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The present study aims to determine if two different types of stress, life events and daily strain, have an impact on the development of children's social evaluative concerns among familiar peers during later middle childhood. Moreover, the cumulative effects of changes in levels of stress, and the impact that these changes had on the continuity or change in levels of social evaluative concerns, was studied. The explicit relation between anxious solitude (an affective-behavioral construct) and social evaluative concerns (thought to be elevated in anxious solitary children) was also analyzed. Additionally, it was hypothesized that social evaluative concern was a potential mediator of the relation between each type of stress and anxious solitude. Participants were 230 children assessed at six time points between fourth and sixth grades who were assessed using three self-reports (SASC-R, LEI-C, SH-C(A)). Anxious solitude was measured using a composite of peer report and self-report sociometric behavior nominations interviews. Results were analyzed using hierarchical linear modeling. It was confirmed that life events stress and daily strain both significantly predicted elevated initial levels of social evaluative concerns and these effects did not change over time, suggesting a stable relation between social evaluative concerns and both life events stress and daily strain across later middle childhood. Daily strain explained nearly twice as much variance as life events stress in predicting social evaluative concerns. It was also found that social evaluative concerns significantly predicted anxious solitude, but that social evaluative concerns were not

supported as a mediator of the relation of life stressors and anxious solitude as neither type of stress significantly predicted changes in anxious solitude over time.

STRESS AND SOCIAL EVALUATIVE CONCERNS:
STABILITY ACROSS LATER MIDDLE
CHILDHOOD

By

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APPROVAL PAGE

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CHAPTER I

INTRODUCTION

Anxious solitary children are conceptualized as having elevated social evaluative concerns which occur when children worry about how other children will treat them and how they themselves will perform in social situations (Gazelle & Rudolph, 2004).

Children who exhibit elevated social evaluative concerns feel shy or nervous with children they know (e.g. classmates). It is possible that there may be different possible trajectories of social evaluative concerns in anxious solitary children, where some consistently show these concerns and some less consistently show them (Gazelle & Ladd, 2003). What, then, causes some anxious solitary children to show stable patterns of social evaluative concerns and others to show less stability in social evaluative concerns? Research on factors leading to the maintenance of socially anxious behaviors (which are theorized to be a manifestation of social evaluative concerns) has largely shown that chronic stressors such as peer exclusion predict whether children will show stability of socially anxious behaviors across childhood and into adolescence (Gazelle & Ladd, 2003). It is of interest, then, to assess whether peer exclusion represents one of many general chronic stressors that are related to the development and stability of children's social evaluative concerns. Moreover, since children who show elevated anxious solitary behaviors are conceptualized as also experiencing elevated social evaluative concerns, it is particularly important to assess whether stressors can significantly predict elevation in

social evaluative concerns, and thus whether changes in stressors have an influence on the development of anxious solitary behaviors (see Figure 1). If stressors do, indeed, predict elevation in these maladaptive anxious solitary behaviors, then it is possible that efforts to lower levels of life stress in children could potentially deter development or maintenance of anxious solitary behaviors.

Social evaluative concerns

Social evaluative concerns in children are defined as worries about how other children will treat them and how they themselves will perform in social situations. Ryan and Shim (2008) found evidence that social evaluative concerns are associated with social competence goals that undermine social adjustment in middle school, and that social avoidance was positively associated with anxious solitary behavior. This provides evidence that social evaluative concerns are likely elevated in anxious solitary children and that anxious solitary behaviors negatively impact social adjustment for children in later middle childhood.

Anxious solitude

Social evaluative concerns are conceptually related to the affective-behavioral construct of anxious solitude, but the relation between these constructs is often not explicitly analyzed. Anxious solitude in children is defined by shy, verbally inhibited, and solitary onlooking behaviors. Anxious solitary children are conceptualized as wanting to engage with their familiar peers, but they avoid doing so because of a persistent fear of negative evaluation (Gazelle & Rudolph, 2004). Since anxious solitude

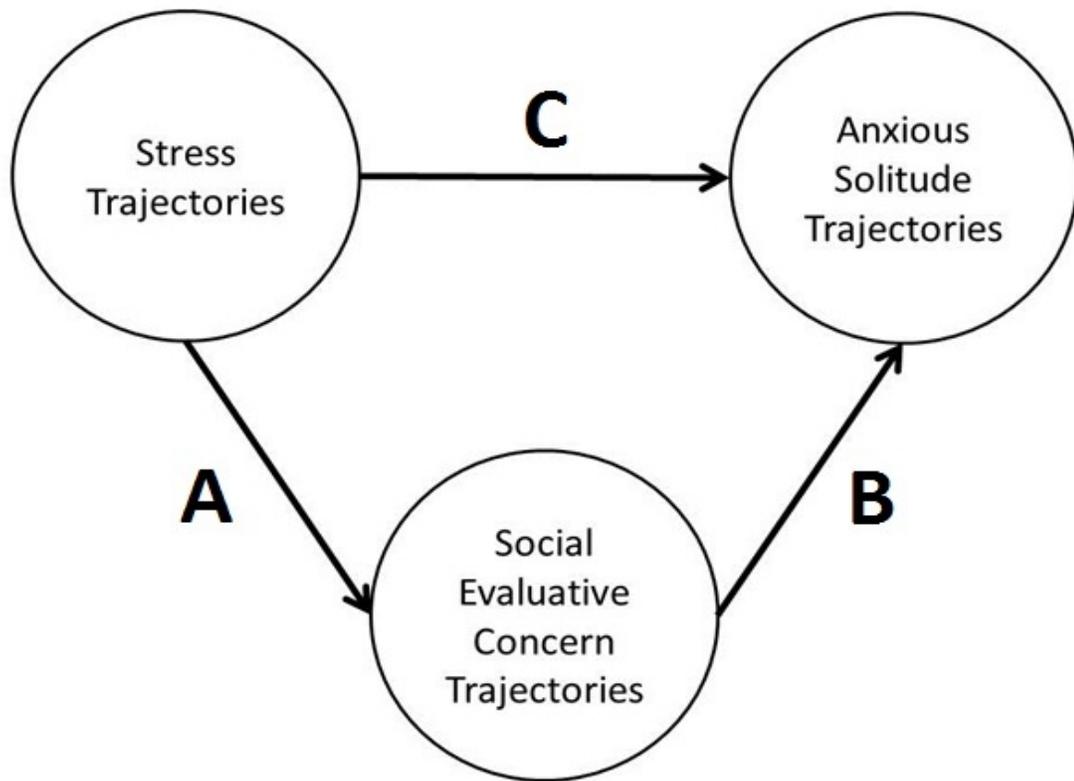


Figure 1: Theoretical model of the relation between stress (life events or daily strain) trajectories, anxious solitude trajectories, and social evaluative concern trajectories across later middle childhood, with social evaluative concern trajectories as a mediator of the relation between stress trajectories and anxious solitude.

is a behavioral trait that also includes subjective experience, and since multiple informants (and particularly peer informants) have been shown to increase validity, anxious solitude can be assessed using a combination of peer and self-report (Spangler & Gazelle, 2009). As anxious solitary children are conceptualized as experiencing elevated levels of these fears (social evaluative concerns), it is important to directly assess whether they do, indeed, report elevated levels of social evaluative concerns. Gazelle and Druhen (2009) found an elevation in self-reported feelings of rejection (one type of social evaluative concern) in anxious solitary children, providing direct evidence of the relation between anxious solitary behaviors and social evaluative concerns. There has been some evidence that stress-inducing peer relationships have a strong relation to the stability of anxious solitary behaviors. Gazelle and Ladd (2003) found that anxious solitary children who experience peer exclusion shortly after kindergarten entry show greater stability in anxious solitary behaviors in subsequent years. Since anxious solitary children have been shown to experience elevated exclusion by their peers (Gazelle & Ladd, 2003), and since exclusion by peers can be conceptualized as a form of persistent stress, it is expected that anxious solitary children will experience higher levels of stressors (particularly persistent stressors) than non-anxious solitary children. It is expected that anxious solitary children experience elevated levels of stress due to the theorized relations of stress with social evaluative concerns and social evaluative concerns with anxious solitude. More specifically, it is expected that social evaluative concerns mediate the relation between each type of stress and anxious solitude (see Figure 1). This may occur because social evaluative concerns are conceptualized as an underlying feature of anxious solitude, and

it is likely that anxious solitary behaviors are affected by stress primarily as a result of the effect of stress on children's internal social evaluative concerns.

Stress

The two forms of general stress of interest in this study differ in frequency and severity. Life event stressors are characterized by low frequency (typically a single event) and usually involve an elevated level of experienced stress (e.g. moving to a new home or getting glasses or braces), whereas daily strain occurs with a much greater frequency and is typically characterized by less intense stress during each stressful event (e.g. a child's school is large and crowded, or a child has hard classes). As both forms of stress were assessed using self-report measures in the present study, it is important to note that stressors of all forms are subjective interpretations of events. Thus, even the frequency of events is a subjective interpretation of events occurring in a child's life.

Life events. Stressful life events, not to be confused with traumatic life events, are situations occurring in a child's life that require significant life readjustment (Pillow, Zautra, & Sandler, 1996). Many of these events involve elevated levels of stress but are not necessarily bad or traumatic experiences (e.g. moving to a new home). There has been some evidence that links life events stress to issues related to anxiety. For instance, McLaughlin and Hatzenbuehler (2009) found in a sample of 6th to 8th grade children with anxiety disorders that children with elevated frequency of self-reported life events exhibited elevated general anxiety sensitivity (a term analogous to social evaluative concern), though this effect was a concurrent association. A study by Boer et al. (2002)

found that, in a sample in which half of the children (aged 8-13) were diagnosed with social anxiety disorder (and the rest with other anxiety disorders), the number of life events (reported as recall of events by mothers) was significantly higher in children with anxiety disorders than in healthy controls (both during the previous year as well as lifetime occurrence). This provides evidence for the relation between life events stressors and social anxiety, and strengthens the argument that life events stress is likely also related to social evaluative concerns (which are elevated in children with social anxiety disorder). However, these studies utilized concurrent assessment methods, so longitudinal assessment is needed to better examine the direction and stability of these associations.

