REVIEW OF LITERATURE

Since the inception of the field of psychology, emotions have been studied with great interest by such pioneers like William James, Sigmund Freud and Charles Darwin. There exists substantial literature which shows renewed interest of the behavioural scientists in the nature of emotions and their relationship with other constructs like stress, personality, temperament, mental health, well being etc. This chapter presents resume of researches relating various issues in negative emotions and temperament.

1. Nature of Negative Emotions

Emotions, a subtype of affect, are flexible response sequences elicited by internal or external events appraised as relevant to an organism's well being (Gross, 1998). The terms affect and emotion are differentiated conceptually and empirically. Affect refers to the superordinate class for valenced conditions (Rottenberg & Gross, 2003) whereas; emotions are multidimensional in nature consisting of physiological, experiential and behavioural components. Emotions have been studied extensively through a large number of researches conducted in this area.

Extensive research has demonstrated that self-rated mood is characterized by two broad factors: Negative Affect and Positive Affect. Watson and Tellegen (1985) opined that Negative Affect represents the extent to which a person is feeling upset or unpleasantly aroused; it is a general factor of subjective distress and covers a broad range of negative mood states, including fear, sadness, anger, guilt, scorn and disgust. Positive Affect factor covers of a broad range of positive mood states, including feelings of joy, energy, enthusiasm, interest, alertness and self-confidence. These two mood factors show a differential pattern in relation to depression and anxiety. Measures of anxiety and depression tend to be strong markers of
the general Negative Affect Factor. In contrast, these constructs of anxiety and depression show very different associations with the Positive Affect. Measures of Positive Affect are consistently (negatively) correlated with depressed mood but unrelated to anxious mood (Tellegen, 1985).

Studies by Watson et al. (1988; Watson & Kendall, 1989) show that a trait Negative Affect measure correlated positively with most symptoms of both anxiety and depression, whereas trait Positive Affect related much more strongly and consistently to the depressive than to the anxious symptoms. These findings suggest that pleasurable experience (i.e Anhedonia) is especially important in depression, and that low Positive Affect may be a critical factor in distinguishing it from anxiety. Anxiety and depression are phenomenologically distinct from one another. Anxiety is centered on the emotion of fear and involves feelings of worry, apprehension and dread; whereas, depression is dominated by the emotion of sadness and is associated with feelings of sorrow, hopelessness and gloom. However, in spite of their distinctiveness, it has been difficult to distinguish these constructs empirically (Clark & Watson, 1991).

Many studies have shown that self-report measures of anxiety and depression are highly correlated (.45 to .75 range of coefficients, Clark & Watson 1991). To some extent these correlations reflect psychometric and taxonomic problems with existing scales and constructs. According to Gotlib and Cane (1989) several symptoms like insomnia, fatigue, irritability, restlessness, difficulty concentrating; are found in the scales assessing both generalized anxiety disorder and major depression.

Szabo and Lovibond (2004) explored whether the structure of negative affect in children is similar to that previously found in adults (S.H. Lovibond & P.F. Lovibond, 1995). A sample of 577 clinic-referred and non-referred 7-14
year old children completed a 76-item questionnaire designed to measure depression, anxiety and tension/stress as defined by DASS. Exploratory factor analyses yielded 16 factors with eigen values over one, and four factors with eigen values over two. These 20 factors accounted for 58.67% of the total variance. The results indicated that several symptoms that were previously found to be non-specific in adults also failed to differentiate between anxiety and depression in youth. Though the hypothesized anxiety and tension/stress syndromes could not be observed separately, a stable Depression factor was observable in each of the analyses. The core symptoms of depression were shown to be similar to those previously identified in adults. But, adult like syndromes of anxiety and tension/stress could not be identified.

The literature addressing the structure of negative emotions in children is currently limited by three general problems. First, past evaluations of self-report have often minimized the issues of measurement error, thereby obfuscating the relation among various clinical scales and the latest constructs to which they refer (Baron & Kenny, 1986). Second, there have been few efforts to more advanced models of the structure of negative emotions in children e.g., Barlow et al., 1996). Third, no investigators have examined the structure of negative emotions within a child population which is highly representative of anxiety and mood disorders.

Watson and Clark (1984) integrated the findings of a number of adult self-report measures of anxiety, depression and neuroticism. The measures were found to be so highly intercorelated as if they were measures of the same construct. Watson and Clark proposed to term this construct as Negative Affectivity. Since many self-report measures used with children were developed as counterparts to adult measures (e.g., Children's Manifest Anxiety Scale was developed as counterpart to adult-oriented Taylor Manifest Anxiety Scale and the Children’s Depression Inventory was modeled after
Beck Depression Inventory), similar high intercorrelations may exist in children self-report measures. The correlations between measures of depression and anxiety were strong. Findings of multitrait-multimethod analysis and regression analysis supported the broad-band construct of negative affectivity, with general notion that depression and anxiety tend to be inter-related therefore, they should not be conceptualized as distinct categories.

2. Anxiety-Depression Relationship

The interest of the clinicians and researchers in the relation between depression and anxiety has been sparked by persistent evidence that these two constructs are difficult to differentiate empirically. Self-report measures of anxiety and depression have been observed to be interrelated in clinical as well as non-clinical samples with correlations typically in the range of .45 to .75 (e.g., Costa & McCrae, 1992). Moreover, teachers’ and clinicians’ ratings of anxiety and depression have been found to be strongly correlated (e.g., Moras, DiNardo, Barlow, 1992).

