



Daily stress and coping strategies: Relationships with anxiety and resilience in preadolescents from Ciudad Juárez, Mexico

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Abstract

Prior research demonstrates that stress and coping strategies have a significant influence on development and wellbeing, however few studies focus on the impact of daily stressors and coping strategies on anxiety and resiliency in preadolescents living in Mexico. The current study aim is to determine the impact of coping strategies and daily stressors on anxiety and resilience. Daily stressors, coping strategy use, anxiety symptoms, and resilience were assessed in a sample of 98 students (age 9–13) from two schools serving similar socioeconomic areas in Ciudad Juárez, Mexico. The relationship was analyzed using structural equation modeling (SEM) to better account for the influence of coping daily stressors, gender, and age on both anxiety and resilience. The proposed model had excellent indices of model fit and revealed a positive relationship between daily stressors and levels of anxiety. Non-productive coping strategies were also associated with higher levels of anxiety while the relying on others strategy associated with less anxiety. Productive coping and non-productive coping strategies were associated with greater resiliency. Our findings parallel other findings from the literature, however, in a sample from Mexico. The findings suggest that preadolescents use different coping strategies to effectively manage daily stressors, and that anxiety may influence resiliency.

Keywords Daily stress · Coping strategies · Anxiety · Resilience · Adolescents · Mexico

Stress and the resulting physical and psychological problems are a modern-day epidemic impacting health and wellbeing (Kalia 2002; Neckel et al. 2017). High levels of stress can have adverse effects on emotional health and a systemic negative impact on immune and cognitive functioning (Chen and Baram 2016; McEwen 2008; O'leary 1990). The negative impact of stress can influence functioning over the lifespan, and childhood exposure to stress is known to increase the risk of developing cardiovascular diseases, autoimmune diseases, and premature death (Miller et al. 2011). Likewise, high levels

of stress during development can lead to adult affective disorders, such as general anxiety disorder or major depressive disorder and changes in brain networks (Charles et al. 2013; Green et al. 2010; Kaiser et al. 2017).

Coping strategies help mitigate the negative impact of stressors and reduce anxiety. Coping strategies are personally developed approaches to manage emotional and cognitive reactions to situations and challenges (Blaxton and Bergeman 2017). Coping strategies are critical to successfully managing extreme stressors such as terrorism or abuse, but also are

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important in managing daily life challenges and common stressors (Beutell et al. 2017; Sheffler et al. 2019; Wright et al. 2019).

Coping strategies aid to reduce the adverse effects of stress by increasing confidence and self-efficacy and reducing anxiety (Patallo and Wadsworth 2020; Skinner et al. 2003; Wright et al. 2010; Werner 2000). During childhood, coping behaviors develop in response to stressors and the most protective strategies become favored (Masten and Cicchetti 2010; Patallo and Wadsworth 2020). Chronic and uncontrollable stress, such as poverty or violence, more often leads to avoidant coping strategies which aid in short term relief of stress but are associated with long term psychological problems (Evans et al. 2005; Santiago and Wadsworth 2009; Reid-Quñones et al. 2011). Likewise, adolescents facing chronic and uncontrollable stress also tend to use problem focused coping strategies, such as acceptance or cognitive reframing, less often (Wadsworth and Santiago 2008; Edlynn et al. 2008).

Even though the literature is divided on the precise taxonomy of coping strategies, a general framework has emerged which divide them into active/problem focused strategies and emotional/avoidant strategies (Endler and Parker 1990; Lazarus and Folkman 1984; Ryan-Wenger 1992; Frydenberg and Lewis 1993). Researchers have showed that problem-focused strategies lead to better outcomes whereas both emotion-focused and avoidance strategies do not (Dumont and Provost 1999; Steinhardt and Dolbier 2008). Frydenberg and Lewis (1993) adopted an approach similar to Lazarus and Folkman (1984) categorizing coping strategies by the functional or dysfunctional aspects (Lewis and Frydenberg 2004).