Daily strain. The other type of stress that might have a role in the expression of social evaluative concerns is daily strain. Daily strain is characterized by stressors that individually may have somewhat low severity, but reoccur on a regular basis (e.g., having problems on the bus with other children). Allen, Rapee and Sandberg (2008) found that a greater number of prior “chronic adversaries,” a term analogous to daily strain, were found in children with anxiety disorders. Their study did not focus exclusively on social anxiety, however, as 7.7% of their sample was diagnosed with social anxiety disorder (the remainder being other anxiety disorders, primarily generalized anxiety disorder). These children were between the ages of 6 and 12 (1st through 7th grades) and were measured with several interviews including: *the Anxiety Disorders Interview Schedule for DSM-IV* (both child and parent) (Silverman, Saavedra, & Pina, 2001), the *Spence Children’s Anxiety Scale* (both child and parent) (Spence, 1998), and the *Psychosocial*

Assessment of Childhood Experiences (parent version only) (Goodman, 1997). They found evidence that levels of daily strain stayed relatively constant in their sample of children with anxiety disorders during the 12 months preceding assessment. Additionally, they found that these stable daily strain characteristics are important in the maintenance of anxiety symptoms, reflecting a significant relation between daily strain and anxiety. This finding did not generalize to life events in their study (which were less likely to predict stability), suggesting that daily strain is more salient in the development and maintenance of anxiety than life events stress. However, since their sample was focused on all anxiety disorders and not specifically on social anxiety, and since they did not independently examine the internal states related to these disorders in their analyses, assessing whether the relations that they found extend to social evaluative concerns is novel and valuable.

Due to the frequent and stable nature of daily strain, elevated levels are predicted to be more strongly related to elevated social evaluative concerns than elevated levels of life events. Children who experience elevated levels of daily strain are consistently confronted by stressors which likely stabilize their social evaluative concerns. On the other hand, a child who experiences a single event during which their stress level greatly increases and then is (somewhat) alleviated after the stressful event comes to an end can adjust to the resulting changes of the event, alleviating (at least partially) the negative consequences of the stressor. Moreover, there is some evidence that the major negative impact resulting from life events stressors is from resulting daily strains (Pillow et al., 1996).

Another reason that daily strain is believed to be more greatly related to social evaluative concerns than life events is that daily strain is more often the result of actions taken by a child, whereas life events tend to be events that a child has no control over. The most common explanation for this fact is that many daily strains are interpersonal in nature whereas most life events are external environmental events that happen to affect a child. For example, a child who experienced life events such as a family member or close relative dying, one parent losing his or her job, or a pet dying would not have any control over the outcome of the situation. Although not every life event is entirely out of the control of the child, these events are primarily items that happen *to* the child rather than as a result of the actions of the child. Daily strains, however, are typically stressors that the child has far more control over and perhaps may even cause. For example, a daily strain such as “the teachers at this school don’t like you” could very well be the result of behaviors and actions taken by the student that cause their teachers to dislike them. In the present study, 37.8% of life events stresses that were assessed were determined to be potentially controllable by the child whereas between 65% (SH-C) and 66.6% (SH-A) of daily strains that were assessed were determined to be potentially controllable by the child.

The proposed process by which controllable stressors become more strongly related to social evaluative concerns than uncontrollable stressors (and thus daily strain potentially becomes more greatly related to social evaluative concerns than life events stress) is analogous to the stress generation model for depression as developed by Rudolph et al.(2000). Their study found evidence that depressed children and

adolescents (aged 8-18), who were given interviews to assess depression and stress (*Schedule for Affective Disorders and Schizophrenia for School-Age Children-Epidemiologic Version*: Orvaschel, Puig-Antich, Chambers, Tabrizi & Johnson, 1982; *Child Episodic Life-Stress Interview*: Rudolph & Hammen, 1999; *Chronic Stress Interview for Children*: Hammen, Adrian, Gordon, Burge, Jaenicke & Hiroto, 1987), precipitated stressful events for themselves. This process involved a self-perpetuating cycle in which children with a predisposition for depression induced stressful environments for themselves which then tended to maintain their depressive tendencies. For example, a child who gets into verbal arguments with another child frequently may internalize maladaptive beliefs about the self and relationships which result in a negative self-concept and eventually lead to depression. This depression, then, may reinforce the initial stressor (i.e. the verbal arguments) as the child exhibits maladaptive behaviors related to depression. It is possible that stress generation extends to children with elevated levels of social evaluative concerns, where they create stressful situations for themselves *because* of their elevated levels of social evaluative concerns (which then perpetuate additional stressful events in a cyclical fashion). For example, a child who never answers questions asked by their teacher due to elevated social evaluative concerns might be disliked by the teacher (and this dislike then causes the child stress). In comparison, a child who moves to a new home would be subject to stress but not stress generation, as the child had no control over the decision to change homes. Due to the more greatly interpersonal (and thus, controllable) nature of daily strain stress as compared to life events stress, it is expected that while both life events and daily strain

will be significantly related to the stability of social evaluative concerns, daily strain will be more predictive.

Most studies analyzing the relation between stress and social anxiety have used clinical methods, obtaining clinical samples with diagnoses of social anxiety disorder. This method does not capture social evaluative concerns in particular (as these concerns are simply one feature of social anxiety disorder), and does not allow for subclinical analysis of these concerns. Another shortcoming in the literature is that the age group that has typically been used to assess the relation between stress and social evaluative concerns has been limited. Middle childhood is underrepresented in this literature, as most studies have used toddler, adolescent, or adult populations. However, social relationships with peers have been shown to be very important in this understudied period of middle childhood. Nickerson and Nagle (2004) found that in children from fourth through eighth grade, peer attachment (rated as a composite of peer trust, communication, alienation and delinquency) was significantly related to total life satisfaction, friend satisfaction, school satisfaction, and self-satisfaction. Problems with peer attachment, then, seem to be related to life satisfaction in multiple areas for children in later middle childhood, highlighting the importance of assessing factors related to these problems in children's social lives. In order to better assess the period of later middle childhood that is often not studied in the literature, a sample of children from fourth through sixth grade was selected for the present study.

It is rare in the literature to find studies that analyze different types of stress within the same study (i.e. life events stress versus daily strain) despite evidence that different types of stress can have different influences on developmental trajectories (Allen et al., 2008). Additionally, very few studies on the relation of stress to social anxiety have used longitudinal methodologies. Longitudinal designs allow for individual changes in the measured variables to be assessed and thus allow for analysis of time-varying covariation of variables. Because of the lack of longitudinal samples in the literature, the present study utilized a longitudinal design spanning three years during middle childhood (fourth through sixth grades).

The extant literature on the relation between stressful life events, daily strain, and anxiety led to the hypothesis that the level of both life events stress and daily strain would be positively related to the level of social evaluative concerns. More specifically, it was predicted that initial levels of both life events stress and daily strain would significantly predict initial levels of social evaluative concern (i.e. in the fall of fourth grade), and that changes in life events stress and daily strain would significantly predict changes in social evaluative concerns across time. More specifically, it was predicted that increases in life events stress or daily strain would predict increases in social evaluative concerns and that decreases in life events stress or daily strain would predict decreases in social evaluative concerns. Stability (or instability) of these relations over time was also explored. Significant linear increases in the relations between life events stress levels and social evaluative concerns as well as daily strain and social evaluative concerns could provide evidence for stress generation in children with elevated social evaluative concerns. It was

also predicted that daily strain would hold significantly greater power than life events stress in predicting differences in initial levels of social evaluative concerns as well as changes in social evaluative concern over time. Additionally, it was predicted that anxious solitary children experience elevated levels of social evaluative concerns. It was also predicted that trajectories of both types of stress would predict trajectories of anxious solitude, and that this relation would be mediated by trajectories of social evaluative concerns.

CHAPTER II

METHOD

Participants

Participants were 230 children assessed at 6 time points across middle childhood (from 4th-6th grade, during the fall and spring of each school year). Participants were selected from 668 children screened from 46 third grade classrooms across seven elementary schools. The sample used in the present study was part of a larger study which began collection of data in third grade, although some measures relevant for this study were not collected until fourth grade. The third grade selected sample ($n = 163$) was over-selected for presence of anxious solitary behavior from the screening sample. The oversampling process was chosen to increase power in the statistical analysis, because actual prevalence rates of anxious solitude in community samples of children are around 12%.

The selected sample changed in size throughout the six time points as some children were lost to attrition and others were added to enlarge the sample. Children who were added at later time points were selected using the same criteria as the third grade sample, but were selected based on the sociometric data collected in subsequent time points (though all selected participants were also present for third grade screening). Attrition rates for the peer behavioral nominations sociometric interview (used to

calculate anxious solitude) were generally low, with the vast majority of attrition occurring during the transition from elementary school to middle school (i.e. between spring of 5th and fall of 6th). Defining attrition as lack of participation for the remainder of the study from the point of attrition, the overall attrition rate for the selected sample on the sociometric interview (not accounting for added children) was 15.6% (see Figure 2 for sociometric interview sample size data).

Attrition rates were also low to moderate for child-report survey items (LEI-C, SH-C, SH-A, SASC-R). Similarly to the attrition for the sociometric interviews, the vast majority of attrition occurred for the survey items following the transition from 5th to 6th grade, and the overall rate for attrition (as defined previously) was 22.2%. Reasons for attrition were primarily children changing school districts or being absent from school on assessment days (and makeup assessment days) (see Figure 3 for survey items sample size data).

Of the 230 participants who participated in at least one time point of the study, 106 were initially classified as anxious solitary (at the initial time point in which they were added as participants) and 124 initially served as non-anxious solitary matched controls (at the initial time point in which they were added). Though these children met these classifications at the time point in which they were added, they remained participants at subsequent time points even if they did not continue to meet initial classifications. Additionally, previous assessments for added children were also included in the longitudinal analysis (even if they changed classifications). Classification as

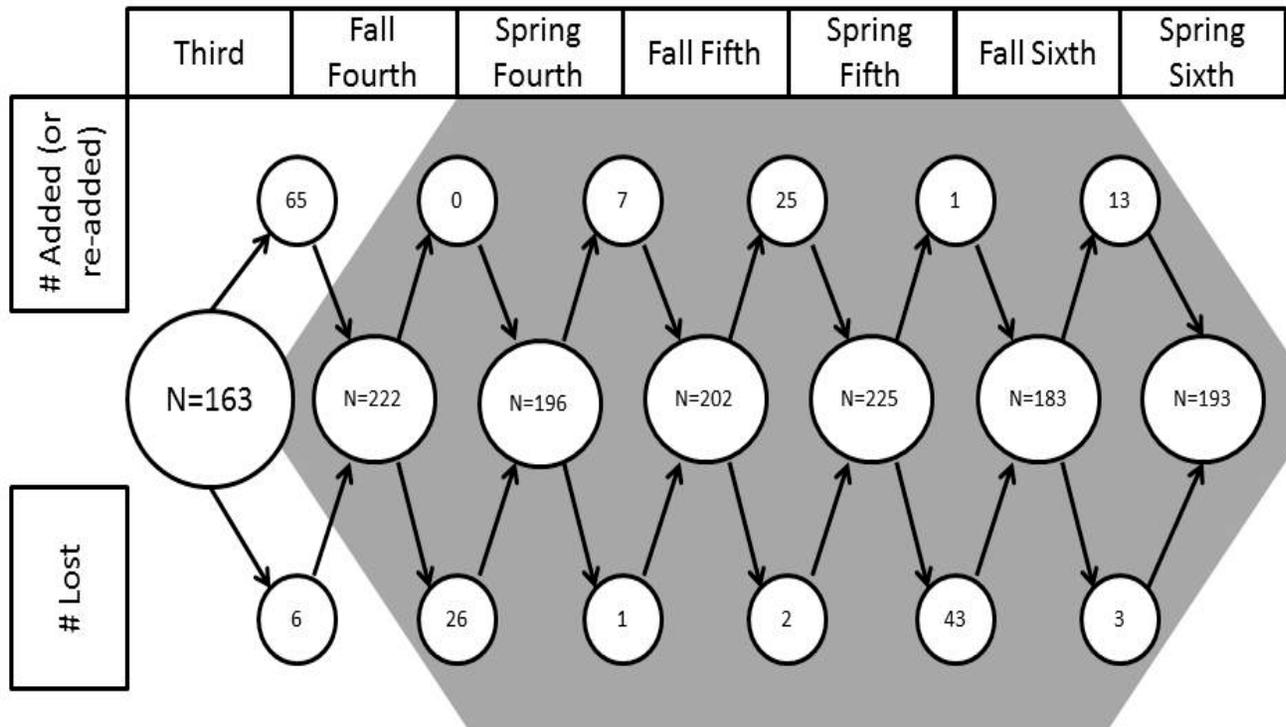


Figure 2: Size of the longitudinal sample for the behavioral nominations sociometric interview used to calculate anxious solitude and sampling (shaded area represents sample that was used for analyses). The total sample size across time points was 230.

