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**Early Maladaptive Schemas and Negative Life Events  
In the Prediction of Depression and Anxiety**

by

Lindsay M. Anmuth

A Thesis

Submitted to the  
Department of Psychology  
College of Liberal Arts and Sciences  
In partial fulfillment of the requirement  
For the degree of  
Master of Arts in Clinical Mental Health Counseling  
at  
Rowan University  
September 2011

Thesis Chair: Jim A. Haugh, Ph.D.

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## **Acknowledgements**

I would like to thank Dr. Haugh for all of his time, hard work, and expertise. I would also like to thank Dr. Sledjeski for keeping me grounded and being the “voice of reason” for this group. Finally, the members of the research lab deserve special thanks for their time and support over the past year.

## **Abstract**

Lindsay M. Anmuth  
Early Maladaptive Schemas and Negative Life events in the  
Prediction of Depression and Anxiety  
2010/11  
Jim A. Haugh, Ph.D.  
Master of Arts in Clinical Mental Health Counseling

This study tested the relationships between Young's (1990, 2003) model of Early Maladaptive Schemas (EMSs), negative life events occurring over the past 4 months, depressive symptoms, and anxious symptoms. We also replicated a design testing the ability of EMSs, negative life events, and their interaction to predict depressive and anxious symptoms and extended the design to include specific categories of negative life events (interpersonal and achievement). Results of this study showed that EMSs are predictive of depressive and anxious symptoms, but that negative life events account for a greater prediction. The EMS model was just as highly associated with and predictive of anxious symptoms as it was with depressive symptoms. The study was the first to examine specific types of negative life events and their relationships with EMSs. EMSs may be more highly associated with negative achievement than with negative interpersonal events but the EMSs appear to be vulnerable to global life stress in general.

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## Chapter 1

### Overview of Depressive Disorders: Diagnostic and Etiological Models

Depression is a global term referring to disorders of depressed mood, which incorporates subclinical depression, Dysthymic Disorder (or low level, chronic depression), and Major Depressive Disorder. Major Depressive Disorder (MDD) is a disorder defined by the presence of one or more Major Depressive Episodes. Depressive Episodes are characterized by a cluster of symptoms which may include depressed mood, loss of interest or pleasure in activities, functional impairments, changes in appetite and sleeping habits, feelings of guilt or worthlessness, and loss of concentration (American Psychiatric Association, 2000). MDD affects approximately 14.8 million adults living in the United States and is the leading cause of disability for individuals aged 15-44 (National Institute of Mental Health [NIMH], 2010). The disorder elevates the risk of a number of major illnesses, the cost of which may total \$30 billion per year (NIMH, 1999).

Because depressive disorders are prevalent and cause significant impairment, the ability to understand the causal factors associated with depression is important. One of the leading causal theories of depressive disorders is the cognitive theory of depression (Beck, Rush, Shaw, and Emery, 1979). Cognitive theory holds that depressive symptoms are the result of dysfunctional cognitions that mediate the association between situations and responses, be they emotional, physiological, or behavioral. Thus, depression does not occur in response to a situation, but as a result of an individual's perceptions and underlying *beliefs* about that situation. Cognitive theory also identifies underlying determinants that may be

responsible for the development and maintenance of depression, including negative automatic thoughts, attributional biases, and schemas.

Within Cognitive Theory, a great deal of research has studied the relationship between automatic thoughts and depression. Automatic thoughts are quick, evaluative, superficial cognitions that briefly arise and are often unconscious. Such thoughts occur as a result of a situation, eliciting emotional responses and outward changes in affect. According to Beck (1976), automatic thoughts are reflexive and typically considered factual, without questioning their logic. In depressed individuals, automatic thoughts become persistently negative and increasingly salient. For instance, a depressed student may receive an exam grade of “B” and experience the automatic thought, “I failed the exam”, which would result in negative affect (Beck, 1991).

Another component to cognitive theory is that of a depressive attributional style. Attributional style refers to the way in which an individual explains personal failures and successes as well as the failures and successes of others. A depressive attributional style, or *attributional bias*, is the characteristic tendency of depressed individuals to perceive personal failures as internal (their fault alone), stable (never going to improve), and global (generalized to all performances or trials). By the same token, depressed individuals typically conceptualize personal successes as external (attributed to a force other than their own), unstable (likely not to last), and specific (will only happen in that singular instance). The style in which individuals attribute successes and failures depends on the degree to which they expected that particular outcome (Morris, 2007).

The depressive theories discussed thus far have enjoyed a great deal of research. Perhaps a less researched but equally important component of Cognitive Theory is the

relationship between schemas and depression. Schemas are considered absolute fundamental truths through which individuals filter perceptions of their experiences. These underlying beliefs are present in all individuals and represent a framework for perceiving the world. Schemas allow for a more efficient evaluation of experiences, which may occur outside of conscious awareness (Beck et al., 1979). If schemas are healthy, that is, not distorted or overly rigid, then they may be adaptive and advantageous. For instance, the belief that others will be there to meet one's emotional needs would result in trustfulness and the successful sharing of feelings with others.

Schematic content is shaped through early experiences, often through experiences within the family system, and resulting beliefs are reinforced through situations that confirm or activate the schema (Beck et al., 1979). Schema content then tends to manifest through intermediate beliefs, or rules and assumptions individuals place on themselves, others and their surroundings, and also to manifest through automatic thoughts. Cognitions at any of these three levels have the ability to become global, rigid, and overgeneralized, thus resulting in significant misperception and dysfunction (see Figure 1).

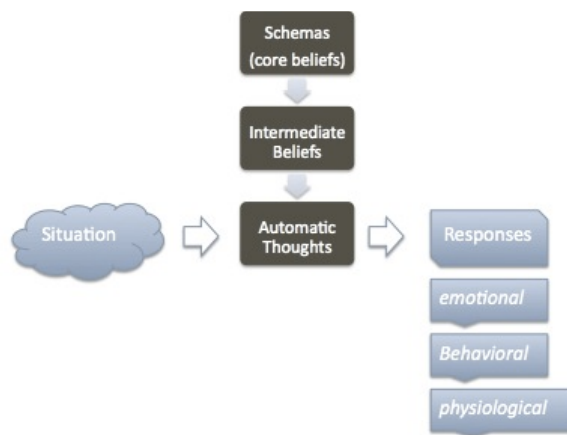


Figure 1

Individuals, especially those suffering from depression, may begin to distort their perceptions to be consistent with such underlying belief structures, thus causing schemas to become overly elicited not just by stimuli that replicate or trigger memories of their early experiences, but also by more broad, general stimuli. For example, an individual whose parent abandoned him at an early age may carry the belief that all significant others will eventually leave him, resulting in an intense fear of abandonment even from those who show no inclination to do so. Such patterns of over-activation have been shown to lead to both Axis I and Axis II pathology (Beck et al., 1979).

Schemas are activated when individuals are exposed to stimuli that trigger them, which is then thought to produce pathology. Results of numerous studies have supported this idea, demonstrating that the combination of schemas and stress can be associated with greater negative affect (Hammen & Goodman-Brown, 1990; Miranda, 1992; Seeds & Dozois, 2010;). However, these studies have used different schema measures, including the subscales of the Dysfunctional Attitudes Scale (Miranda, 1992), cognitive processing tasks (Seeds & Dozois, 2010), clinical interview (Parker, Gladstone, & Mitchell et al., 2000), or the researchers' own memory recall tasks (Hammen et al., 1985). All have claimed to measure schemas or underlying dysfunctional beliefs, but are not in agreement as far as how best to measure schematic content, the labels to give these schemas, or whether or not they may be measuring the same belief systems. In addition, research has suggested that the DAS (Beck, Weissman & Beck, 1978) may measure state-dependent beliefs that fluctuate according to mood, rather than stable underlying constructs (Clark, Beck & Alford, 1999).

## Chapter 2

### Young's Schema Theory

A more operationalized model is Young's (2003) model of early maladaptive schemas. According to Young, some individuals evidence stubborn underlying personality constructs and do not respond satisfactorily to traditional cognitive-behavioral treatments for Axis I disorders. Young's clinical experiences gave rise to the conceptual model of *Early Maladaptive Schemas* (EMSs) (Young, Klosko, and Weishaar, 2003). The model identifies characterological patterns that underlie both Axis I and Axis II disorders and places greater emphasis on early developmental factors in addition to current dysfunctional thoughts.

Consistent with Beck's idea of schemas, the model states that EMSs often begin as responses to hostile environments that are, at one point in time, adaptive to individuals' functioning and self-concept. The once adaptive ways of thinking then become maladaptive if they are still there when the individual is no longer in those situations, and may begin to perpetuate the adverse situations that the individual finds most familiar. In order for their beliefs to remain consistent and in order to confirm the content of their schemas, individuals force-fit information about themselves, the world, and their experiences, resulting in misperceptions and overgeneralizations.

Young and colleagues (2003) indicate that EMSs that develop the earliest and become the strongest are those that originate from dysfunctional familial experiences. Four such experiences include (1) *toxic frustration of needs*, or insufficient resources; (2) *traumatization or victimization*; (3) "*too much of a good thing*" or overprotection that results

in impaired autonomy; and (4) *selective internalization*, or selective overidentification with a parent's thoughts, feelings, and/or behaviors, for instance, a parent's intense anger leading to physical abuse. Of course these experiences are not causal by themselves, but when coupled with an unhealthy emotional temperament or maladaptive method of coping, may lead to the development of an EMS.