Overall, three empirically supported coping domains are proposed; productive coping, reference to others, and non-productive coping (Frydenberg 2004). Productive coping is behaviors which focus on solving the problem, working hard to solve the problem, and seeking relaxing diversions to decrease stress. The reference to others domain consists of strategies such as seeking social support, seeking spiritual support, or professional aid. Coping behaviors such as excessive worry, wishful thinking, ignoring the problem, keeping to self, or self-blame, are considered in the non-productive domain. When positive or negative behavioral and cognitive strategies are applied they result in a decrease of anxiety, however when functional coping skills are used the result is a better response to stressors, decreased anxiety, and quicker recovery from stressful events, and therefore increase resilience (Blaxton and Bergeman 2017; Patallo and Wadsworth 2020; Wright et al. 2010; Werner 2000). Furthermore, programs aimed at training coping skills have been seen to reduce anxiety, promote self-efficacy, and increase confidence to deal with stressors (Borkovec and Ruscio 2001; Grotberg 1995; Smith 1989).

Developmental changes in biology, psychology, and social environment during childhood and adolescence increase stress

and contribute to a larger prevalence of emotional and psychological problems (Beesdo et al. 2009; Ohannessian et al. 2016). Stress during this period can increase anxiety and may hinder learning, interpersonal skills, and social engagement (Anxiety and Depression Association of America 2015; National Scientific Council on the Developing Child 2010). During normal development the gene-environment interaction shapes neural networks and brain biology impacting circuits involved in mood and emotion resulting in systemic influences on the ability to recover from stress, known as resilience (Feder et al. 2009).

Resilience is the ability to effectively cope with a stressor or trauma (Masten 1999). Resilience acts as a protective factor which minimizes the physical and psychological effects of stress (Dumont and Provost 1999). This ability to recover from adversity allows individuals to effectively cope and adapt depending on the situation (Kashdan and Rottenberg 2010; Wasonga et al. 2003). The literature's perspective on resiliency has changed from that of a trait capacity to that of a learned process or skill (Khanlou and Wray 2014; Wright et al. 2012). As a child develops, he/she adapts different coping strategies and learns which strategies work best. Then he/she can use the adaptation when faced with stress to decrease psychological tension (Booth and Neill 2017). As children age, communication, empathy, and problem-solving abilities increase leading to an increase as well in resilience (Wasonga et al. 2003; Pintado and Cruz 2017; Portzky et al. 2010). Clear patterns from the literature point to the influence of age on resilience, however, the type and source of anxiety changes through out development.

In childhood, separation anxiety is common whereas later the prevalence of social anxiety increases (Cartwright-Hatton et al. 2006; Chorpita et al. 2000; Weems and Costa 2005). The sources of anxiety change with age, yet symptomology and prevalence has seen to remain constant until about the age of 13 (Essau et al. 2018; Kashani and Orvaschel 1990). Sex-differences also should be considered in respect to anxiety and the relationship it has with resilience. Females report higher levels of anxiety beginning in late childhood/adolescence continuing to adulthood thus increasing susceptibility to the negative impacts of stress (Lewinsohn et al. 1998; Kim and Gorman 2005; Ohannessian et al. 2016; Palanza 2001; Walf and Frye 2006). For females, stress during puberty increases their chances of developing depression and anxiety (Hodes and Epperson 2019). However, when considering how coping may differ, females tend to use verbal expression and dysfunctional coping strategies to reduce anxiety more often than males but when controlling for stress appraisal no gender differences emerge (Eschenbeck et al. 2007; Hänninen and Aro 1996; Tamres et al. 2002). The inclusion of gender when considering anxiety is important while considering the influence of coping strategies and daily stress on resilience.

There is a magnitude of other factors which are known to influence anxiety and resilience. Considerations such as socioeconomic features, family factors, and community influences impact children's risk for negative outcomes, nevertheless many individuals have positive outcomes despite various disadvantages (Crosnoe 2005; Flouri et al. 2009; Schibli et al. 2017). Review of this literature has indicated three main domains influencing resilience; individual, family, and community (Benzies and Mychasiuk 2009). Investigation of the individual level (i.e. coping skills and anxiety) is important to understanding what aspects increase resilience (Gardner and Stephens-Pisecco 2019; Singh 2016).