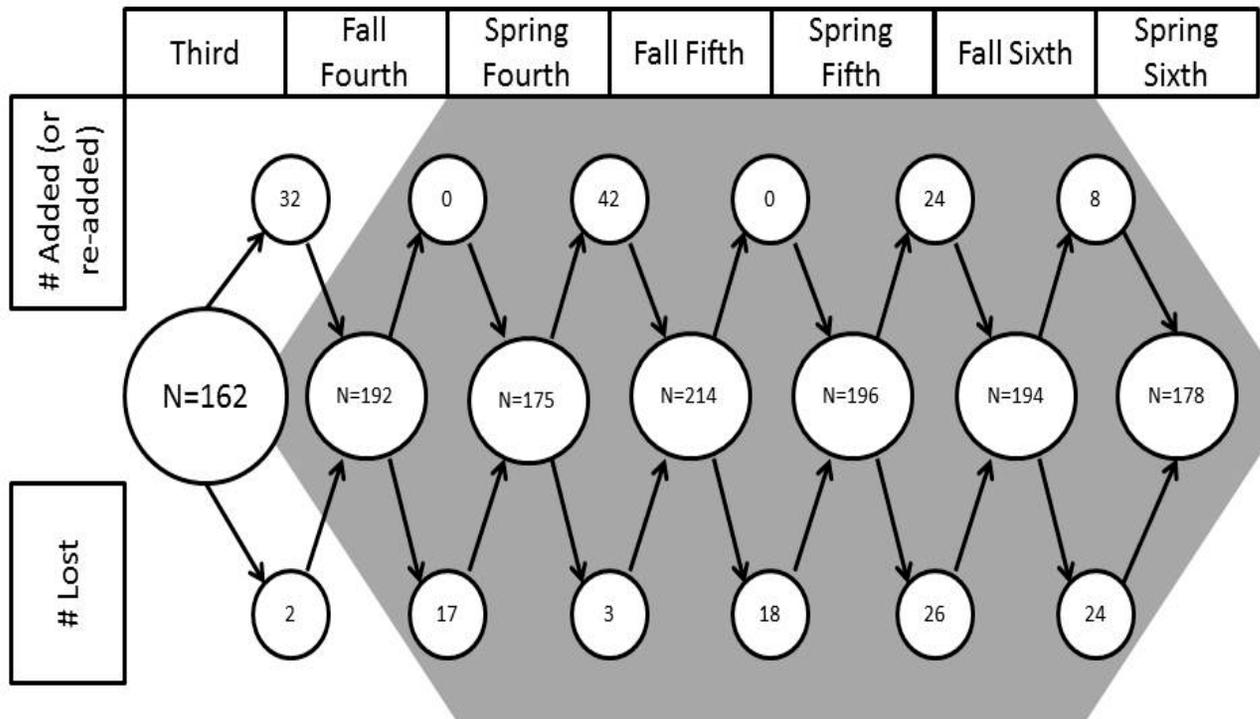


Figure 3: Size of longitudinal sample for the child report questionnaires used to assess social evaluative concerns, life events stress, and daily strain (shaded area represents sample that was used for analyses). The total sample size across time points was 230.

anxious solitary required that children receive scores at or above one standard deviation above the mean on ratings of anxious solitude (a mean of three items, see *Measures* section) on the peer behavioral nominations sociometric interview at the time point during which they were selected. The non-anxious solitary group consisted of children scoring below one standard deviation above the mean on ratings of anxious solitude using the same peer sociometric interview during the time point in which they were added. Children in the non-anxious solitary group were also selected in order to be equivalent to the anxious solitary group with regard to sex, race, and SES.

A few demographic differences existed between the selected children ($n = 222$) and non-selected children ($n = 723$) who were screened in fourth grade. The selected children were more likely to be female (55%) than male (45%) as compared to the non-selected children (female, 48%, male, 52%) ($\chi^2 = 4.02, p < .05$). The selected children were more likely to be Hispanic (26% selected, 12% non-selected) ($\chi^2 = 72.55, p < .01$), and less likely to be African American (17% selected, 24% non-selected) ($\chi^2 = 19.75, p < .05$), than the non-selected children. Selected children were also less likely than non-selected children to be considered low in socioeconomic status (33% free or reduced lunch for selected children, 38% free or reduced lunch for non-selected children) ($\chi^2 = 7.48, p < .05$). The selected group's age ($M = 8.70$ years, $SD = 0.55$) did not significantly differ from the non-selected group ($M = 8.65$ years, $SD = 0.48$) ($t = 0.94, NS$). Since children were selected based on elevated rates of anxious solitude (or were demographically matched with those who had elevated rates), demographic differences between the selected and non-selected children are likely due to differential prevalence

rates of anxious solitude among the demographic groups that were screened. Since the anxious solitary group and non-anxious solitary group were matched on demographics these differences did not bias the findings of the present study.

Measures

Anxious solitude nominations. The behavior nominations sociometric interview was conducted by research assistants in each classroom. In order to assess both the objective and the subjective components of anxious solitude, a composite score was created that equally weighed both peer-nominations and self-nominations. This method of assessment was chosen upon preliminary review of the relation between social evaluative concerns and peer-rated anxious solitude (which approached statistical significance but remained statistically insignificant). As a significant relation between these factors is supported by the existing literature, and because the social evaluative concern measure was a self-report measure, self-reported anxious solitude was included in the composite score for anxious solitude. Moreover, anxious solitude has been found to be best assessed using multiple informants (Spangler & Gazelle, 2009). The peer reports measure was a behavioral nomination interview in which students were provided lists of the names of students in their classes whose parents had provided consent for participation in the study. Nominations were read aloud to the entire classroom by research assistants, and students were instructed to nominate an unlimited number of classmates for each condition. Nominations assessing anxious solitude included three descriptions— “children who... (1) Act really shy around other kids. They seem to be nervous or afraid to be around other kids and they don’t talk much. They often play

alone at recess”, (2) “Watch what other kids are doing but don’t join in. At recess they watch other kids playing but they play by themselves”, and (3) “Are very quiet. They don’t have much to say to other kids.” Composite scores for peer ratings were obtained by calculating the number of nominations each child received for each anxious solitary item and standardizing this score by class to account for variations in class size. The composite peer score was then calculated as the average standardized score of the three anxious solitary items. Children scoring at or above one standard deviation above the mean on the peer nominations measure in third grade were classified as anxious solitary for the purposes of sample selection. Children scoring below one standard deviation above the mean on the peer nominations measure in third grade were eligible to be selected as part of the matched control group. The anxious solitude self-rating was obtained by allowing children to nominate themselves on each of the three anxious solitary items. Composite scores for self-rated anxious solitude were calculated by averaging the score on each anxious solitude item (i.e. 0 or 1) and were then standardized by time point. For the purposes of analysis, a composite measure of peer and self-rated anxious solitude was created by averaging the standardized peer score and the standardized self-score. These nominations (peer and self) were subsequently obtained at the six time points. These scores are reliable, as the Cronbach’s alphas for the peer-measure ranged from 0.83 to 0.94, and the Cronbach’s alphas for the self-measure ranged from 0.64 to 0.79.

Social evaluative concerns. In order to assess level of social evaluative concern, participants completed the Social Anxiety Scale for Children – Revised (SASC-R)

familiar subscale (La Greca, Dandes, Wick, Shaw, & Stone, 1988). This subscale consists of 4 statements which describe internal states experienced by children among familiar peers. The items of this subscale are: “I feel shy even with kids I know very well”, “I’m afraid to invite others to my house because they might say no”, “I feel nervous when I am around certain kids”, and “It’s hard for me to ask other kids to play with me.” Participants were asked to rate how well each item described how they felt on that day. Participants followed along as an R.A. read each item aloud and then responded to each item on a 1-5 scale with 1 being “not at all” and 5 being “all of the time” by filling in the appropriate bubble on their survey. Reliability for this subscale is high, with Cronbach’s alphas ranging from 0.79 to 0.87. Social evaluative concerns were only mildly correlated with anxious solitude with Pearson correlations ranging from 0.02 – 0.14 (all *ns*). This suggests that social evaluative concerns are not significantly correlated with anxious solitude, and thus supports that social evaluative concerns and anxious solitude are unique constructs.

Stress

Life events. Life events stress was assessed with the Stressful Life Events Inventory – Child (LEI-C) for each time point (Robinson, Garber, & Hilsman, 1995). This survey consists of 37 items presented to the child as situations describing an array of events such as: “Your parents got separated or divorced”, “One of your parents got engaged or remarried”, and “You failed a class or a subject in school”. The participants followed along as an R.A. read each item aloud and then answered “yes” or “no” to the occurrence of each item during the specified period of time (“since the beginning of the

school year” for fall collections and “since winter break” for spring collections). These time points were chosen in order to match the daily strain measure, which indicates stressors that children encountered while school was in session. If the answer was “yes”, the child then chose, on a 1-5 scale (1 = “not bad at all”, 2 = “a little bad”, 3 = “somewhat bad”, 4 = “really bad”, and 5 = “horrible”), how “bad” it was for them. The “yes” or “no” component of this scale (i.e. stressor frequency) and the component assessing the level of experienced stress (i.e. stressor severity) were multiplied to obtain a composite score for each participant. This measure was found to be reliable, with Cronbach’s alphas ranging from 0.70 to 0.84.