There are eighteen identified EMSs, organized across five broad domains (Appendix A for complete list and definitions of EMSs). The first, and earliest developing, domain is *Disconnection and Rejection*, containing the basic beliefs that one's needs for acceptance and nurturance will not be met. *Impaired Autonomy and Performance*, the second domain, typical results from parental overprotection or, conversely, extreme neglect, resulting in a failure to develop independent, autonomous identities. Individuals endorsing schemas belonging to the third domain, *Impaired Limits*, tend to lack self-discipline and respect for others. The fourth domain, *Other-Directedness*, entails the surrendering of one's own needs in favor of the needs of others and, in the extreme sense, can lead to a sense of unawareness of the individual's own desires or emotions. The fifth and final domain, *Overvigilance and Inhibition*, contains rigid beliefs about the self, others, and the world, resulting in hypervigilance, inhibition and/or cynicism (Young et al., 2003).

Early Maladaptive Schemas have been shown to endure longitudinally (Riso et al., 2006; Stopa & Waters, 2005), with individuals typically endorsing the same schemas over time, especially if those EMSs are of the domain Disconnection and Rejection (Wang, Halvorsen, Eisemann, et al., 2011). They have also been shown to correlate with current depressive episodes as well as a history of depressive episodes and risk factors for depression including avoidance and low self-directedness (Halvorsen, Wang, Richter, et al., 2009).

EMSs are also associated with dysfunctional attitudes (Riso et al., 2006; Schmidt, Joiner, Young, and Telch, 1996; Wang et al., 2011) and global negative affect as well as lower self-esteem (Schmidt et al., 1995). All five of the schema domains have been shown to account for a substantial percentage of the variance in depression, as measured on the Beck Depression Inventory-II (Halvorsen et al., 2009). In addition, those with chronic depression tend to endorse higher rates of EMSs even after researchers statistically control for current depressive symptoms and negative emotion (Riso et al., 2006) and also after controlling for personality disorder symptomology (Riso, Maddux, & Turini-Santorelli, 2007).

Schmidt et al. (1995) were the first to examine the factors of the YSQ. First, the researchers conducted a factor analysis of the original Schema Questionnaire, in order to explore the factor structure. The results of the factor analysis supported three higher order factors, labeled Disconnection, Overconnection, and Exaggerated Standards. EMSs within the Disconnection factor tended to correlate with feelings of alienation and emotional inhibition, whereas EMSs of the Overconnection factor tended to correlate with enmeshment and excessive dependence on others, placing both groups of these individuals at risk for depression. The third higher order factor, Exaggerated Standards, consisted of an extreme focus on personal achievement or, at the opposite extreme, self-sacrifice and guilty feelings. In a student sample as well as in a clinical sample, fifteen of the proposed 16 EMSs emerged, with Social Undesirability the only EMS that did not emerge. EMSs were found to be highly correlated with global distress, negative affect, depressive symptoms, and anxious symptoms, as well as negatively correlated with self-esteem. The researchers suggested that life stress would likely associate with EMSs as well, but did not measure this.

## **Chapter 3**

### **Schemas and Negative Life Events**

Two researchers of the same group later tested the diathesis-stress theory with EMSs and global life stressors (Schmidt and Joiner, 2004). Results showed that since EMSs are chronically activated, individuals who endorse EMSs at high levels endorsed greater depressive symptoms. However, those who endorsed EMSs at low levels experienced significant depressive symptoms if they experienced negative life events but not if they did not experience negative life events.

Recently, another research group has tested the diathesis-stress theory in the context of the EMS model and a specific subset of stressors. Eberhart, Auerbach, and Bigda-Peyton et al. (2011) measured the interaction between certain EMSs and minor life hassles that tapped an interpersonal vulnerability. The researchers included in their analyses only EMSs that appeared to be interpersonal in nature, which included those in three of the five domains: Disconnection and Rejection, Impaired Autonomy and Performance, and Other-Directedness. Results demonstrated that only Mistrust, Social Isolation, Defectiveness, and Failure to Achieve were significant predictors of changes in depression over time. In addition, results of the moderation analyses showed that of all of the EMSs, only high levels of Self-Sacrifice interacted with interpersonal life hassles to predict higher levels of depressive symptoms, while all other interactions were not statistically significant. The researchers suggest that the limited support for the diathesis-stress model of depression may be due to their inclusion of minor life hassles rather than major and minor events.



## Chapter 4

### Limitations of the Current Literature

What remains to be studied is the relationship between each of the 18 individual EMSs and different categories of negative life events that may tap their specific vulnerabilities, i.e. events that are *congruent* with the thoughts and beliefs represented by each EMS. Within cognitive theory, the diathesis-stress theory holds that pathology manifests when an individual's vulnerability meets a stressful event and that, together this pushes the individual over a threshold. However, it is unclear whether this refers to any global, nonspecific stressor or to specific stressors. Eberhart and colleagues (2011) attempted to close this gap in the literature, but looked only at only minor life hassles, only those that were interpersonal in nature, only EMSs that were deemed interpersonal, and in a sample made up entirely of women.

Schmidt and Joiner (2004) examined the interaction of the EMS model and more global negative life events, but used an older inventory, the Schema Questionnaire (SQ), which includes 16 EMSs, but not the current model of 18. Further, EMS endorsement was measured in one SQ total score, but no subscale scores, i.e. scores for each EMS. This provides no ability to observe the interaction between each EMS and negative life events and, thus, collapsing findings into global EMS and negative life event scores may be responsible for this result. Lastly, the researchers developed their own inventory of negative life events (SNLES), which described events that they hypothesized would be relevant to those with EMSs. Therefore, research to date has not looked at each of the EMSs in Young

and colleagues' (2003) most current model alongside a more established measure of negative life events that taps more than simply interpersonal events, and in a sample of female and male individuals.

Another limitation of the current literature is that little research has considered the relationship between EMSs, negative life events, and anxious symptomology, despite the fact that greater endorsement of EMSs has been associated with greater rates of anxious symptoms (Pinto-Gouveia, Castilho, Glahardo, and Cunha, 2006) and the extensive literature indicating the co-morbidity between anxious and depressive disorders (Sartorius, Ustun, Lecrubier, & Wittchen, 1996; Swendsen, 1997; Hirschfeld, 2001; Moffit, Harrington, & Caspi et al., 2007; Rhebergen, Batelaan, & de Graaf et al., 2011 ). Further, Schmidt et al. (1995) found that individuals who endorse two of the EMSs in particular, Incompetence/Inferiority and Vulnerability to Harm, may be at greater risk for developing anxiety disorders.

The current study aimed to:

- 1: Explore the relationships between each of the 18 EMSs, negative life events (including two categories: interpersonal and achievement), depressive symptoms, and anxious symptoms.*
- 2: Attempt to examine the ability of EMS and negative life events to predict negative affect, which is similar to that of Schmidt & Joiner (2004) but includes the updated version of the Young Schema Questionnaire, the YSQ-SF-3 (Young, 2009), which now includes 18 EMSs.*

*3: Attempt to predict degree of depressive symptoms and degree of anxious symptoms from the interaction of each specific EMS and current interpersonal or achievement events hypothesized a-priori to be congruent with EMSs' associated vulnerabilities.*

## Chapter 5

### Method

#### *Participants*

Participants were undergraduate students enrolled at a mid-sized, public university in the northeastern United States. They were recruited through the SONA Systems experiment management system and participated in order to obtain research credit for their Essentials of Psychology courses. Participants were directed from the SONA system to the SurveyMonkey.com survey management web service. All participants were informed, consented, and debriefed, and all identifying information was kept separate from participant data. Participant IP addresses were not stored in the survey results.

The current study contained a sample of 233 undergraduate students, of which 52.6% were female and 47.4% were male. Participant ages ranged from 18 to 43 years, with a mean of 19.55, of which 67.8% were between the ages of 18 and 19 and 79.4% were freshmen or sophomores. The majority of participants were single (73.4%) and white/non-Hispanic (63.1%).

#### Measures

##### *Demographic Questionnaire*

Participants were presented with a demographic questionnaire and asked to provide their age, academic status, sex, marital status, and ethnicity.

### *Measure of Depression*

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report measure of depressive symptomology experienced over the past two weeks.

Participants rate the extent to which they experience each item on a scale of 0-3, with total scores ranging from 0-63 (Beck et al., 1996). For instance, participants are asked to rate their level of sadness on a scale from 0 (“I do not feel sad”) to 3 (“I am so sad or unhappy that I can’t stand it”).

The inventory has demonstrated high internal consistency among college students and outpatients ( $\alpha = .93$  and  $.92$ , respectively) as well as adequate validity and diagnostic discrimination (Beck et al., 1996 in Dozois, Dobson, & Ahnberg, 1998). Cronbach’s alpha for the current sample was  $.94$ .

Dozois et al. (1998) conducted factor analyses of both the BDI (Beck, Rush, Shaw, & Emery, 1979) and the BDI-II (Beck et al., 1996) in a sample of 511 undergraduate students. High internal consistency was found ( $\alpha = .91$ ), with no significant differences for males and females (Dozois et al., 1998). Results supported the use of the following cut-off scores for undergraduate samples: 0-12 (nondepressed), 13-19 (dysphoric), 20-63 (dysphoric-depressed) in order to accurately reflect diagnostic criteria and cut-off scores used by the original inventory (Dozois et al., 1998).