The current study examines the relationships between coping, daily stress, anxiety, and resilience in preadolescents from Ciudad Juarez, Mexico. The overall aim of the current study is to determine the association of three coping strategies domains with anxiety and resiliency in a group of children who share similar socioeconomical, family, and community influences. Specifically, it aims to demonstrate the association that coping has with both anxiety and resilience while accounting for the influence of age on resiliency, daily stressors on anxiety, and sex-differences in anxiety. In parallel with earlier findings discussed, the specific hypothesis is that resilience is positively associated with age, productive coping, and reference to others, while negatively associated with non-productive coping. Additionally, the study predicts to find that being female, increased amounts of daily stress, and increased use of non-productive coping will be associated with increased anxiety while productive coping and reference to others will be negatively associated with anxiety. Also, of interest is the influence which anxiety may impact resilience. Since the view of the literature is that coping skills enhance one's ability to effectively manage stressful events by decreasing anxiety, it is predicted that anxiety will be negatively related to resilience.

Methods

Sample

Parents of students attending two public schools, who share equal socioeconomic status and similar mean parental income, in Ciudad Juarez, Mexico were invited to allow participation of their children via communications from teachers and administrators. A total of 98 preadolescents participated in the study, all were between the ages of 9–13 ($M = 10.7$, $SD = .89$) and in grades fourth through sixth. Fifth-teen students from fourth grade, 48 from fifth grade, and 34 from sixth grade were included. The sample includes 60 girls and 38 boys. All participants are Mexican citizens.

Measures

All participants completed a battery of psychological tests. The battery was administered by a neuropsychologist. The battery consisted of Spanish language Mexican versions of the Revised Children's Manifest Anxiety Scale (Reynolds and Richmond 2008), Adolescent Coping Scale (Frydenberg and Lewis 1993), Wagnild and Young's Resilience Scale (Wagnild and Young 1993) and *Inventario Infantil de Estresores Cotidianos* "Children's Daily Stress Inventory" (Trianes Torres et al. 2009).

The Revised Children's Manifest Anxiety Scale (RCMAS) was used to measure overall anxiety (Reynolds and Richmond 1985). The RCMAS was developed to evaluate and measure the nature and degree of anxiety in children and adolescents and consists of 37 binary items (yes or no). The total anxiety score is the sum of 28 items, which include physiological anxiety, worry/oversensitivity, and social concerns. The other 9 items are designed to indicate inconsistent responding or maligering. The RCMAS is easily completed by children and adolescents and has been shown to have well-established psychometric properties in samples of European Americans, African Americans, Mexicans, and Mexican Americans (Reynolds and Paget 1981; Reynolds and Richmond 1985; Reynolds and Richmond 2008; Varela and Biggs 2006). Furthermore, RCMAS is sensitive demonstrated differences in anxiety between white and latino groups of children.

The *Inventario Infantil de Estresores Cotidianos* (IIEC) was originally developed in Spanish to measure day to day stressors in school children and adolescents (Trianes Torres et al. 2009). It consists of 25 binary items (yes and no) and items either ask Does this happen to you? And Is it a problem for you? Specifically, the first question is used to measure the frequency of upsetting, annoying, or irritating stressors such as physical and health problems, social and self-esteem issues, school and educational issues, and family involvement and parental health. The second question measures the subjective concern when calculating the total daily stressor score. The IIEC has good reliability ($\alpha = .78$) and is frequently used in studies of childhood stress with Spanish speaking children and adolescents (Caqueo-Urizar et al. 2014; Escobar et al. 2011; Escobar et al. 2008).

The Adolescent Coping Scale was adopted from adult questionnaires and was successful validated in children, adolescents, and different cultures (Alumran and Punamäki 2008; Frydenberg and Lewis 1996; Richaud 2006; Yeo et al. 2007). The ACS measures three styles of coping; Problem Focused, Reference to Others, and Non-productive coping (Frydenberg and Lewis 1993). The ACS is one of the most frequently used coping scales for studies involving adolescents in middle school and high school (Kato 2015). The scale consists of

18 items on a 5-point Likert scale which ranges from “Never” to “Always”. The three scales reflect the different types of coping style, productive coping, reference to others, and non-productive coping. Items which are related to direct efforts to address the problem without reference to others are classified as productive coping. Items which are also direct efforts to address the problem, yet, involve reference to others are classified as the reference to others.