Daily strain. Participants were given an abbreviated version of either the School Hassles Questionnaire for Children (SH-C, 4th & 5th grade), or the School Hassles Questionnaire for Adolescents (SH-A, 6th grade) (Robinson et al., 1995) to complete in order to assess daily strain. The School Hassles questionnaire detects level of stress in relation to academic expectations, school structure (particularly changes in school structure), and changes in peer relationships from the previous year. Daily strains are measured using items such as: “My friends from last year went to a different school”, and “You have been pressured to use cigarettes, alcohol, or drugs.” The adolescent form contains all of the items from the child version of the survey, but changes subtle words (e.g. “class” to “classes”) and adds additional items that are more appropriate for the transition to middle school. The adolescent form adds the following four items: “You have had problems remembering your locker combination,” “You have not been picked for school activities or sports that you wanted to join (theater, band, sports team,

cheerleading, etc.),” “You have had trouble remembering the times or rooms of your classes,” and “The periods between classes are too short to get to your next class on time.” The survey assessed how much each item occurred either “Since school started this year” (for fall collections) or “Since winter break this year” (for spring collections), which were chosen since the school hassles questionnaire assessed stressful experiences while at school. Participants then followed along as an R.A. read each item aloud and then responded to each item on a 1-5 scale (1 = “not at all”, 2 = “a little”, 3 = “some”, 4 = “much”, and 5 = “very much”) by filling in the appropriate bubble on their survey. Internal reliability was high, with Cronbach’s alphas ranging from 0.88-0.93. Daily strain was moderately correlated with life events stress with Pearson correlations ranging from 0.21 to 0.44 ($p < .01$). These correlations suggest a moderate relation between daily strain and life events.

CHAPTER III

RESULTS

Hierarchical linear modeling was utilized to assess the hypotheses proposed in this study. Linear growth models were utilized for all analyses, with measures included as level-one components and children as level-two units. Data were analyzed using the statistical program HLM 6 (Raudenbush, Bryk, & Congdon, 2004). First, in order to determine whether a linear or quadratic model best described the social evaluative concerns data, the unconditional model was analyzed and represented graphically (see Table 1 and Figure 4). This model included social evaluative concerns as the outcome variable, and linear change and quadratic change as the independent variables. Social evaluative concerns were found to decrease linearly across the six time points, ($\beta = -0.13$, $t = -3.42$, $df = 228$; $p = .001$). The quadratic term indicated that changes in social evaluative concerns significantly accelerated across the six time points ($\beta = 0.02$, $t = 3.48$, $df = 228$; $p = .001$). These significant results indicate that both linear and quadratic time should be used to model the intercept in subsequent analyses related to social evaluative concerns. The decision to use quadratic time was also based on the shape of the graph of social evaluative concerns over time (Figure 4), which displays how social evaluative concerns decelerate and then accelerate as a quadratic function. There was, however, no significant individual variation in how time affected social evaluative concerns, indicated by the non-significant random effects ($p > .500$) in this analysis (see

Table 1:
Unconditional hierarchical linear model of social evaluative concerns

Fixed effects	Social Evaluative Concerns		
	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean social evaluative concerns, β_{00}	1.74	0.06	31.30**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.13	0.04	-3.42**
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	0.02	0.01	3.48**
Random effects	Variance	<i>SD</i>	χ^2
Mean social evaluative concerns, r_{0i}	0.31	0.56	392.23**
Linear change rate, r_{1i}	0.05	0.21	206.61
Quadratic change rate, r_{2i}	0.0003	0.02	170.48
Error, <i>e</i>	0.60	0.36	

Note. ** $p < .01$

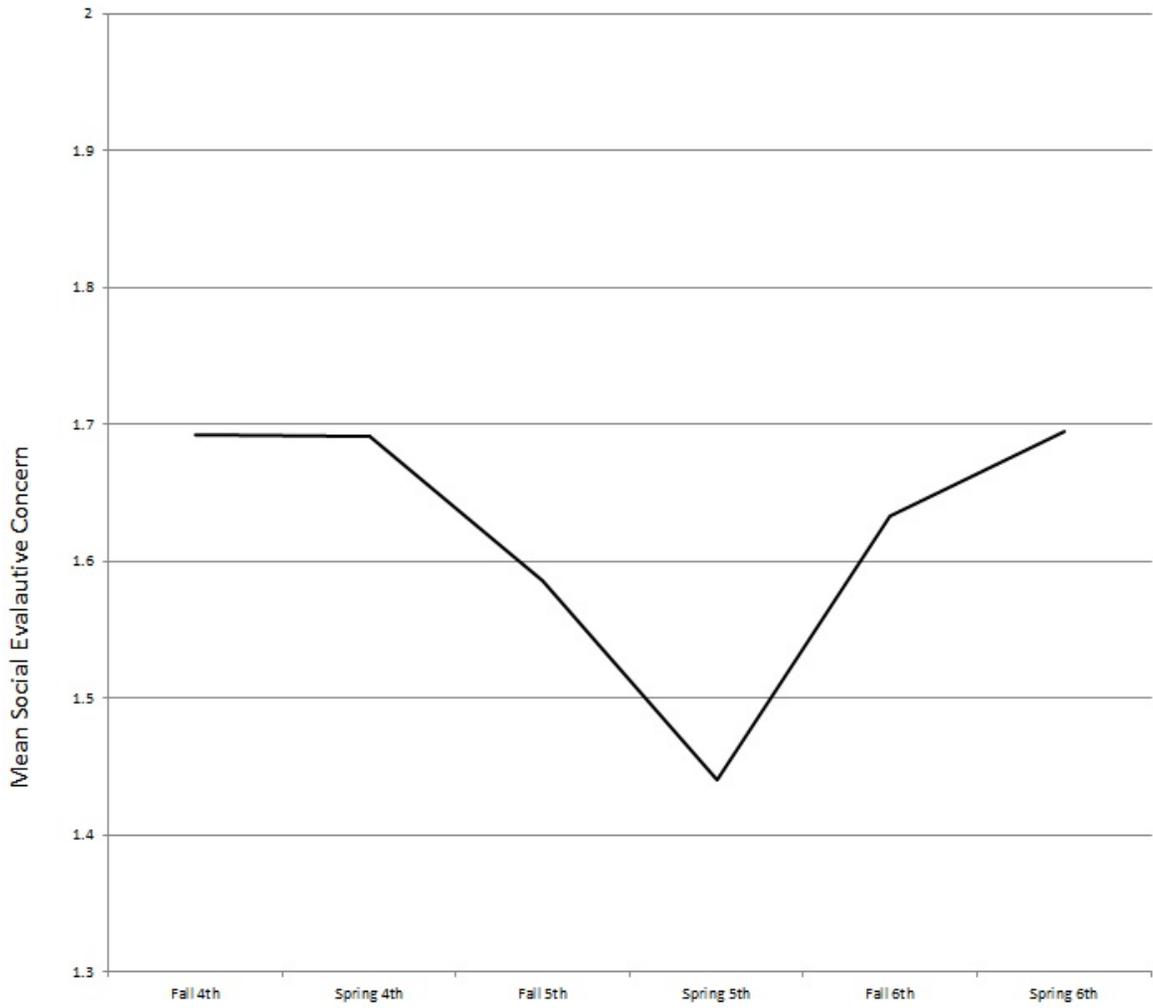


Figure 4: Line graph showing changes in average social evaluative concerns over six time points spanning fourth through sixth grade.

Table 1). Because of this result, no attempt to explain individual variation in how relations between social evaluative concerns and other variables change over time is possible. This indicates that any significant predictors of the intercept represent stable relations with social evaluative concerns across the six measured time points.

Next, in order to determine if life events stress was predictive of social evaluative concerns, a model including social evaluative concerns as the outcome variable and life events stress, linear time, and quadratic time as predictor variables was analyzed (see Table 2). In this model, life events stress was grand mean centered, in order to make the intercept interpretable as the average value of social evaluative concern for a child with average life events stress during the fall of fourth grade (with zero acceleration or deceleration in social evaluative concerns). Results indicate that social evaluative concerns have marginally significant linear change over time ($\beta = -0.07$, $t = -1.78$, $df = 228$; $p = 0.076$). Social evaluative concerns significantly decelerated and then accelerated across the six time points ($\beta = 0.02$, $t = 2.32$, $df = 228$; $p = .021$). Life events stress was significantly related to social evaluative concerns ($\beta = 0.01$, $t = 3.93$, $df = 228$; $p < .000$). In sum, analysis of this model indicates that life events stress significantly predicts initial levels of social evaluative concerns which remain constant across the six time points. In other words, as life events stress increases, social evaluative concerns also increase (and as life events decrease social evaluative concerns also decrease). The significance of quadratic time indicates that social evaluative concerns significantly accelerate across time, though the non-significance of linear time indicates that social

Table 2:
Hierarchical linear model with social evaluative concerns as the dependent variable and life events stress as the time-varying covariate

Fixed effects	Social Evaluative Concerns		
	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean social evaluative concerns, β_{00}	1.66	0.05	30.82**
Model for linear change, π_{1i}			
Linear change rate, β_{10}	-0.07	0.04	-1.72†
Model for quadratic change, π_{2i}			
Quadratic change rate, β_{20}	0.02	0.01	2.20*
Model for life events, π_{3i}			
Life events change rate, β_{30}	0.01	0.002	3.91**

Note. † $p < .10$, * $p < .05$, ** $p < .01$

evaluative concerns do not have an overall linear change across time. These findings were also graphically represented in Figure 5, which displays the estimated prototypical trajectories for social evaluative concerns both at an average level of life events stress at each time point, and at one standard deviation above the mean life events score at each time point.