### *Measure of Anxious Symptoms*

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report measure that assesses symptoms of anxiety over the past week. Participants rate the degree to which they have experienced each symptom on a 4-point scale (“Not at all” to “Severely-it bothered me a lot”). Items include physiological descriptions such as “numbness or tingling” and “feeling hot” as well as cognitive experiences such as “fear of worst happening” and “terrified or afraid” (Beck et al., 1988).

Beck et al. (1988) found that the inventory accurately discriminated between individuals with and without anxiety disorder diagnoses and found high internal consistency ( $\alpha=.92$ ) and test-retest reliability,  $r(81)=.75$ , after a one-week period. Cronbach’s alpha for the current sample was .95.

Individuals may obtain a score ranging from 0 to 63, with 0-7 denoting minimal anxiety, 8-15 mild, 16-25 moderate, and scores greater than 26 indicating severe anxiety.

### *Measure of Early Maladaptive Schemas*

The Young Schema Questionnaire-Short Form-III (YSQ-SF-3; Young & Brown, 2003) contains 90-items, each of which are scored on a 6-point Likert scale (“completely untrue of me” to “describes me perfectly”). The YSQ-SF-3 includes 18 subscales, one for each early maladaptive schema: emotional deprivation, abandonment, mistrust, social isolation/alienation, defectiveness/unlovability, failure to achieve, practical incompetence/dependence, vulnerability of harm or illness, enmeshment, subjugation, self-

sacrifice, emotional inhibition, unrelenting standards, entitlement/superiority, insufficient self-control/self-discipline, admiration/recognition-seeking, pessimism/worry, and self-punitiveness. For example, “I do not feel capable of getting by on my own in everyday life” (Young & Brown, 2003).

Participants are given a total score, which is determined by summing the total responses. This produces a total range of 0-540, with higher total scores indicating greater dysfunction. Scale scores are calculated by summing responses to the five corresponding questions for each scale, with total scale scores ranging from 0-30. (See Appendix A for description of schema scales). Higher scores indicate greater endorsement of that particular schema (Oei & Baranoff, 2007).

Little research has been conducted concerning the psychometric properties of the YSQ-SF-3 (Young & Brown, 2003), however several studies have looked at the long and original short forms. The 205-item Young Schema Questionnaire-Long Form (1990, 1994) was developed to assess the presence of early maladaptive schemas. However, due to problems in timing and therefore accuracy of the YSQ-LF in research practices, Young (1998) proposed a 75-item YSQ-Short Form. Waller et al. (2002 in Oei & Baranoff, 2007) conducted a factor analysis on the YSQ-SF using a non-clinical sample, the alpha level of which was  $\alpha = .92$ , with each of the subscales demonstrating  $\alpha = .8$ , indicating good internal consistency. No significant differences were found between the YSQ-LF and YSQ-SF at this time.

One analysis found that the false-positive rate in the discriminant analysis was 10% for the long form and 7% for the short form, indicating that though the two are similar; the short form is more conservative (Oei & Baranoff, 2007). The YSQ-SF has also demonstrated

predictive validity, accounting for 47% of the variance in a measure of depressive symptoms (Welburn et al., 2002) and 54% of the variance in Beck Depression Inventory scores (Glaser et al., 2002) (Oei & Baranoff, 2007).

Cronbach's alpha in this sample for the total score of the YSQ-SF-3 was .96. Fifteen of the 18 subscales had acceptable reliability, ranging from .71 to .88. The three subscales that did not have acceptable reliability were Dependence ( $\alpha = .57$ ), Enmeshment ( $\alpha = .66$ ), and Entitlement ( $\alpha = .55$ ).

#### *Measure of Recent Negative Life Events*

Life events were assessed using the expanded form of the Life Events Scale (LES; Francis-Raneire, Alloy, & Abramson, 2006). The original LES (Alloy & Clements, 1992; Needles & Abramson, 1990), developed from the LEQ (Saxe & Abramson, 1987), contained 134 negative life events, relevant to the personal and academic lives of college students, and were classified into interpersonal and achievement categories. Items were classified by each of the researchers separately and a consensus was reached with regard to discrimination between interpersonal, achievement, and other events. The expanded form contains 177 items and includes both negative and positive events, some of which are considered major and some of which are minor. Participants in the current study were asked to indicate the presence or absence of each event over the past four months.

Negative and positive event scores have demonstrated high reliability and validity (Francis-Ranieri, Alloy, & Abramson, 2006). The negative events scale of the LES, when coupled with negative cognitive style, has been shown to accurately predict future depressive



symptomology in those with unipolar and bipolar mood disorders. The positive events scale of the LES, when coupled with optimistic cognitive style, accurately predicted hypomanic symptomology in bipolar individuals.

This study analyzed only the items pertaining to negative life events. One graduate and two undergraduate raters, all of whom were familiar with the research area, independently categorized, a priori, negative life events into either “interpersonal,” “achievement,” or “other” domains and any differences in categorization were discussed until agreement was reached. This procedure is similar to the method of categorization used by Francis-Raniere et al. (2006). In the current study, the resulting subscales contained 62 interpersonal events and 30 achievement events. The total negative events subscale, including interpersonal, achievement, and other events, consisted of 130 items.

### *Procedure*

This study was reviewed by the Rowan University Institutional Review Board (IRB), and no data was collected until the study was approved. Students signed up for study sessions on the SONA survey management system and completed the study on SurveyMonkey.com. Participants were informed, consented, and presented with the aforementioned measures of early maladaptive schemas, negative life events, anxious symptoms, depressive symptoms, and also a measure of predepressive personality type (PSI, Robins, Ladd, and Welkowitz, et al., 1994). Upon completing the study, participants were debriefed and received information about free counseling services available to them at the university.

## Chapter 6

### Results

#### *Statistical analyses*

Analyses were conducted in PASW statistics version 18. All analyses were two-tailed with an  $\alpha$  of .05, unless otherwise noted. The Bonferroni correction was used to control for Type I error in the multiple regression analyses, which were the main analyses.

#### *Data cleaning and Preliminary Data Analyses*

First, data were examined for normality and possible outliers and descriptive statistics were run to check for errors in data entry. Next, prior to conducting the multiple regression analyses, all predictor variables were centered about their mean scores (Eberhart et al., 2011).

All scales included in statistical analyses were first examined for reliability. From the YSQ-SF-3 Dependence scale, item 25 was removed, which raised Cronbach's  $\alpha$  from .54 to .76. The Entitlement and Enmeshment scales were removed due to inadequate level of reliability (.55 and .66, respectively) and were not included in the statistical analyses.

In order to examine potential demographic differences, three multivariate analyses of variance (MANOVAs) were conducted. Results revealed no significant differences for academic status, marital status or ethnicity on measures of affect, early maladaptive schemas, or negative life events. In order to examine the relationship between participant age and all demographic variables series of bivariate correlations was conducted. An independent t-test was conducted to examine differences between males and females on each of the dependent variables. There were between-group differences on two of the EMSs, with females reporting

significantly greater endorsement of Mistrust/Abuse ( $M=3.12$ ;  $2.54$ , respectively;  $t=-3.98$ ,  $df=226$ ,  $p=.00$ ) and Self-sacrifice ( $M=3.58$ ;  $2.99$ , respectively;  $t=-4.62$ ,  $df=226$ ,  $p=.00$ ).

### *Correlational Analyses*

In order to examine associations within similar constructs, bivariate correlations were first conducted. BDI-II scores were significantly correlated with BAI scores ( $r(195)=.51$ ,  $p=.00$ ) which demonstrates a moderate degree of association between depressive and anxious symptoms. LES Interpersonal and LES Achievement subscales were also significantly correlated ( $r(231)=.39$ ,  $p=.00$ ).

Finally, a series of 153 correlational analyses were run between each of the 16 included YSQ-SF-3 subscales (see Table 1). Correlations ranged from .05 to .75, of which 150 were statistically significant, demonstrating that the EMSs are highly correlated with one another. EMSs were not correlated more highly with those of their own domain, which was different than expected. Within domain 1, correlations ranged from .42 to .70, but Mistrust (domain 1) and Negativity/Pessimism (domain 4) were highly and significantly correlated ( $r(227) = .68$ ,  $p < .05$ ). Correlations within domain 2 ranged from .41 to .75, but again, Negativity (domain 4) was highly correlated with one of the domain 2 EMSs, Vulnerability to Harm, with a correlation of .74. Since Entitlement was removed, domain 3 contained only Insufficient Self-Control, which demonstrated a moderate correlation with all EMSs. Domain 4 EMSs demonstrated fairly low correlations with one another, ranging from .26 to .38, but Subjugation (domain 4) demonstrated correlations of .67 with Dependence (domain 2) and .62 with Failure to Achieve (domain 2). Finally, correlations within domain 5 ranged from

.30 to .54. Two of the domain 5 EMSs, Negativity/Pessimism and Emotional Inhibition, were more highly correlated with EMSs that were not within domain 5. Negativity/Pessimism was most highly correlated with EMSs of domains 1 and 2 and Emotional Inhibition was most highly correlated with EMSs of domains 1 and 4.