The Wagnild and Young resilience scale (RS-25) was developed in the early 90s to measure resilience in adults (Wagnild and Young 1993). Since, the RS-25 has been further developed and validated with use of all ages and a variety of ethnic groups (Guan and Deng 2019; Luthans et al. 2007; Wagnild 2009). The scale consists of 25 items. The items are on 7-point Likert scale questions which range from “I fully agree” to “I do not agree”. A recent review indicated that among 12 different studies, reliability estimates of the RS-25 ranged from .72 to .94, indicating good reliability (Wagnild 2009). Additionally, Ahern et al. (2006) determined that the RS-25 was one of the most appropriate measures for measuring resiliency in adolescents.

Procedure

Participants were recruited via contacting the public schools to get permission to contact teachers. Then once permission was gained, teachers were contacted, and flyers were sent home with students for parents. Parents then agreed to allow participation. The study was approved by the review board of Universidad Autonoma de Ciudad Juarez (UACJ) and informed consent was obtained from parents and teachers. Participants’ parents filled out consent forms. Teachers were also prompted to fill out a consent form. A battery of standardized psychological measures was administered to each child separately. They were taken to a separate classroom to complete the measures.

Structural equation modeling (SEM) was chosen to analyze the data because of its flexibility at describing relationships between a multitude of measures. SEM allows for a global fit that can provide general evaluation for complex relationships (Tomarken and Waller 2005). Structural equation modeling can demonstrate the associations between variables while accounting for the influence of other variables. This method is able to include the influence of three coping domains, daily stressors, gender, age while exploring their impact on anxiety and resiliency. Furthermore, using SEM analysis error in each variable can be accounted for likewise latent constructs can be tested. However, since all variables in the current analysis were scores from the measures or subscales, no latent variable were proposed.

The proposed model includes several relationships to demonstrate the association that coping has with both anxiety and

resilience while accounting for the influence of age on resiliency, daily stressors on anxiety, and gender differences in anxiety. Specially the proposed models, is able to test the three proposed hypotheses; 1) that resilience is positive in its association with age, productive coping, and reference to others, while negative in its associated with non-productive coping, 2) anxiety with be positively associated with being female, increased amounts of daily stress, and increased use of non-productive coping while negatively related to productive coping and reference to others, 3) resilience will be negatively related to anxiety.

Results

The hypothesized structure equation model depicted in Fig. 1 was tested using Mplus (Version 7.3) (Muthén and Muthén 1998-2011). The SEM analysis used data from all 98 subjects, however, 1 subject did have missing data for 2 subscales. Table 1 displays all the means, standard deviations, Cronbach’s alpha as well as intercorrelations for the variables used in the model. Robust maximum likelihood estimation was used to account for the data which was missing at random and for the non-normal distribution of data from Likert scales and scoring techniques, robust maximum likelihood estimation was used (Muthén and Asparouhov 2015). Estimation of the hypothesized model produced a test of chi-square which was non-significant, $\chi^2(3) = 3.984, p = .267$. Standardized Root Mean Square Residual (SRMR) was equal to .022, and the Comparative Fit Index (CFI) was equal to .991. The value for Root Mean Square Error of Approximation (RMSEA) was equal to .057. In respect to interpretation the fit statistics all indices indicate good fit as the test of chi-square is non-significant, SRMR and RMSEA falls below suggested cutoffs and when considering combinations of CFI alongside SRMR, all indicate good model fit (Barrett 2007; Hu and Bentler

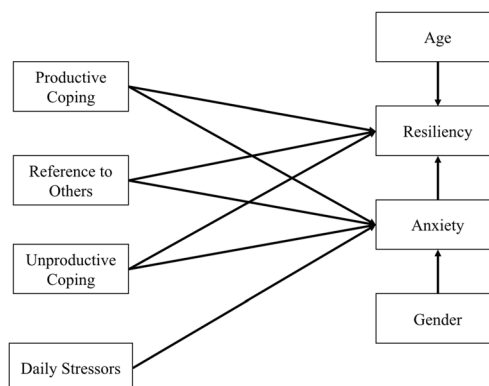


Fig. 1 Proposed SEM path model to test the influence of the three ACS coping domains, IIEC daily stressors, gender, and age on resilience and anxiety