Next, in order to determine if daily strain significantly predicts social evaluative concerns, a model including social evaluative concerns as the outcome variable and daily strain, linear time, and quadratic time as predictor variables was analyzed (see Table 3). In this model, daily strain was grand mean centered, in order to make the intercept interpretable as the average value of social evaluative concerns for a child with average daily strain during the fall of fourth grade (with zero acceleration or deceleration in social evaluative concerns). Results indicate that there was a significant linear decrease in social evaluative concerns ($\beta = -0.11$, $t = -2.83$, $df = 227$; $p = .006$), as well as significant acceleration across the six time points, ($\beta = 0.02$, $t = 2.92$, $df = 227$; $p = .004$). Daily strain significantly predicted initial levels of social evaluative concerns ($\beta = 0.43$, $t = 7.13$, $df = 227$; $p < .001$). In sum, analysis of this model indicates that daily strain significantly predicts initial levels of social evaluative concerns, which then remain constant across the six time points. This model also indicates that social evaluative concerns decrease linearly, and decelerate (from fourth to fifth grade) and then accelerate (in sixth grade). These findings were also graphically represented in Figure 6, which displays the estimated prototypical trajectories for social evaluative concerns both at an

Table 3:
Hierarchical linear model with social evaluative concerns as the dependent variable and daily strain as the time-varying covariate

Fixed effects	Social Evaluative Concerns		
	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean social evaluative concerns, β_{00}	1.71	0.05	32.42**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.11	0.04	-2.83**
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	0.02	0.01	2.92**
Model for daily strain, π_{3i}			
Mean daily strain change rate, β_{30}	0.43	0.06	7.13**

Note. ** $p < .01$

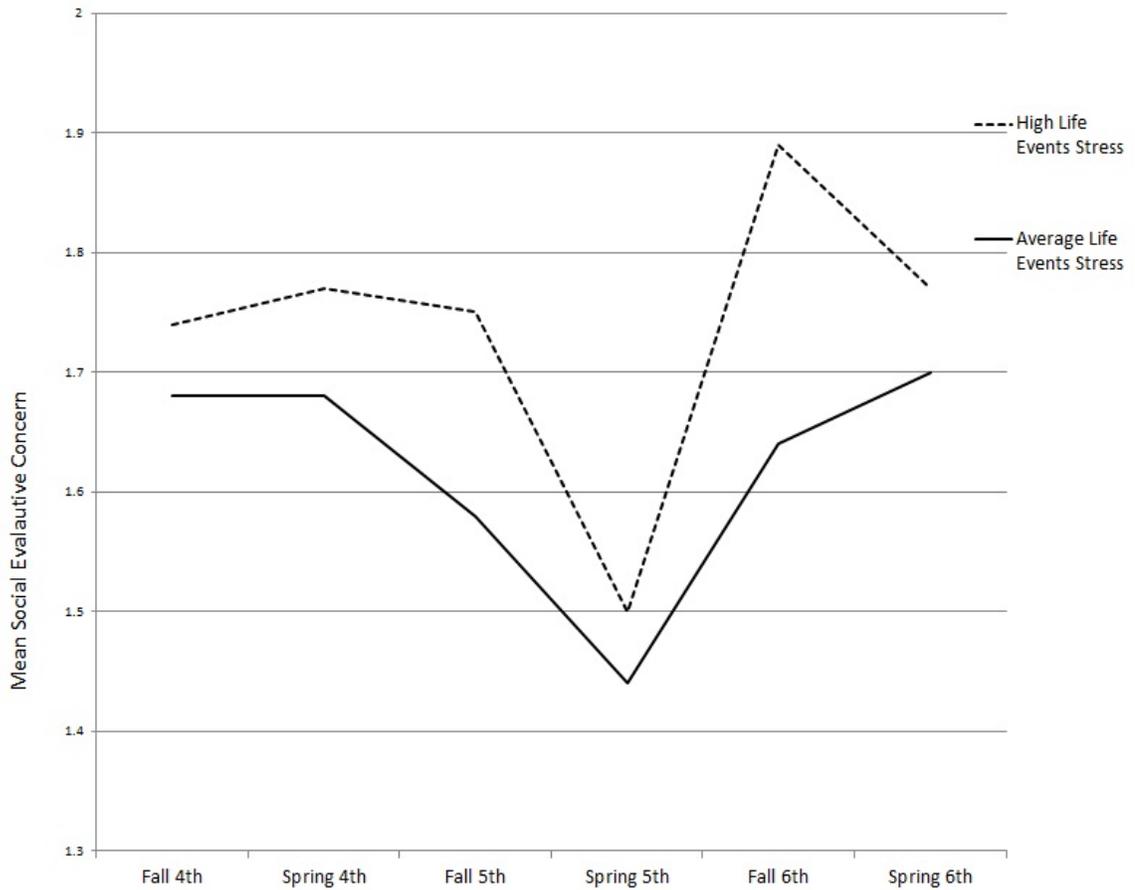


Figure 5: Estimated values of social evaluative concerns from fourth through sixth grade as a function of high or average life events stress. Prototypical trajectories calculated at values corresponding to +1 SD above the mean during each time point for high life events stress and at values corresponding to the mean at each time point for average life events stress.

average level of daily strain at each time point, and at one standard deviation above the average daily strain score at each time point.

The next model was created in order to compare the relative predictive power of life events stress as compared to daily strain in predicting social evaluative concerns. In this model, the level of social evaluative concern was the outcome variable and life events stress, daily strain, linear time, and quadratic time were the predictor variables (see Table 4). Both life events stress and daily strain scores were standardized at each time point for this analysis in order to make them on the same scale so that they could be directly compared. Results indicate that social evaluative concerns did not demonstrate significant linear change over the six time points, ($\beta = -0.06, t = -1.56, df = 227; p = .120$) but did accelerate as a quadratic function, ($\beta = 0.01, t = 2.06, df = 227; p = .041$). Both life events stress and daily strain were found to be significant predictors of initial levels of social evaluative concerns in this model, with ($\beta = 0.10, t = 2.93, df = 227; p = .004$) for life events stress and ($\beta = 0.18, t = 6.59, df = 227; p < .001$) for daily strain. These findings indicate that daily strain accounted for twice as much variance in describing social evaluative concerns as life events stress did.

Models assessing the relation of anxious solitude with life events stress, daily strain, and social evaluative concerns were then analyzed. First, the unconditional quadratic model was assessed in order to determine whether models using anxious solitude should be linear or quadratic. Though quadratic change was not significant in predicting the intercept in the unconditional model (see Table 5) ($\beta = 0.001, t = 0.11, df =$

Table 4:
Hierarchical linear model with social evaluative concerns as the dependent variable and standardized life events stress and standardized daily strain as the time-varying covariates

Fixed effects	Social Evaluative Concern		
	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean social evaluative concern, β_{00}	1.66	0.05	31.58**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.06	0.04	-1.56
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	0.01	0.01	2.06*
Model for standardized life events, π_{3i}			
Mean standardized life events change rate, β_{30}	0.10	0.03	2.93**
Model for standardized daily strain, π_{4i}			
Mean standardized daily strain change rate, β_{40}	0.18	0.03	6.59**

Note. * $p < .05$, ** $p < .01$

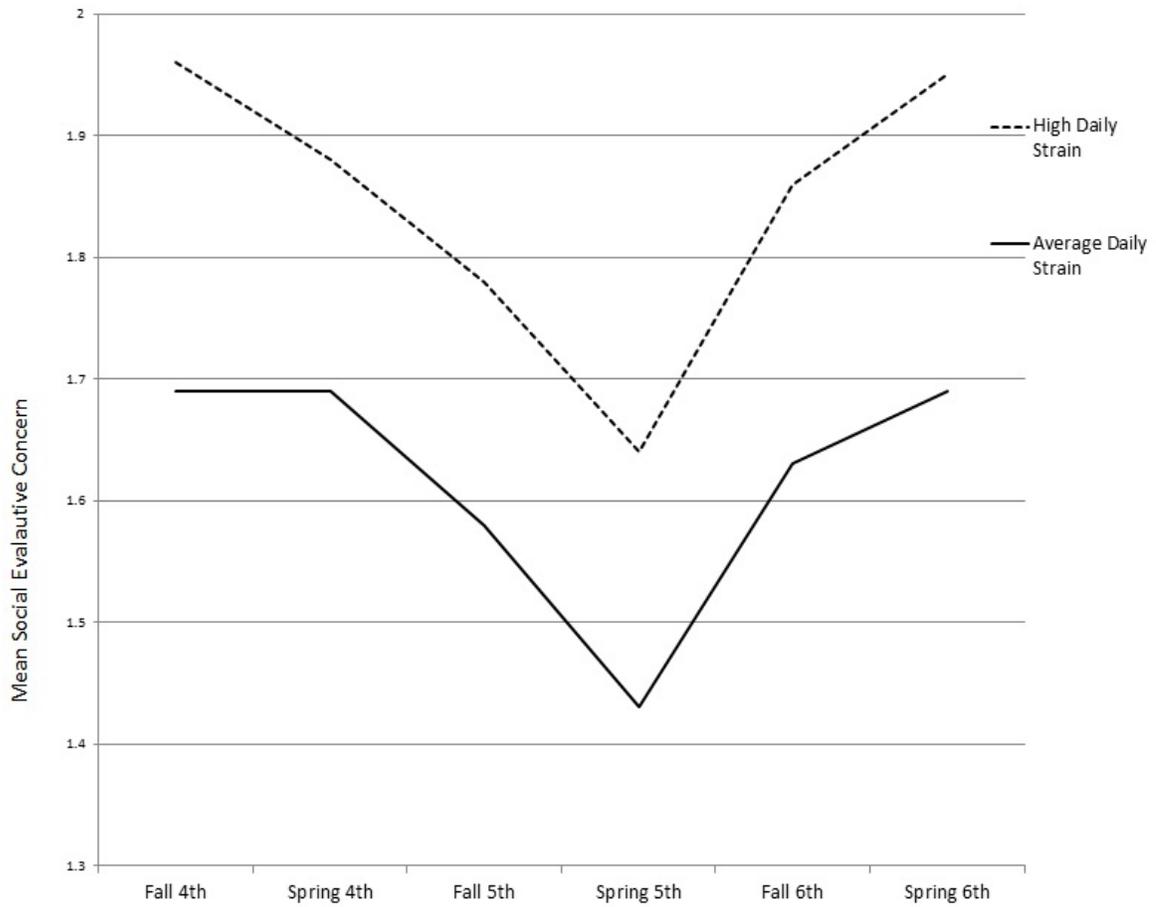


Figure 6: Estimated values of social evaluative concerns from fourth through sixth grade as a function of high or average daily strain. Prototypical trajectories calculated at values corresponding to +1 SD above the mean during each time point for high daily strain and at values corresponding to the mean at each time point for average daily strain.

228, $p = 0.916$), individuals differed significantly in how anxious solitude accelerated or decelerated over time (variance = 0.08, $df = 222$, $\chi^2 = 419.97$, $p < .000$). Though the plot of average anxious solitude over time (see Figure 7) does not necessarily support the use of a quadratic, the significant random effect indicated that the quadratic should be used in subsequent analyses where anxious solitude is the dependent variable. In order to determine if sufficient variation in changes in anxious solitude across time existed between children, the random components of the unconditional model were analyzed. The significant variation in linear change (variance = 0.18, $df = 222$, $\chi^2 = 418.96$, $p < 0.000$) as well as quadratic change (variance = 0.08, $df = 222$, $\chi^2 = 419.97$, $p < .000$) indicates that future analyses can attempt to model individual differences in both linear and quadratic change over time.