Table 1

*Correlations within Early Maladaptive Schema model*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.Abandon	-															
2.Mistrust	.60**	-														
3.Emo Dp	.42**	.46**	-													
4.Defect	.52**	.54**	.63**	-												
5.Social Is	.57**	.57**	.54**	.70**	-											
6.Depend	.54**	.48**	.48**	.63**	.49**	-										
7.Vulnerab	.58**	.51**	.36**	.42**	.41**	.61**	-									
8.Failure	.47**	.43**	.37**	.66**	.53**	.75**	.54**	-								
9.InsufSC	.51**	.45**	.28**	.41**	.47**	.47**	.48**	.52**	-							
10.Subjug	.57**	.56**	.53**	.60**	.55**	.67**	.50**	.62**	.48**	-						
11.Self Sa	.30**	.48**	.15*	.23**	.25**	.24**	.38**	.25**	.23**	.36**	-					
12.Rec Sk	.44**	.48**	.28**	.27**	.30**	.34**	.41**	.37**	.55**	.38**	.26**	-				
13.Negativ	.65**	.68**	.36**	.47**	.47**	.58**	.74**	.54**	.52**	.56**	.49**	.48**	-			
14.Emo Inh	.41**	.54**	.43**	.56**	.52**	.49**	.46**	.46**	.36**	.50**	.24**	.41**	.51**	-		
15.Unrel S	.22**	.37**	.05	.12	.17*	.14*	.21**	.04	.17*	.13*	.38**	.38**	.33**	.30**	-	
16.Punitive	.49**	.47**	.20**	.42**	.42**	.43**	.41**	.41**	.40**	.39**	.21**	.36**	.54**	.36**	.48**	-

Note: (N=229). EMSs= Early Maladaptive Schemas. \*p<.05 \*\*p<.01

Next, correlations between constructs were conducted in order to explore the relationships between EMSs, negative life events (including total negative events,

interpersonal events, and achievement events), depressive symptoms, and anxious symptoms (See Table 2).

Table 2

*Correlations between EMSs, BDI-II, and BAI scores*

	BDI-II	BAI
Emotional Deprivation	.20**	.15*
Abandonment	.28**	.23**
Mistrust	.21**	.17*
Social Isolation	.30**	.23**
Defectiveness	.27**	.18**
Failure to Achieve	.20**	.24**
Dependence	.19**	.16*
Vulnerability to Harm	.16*	.20**
Subjugation	.20**	.20**
Self Sacrifice	.19**	.19**
Emotional Inhibition	.12	.08
Unrelenting Standards	.10	.06
Insufficient Self Control	.24**	.18**
Recognition Seeking	.21**	.13
Pessimism/Worry	.22**	.21**
Self-Punitiveness	.06	.14*
YSQ-SF-3 Total	.30**	.26**

Note: Correlations between EMSs and BDI-II scores (N=193), between YSQ-SF-3 Total and BDI-II scores (N=191), between EMSs and BAI scores (N=212), between YSQ-SF-3 total and BAI scores (N=210). EMS= Early Maladaptive Schemas. YSQ-SF-Total= Young Schema Questionnaire-Short Form-3<sup>rd</sup> Edition-Total score. BDI-II= Beck Depression Inventory-II. BAI= Beck Anxiety Inventory. \*p<.05, \*\*p<.01.

Results showed that 13 of the 16 EMSs were significantly and positively associated with BDI-II scores, ranging from .06 (Punitiveness) to .30 (Social Isolation). Thirteen of the 16 EMSs were also significantly and positively correlated with BAI scores, ranging from .06 (Unrelenting Standards) to .24 (Failure to Achieve). Domain 5 contained 2 of the 3 EMSs that were not significantly associated with BDI-II scores and 1 of the 3 EMSs that were not associated with BAI scores. In addition, no specificity was found between EMSs and their correlations with BDI-II or BAI scores.

Correlations between EMSs and negative life events were then conducted (see Table 3). Fourteen of the EMSs were significantly and positively associated with negative life events and correlations ranged from .12 (Unrelenting Standards) to .32 (YSQ-SF-3 total score). Thirteen of the 16 included EMSs were significantly and positively associated with negative interpersonal events and 15 of the 16 EMSs were significantly and positively associated with negative achievement events. Correlations ranged from .10 (Defectiveness) to .30 (Abandonment) between EMSs and negative interpersonal events and from .06 (Unrelenting Standards) to .40 (Failure to Achieve) between EMSs and negative achievement events. EMSs tended to correlate more strongly with either achievement or interpersonal events, but there was no obvious evidence for specificity between EMSs and type of negative life event experienced.

Table 3

*Correlations between EMSs, number of LES Negative Life Events, and two domains of Negative Life Events*

<i>EMS</i>	<i>LES Total Negative</i>	<i>LES Interpersonal Score</i>	<i>LES Achievement Score</i>
Emotional Deprivation	.09	.09	.15*
Abandonment	.29**	.30**	.22**
Mistrust	.29**	.29**	.19**
Social Isolation	.22**	.19**	.24**
Defectiveness	.14*	.10	.20**
Failure to Achieve	.28**	.18*	.40**
Dependence	.26**	.17*	.31**
Vulnerability to Harm	.21**	.18**	.25**
Subjugation	.22**	.20**	.22**
Self Sacrifice	.28**	.30**	.15*
Emotional Inhibition	.20**	.19**	.18**
Unrelenting Standards	.12	.12	.06
Insufficient Self Control	.31**	.27**	.26**
Recognition Seeking	.20**	.20**	.17**
Pessimism/Worry	.28**	.25**	.28**
Self-Punitiveness	.20**	.16*	.19**
YSQ-SF-3 Total	.32**	.29**	.31**

Note: N= 229. EMSs= Early Maladaptive Schemas. YSQ-SF-3 Total= Young Schema Questionnaire-Short Form-3<sup>rd</sup> Edition-Total Score. LES = Life Events Scale.

\*p<.05, \*\*p<.01.

### *Multiple Regression Analyses*

The second goal of the current study was to examine the ability of EMSs and negative life events to predict depressive symptoms and anxious symptoms using the updated YSQ and an established negative life events inventory. In order to examine the ability of EMSs, current negative life events, and their interactions to predict depressive symptoms, 17

multiple regression analyses were conducted. In the first multiple regression analysis, the total YSQ-SF-3 score along with the total negative life events score were entered on step 1 and the interaction between total YSQ-S3 score and total number of negative life events was entered on step 2. For each subsequent multiple regression analysis, each EMS and the total number of negative life events endorsed were entered on step 1 and the interaction between each EMS and the total number of negative life events was entered on step 2. The same procedure was then repeated in a series of 17 multiple regression analyses with anxious symptoms as the dependent variable. Using the Bonferroni correction ( $.05/34$ ), alpha was set at .001. Results of all multiple regression analyses are displayed in Table 4.

Results showed that all of the overall models were significant in predicting depressive symptoms and anxious symptoms. In addition, negative life events contributed significant unique variance to each of the models. Of the EMSs, only Abandonment and Defectiveness contributed significant unique variance to the prediction of depressive symptoms and none of the EMSs contributed significant unique variance to the prediction of anxious symptoms. None of the interactions between EMSs and negative life events (step 2) were significant predictors of depressive or anxious symptoms.



Table 4

*Hierarchical Regression Analysis Predicting Depressive and Anxious Symptoms from EMSs and LES Negative Events Score*

Predictor Variables	BDI-II score		BAI score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.16**		.14**	
LES-N		.27**		.28**
YSQ-SF-3 total score		.21**		.17
Step 2	.00		.00	
LES-N * YSQ-SF-3 total		.01		-.01
Total R <sup>2</sup> =	.16**		.14**	
n=	221		221	
Step 1	.15**		.13**	
LES-N		.33**		.33**
Emotional Deprivation		.18		.12
Step 2	.03		.00	
LES-N*EmoDep		.19		.03
Total R <sup>2</sup> =	.18**		.13**	
n=	221		223	
Step 1	.17**		.14**	
LES-N		.28**		.29**
Abandonment		.23**		.18
Step 2	.00		.00	
LES-N*Abandon		.04		-.03
Total R <sup>2</sup> =	.17**		.14**	
n=	221		223	
Step 1	.14**		.12**	
LES-N		.30**		.31**
Mistrust/Abuse		.16		.10
Step 2	.01		.00	
LES-N*Mistrust		-.08		-.02
Total R <sup>2</sup> =	.14**		.12**	
n=	221		223	
Step 1	.16**		.14**	
LES-N		.29**		.30**
Social Isolation		.22**		.15
Step 2	.01		.00	
LES-N*Soc Iso		.10		.02
Total R <sup>2</sup> =	.17**		.14**	
n=	221		223	

Table 4 continued

*Hierarchical Regression Analysis Predicting Depressive and Anxious Symptoms from EMSs and LES Negative Events Score*

Predictor Variables	BDI-II score		BAI score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.17**		.14**	
LES-N		.31**		.32**
Defectiveness		.24**		.15
Step 2	.01		.00	
LES-N*Defective		.10		-.05
Total R <sup>2</sup> =	.18**		.14**	
n=	221		223	
Step 1	.13**		.15**	
LES-N		.31**		.29**
Failure to Achieve		.12		.18
Step 2	.00		.00	
LES-N * Failure		.01		-.03
Total R <sup>2</sup> =	.18**		.14**	
n=	221		223	
Step 1	.13**		.13**	
LES-N		.32**		.31**
Dependence		.10		.12
Step 2	.00		.00	
LES-N*Depend		.04		-.03
Total R <sup>2</sup> =	.13**		.13**	
n=	221		223	
Step 1	.13**		.13**	
LES-N		.32**		.31**
Vulnerability to Harm		.10		.15
Step 2	.00		.00	
LES-N*Vulnerability		.04		-.01
Total R <sup>2</sup> =	.13**		.13**	
n=	221		223	
Step 1	.14**		.14**	
LES-N		.31**		.31**
Subjugation		.16		.15
Step 2	.00		.00	
LES-N*Subjugat		-.04		-.03
Total R <sup>2</sup> =	.14**		.14**	
n=	221		223	
Step 1	.13**		.13**	
LES-N		.30**		.31**
Self-Sacrifice		.13		.12
Step 2	.00		.00	
LES-N*SelfSac		-.04		-.02
Total R <sup>2</sup> =	.14**		.13**	
n=	221		223	