Table 1 Means (M), Standard Deviations (SD), Cronbach's alpha, and correlation coefficients for the study variables

Measure	M	SD	Cronbach's α (no. of items)	Correlation coefficients Pearson's r^2					
				IIEC	RCMAS	PC	RO	NP	RS
Child Daily Stress Inventory (IIEC)	8.78	4.1	.73 (25)	–	.71***	-.18	0.10	.33***	-.25*
Revised Child Manifest Anxiety Scale (RCMAS)	12.16	5.45	.73 (29)	–	–	-.015	0.02	.37***	-.24*
Adolescent Coping Scale (ACS) Productive Coping (PC)	18.68	3.82	.48 (5)	–	–	–	.57***	.37***	.45***
Reference to Others (RO)	17.94	4.51	.57 (6)	–	–	–	–	.59***	.32**
Non-productive Coping (NP)	20.97	5.79	.49 (7)	–	–	–	–	–	.27**
Resilience Scale (RS)	119.82	20.69	.80 (25)	–	–	–	–	–	–

All descriptive statistical are for raw scores from the measures, * $p < .05$, ** $p < .01$, *** $p < .001$

1999; MacCallum et al. 1996). Importantly, the model also produces parameter estimates which are parallel with prior literature.

In respect to the proposed relationships between our variables, the unstandardized and standardized XY results are displayed in Fig. 2. The results indicated statistically significant relationships were the paths from Age to Resiliency ($\beta = .195, p = .017$), from Productive Coping to Resiliency ($\beta = .342, p = .001$), from Non-Productive Coping to Resiliency ($\beta = .271, p = .018$), and from Anxiety to Resiliency ($\beta = -.255, p = .016$). Likewise, there were statistically significant paths from Reference to Others to Anxiety ($\beta = -.202, p = .007$), from Non-Productive Coping to Anxiety ($\beta = .292, p = .001$), and from Daily Stressors to Anxiety ($\beta = .624, p < .001$). The model's R^2 results demonstrated that 30.9% of variability in the model was accounted for by Resiliency scores and 56.3% of variability was accounted for by Anxiety scores, $R^2 = .309, SE = .065, p < .001; R^2 = .563, SE = .077, p < .001$; respectfully.

Results were mixed in respect to first specific hypothesis that resilience should be positive in its association with age, productive coping, and reference to others, while negative in its associated with non-productive coping (See Fig. 3a). The model estimates indicated that age ($\beta = .195$), productive coping ($\beta = .342$), and non-productive coping ($\beta = .271$) was significantly associated with resilience scores in our model.

Where the estimate for reference to others and resilience was positive it was small and non-significant.

Model results generally agreed with the hypothesis that anxiety with be positively associated with being female ($\beta = .053$), increased reporting of daily stress ($\beta = .624$), and increased use of non-productive coping strategies ($\beta = .292$), while negatively related to productive coping ($\beta = -.027$) and reference to others ($\beta = -.202$) Results indicated that directionality of the estimates agreed with the hypothesis however the estimate of anxiety with both being female and productive coping was small and statistically non-significant (See Fig. 3b).

While considering the association which resilience has with anxiety, the hypothesis that resilience will be negatively related to anxiety ($\beta = -.255$) was confirmed. Greater levels of anxiety were associated with lower levels of resilience while holding all else constant in the model. Furthermore, results exploring the indirect associations which stress and the three coping domains have on resilience via its influence on anxiety demonstrated negative and statistically significant paths from Daily Stressors and Non-Productive coping (See Table 2). The association of daily stressors with resilience as a function of anxiety indicated a negative relationship ($\beta = -.159$). Likewise, the association of non-productive coping with resilience via anxiety indicated a small negative relationship ($\beta = -.075$).