In the next model, in order to assess whether changes in social evaluative concerns significantly predict changes in anxious solitude, anxious solitude was included as the outcome variable and social evaluative concerns, linear time, the interaction between social evaluative concerns and linear time, and the interaction between social evaluative concerns and quadratic time were included as predictor variables (see Table 6). Results indicated that anxious solitude did not significantly change in a linear fashion or in a quadratic fashion in this model. Social evaluative concerns, however, marginally significantly predicted initial levels of anxious solitude, ($\beta = 0.11$, $t = 1.82$, $df = 227$; $p = .07$). The interaction terms, however, were not significant, indicating that the relation between social evaluative concerns and anxious solitude was stable over time (social evaluative concerns \times linear time : $\beta = -0.01$, $t = -0.15$, $df = 1084$, $p = .88$; social

Table 5:
Unconditional hierarchical linear model of anxious solitude

Anxious Solitude			
Fixed effects	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean anxious solitude, β_{00}	0.24	0.06	3.92**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.03	0.04	-0.77
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	0.001	0.01	0.11
Random effects	Variance	<i>SD</i>	χ^2
Mean Anxious Solitude, r_{0i}	0.79	0.62	873.84**
Linear change rate, r_{1i}	0.42	0.18	418.96**
Quadratic change rate, r_{2i}	0.08	0.01	419.97**
Error, <i>e</i>	0.49	0.24	

Note. ** $p < .01$

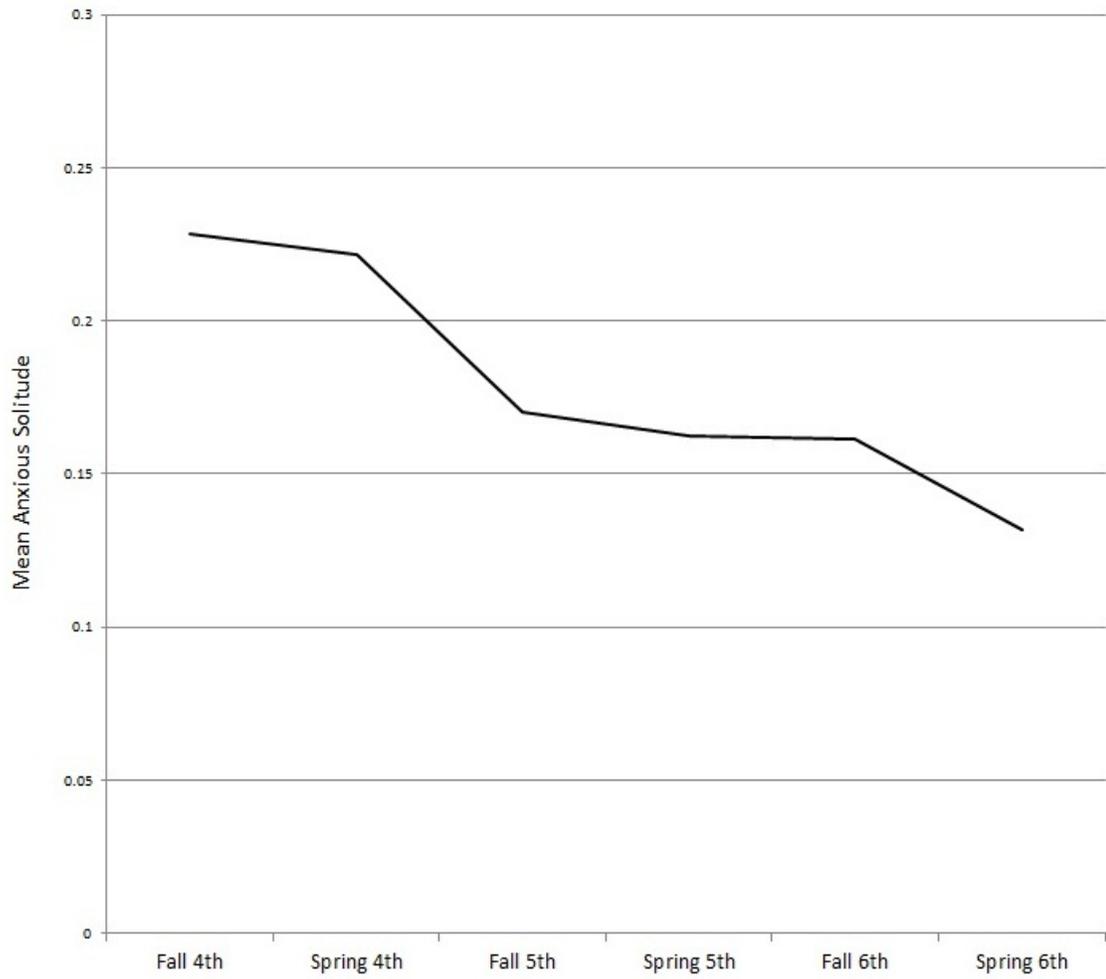


Figure 7: Line graph showing changes in average anxious solitude over six time points spanning fourth through sixth grade.

evaluative concerns \times quadratic time : $\beta = 0.001, t = 0.05, df = 1084, p = .96$). The significant random effect of linear time in this model indicated that significant variation remained in how anxious solitude changes over time (variance = 0.18, $df = 161, \chi^2 = 312.86, p < .000$). The significant random effect of quadratic time in this model indicated that significant variation remained in how anxious solitude accelerates and/or decelerates over time between children (variance = 0.01, $df = 161, \chi^2 = 304.50, p < .000$). However, as the relation of social evaluative concerns and anxious solitude was found to be stable over time, this random component was non-significant (variance = 0.02, $df = 161, \chi^2 = 129.69, p > .50$). These findings indicate that social evaluative concerns significantly predict initial levels of anxious solitude and that these relations remain stable across the six time points. In other words, social evaluative concerns represented stable features of anxious solitary children. These findings were also graphically represented in Figure 8, which displays the estimated prototypical trajectories for social evaluative concerns both when at the average level of anxious solitude at each time point, and at one standard deviation above the mean anxious solitary score at each time point.

In order to assess whether life events stress was significantly related to anxious solitude (i.e. relation C in Figure 1), anxious solitude was included as the outcome variable and life events stress, linear time, quadratic time, the interaction between life events stress and linear time, and the interaction between life events stress and quadratic time were included as the predictor variables (see Table 7). Results indicate that life events stress was not a significant predictor of initial levels of mean anxious solitude ($\beta = 0.0004, t = 0.23, df = 227; p = .82$). The relation between anxious solitude and life events

Table 6:
Hierarchical linear model with anxious solitude as the dependent variable and social evaluative concerns as the time-varying covariate

Fixed effects	Anxious Solitude		
	β	<i>SE</i>	<i>t</i>
Model for initial status, π_{0i}			
Mean anxious solitude, β_{00}	0.22	0.06	3.52**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.003	0.08	-0.04
Model for quadratic change, π_{2i}			
Quadratic change rate, β_{20}	-0.003	0.02	-0.20
Model for social evaluative concerns, π_{3i}			
Mean social evaluative concerns change rate, β_{30}	0.11	0.06	1.82†
Model for social evaluative concerns \times linear time, π_{4i}			
Social evaluative concerns \times linear time change rate, β_{40}	-0.01	0.05	-0.15
Model for social evaluative concerns \times quadratic time, π_{5i}			
Social evaluative concerns \times quadratic time change rate, β_{50}	0.0005	0.01	0.05
Random effects	Variance	<i>SD</i>	χ^2
Mean anxious solitude, r_{0i}	0.58	0.76	400.92**
Linear change rate, r_{1i}	0.18	0.42	312.86**
Quadratic change rate, r_{2i}	0.01	0.08	304.50**
Social evaluative concerns, r_{3i}	0.14	0.02	129.69
Error, <i>e</i>	0.23	0.48	

Note. † $p < .10$, ** $p < .01$

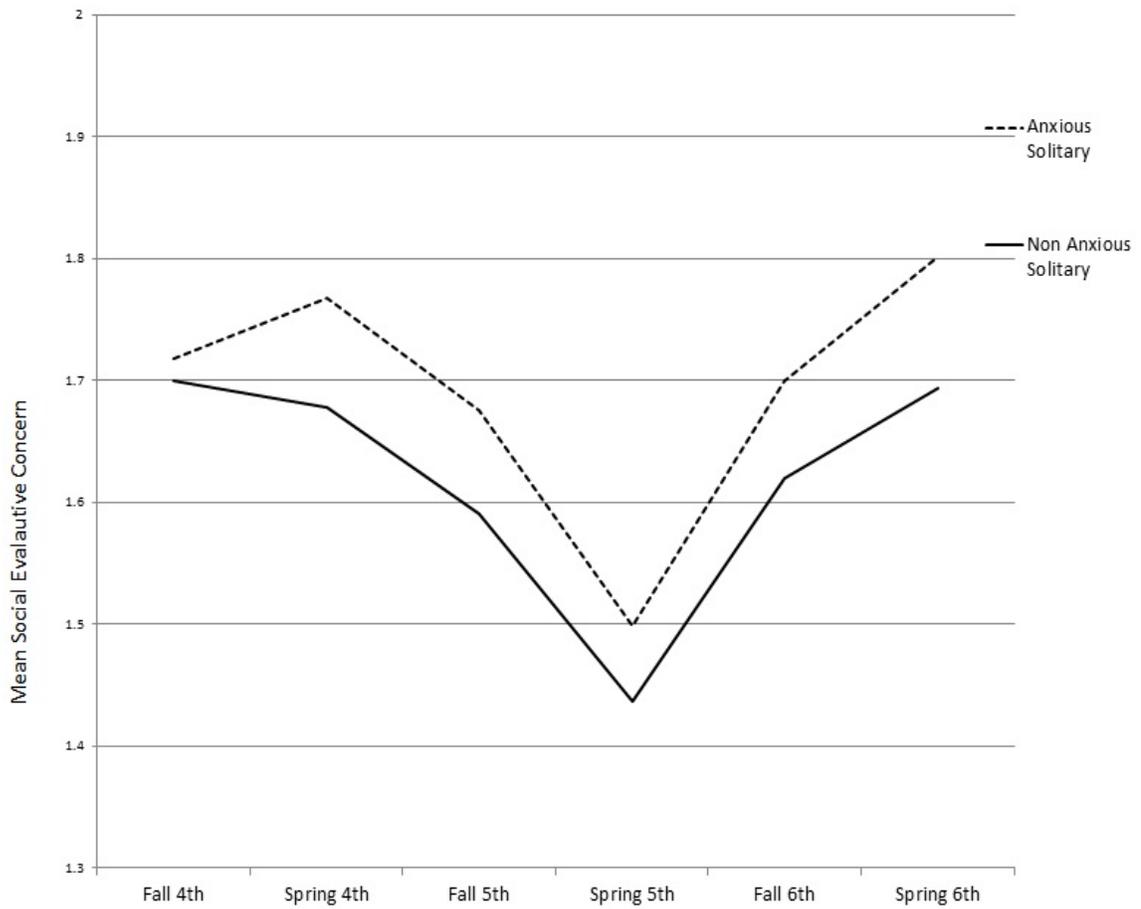


Figure 8: Estimated values of social evaluative concern from fourth through sixth grade as a function of high or average anxious solitude. Prototypical trajectories calculated at values corresponding to +1 SD above the mean anxious solitary score during each time point for anxious solitary and corresponding to the mean anxious solitary score for non-anxious solitary.

did not significantly change over linear time, as this interaction term was also not significant ($\beta = 0.001, t = 0.78, df = 1079, p = .44$). The relation of life events and anxious solitude also did not accelerate or decelerate across the six time points, as the quadratic interaction term was also not significant ($\beta = -0.0004, t = -1.06, df = 1079, p = .29$). There was also no evidence for linear or quadratic changes in mean anxious solitude across the study in this model (linear time - $\beta = -0.03, t = -0.52, df = 227, p = .60$; quadratic time - $\beta = 0.004, t = 0.01, df = 227, p = .32$). Significant variation in both linear and quadratic change in anxious solitude between children remained significant (linear - variance = 0.26, $df = 181, \chi^2 = 317.64, p < .001$; quadratic - variance = 0.01, $df = 181, \chi^2 = 313.77, p < .001$). There was also marginally significant random variation in the relation of life events stress with anxious solitude between children with (variance = 0.0001, $df = 181, \chi^2 = 208.98, p = .08$).