Table 4 continued

Step 1	.12**		.12**	
LES-N		.32**		.33**
Emotional Inhibition		.09		.05
Step 2	.03		.02	
LES-N*EmoInhibit		-.17		-.16
Total R <sup>2</sup> =	.15**		.14**	
n=	221		223	
Step 1	.12**		.12**	
LES-N		.33**		.33**
Unrelenting Standards		.06		.04
Step 2	.04		.01	
LES-N*UnrelentSt		-.21		-.08
Total R <sup>2</sup> =	.16**		.12**	
n=	221		223	
Step 1	.14**		.12**	
LES-N		.30**		.31**
Insufficient Self Control		.15		.08
Step 2	.00		.00	
LES-N * Insuff. Self Con		-.01		.03
Total R <sup>2</sup> =	.14**		.12**	
n=	221		223	
Step 1	.13**		.12**	
LES-N		.32**		.33**
Recognition Seeking		.11		.05
Step 2	.00		.00	
LES-N*Recognition Seek		-.03		.04
Total R <sup>2</sup> =	.13**		.12**	
n=	221		223	
Step 1	.14**		.12**	
LES-N		.30**		.34**
Pessimism/Worry		.16		.03
Step 2	.00		.03	
LES-N*Pessimism		.00		-.18
Total R <sup>2</sup> =	.14**		.15**	
n=	221		223	
Step 1	.12**		.13**	
LES-N		.34**		.32**
Self-Punitiveness		.03		.11
Step 2	.03		.00	
LES-N*Self-Punitive		-.18		-.04
Total R <sup>2</sup> =	.15**		.13**	
n=	221		223	

In order to fulfill the third goal of the current study, EMSs were examined a-priori and separated into achievement, interpersonal, or “other” categories, based on the vulnerabilities they appeared to represent (See Figure 2).

<i>Achievement</i>	<i>Interpersonal</i>
Failure to Achieve	Emotional Deprivation
Recognition Seeking	Abandonment
Unrelenting Standards	Mistrust/Abuse
Self-Punitiveness	Social Isolation
	Dependence
	Subjugation
	Self-Sacrifice
	Emotional Inhibition

Figure 2

*EMSs grouped a-priori into hypothesized domains representing vulnerability*

Next, 4 multiple regression analyses were conducted to examine the ability of each achievement EMS and Negative achievement events, as well as their interaction, to predict depressive and anxious symptoms. Each achievement EMS and the Negative achievement events score were entered on step 1 and the interaction between each achievement EMS and Negative achievement events score was entered on step 2. For each of the 4 achievement EMS, a multiple regression analysis was then conducted in the same manner, with anxious symptoms as the predictor variable. Using the Bonferroni correction for all analyses under the 3<sup>rd</sup> goal of the study, including 8 total regression analyses for achievement and 16 total

regression analyses conducted for interpersonal (.05/24),  $\alpha$  was set at .002. Results are displayed in Table 5.

Table 5

*Achievement EMSs and LES Negative Achievement Events Score predicting depressive and anxious symptoms*

Predictor Variables	BDI-II score		BAI score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.08**		.08**	
LES-A		.21**		.13
Failure to Achieve		.12		.21**
Step 2	.00		.00	
LES-A*Failure		.00		-.02
Total R <sup>2</sup> =	.08**		.08**	
n=	221		223	
Step 1	.08**		.05	
LES-A		.23**		.20
Recognition Seeking		.14		.09
Step 2	.00		.00	
LES-A*RecSeek		-.05		.02
Total R <sup>2</sup> =	.08**		.05	
n=	221		223	
Step 1	.07**		.05	
LES-A		.25**		.21**
Unrelenting Standards		.09		.06
Step 2	.03		.00	
LES-A*UnrelentStand		-.17		-.05
Total R <sup>2</sup> =	.10		.05	
n=	221		223	
Step 1	.07**		.07**	
LES-A		.25**		.19
Self-Punitiveness		.05		.14
Step 2	.01		.00	
LES-A*Self-Punitive		-.11		.02
Total R <sup>2</sup> =	.08		.07**	
n=	221		223	

Three of the 4 overall models were significant in the prediction of depressive symptoms (Failure to Achieve, Self-Punitiveness and Recognition Seeking), but for all of the analyses, achievement EMSs and Negative achievement events entered on step 1 explained a significant proportion of the variance. None of the interactions on step 2 explained a significant proportion of the variance in depressive symptoms. In 3 of the 4 analyses, Negative achievement events contributed significant unique variance to the model, but none of the achievement EMSs contributed significant unique variance.

In predicting anxious symptoms, 2 of the 4 overall models were significant (Unrelenting Standards and Failure to Achieve). Failure to Achieve and Negative achievement events, which were entered on step 1, were the only predictors to explain a significant proportion of the variance. None of the interactions, which were entered on step 2, explained a significant proportion of the variance in anxious symptoms. Neither EMSs nor Negative achievement events contributed significant unique variance to the model.

In a continuation of the 3<sup>rd</sup> goal of the study, eight multiple regression analyses were conducted to examine the ability of each interpersonal EMS and Negative interpersonal events, as well as their interaction, to predict depressive and anxious symptoms. Each of the interpersonal EMSs and the Negative interpersonal events score were entered on step 1 and the interaction between each interpersonal EMS and the Negative interpersonal events score was entered on step 2. For each of the 8 interpersonal EMSs, a multiple regression analysis was then conducted in the same manner, with anxious symptoms as the predictor variable. Results are displayed in Table 6.

Table 6

*Interpersonal EMSs and Negative Interpersonal Events score predicting depressive and anxious symptoms*

Predictor Variables	BDI-II score		BAI score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.14**		.11**	
LES-I		.31**		.29**
Emotional Deprivation		.18		.12
Step 2	.04		.00	
LES-I*EmoDep		.21		.02
Total R <sup>2</sup> =	.18**		.11**	
n=	221		223	
Step 1	.16**		.12**	
LES-I		.25**		.25**
Abandonment		.24**		.18
Step 2	.00		.01	
LES-I*Abandon		.03		-.10
Total R <sup>2</sup> =	.16**		.13**	
n=	221		223	
Step 1	.13**		.10**	
LES-I		.28**		.27**
Mistrust		.16		.11
Step 2	.00		.00	
LES-I*Mistrust		-.01		-.04
Total R <sup>2</sup> =	.13**		.10**	
n=	221		223	
Step 1	.16**		.12**	
LES-I		.28**		.27**
Social Isolation		.23**		.17
Step 2	.01		.00	
LES-I*SocialIsol		.10		-.05
Total R <sup>2</sup> =	.17**		.12**	
n=	221		223	
Step 1	.12**		.11**	
LES-I		.30**		.28**
Dependence		.12		.15
Step 2	.00		.00	
LES-I*Dependence		.04		-.01
Total R <sup>2</sup> =	.12**		.11**	
n=	221		223	
Step 1	.13**		.12**	
LES-I		.29**		.27**
Subjugation		.17		.16
Step 2	.00		.01	
LES-I * Subjugation		-.04		-.08
Total R <sup>2</sup> =	.13**		.12**	
n=	221		223	

Table 6 continued

Step 1	.12**		.11**	
LES-I		.28**		.27**
Self-Sacrifice		.13		.12
Step 2	.00		.00	
LES-I*Self-Sacrifice		-.01		-.04
Total R <sup>2</sup> =	.12**		.11**	
n=	221		223	
Step 1	.11**		.10**	
LES-I		.31**		.29**
Emotional Inhibition		.10		.06
Step 2	.03		.03	
LES-I*EmoInhib		-.16		-.17
Total R <sup>2</sup> =	.14**		.12**	
n=	221		223	

In all of the 8 regression analyses predicting depressive symptoms, the overall models were significant. In addition, all of the interpersonal EMSs and the Negative interpersonal events score, which were entered on step 1, explained a significant proportion of the variance in depressive symptoms, but none of the interactions, which were entered on step 2, explained a significant proportion of the variance. The Negative interpersonal events score contributed significant unique variance to all of the models, as did the EMSs Abandonment and Social Isolation. In all of the 8 regression analyses predicting anxious symptoms, the overall models were also significant. All of the 8 interpersonal EMSs and the Negative interpersonal events score, which were entered on step 1, explained a significant proportion of the variance in anxious symptoms, but none of the interactions, which were entered on step 2, predicted a significant proportion of the variance. Negative interpersonal events contributed significant unique variance to all of the models.



## Chapter 7

### Discussion

Cognitive theory states that maladaptive schemas may be responsible for certain perceptions of reality and for confirming negative beliefs, which, in turn, can lead to depression and anxiety. Young and colleagues (1990, 2003) furthered cognitive theory by stating that early adverse experiences cause individuals to develop beliefs that may be advantageous at one point in time, but that become maladaptive as their situations change, leaving them with problematic characterological patterns. Young's model operationalizes these cognitive vulnerabilities by defining 18 separate early maladaptive schemas (EMSs), which are organized into 5 domains. Research has associated the EMSs with relationship difficulty, increased stress, and a risk of experiencing depression and anxiety.