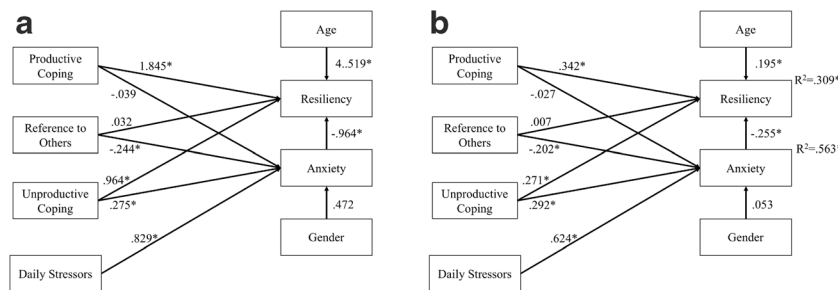


Fig. 2 SEM path model results demonstrating the model estimates and goodness of fit statistics. Figure a displays the unstandardized estimates where Figure b displays the standardized XY results. Model fit statistics indicate good model fit. Note: * indicates test of statistical significance at $\alpha = .05$

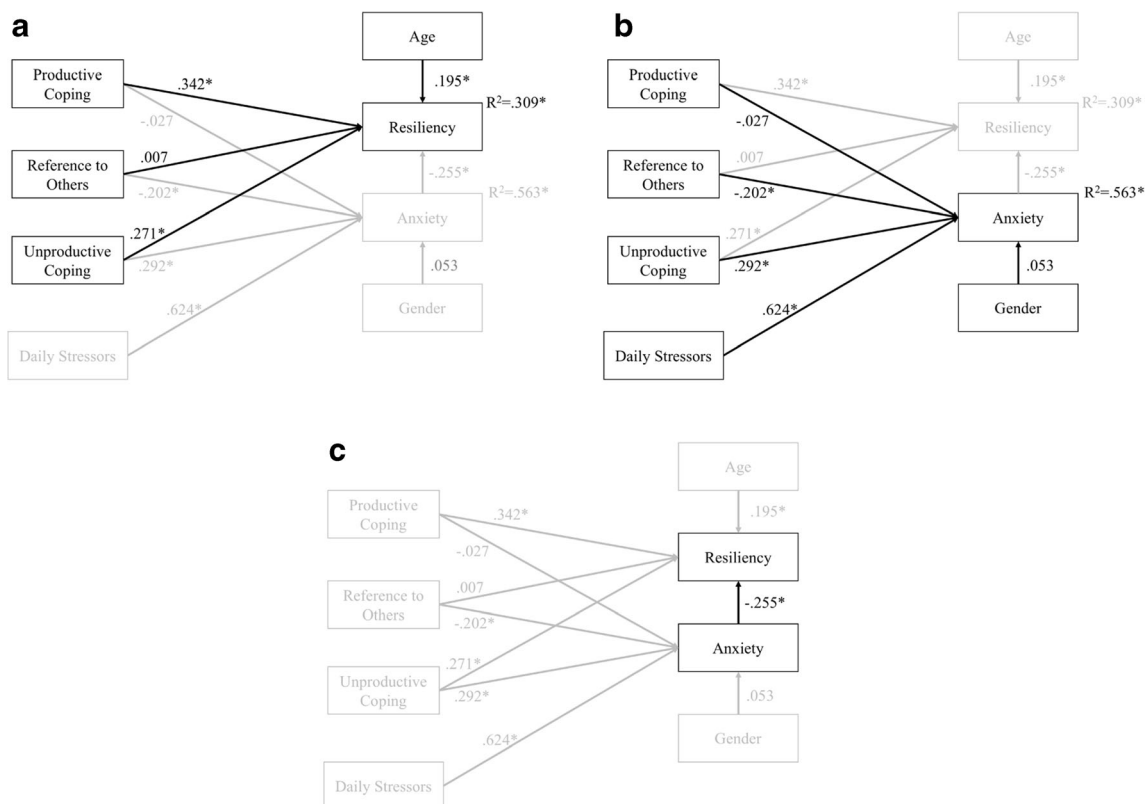


Fig. 3 Standardized SEM path model results and specific study hypotheses. Figure **a** demonstrates the relationship of age and ACS coping style domains on resilience. Figure **b** displays the relationships

between gender, IIEC daily stressors, and ACS coping style domains and Anxiety. Figure **c** displays the association which resilience has with levels of anxiety. *Note:* * indicates test of statistical significance at $\alpha = .05$

