth development is positively related to a greater number of strengths (Benson et al., 2011). It is important to point out that some researchers have argued for the importance of specific strengths that are more influential for enhancing well-being than others (see literature on signature strengths; Schutte & Malouff, 2019). In fact, the results here also revealed that adolescents' familism was more predictive of resilience and meaning than the CSM, which may reflect the instrumental role cultural values play in building up Mexican-origin children's worldview and outcomes. Nevertheless, the culturally relevant ecological perspective of CSM provides an alternative method for the study of Mexican-origin adolescents' thriving and growth, particularly when researchers want to account for multiple transcultural and cultural strengths. The work here offers some of the first evidence that the absolute number of cultural strengths is associated with the trajectories of self-growth, yet it remains important to understand how CS is associated with positive development beyond Mexican-origin samples to test the validity of the CSM.

We point out here that the findings here have implications for social policies that may be beneficial for helping immigrant ethnic minority households (including Mexican-origin adolescents) adjust and adapt to U.S. society. U.S. immigration laws have been used to reinforce social hierarchies that can interfere with social integration with broader American society (Viruell-Fuentes et al., 2012). Indeed, discrimination both at the personal and institutional levels continues to be one of the leading stressors for Mexican-origin households that can trickle down and affect positive adolescent development (Pew Research Center, 2018). Granted that the U.S. political climate remains divided on the issues pertaining to immigration and topics such as immigration sentiments, our findings may be useful at least for increasing public awareness; in fact, our findings here may be interpreted as consistent with some recent positive developments in immigration policies (e.g., lifting restrictions, increasing diversity visas, etc.). Perhaps, emphasizing how immigrants can capitalize on social assets and services and their cultural resources to produce tangible and longer-term positive links on adolescent development is a helpful insight that can promote greater immigrant cohesion and integration. On a more macro level as well, policy makers may strategize and streamline programs to improve access to and quality of the transcultural and cultural strengths at various system levels (especially those identified in our study) to holistically improve Mexican-origin adolescents' self-growth to promote their thriving, adaptation, and integration; given our results, it may be important to promote both transcultural and cultural strengths simultaneously (providing adolescents with an important foundation of transcultural assets before emphasizing adolescents' cultural strengths might be more advantageous in bringing about adolescents' self-growth).

From a more research level, the present findings also provide evidence for the utility of adopting the CSM when many strengths are the foci of a scholar's research question. Indeed, when taking into consideration issues such as parsimony and when researchers are handling small samples, cumulative models may be particularly useful (Evans et al., 2013). Further, CSM may be useful when other constructs are of primary interest to the researcher: For example, a researcher may be interested in examining how CS moderates the association from an asset to a specific developmental outcome. Following the paradigm shift from the deficit perspective to strength-based approaches, the CSM offers one novel way where researchers can explore how different assets come together to affect adolescents' positive outcomes.

Despite the merits of the current study, there are limitations that need to be highlighted. First, participants in the study were restricted only to Mexican-origin adolescents recruited from central Texas. Due to proximity to the Texas–Mexico border, external validity of the findings here may not be applicable to other Mexican-origin populations from more diverse areas. Second, the value of adolescents' CS (high vs. low) is very sensitive to characteristics of the sample and thus may not be generalizable to other populations (as is common in research with cumulative models). With that said, the results presented here could serve as a framework to study other subpopulations of Mexican descent to examine the robustness and generalizability of the present findings (Edberg et al., 2017). Third, the sample of our study was of low income; thus nuances in level of risk exposure (i.e., low risk vs. high risk) can complicate how we interpret the promotive (direct) versus protective (moderating) function of our external transcultural and cultural strengths. In other words, it is hard to distinguish which external strengths are promotive or protective as both promotive and protective factors could function in the same way in our relatively high-risk sample and promote self-growth (due to their poverty status). Fourth, only 11 transcultural and

cultural strengths across adolescents' ecologies were included in the study even though there are other external strengths, both transcultural and cultural, that may be pertinent for Mexican-origin adolescents' self-growth, not captured in the current work (Pew Research Center, 2018). Future research may benefit from, for example, incorporating more cultural strengths; the present work is limited as these measures were not included here. Finally, while partial scalar invariance has been established for all measures, it is imperative to emphasize that strict scalar invariance is the optimal condition for conducting meaningful mean comparisons across different time points. Therefore, interpretation of the results should be undertaken with caution.

Overall, the present study tested the hypothesis that CS that includes more external transcultural and cultural strengths are predictive of Mexican-origin adolescents' self-growth trajectories. The findings suggest a need to shift from pathology- to strength-based perspective in understanding Mexican-origin adolescents' self-development and growth (Carales & López, 2020). In the study, it was evident that cultural strengths across adolescents' ecology also played a vital and positive role in affecting growths in resilience, life meaning, and discipline. More work is necessary to test and confirm the hypotheses in the current study, particularly, whether the associations between CSM and adolescent self-growth trajectories may be generalized to other research studies, and how the findings stand when predicting other intrinsic markers of self-growth based on external transcultural and cultural strengths. Nevertheless, it is likely that CSM offer a unique way for future research to capture the associations between Mexican-origin adolescents' multiple strengths and their links to positive development and self-growth.

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