Theorists have speculated as to whether EMSs are chronically active and associated with chronic pathology or whether they are activated by negative events, which confirm their beliefs and produce pathology as a result. The current study investigated the latter theory, which is consistent with the cognitive diathesis-stress model. It was expected that, independently, EMSs and negative life events would be able to predict depressive symptoms and anxious symptoms, but that the interaction between EMSs and negative life events would be a greater predictor, above and beyond either variable alone. It was also theorized that the *type* of event individuals experienced would make a difference, such that EMSs that represented a vulnerability to interpersonal stress, such as Abandonment, would interact with negative interpersonal events, such as the break up of a relationship, to produce depression or anxiety. Furthermore, it was expected that a similar effect would be found for achievement-

type EMSs, such as Failure to Achieve, and negative achievement events, for instance receiving an 'F' in a course.

According to our results, all of the EMSs were predictive of depressive symptoms as was the endorsement of global negative life events. Inconsistent with the third hypothesis, however, the interactions between EMSs and negative life events were not better predictors of depressive symptoms and, in fact, were nonsignificant. The number of negative life events was the best predictor of depressive symptoms, followed by Abandonment, Defectiveness, and Social Isolation. These 3 were the only EMSs to contribute significant unique variance and all can be found in domain 1 of the EMS model. Though all of the overall models were significant in predicting anxious symptoms, as well, none of the interactions were significant and none of the EMSs contributed significant unique variance to the models. This is consistent with Hankin, Abramson, Miller, and Haefffel, (2004) who found that EMSs were predictive of future depressive symptoms and depressive episodes, but not of anxious symptoms or anxiety disorders.

The fact that none of the interactions between EMSs and negative life events significantly predicted depressive or anxious symptoms is similar to those of Schmidt and Joiner (2004) who demonstrated that high endorsement of EMSs was associated with lower depressive and anxious symptoms in the presence of stressors. The researchers suggested that EMSs could provide a buffer against developing pathology when negative events happen. However, results of the current study do not support this effect, as no similar effects were significant. Nevertheless, with regard to our third hypothesis, the current findings failed to support the idea that the EMS model would interact with negative life events to predict greater negative affect.

Our third hypothesis was that achievement EMSs would interact with negative achievement events and that interpersonal EMSs would interact with negative interpersonal events to produce greater depressive and anxious symptoms. Results demonstrated that both achievement EMSs and negative achievement events were significant, but again, the events rather than the EMSs were greater predictors. The same was found of interpersonal EMSs and negative interpersonal events and, as before, the events accounted for a greater prediction. In addition, EMSs were expected to interact with their specific type of negative life event to predict greater depression or anxiety, however none of these interactions were significant. In fact, there was a trend for the interactions between having achievement EMSs and actually experiencing those events to lead to *lesser* depressive and anxious symptoms, though again these were not significant. The same effects were found for interpersonal EMSs and negative interpersonal events, such that interpersonal EMSs and negative interpersonal events predicted depressive and anxious symptoms, but their interactions did not. The negative interpersonal events score was the strongest predictor of depressive symptoms and of anxious symptoms.

Furthermore, the endorsement of negative life events, both interpersonal and achievement-related, was more predictive of depressive and anxious symptoms than was endorsement of EMSs. This is similar to that found by Iacovello et al. (2009) and also to the results of Eberhart et al. (2011), which supported a mediational effect, such that the predictive power of EMSs was explained by the endorsement of minor life hassles.

The current results were similar to that of Eberhart and Auerbach et al (2011), though our sample included males and females, an established and more diverse inventory of life events rather than just minor hassles, and included achievement EMSs and events in addition

to interpersonal. Results of their study demonstrated little support for the diathesis-stress theory and more for that of stress generation. They found main effects, such that schemas and life hassles predicted depression, but their interactions did not.

Our results also raise questions about the relationships between schemas, stressors, and pathology and about the nature of the population. Miranda (1992) found a significant prediction in a different direction. The interaction of depression and negative life events was found to significantly predict dysfunctional thinking in a sample that was vulnerable to depression but not in a non-vulnerable sample. It is possible, thus, that our lack of finding was due to assessing a non-vulnerable sample as participants were not asked to report a history of depression or anxiety.

This also raises the issue of whether EMSs are triggered by negative events or whether the presence of such schemas and dysfunctional beliefs actually helps to generate life stress, as there has been increasing support for stress generation (Hammen, 1991; Hammen and Goodman-Brown, 1990; Safford, Alloy, and Abramson et al, 2007; Seeds & Dozois, 2010). It is also possible that the relationship between schemas, negative life events, and pathology may be more complex, such that schemas may be associated with greater pathology, but also associated with a greater number of negative life events, which in turn, may or may not produce greater pathology (Safford et al., 2007).

As such, the current study also explored the associations between early maladaptive schemas (EMSs), endorsement of negative life events, depressive symptoms, and anxious symptoms. Within the construct of negative life events, two types were identified: interpersonal and achievement-related stressors.

The results showed that all of the EMSs were positively associated with depressive and anxious symptoms and were in the moderate range, with EMSs of domain 1: Disconnection and Rejection being the most highly correlated with each. The total schema score was also positively and significantly associated with depressive and anxious symptoms and these correlations were also in the moderate range. The sizes of the correlations were similar those found in previous studies (Abela, Auerbach, Sarin, and Lakdawalla, 2009; Eberhart et al., 2011) though the correlation between the total YSQ score and depressive symptoms was slightly lower than in previous studies (Schmidt et al., 1995; Oei and Baranoff, 2007).

All but two of the EMSs were significantly and positively correlated with the negative life event score, with only Emotional Deprivation and Unrelenting Standards demonstrating correlations that were not significant. Twelve of the 16 EMSs were significantly and positively associated with negative interpersonal events, with the Abandonment EMS being the most highly correlated and all but 1 of the EMSs were significantly associated with negative achievement events, with the Failure to Achieve EMS representing the highest correlation. This was the first study to demonstrate that EMSs are highly associated with negative achievement events and, in this study; more EMSs were associated with negative achievement than with negative interpersonal events and those correlations were greater.

Before the analyses were conducted, EMSs were grouped into hypothesized domains of vulnerability, either achievement or interpersonal. Of those in the achievement domain, 2 of the 4 EMSs, Failure to Achieve and Self-Punitiveness, were more highly correlated with their congruent domain, but Recognition Seeking and Unrelenting Standards demonstrated a

higher correlation with their incongruent domain, i.e. interpersonal events, which went against the a-priori grouping. In the interpersonal domain, 3 of the 8 EMSs, Emotional Deprivation, Dependence, and Emotional Inhibition, were more strongly correlated with their incongruent domain, i.e. achievement events rather than interpersonal. The most notable departure from the a-priori grouping was the Dependence EMS, which demonstrated a much higher correlation with achievement events than with interpersonal events. Our a-priori grouping was theoretical and may need to be revised; however some of the EMSs that were more congruent with what was thought to be their incongruent domain do not make theoretical sense on their own.

Several explanations can be offered to explain the results showing that EMSs did not interact with negative life events to predict depressive and anxious symptoms. First, a third variable may be confounding the relationship between EMSs and negative life events. Young (2003) proposed 3 mechanisms by which individuals cope with their EMSs. Individuals may avoid situations that evoke their EMSs, may overcompensate for their EMSs by acting opposite of their vulnerable self, or may surrender to the inevitability of the pain associated with their beliefs. Taking that into consideration, it is possible that the way in which individuals are currently coping with their EMS may impact their likelihood of experiencing negative life events, the effect of that event, and the likelihood of their experiencing depression or anxiety.

A second explanation may be that the EMSs represent a general vulnerability that is impacted by global negative life events and not specific types of events per se, as these results did not demonstrate specificity between EMSs and any one type of negative life event over another. Rather, the EMS model appears overall to correlate positively with negative

life events in general. However, the results show that a greater number of EMSs were significantly associated with achievement stress than with interpersonal stress. Research into cognitive vulnerability models has more typically included interpersonal stressors, hypothesizing that these are more relevant to cognitive schemas (Eberhart et al., 2011). However, results of the current study demonstrate that EMSs may be more highly associated with achievement rather than with interpersonal stress. The achievement subscale of the LES includes items that threaten an individual's sense of independence, competence, and academic or vocational performance. The fact that all but one of the EMSs were correlated with negative achievement events and that more than half of them demonstrated a greater correlation with achievement rather than with interpersonal events may indicate that the EMSs cause individuals to be more achievement or intrapersonally vulnerable than originally conceptualized. There is also the possibility that our student sample may be more achievement-focused and therefore more likely to experience those events, relative to interpersonal events. It should be noted that the current study was the first to look EMS vulnerability to types of life events in a sample that included both males and females and that our sample was almost half male.

There is also the problem of intercorrelations within EMSs. Intercorrelations were higher than would be expected, given that the conceptual model defines each EMS as a unique construct. Eberhart et al. (2011) found most EMS intercorrelations to be in the moderate range and in the current study, results showed that not only were intercorrelations of moderate size, they also failed to support the theory that EMSs within domains should be more highly correlated than with those outside of their domain.