In order to assess whether daily strain was significantly related to anxious solitude (i.e. relation C in Figure 1), anxious solitude was included as the outcome variable and daily strain, linear time, quadratic time, the interaction between daily strain and linear time, and the interaction between daily strain and quadratic time were included as the predictor variables (see Table 8). Results indicate that daily strain was not a significant predictor of initial levels of mean anxious solitude ($\beta = 0.18, t = 1.69, df = 226, p = .10$). The relation between anxious solitude and daily strain did not significantly change over linear time, as this interaction term was also not significant ($\beta = -0.11, t = -1.37, df = 1084, p = .17$). The relation of daily strain and anxious solitude also did not accelerate or decelerate across the six time points, as the quadratic interaction term was also not

Table 7:
Hierarchical linear model with anxious solitude as the dependent variable and life events stress as the time-varying covariate

Anxious Solitude			
Fixed effects	β	<i>SE</i>	<i>t</i>
<hr/>			
Model for initial status, π_{0i}			
Mean anxious solitude, β_{00}	0.23	0.07	3.31**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	-0.03	0.06	-0.52
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	0.004	0.01	0.32
Model for life events stress, π_{3i}			
Mean life events change rate, β_{30}	0.0004	0.002	0.23
Model for life events stress \times linear time, π_{4i}			
Mean life events stress \times linear time, β_{40}	0.001	0.002	0.78
Model for life events stress \times quadratic time, π_{5i}			
Mean life events stress \times quadratic time, β_{50}	-0.0004	0.0004	-1.06
<hr/>			
Random effects	Variance	<i>SD</i>	χ^2
<hr/>			
Mean anxious solitude, r_{0i}	0.65	0.81	
456.37**			
Linear change rate, r_{1i}	0.26	0.51	
317.64**			
Quadratic change rate, r_{2i}	0.01	0.09	
313.77**			
Life events stress change rate, r_{3i}	0.0001	0.01	208.98†
Error, <i>e</i>	0.22	0.46	
<hr/>			

Note. † $p < .10$, ** $p < .01$

significant ($\beta = 0.02$, $t = 1.47$, $df = 1084$, $p = .14$). There was also no evidence for linear or quadratic changes in mean anxious solitude across the study (linear time - $\beta = 0.15$, $t = 1.10$, $df = 226$, $p = .27$; quadratic time - $\beta = -0.03$, $t = -1.38$, $df = 226$, $p = .17$).

Significant variation in both linear and quadratic change in anxious solitude between children remained significant (linear - variance = 0.18, $df = 180$, $\chi^2 = 287.05$, $p < .000$; quadratic - variance = 0.01, $df = 180$, $\chi^2 = 244.16$, $p = .001$). There was also significant random variation in the relation of daily strain with anxious solitude between children with (variance = 0.11, $df = 180$, $\chi^2 = 227.19$, $p = .01$).

The mediation model was not analyzed due to the statistically non-significant relationships between both types of stress and anxious solitude as well as between both types of stress and changes in anxious solitude across linear and quadratic time (see Figures 9 and 10). These relationships correspond to the “C” relationship in the mediational model created as part of this study (Figure 1). Baron and Kenny (1986) suggest that there can be no mediational effect without a significant “C” relation, and since the coefficients that represent these relations are not significant, they cannot significantly decrease due to the addition of a mediator.

Table 8:
Hierarchical linear model with anxious solitude as the dependent variable and daily strain as the time-varying covariate

Anxious Solitude			
Fixed effects	β	SE	t
<hr/>			
Model for initial status, π_{0i}			
Mean anxious solitude, β_{00}	0.25	0.07	3.77**
Model for linear change, π_{1i}			
Mean linear change rate, β_{10}	0.15	0.13	0.27
Model for quadratic change, π_{2i}			
Mean quadratic change rate, β_{20}	-0.03	0.03	-1.38
Model for daily strain, π_{3i}			
Mean daily strain change rate, β_{30}	0.18	0.10	1.69
Model for daily strain \times linear time, π_{4i}			
Mean daily strain \times linear time, β_{40}	-0.11	0.08	-1.37
Model for daily strain \times quadratic time, π_{5i}			
Mean daily strain \times quadratic time, β_{50}	0.02	0.01	1.47
<hr/>			
Random effects	Variance	SD	χ^2
<hr/>			
Mean anxious solitude, r_{0i}	0.67	0.82	
550.01**			
Linear change rate, r_{1i}	0.18	0.43	
287.05**			
Quadratic change rate, r_{2i}	0.01	0.08	
224.16**			
Daily strain change rate, r_{3i}	0.11	0.34	
227.19**			
Error, e	0.27	0.52	
<hr/>			

Note. ** $p < .01$

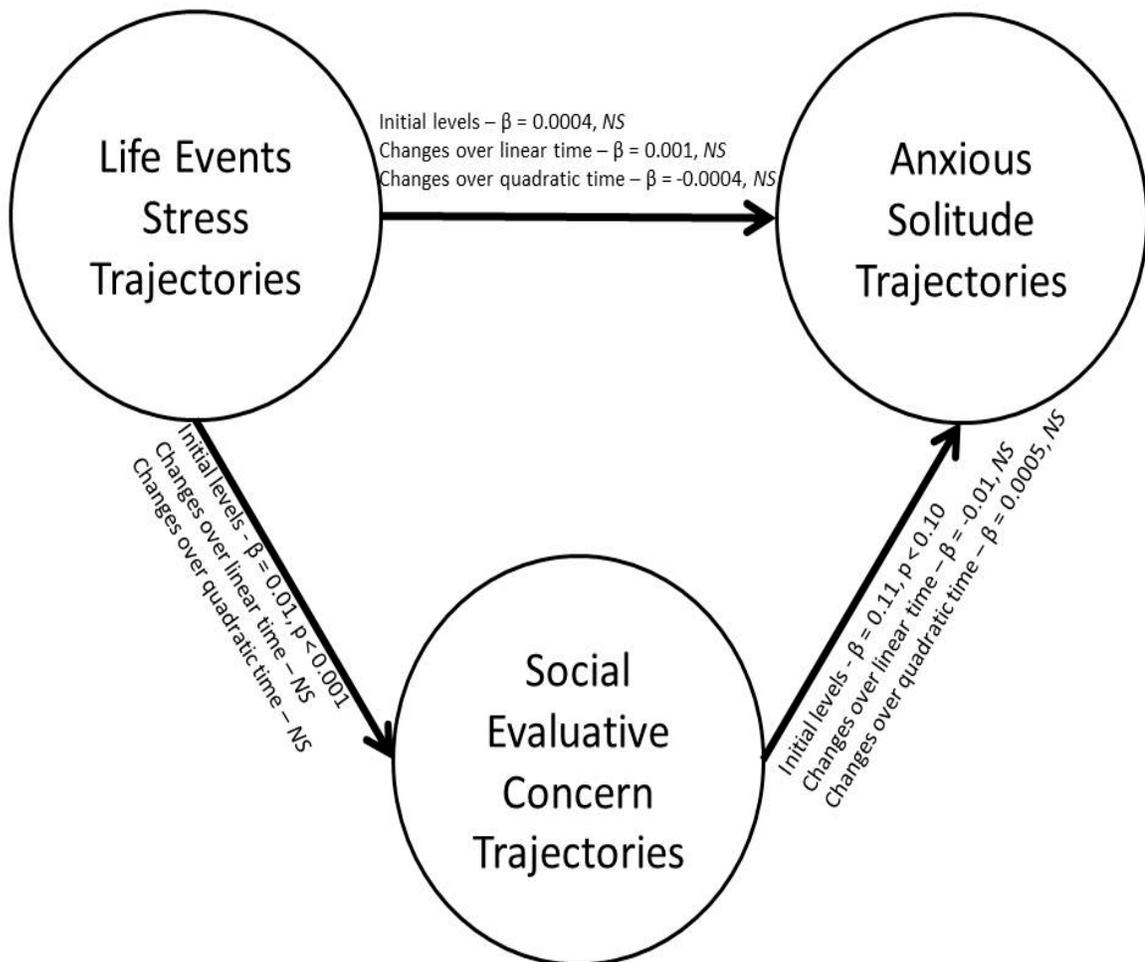


Figure 9: Mediation model for life events stress showing the correlation coefficients and significance values obtained from the corresponding hierarchical linear models. This model is not a valid mediation model due to the non-significance of the coefficients relating life events stress trajectories and anxious solitude trajectories.