Discussion

The general goal of the current research was to demonstrate how daily stress and coping influence anxiety and resilience in a sample of preadolescents from Mexico. The SEM path results demonstrates that adolescents who scored higher on the productive coping subscale of the ACS also scored higher on the (RS-25) resilience scale. This is rooted in the definition of resilience and is parallel with the majority of the findings on resiliency and coping strategies (Grotberg 1995; Masten 2001). The ability to solve problems and focus on the problem is key to resilience (Masten 1999). Furthermore, as captured by the ACS productive coping subscale; seeking relaxing diversion, working hard, and focusing on the positive are other important aspects of coping

which are skills in which resilient adolescents excel when dealing with stress (Wasonga et al. 2003).

However, the current study did not find that the ACS reference to others subscale was significantly related resilience scores. As Rutter (1999) explains the protective factors which come with resilience are often the result of development deeply rooted in family-wide experiences. In Latin America, family connectiveness is an important cultural factor which has been seen to protect against stress and promote wellbeing, however, the ACS reference to others subscale does not include questions about seeking family support (Cortes 1995; Golding and Burnam 1990; Hardway and Fuligni 2006; Perreira et al. 2019; Raffaelli et al. 2013). The ACS reference to other scale is primary made of questions which focus on seeking help from professionals, the community, and friends.

Table 2 SEM estimates of indirect associations to resilience

	Standardized estimate	S.E.	P value
Daily stressors	-.159	.069	.022
Adolescent coping scale (ACS) productive coping	.007	.020	.73
Reference to others	.052	.030	.085
Non-productive coping	-.075	.037	.045

SEM Structure Equation Modeling, S.E. Standard Error

With the strong Latin American culture family embeddedness, known as ‘familismo’, post-hoc review of the ACS items indicates that the reference to others scale does not attend to this important factor. Family support is a critical coping strategy, in many cultures, which aids in reducing stress and promoting resilience (Chu et al. 2010; Hoagwood et al. 2010). Nonetheless, it is especially critical to consider in Latin America culture as it characterizes a core cultural value which represents familial cohesion including loyalty, responsibility towards the entire family, and strong family attachment (Cruz-Santiago and Ramírez García 2011; Morgan Consoli and Llamas 2013; Saenz and Ponjuan 2009; Smith-Morris et al. 2013). Another important aspect of resilience can be noted in the results, the finding that non-productive coping subscale of the ACS was also positive and significantly related to resilience scale scores. This finding reflects the fact the resiliency is an adaptive and fluid process where an individual can adapt their coping to the situation at hand (Booth and Neill 2017).

Furthermore, age is a factor highly association with increases in planning, optimism, communication skills, social connections, and the capacity to manage strong feelings and impulses, which helps protect from psychological distress (Newman 2005). The finding in the current study demonstrates that resilience is related to greater age further establishes the idea that the process of developing resilience develops over time (Jew et al. 1999). As children age, adaptation in cognition and behavior aid in the development of successful coping strategies, building social connections, better planning abilities, and managing strong feelings, especially those with greater resilience (Wasonga et al. 2003).

Longitudinal studies of youth stress and psychological distress by DuBois et al. (1992) demonstrate a strong association with daily stress with anxiety. The results demonstrate this same strong association in the sample of preadolescents from Mexico. Furthermore, daily stressors, as measured by the IIEC, are similar to the measures of daily hassles used by Suarez-Morales and Lopez (2009) in which they found were positively related to physiological anxiety symptoms. Additionally, even though being female was positively associated in our model, a significant sex difference in anxiety was not demonstrated. However, during adolescence it has been seen that females are much more likely to have anxiety symptoms (Lewinsohn et al. 1998). This sex difference continues into adulthood as females report significantly higher chronic stress and daily stressors and use more emotion based and avoidant coping styles which may result in increased anxiety (Matud 2004). Sex differences been demonstrated in prior research and in samples of Mexican adolescents and is thought to be the antecedent of gender differences seen in adult prevalence (Lewinsohn et al. 1998; Cyranowski et al. 2000; Benjet and Hernandez-Guzman 2001). However, our study had a disproportional number of girls (2:1) where this difference may not have been detectable.