Another problem was that two of the EMS subscales, Entitlement and Enmeshment, demonstrated low reliabilities in the current sample and were not included in the analyses. Interestingly, Wang and colleagues (2011) identified problems with these 2 subscales as well, stating that Entitlement was the only construct that did not differ significantly between current and never-depressed individuals and that endorsement of Enmeshment appeared to be overly dependent on current mood state. Enmeshment has also been shown to demonstrate the lowest test-retest reliability (.51) of any of the EMSs (Schmidt, et al., 1995). Young et al. (2003) identify both Entitlement and Enmeshment as unconditional EMSs and thus one would assume that they should endure over time and across mood states. Future research should examine whether or not these subscales measure true and reliable EMSs.

A strength of the current study is its large sample size (n=233) and the relatively even distribution of males and females. Another strength is the use of the most current version of the Young Schema Questionnaire, the YSQ-SF-3, and an established inventory of negative life events that contains a diverse array of events relevant to college students (LES; Francis-Raniere et al., 2006). However, there are several limitations. First, a cross-sectional design was used, which made it impossible to assess changes over time or to determine causality. Our results also showed that females endorsed significantly greater levels of 2 of the EMSs, Mistrust/Abuse and Self-Sacrifice, but males and females were not analyzed separately because females' endorsement of these 2 EMSs was still in the moderate range. Future research might separate males and females in the analyses, as females have been known to demonstrate greater endorsement of depressive symptoms and of certain EMSs.

Another limitation was the number of multiple regression analyses conducted to examine our hypotheses. Using a model that contains 18 independent variables (16 included



in this study) lowered the power of this study, however this was unavoidable due to the fact that this study was designed to assess all of the EMSs and not just those hypothesized to be relevant, as was done in Eberhart et al. (2011).

Primarily, future research should conduct a confirmatory factor analysis of the YSQ-SF-3, as its factor structure and reliability of the scales has yet to be confirmed. Not all of the YSQ-SF-3 subscales have demonstrated adequate reliability and there may be considerable overlap between EMSs. Also important is that the validity of the EMS domains has not been supported in factor analytic studies (Schmidt et al., 1995). The conceptual model itself might take into account the research that has shown a lack of support and this may warrant revision.

Future research is also needed to further examine the relationship between EMSs and negative life events. Studies might include a longitudinal assessment of EMSs, negative affect, and a more in-depth measure of negative life events. The nature of cognitive vulnerability is that it lies in the perception of the individual. Thus, studies should assess the subjective impact of each event, inquire as to what area of vulnerability each event taps, and also the symptoms that might have arisen in response. Finally, studies in this area of research appear to be increasingly interested in the tendency of schemas to perpetuate negative life events for the individual, termed the stress generation effect. Whereas the diathesis-stress theory states that schemas lie dormant until negative life events activate them, the stress generation theory holds that the schemas actually help to cause those events to take place. Future research should examine this by assessing the ability of EMSs to predict negative life events and should follow this assessment in a longitudinal approach, tracking changes over time. Studies should also assess the subjective impact of each event as well as the individual's idea of the causes of those events.

In conclusion, results of this study showed that EMSs are predictive of depressive and anxious symptoms, but that negative life events account for a greater prediction. The EMS model was just as highly associated with and predictive of anxious symptoms as it was with depressive symptoms. The study was the first to examine specific types of negative life events and their relationships with EMSs and, thus, the first to demonstrate that EMSs may be more highly associated with negative achievement than with negative interpersonal events. Overall, the EMSs appear to be vulnerable to global life stress in general, but the interactions between EMSs and negative life events, regardless of the type of event, do not lead to more depressive and anxious symptoms than do the EMSs or negative life events alone.

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## Appendix A: Early Maladaptive Schemas (EMSs): Description and Domains

<u>Schema/Scale</u>	<u>High Scores Indicate:</u>
<i>Domain 1: Disconnection &amp; Rejection</i>	
Abandonment/Instability	Belief that others will leave individual
Mistrust/Abuse	Others will manipulate him/her for their own personal gain
Emotional Deprivation	Others will reject emotional expressions and will not reciprocate.
Defectiveness/ Shame	Belief that one is fundamentally flawed, inferior, and/or undesirable to others.
Social Isolation/Alienation	Sense of not fitting in with those outside of own family
<i>Domain 2: Impaired Autonomy &amp; Performance</i>	
Dependence/Incompetence	Cannot function without intervention or judgment of others
Vulnerability to Harm or Illness	Preoccupation with potential disaster
Enmeshment/Undeveloped Self	Overinvolvement with others to the point that one cannot function without the other
Failure	Belief that one is significantly inferior to others
<i>Domain 3: Impaired Limits</i>	
Entitlement/Grandiosity	Belief that one is superior to others and deserve whatever one desires, regardless of detriment to others
Insufficient Self-Control/Self-Discipline	Refuse to control emotions or urges and avoid discomfort and responsibility
<i>Domain 4: Other-Directedness</i>	



Subjugation	Relinquishing of one's own control, needs, or emotions to others because of coercion or to avoid adverse consequences.
Self-Sacrifice	Voluntary catering to others at the expense of one's own satisfaction
Recognition/Approval Seeking	Obtain self-worth from the perceived appreciation of others; Preoccupied with position and appearances
<i><u>Domain 5: Overvigilance &amp; Inhibition</u></i>	
Pessimism/Worry	Extreme fear of making mistakes which may lead to catastrophe
Emotional Inhibition	Inhibition of anger, positivity; Sacrificing of personal enjoyment and gratification
Unrelenting Standards/Hypercriticalness	Overemphasis on rules, conditions, perfectionism, and efficiency for both self and others
Self-Punitiveness	Belief that mistakes should be severely punished

## Appendix B: Life Events Scale Items

### *Achievement Subscale*

1. Not accepted into major or college or graduate program of choice.
2. Received negative reaction from family or friends about not doing well in school (e.g. yelled at; called “dumb”; silent treatment, parents refused to pay tuition because of bad grades, etc.) or about not being in school (e.g. yelled at; called “dumb”; silent treatment, etc.).
5. Did poorly on or failed an exam or major project in an important course (i.e. grade less than C).
6. Failed to achieve an important school-related goal that does not involve grade point average (e.g. did not get into orchestra or athletic team; did not get lead part in play, etc. )
7. Got caught cheating on an exam or plagiarizing a paper and there were severe negative consequences (e.g. Flunked course; expelled from school for a term, etc.)
8. Dropped out of school because of unfortunate circumstances (e.g. not doing well; financial problems, family problems, etc.).
9. Failed a course.
10. Put on academic probation or earned an overall semester or quarter grade point average less than or equal to 2.00.
11. Were very behind (by at least 2 weeks of work) or did not understand a significant amount of the material (e.g. did not understand more than just one reading or lecture) in one or more important courses.
12. Disliked major or school in general, but had to stay (e.g. forced by parents to stay; have no skills to get a job, etc.)
13. Kicked out of school.
20. Significant negative change in financial circumstances (e.g. large amount of money or valuables lost or stolen; loss of financial support; going into significant debt; large unexpected necessary expense, etc. )
21. For at least 2 weeks, or for any duration if it caused an emergency, did not have enough money for one or more necessities (i.e., health care, food, housing, heat and electricity, or necessary clothing) and had to do without them (or, when living with family, family does not have enough money for one or more necessities).
22. Put off major current life goal due to lack of money (e.g. going to school; moving out of parents’ house; etc. )
23. Did not have enough time to do well in school (if in school), personal life, and job (if have job) (e.g., have to work long hours at job and have no time to study; study so much that have no time to see boyfriend or girlfriend; etc.).
24. Were unable to find a job and wanted a job very much for financial or career reasons.
25. Not hired/promoted for position of choice at job due to poor work record, too few qualifications, etc.
29. Job level or pay rate was much lower than what was appropriate for your skill level or job had one or more undesirable features (e.g., work is dangerous; etc.)

- 30. Were very behind at job (by at least 2 weeks of work) or did not understand a significant amount of the information needed to perform job.
- 32. At job, boss gave you a written warning or negative formal evaluation on job performance or threatened to fire you.
- 33. Put on probation at job due to poor work performance.
- 34. Got caught being dishonest at job (e.g., taking credit for work you didn't do; lying to boss; etc.) and there were severe negative consequences (e.g., got a written warning; were temporarily suspended; were fired; etc.)
- 35. Quit job because of unfortunate circumstances (e.g., quit after fight with boss, or because of poor working conditions; etc.).
- 36. Laid off or fired from job.
- 41. Received negative reaction from family or friends for your being a homemaker (e.g., criticized for having a low-status, non-paying position, etc.) or for your not being a homemaker (e.g., for working outside the home).
- 42. You were in charge of doing the housework and others frequently criticized the appearance or cleanliness of your home, your cooking, or your ability to entertain in the home.
- 81. Put off major current life priority in order to care for your child or dependent family member (e.g., put off getting a job; going to school; or dating if single parent; etc.).
- 151. Important piece of property was stolen, broken, severely damaged, lost, or falling apart fast (e.g., TV set broke; roof was starting to leak badly or collapsed; stereo or CD player was stolen; etc.).
- 164. Had frequent difficulties due to a disability (e.g., trouble walking; breathing; hearing; eating; learning; talking; etc.).