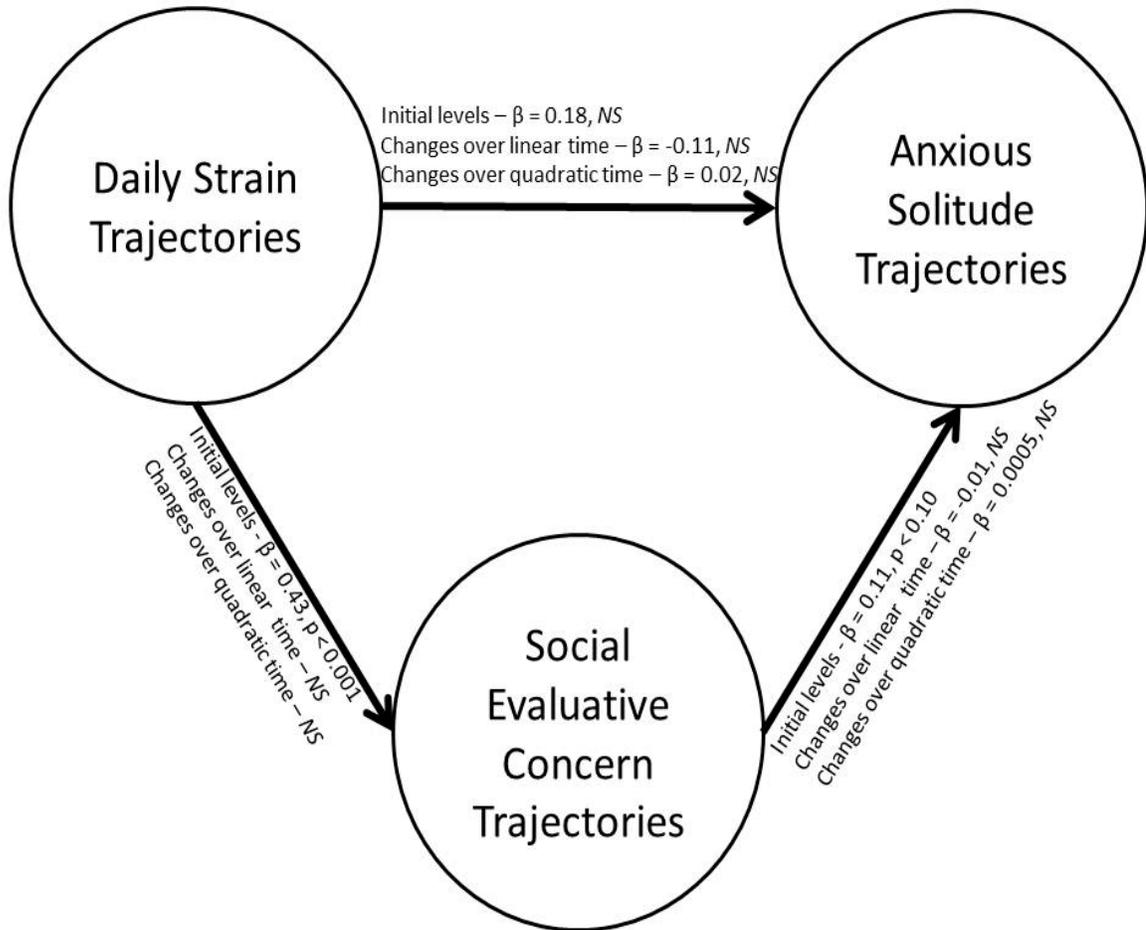


Figure 10: Mediation model for daily strain showing the correlation coefficients and significance values obtained from the corresponding hierarchical linear models. This model is not a valid mediation model due to the non-significance of the coefficients relating daily strain trajectories and anxious solitude trajectories.

CHAPTER IV

DISCUSSION

Stress and social evaluative concerns

The previous analyses provide evidence that both life events stress and daily strain are significantly and positively related to incidence of social evaluative concerns. These relations are evident at the first time point (fall of fourth grade) and stay stable until the spring of sixth grade. Since social evaluative concerns do not significantly vary between individuals across time, no attempt was made to model changes in the relations between the two stressors and social evaluative concerns over time. In other words, the relations between each stressor and social evaluative concerns were found to be stable across time. These results provide evidence consistent with those found by Allen, Rapee, and Sandberg (2008); daily strain represents a stable characteristic of children who experience elevated levels of social evaluative concerns. However, inconsistent with results found by Allen, Rapee, and Sandberg's (2008) findings, the present study found that life events stress also represents a stable, though relatively smaller, predictor of social evaluative concerns.

Life events versus daily strain

Daily strain was more related to social evaluative concerns than life events stress was. More specifically, daily strain was found to be twice as predictive as life events in

explaining variation in the rates of social evaluative concerns. It is likely that the somewhat controllable nature of daily strain (as compared to life events) is the reason for this large difference in predictive power. Moreover, it is also likely that this difference is due to the persistent nature of daily strain, wherein children are required to encounter stressors multiple times and thus are not given the opportunity to cope with the stress as they would for life events stressors. The difference in predictive power of daily strain and life events stress suggests that certain types of stressors (i.e. particularly chronic and controllable stressors) likely have a greater impact on the incidence of social evaluative concerns, though differences between specific stressful events were not assessed in this study.

Social evaluative concerns and anxious solitude

As hypothesized, social evaluative concerns were significantly predictive of initial levels of anxious solitude across fourth through sixth grade. This provides direct evidence that the affective-behavioral construct of anxious solitude does correctly predict elevation in social evaluative concerns, despite often not being explicitly assessed. This significant relation supports Gazelle and Rudolph's (2004) conceptualization of anxious solitude as an affective-behavioral construct in which children experience elevated social evaluative concerns that cause them to exhibit solitary onlooking behaviors. Despite significant individual variation between children in their changes in anxious solitude across time, levels of social evaluative concerns did not significantly predict which children increased in anxious solitary behaviors across time and which children decreased

in anxious solitary behaviors across time. This suggests that children with elevated social evaluative concerns also seem to exhibit elevated socially anxious behaviors, but that the relation between social evaluative concerns and anxious solitude stays relatively stable across later middle childhood.

Mediation model

The hypothesized relations between both types of stress and anxious solitude were not statistically significant. In other words, neither levels of daily strain nor levels of life events stress were significantly related to levels of anxious solitude. Moreover, neither type of stress significantly predicted variations between children in changes in anxious solitude across the six time points. Due to the non-significance of these relations, the proposed mediation model cannot detect a significant decrease in any of the coefficients that describe the relation between either type of stress and anxious solitude. Since Baron and Kenny's (1986) mediation model requires that the "C" relationship (i.e. relating either type of stress to anxious solitude) significantly decreases with the inclusion of the mediator, and since these relations are not significant (without the mediator), mediation is not possible.

Contributions

These findings suggest that both life events stress and daily strain have fairly strong relations with social evaluative concerns in later middle childhood. There was no evidence in the current study for stress generation for children with elevated social evaluative concerns, as relations between both life events stress and daily strain with

social evaluative concerns were stable across the six time points. This may suggest that children with elevated social evaluative concerns instead experience stress in a qualitatively different way from other children. In other words, children with elevated social evaluative concerns may have more severe experiences when experiencing stress when compared to other children, though it is also possible that children with elevated stress levels are more likely to develop social evaluative concerns. It is also interesting that the relations of both life events stress and daily strain with social evaluative concerns were stable across later middle childhood. This suggests that stress levels predict social evaluative concern levels in a similar way regardless of the time point in which they are assessed. Thus, in the fall of fourth grade, a relatively stable relation between stress and social evaluative concerns has already been solidified, suggesting that this relation develops some time before the fall of fourth grade.

As social evaluative concerns were shown to be significantly related to the affective-behavioral construct of anxious solitude, the assumptions that anxious solitude also assesses social evaluative concerns are confirmed. This strengthens the underlying assumptions of anxious solitude, and indicates that anxious solitary children do indeed experience elevated social worries when dealing with familiar peers. Thus, though anxious solitude is often assessed through observational (and thus, behavioral) methods, these children do experience elevated social evaluative concerns, even if they are not directly assessed.

Despite the significant relation of both types of stress with social evaluative concerns and social evaluative concerns with anxious solitude, the relations of both types of stress with anxious solitude were not significant. Thus, the proposed mediation model was not supported. This is somewhat surprising but suggests that both types of stress are related to the internal, subjective experience of anxious solitude and do not directly relate to a child's behavior. Thus, children who experience elevated stress levels experience elevated social evaluative concerns, but these elevated social evaluative concerns do not translate to noticeable behavioral changes. It is possible that this finding is due to the fact that anxious solitary children experience elevated social evaluative concerns even without elevated stressors (i.e. they have a baseline level of social evaluative concerns that exists because of factors other than stress), and thus it may be that stress only impacts children whose social evaluative concerns do not translate into observable behavioral characteristics (i.e. non-anxious solitary children).

Limitations and future research

One limitation in this study was that social evaluative concerns are simply one feature of a larger, more general concept: social anxiety. As such, its use in the present study allowed for specific questions to be asked regarding the nature of the internal dialogue that is thought to exist within children with social anxiety. The case could potentially be made, however, for the inclusion of other concepts related to social anxiety such as self-efficacy or social skills. Another possible limitation of this study is that all measures (with the exception of the anxious solitude measurement) were self-measured,

which creates possible shared informant bias. This bias was somewhat addressed in the analyses that included anxious solitude, however, as anxious solitude was assessed as a combined self and peer report. Social evaluative concerns, life events stress, and daily strain, however, were only assessed as self-reports due to their subjective nature.

Another limitation in this study is that neither of the stress measures exclusively focused on either controllable stressors (e.g. “your classes are hard” or “it has been hard getting up in the morning for school”) or uncontrollable stressors (e.g. “school is large and crowded” or “a parent lost his or her job”), though the daily strain measure was predominantly potentially controllable stressors (65-66.7% controllable) and the life events measure was predominantly uncontrollable (37.8% controllable). Controllability was designated as any event that the child could potentially contribute to or control. However, since these measures were not 100% controllable or uncontrollable, the ability to detect stress generation was limited. Another shortcoming was that the measure used to detect daily strain (the school hassles questionnaire) and the interview used to assess anxious solitude only assessed items within the school context, while the other measures (i.e. those assessing life events and social evaluative concerns) assessed those occurring in both school and at home.

Future research in this area could include multiple informants (e.g. parents, teachers) in order to more properly control for shared informant bias (particularly on the stress measures). As social evaluative concerns are likely a result of many different developmental factors, and though the present study determined that one of these factors seems to be stress (and, more specifically, daily strain and life events stress), future

research could also include other contributors that could offer additional insights into how children with elevated social evaluative concerns develop these concerns. Another possible direction for future research would be utilizing stress measures that have subscales that indicate whether the stress is possibly controllable or definitely out of the child's control. This would allow for greater detection of potential stress generation and would add greater insight as to what types of stressors have the greatest impact on children with elevated social evaluative concerns. Also, items assessing each construct (stress, social evaluative concerns, and anxious solitude) could potentially be selected to assess a more broad range of situations (i.e. include school, home, and neighborhood contexts). The present study found differences between two major categories of stressors (i.e. life events and daily strain) that provide evidence that social evaluative concerns are better predicted by chronic stressors than life events. Though specific stressors were not analyzed independently in this analysis, future research could attempt to find whether certain subcategories of stressors (e.g. interpersonal stressors) are more related to social evaluative concerns than others (e.g. academic pressures or family problems). Since it was found that the relations between each type of stress and social evaluative concerns were stable across the study, additional research could sample a younger population in order to assess whether the relation between stress and social evaluative concerns develops at an earlier age than that assessed in the present study. As a significant relation was found between both life events stress and daily strain with social evaluative concerns, future research could also potentially assess directional effects in order to

assess whether elevated stressors lead to elevated social evaluative concerns or whether elevated social evaluative concerns lead to elevated subjective stress levels.

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