Considering anxiety and the three types of coping mechanisms measured by the ACS, the results indicate two important relationships. First, adolescents who score high on the reference to others subscale report lower amounts of anxiety. Social support has long been known as a factor that can reduce anxiety and guards against mental health problems, likewise, this finding has been verified by means of meta-analysis with studies regarding children and adolescents (Cohen et al. 1986; Chu et al. 2010). Social embeddedness has also been found to aid adolescents in reducing protecting them from depression and anxiety (Glyshaw et al. 1989). Next, adolescents who scored higher on the non-productive coping subscale report higher levels of anxiety. The non-productive coping subscale of the ACS includes questions on worry, keeping to one’s self, self-blame, and not coping, which in studies of comparing adolescents and adults, have been linked with the reporting symptoms of anxiety and depression in across age groups (Garnefski et al. 2002). These types of dysfunctional coping strategies are known to be related to increased risk for psychological problems and poorer health outcomes in adulthood (Frydenberg 2018).

Another finding was the negative influence which anxiety has on resilience. This reflects the findings from Fuchsl et al. (2014) which demonstrate that genetic predisposition for less anxiety increases resilience and the consequences of chronic stress. Greater levels of anxiety may be rooted trait in some children and adolescents reducing their resilience, but more importantly it the coping skills which they employ. Both typical development and coping skills training increase the cognitive and behavioral abilities and confidence to reduce anxiety and increase resilience.

The results testing the indirect associations demonstrate that the greater number of daily stressors were associated with reduced resilience via the reported level of anxiety. This may reflect that preadolescents who effectively reduce anxiety with positive coping skills have greater resilience. However, the results only demonstrated that non-productive coping was significantly related to resilience via scores on the anxiety. The premise that coping skills act to increase resilience via the reduction of anxiety, needs further analysis. Since the current study was a cross-sectional design, the methodology cannot make assumptions about indirect causal effects. The current study model is based on prior literature and established findings, however, longitudinal data collection, construction of latent variables, and analysis of these variables over time would be preferred (Cole and Maxwell 2003; Maxwell and Cole 2007). Future studies will address this flaw by means of longitudinal designs to explore how anxiety may be mediating the effect of coping strategies on resilience.

Some other limitations of the current study include the failure to reach the sample size needs and poor choice of measures. Even though a rule of thumb is that 200 is a sample size goal for SEM research, as in the current study,

researchers have indicated that lower samples may be used if models have no latent variables and are simple (Kenny 2015). Both the IIEC and the CMAS rely on binary items to measure stress and anxiety. In order to better enhance the variability, measures which use Likert scale items would aid in future studies. Furthermore, the IIEC represents an inventory of daily stressors and not the experience of a daily stressor. This represents an even more interesting question, that experienced stress from daily events is what is driving anxiety and that coping skills may have an effect on this relationship. Future studies should address this issue by using a measurement tool which adopts reporting experience instead of just binomial indicators of stressors. Likewise, new measures of coping strategies should be used to better explain the relationship between family support and resilience, especially when considering populations from Latin America. Nevertheless, interactions within the current model should be explored going further. In respect to coping strategies, possibly at the different level of stress, they have a differential impact on anxiety.

In summary, the current study helps to further demonstrate that coping skills are important to both anxiety and resilience. One notable contribution is that preadolescents residing in Mexico demonstrate some of the same patterns seen in studies from other cultures. Both the impact of the number of daily stressors and use of non-productive coping on anxiety shows the need to improve youth long term health by decreasing daily stressors but more notably increasing their ability to adapt their behaviors successfully to reduce anxiety and improve resilience. Going forward, programs using a flexible approach can be developed to better teach children, adolescents, and their families effective coping strategies to reduce anxiety and enhance resilience. Early education on effective coping combined with creating social support systems in adolescents can help develop them as adults and have the skills to better cope with life's stressors which can help prevent the next epidemic of stress-induced mental health problems.

Compliance with ethical standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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