### *Interpersonal Subscale*

- 31. Significant fight or argument with coworker or boss that led to a serious consequence (e.g., you or your coworker/boss crying; name calling; warning notice; etc.).
- 46. Break-up of or serious threat to parents' marriage (e.g., recently divorced or separated; parent had recent affair; etc.).
- 50. Significant fight or argument with family member that led to a serious consequence (e.g., you or family member crying; name calling; being grounded; etc.).
- 51. Got caught doing something parents disapproved of, or parents found evidence of something they disapproved of (e.g., parents found drugs in room; parents found birth control devices; etc.).
- 52. Frequent pressure from parents to do what they wanted you to do, to agree with them (e.g., parents threaten to withdraw finances for disobeying; parents say "You don't love me", if don't agree with them; etc.) or to achieve things you weren't capable of or interested in (e.g., have to be a star athlete even though would rather concentrate on other interests; punished if do not excel at school; etc.).
- 53. Parents were invading your privacy or were too nosy (e.g., parents pry or go through belongings; parents ask too many questions; parents check up on activities) or parents were infringing on your freedom (parents are overly strict - constantly have to follow many rules; have to follow rigid schedules that parents set up; parents are excessively

- protective - not allowed to engage in "risky" activities such as sports; parents give too much help with chores or homework).
54. Frequently put down or made fun of by family member (e.g., called names; ridiculed; parents play favorites or make unfavorable comparisons between you and your siblings; etc.) or were getting blamed for problems between you and a family member or for a family member's personal problems (e.g., he or she said things such as "I would be better off if you weren't here", etc.).
  55. Betrayed by family member (e.g., lied to; cheated; important promise broken; "stabbed in the back"; you got in trouble for family member's wrongdoing; etc.).
  60. You or your partner had an abortion, gave child up for adoption, miscarried, or baby died during delivery.
  61. Received negative reaction from family or friends (e.g., yelled at; called names; criticized; etc.) about you or your partner being pregnant, having an abortion, giving a child up for adoption, or having a child.
  72. Your child was taken away from you (e.g., lost custody; ran away; kidnapped; was taken from you by the state; etc.).
  73. Unwanted absence of your child lasting at least 1 month (due to custody battle; child going to live with someone else; etc.).
  74. Significant fight or argument with your child that led to a serious consequence (e.g., you or child crying; name calling; child throwing temper tantrum; child was spanked; child was grounded; etc.).
  75. Family or friends reacted negatively (e.g., insulted; etc.) to your child.
  76. Frequently criticized on how you were raising your child or were getting blamed for problems between you and your child or for your child's problems (e.g., others said things such as "Your child would be better off being raised by someone else"; "It's your fault your child disobeys you so much"; etc.).
  77. Had frequent fights or disagreements regarding your child with "Ex" (e.g., ex-husband; ex-wife; ex-boyfriend; ex-girlfriend; etc.).
  78. Frequently put down or made fun of by your child (e.g., called names; ridiculed; etc.).
  79. Frequently were unable to attend highly desired social events, visit friends, or spend time alone due to lack of child care or someone to stay with dependent family member (e.g., were unable to arrange or afford child care; there was no one to stay with dependent family member; etc.).
  87. Death of close family member or close friend (parent, sister, brother, child, grandparent, spouse, boyfriend/girlfriend, close friend).
  88. Death of pet to whom you were close or attached (e.g., death of your dog).
  89. You emotionally hurt (e.g., betrayed; put down; made fun of; etc.) a person who is important to you (i.e., family member; boyfriend/girlfriend/spouse; close friend; your child).
  90. Had no one to confide in.
  91. Other people pressured you to do something you considered to be very wrong or were very uncomfortable with (e.g., steal money; force someone else to have sex; etc.).
  93. Unwanted absence of close friend lasting at least 1 month (due to military, jail term, job, school, etc.).
  97. Significant fight or argument with close friend other than roommate that led to a serious consequence (e.g., you or friend crying; name calling; physical fight; etc.).

98. Frequently put down or made fun of by close friend (e.g., called names; ridiculed; etc.) or betrayed by close friend (e.g., lied to; cheated; important promise broken; "stabbed in the back"; you got in trouble for close friend's wrongdoing; etc.).
99. Were getting blamed for problems between you and close friend, or for close friend's personal problems (e.g., he or she said things such as "My problems are because of you"; or "I would be better off if you weren't here"; etc.).
100. Unwanted final break-up of relationship with close friend. DOES NOT INCLUDE BREAK-UP DUE TO YOU OR CLOSE FRIEND MOVING AWAY!
101. Not accepted into desired social group (e.g., fraternity/sorority; clique; group of friends; etc.).
102. Had no friends or were not sought out by others for friendship (e.g., not called by others and asked to do something fun, etc.).
111. Received negative reaction (e.g., insulting comment) about boyfriend/girlfriend/spouse from a person who is important to you (e.g., parent, close friend, etc.).
112. You received negative reaction (e.g., insulting comment) from a person who is important to your boyfriend/girlfriend/spouse (e.g., his or her parent, close friend, etc.).
113. Wanted to get married or establish long-term commitment but boyfriend/girlfriend did not want to.
114. Significant fight or argument with boyfriend/girlfriend/spouse that led to a serious consequence (e.g., you or boyfriend/girlfriend/spouse crying; name calling; leaving common residence for one night; etc.)
115. Were living apart from boyfriend/girlfriend/spouse for school or career reasons (e.g., boyfriend/ girlfriend/spouse went to another school or worked in another city).
116. Frequent pressure from boyfriend/girlfriend/spouse to do what he or she wanted you to do, to agree with him or her, or to achieve things you weren't capable of or weren't interested in (e.g., always insists on getting his or her own way; insists on making most of the decisions; etc.).
117. Boyfriend/girlfriend/spouse was invading your privacy or was too nosy (e.g., asked too many questions; read your mail; etc.).
118. Frequently put down or made fun of by boyfriend/girlfriend/spouse (e.g., called names; ridiculed; etc.) or were getting blamed for problems between you and boyfriend/girlfriend/spouse or for his/her personal problems (e.g., he or she said things such as "My problems are because of you", "I would be better off if you weren't here", or "It's your fault that we don't get along better", etc.).
119. Betrayed by boyfriend/girlfriend/spouse (e.g., lied to; cheated; important promise broken; "stabbed in the back"; you got in trouble for boyfriend/girlfriend/spouse's wrongdoing; etc.). DOES NOT INCLUDE YOUR BOYFRIEND/GIRLFRIEND/SPOUSE DATING OR HAVING SEX WITH ANOTHER PERSON BEHIND YOUR BACK.
120. While you were still involved with boyfriend/girlfriend/spouse, he or she dated and/or had sex with another person behind your back.
121. Were separated from boyfriend/girlfriend/spouse due to problems, but final breakup of the relationship had not occurred.
122. Unwanted final breakup of relationship with boyfriend/girlfriend/spouse.

128. Dated less often than would have liked or wanted a boyfriend/girlfriend/spouse but did not have one.
129. Pressured by others to marry even though did not want to.
130. Were criticized about physical or sexual attractiveness or sexual performance.
131. For at least one month, you had sexual difficulties while sexually active (e.g., sex was painful; could not maintain an erection; lack of pleasure from sex; etc.).
132. For at least one month, boyfriend/girlfriend/spouse had sexual difficulties while sexually active (e.g., sex was painful; could not maintain an erection; lack of pleasure from sex; etc.).
133. Another person frequently touched you or focused sexual attention on you in a way that made you uncomfortable (e.g., said obscene things; made unwanted comments about your body; repeatedly brushed up against you; got obscene or harassing phone calls; etc.).
134. Dating partner(s) was only interested in sex and did not care about you as a person (e.g., date only wanted to have sex; not interested in talking, movies, dancing, dinner, etc. unless it led to sex).
135. You and your partner disagreed on use of contraception/protection against sexually transmitted diseases when having sex (e.g., partner would refuse to use contraception/protection and you wanted to use it; partner insisted on using contraception/protection and you didn't want to use it, etc.).
136. Pressured or forced by another person to engage in unwanted sexual activity NOT INCLUDING SEXUAL INTERCOURSE (e.g., person continued with sexual activity in spite of your saying "no" or complaining; pressured to have sex by anyone including family member, boyfriend/girlfriend/spouse, friend, acquaintance, authority figure, stranger; etc.).
137. You were raped (i.e., forced to have sexual intercourse against your will by anyone including family member, boyfriend/girlfriend/spouse, friend, acquaintance, authority figure, stranger; etc.).
138. Knew that you or your sexual partner were pregnant and you didn't want to have a child at that time.
144. Significant fight or argument with roommate that led to a serious consequence (e.g., you or roommate crying; name calling; physical fight; leaving the room for the night; etc.).
145. Roommate was invading your privacy or was too nosy (e.g., asked too many questions; read your mail; etc.).
146. Put down or made fun of by roommate (e.g., called names; ridiculed; etc.).
150. Relationships with close friends or family changed for the worse (e.g., grew apart from close friends, etc.) due to moving to different places (e.g., different cities, etc.).
157. Received frequent peer pressure to use drugs, alcohol, or cigarettes (e.g., do not like to take drugs but majority of friends get high often; rejected or ridiculed by friends if don't use drugs; etc.).
158. Were frequently teased, criticized, or put down for appearance or others pressured you to change your appearance in a major way (e.g., to be more muscular; thinner; etc.).
166. Received verbal threats of violence from a stranger or someone you know.

168. You were hit, kicked or beaten or you were a victim of an accident, attack, or violent crime (by anyone including family member, boyfriend/girlfriend/spouse, friend, acquaintance, authority figure, stranger; etc.).
171. You hurt another person physically or sexually (e.g., hit; kicked; beat; raped; forced to have sex, etc.)