The more widely held view is that despite their considerable overlap, the two constructs are separate entities. This approach has been influential in guiding the classification systems. Alternative view is that anxiety and depression overlap to such a degree that a common disorder exists. Anxiety and depression can be seen as part of a larger, general psychological distress or internalizing syndrome. Watson and Clark (1984) have given the term negative affectivity to refer to the construct that incorporates symptoms of anxiety, depression and neuroticism, as assessed by self report measures.

Both anxiety and depression have multiple levels of meanings (Clark, 1990) thereby contributing to the confusion. Both the constructs have affective behavioural, cognitive and physiological components. Cognitions
typical of anxiety centre on anticipated harm or danger (e.g., exceptional),
whereas those of depression centre on loss and failure (attributional; Beck,

A study was conducted by Stark et al. (1993) to investigate the relation
of anxiety and depression. They compared the symptom picture of children
who were diagnosed as depressed, depressed and anxious, anxious, or not
disturbed. Participants were 59 children from grades 4 to 7, including 14 who
were diagnosed with depressive disorder, 11 with diagnosis of an anxiety
disorder, 16 diagnosed as having a comorbid depressive and anxiety disorder,
and 18 nondisturbed control participants. Participants were administered
with the Children’s Depression Inventory, Revised Children’s Manifest
Anxiety Scale, Hopelessness Scale for Children, and Coopersmith Self-Esteem
Inventory. Results indicated that all three diagnostic groups differed
significantly from the non-disturbed control groups across all of the self-
report measures. However, the three groups could not be differentiated based
on their responses to these measures. Their similar response patterns
provided the clue that the disorders share a single underlying dimension i.e.
negative affectivity.

Nilzon and Palmerus (1997) examined the relationship between
anxiety and depression in school children. From a pool of 292 elementary
school children aged 9 to 11 years, 12 boys and 11 girls were identified as
depressed and these 23 children were compared to other 23 age-and-school
matched controls. Measures employed in the study were based on parallel
items from the self-rated Children’s Depression Inventory (CDI), parent-rated
Child Behaviour Checklist (CBCL) and Children’s Behaviour Questionnaire for
parents and teachers as compared to DSM-III symptomatology for
Overanxious Disorder (OAD). Results indicated that depressed children were
generally anxious but were not identical to children suffering from OAD.
Depressed girls were most likely to suffer from tension and somatic symptoms than depressed boys, who tend to be more generally anxious at this age. Findings supported comorbidity of depression and anxiety.

In a community study, Merikangas et al. (2003) investigated longitudinal trajectories of anxiety and depression. Community-based cohorts aged 19 and 20 years were taken from the province of Zurich, Switzerland. Semistructured diagnostic interviews were administered by clinically experienced interviewers at 5 assessment points during 15-years period. The design of the interview provided assessment of major mental disorders at both the diagnostic and sub-threshold levels. Results reported that comorbid anxiety and depression were found far more persistent than either syndrome alone. Individuals with anxiety states alone tended to develop either depression alone or comorbid anxiety and depression as they progressed through adulthood. In contrast, depression alone and depression comorbid with anxiety were found more stable than anxiety alone over time. The greater stability of comorbid anxiety and depression than either disorder alone suggested the importance of further investigation of comorbid states compared with noncomorbid states in etiologic and treatment research.

In a cross-cultural study, Alansari (2005) studied relationship between depression and anxiety among undergraduate students in Arab countries. Kuwait University Anxiety Scale and the Beck Depression Inventory II were administrated to 9168 participants (4230 males and 4938 females) in 18 Arab countries, their ages ranging from 18-25 years. Findings indicate that depression is positively significantly correlated with anxiety (mdn = 0.66 p < 0.01). This finding may be because anxiety and depression are often found correlated positively with depression even in nonclinical samples.
3. Comorbidity between Anxiety and Depression

Due to the need for understanding the developmental sequence of these constructs, the relation between anxiety and depression in children and adolescents has become focus of many researchers. Brady and Kendall (1992) reviewed comorbidity of anxiety and depression in children and adolescents. Presence or absence of anxiety and depression in children and adolescents was reviewed through assessment of symptoms, differential diagnosis, family history data, developmental features, and clinical correlates. Findings indicate 15.9% to 61.9% of children identified as anxious or depressed have comorbid anxiety and depressive disorders and measures of anxiety and depression are highly correlated. Differences emerged in children with anxiety, depression or both disorders. However, the family history data were inconclusive of the results. Anxious children were distinguishable in that they showed less depressive symptomatology and tended to be younger. Depressed group showed high depressive and anxious symptoms. Children with both anxiety and depression tended to be more symptomatic and older.

Lepine et al. as a part of WHO/ADAMHA CIDI Field Trials (1993a) assessed Lifetime and current comorbidity of anxiety and affective disorders. The WHO composite International Diagnostic Interview Field Trial (wave) organised in the context of the World Health Organisation and the US Alcohol, Drug, and Mental Health Administration project on classification and diagnosis. 543 subjects were studied. Tetrachoric intercorrelation revealed the strongest interrelationship with in anxiety disorders and moderate correlations of major depression with panic disorder, generalized anxiety disorder, agoraphobia, and obsessive compulsive Disorder. Majority of Subjects with both anxiety and depression, depression followed anxiety.

In order to study comorbidity between social anxiety and major depression among youth, Charvira et al. (2004) randomly selected a sample
of 190 families with children between the ages of 8 and 17 responded by mail questionnaires assessing social anxiety, depression, and social functioning. Parents also completed a semi-structured telephone diagnostic interview about their child. Results reported that the generalized type of social anxiety disorder was highly comorbid with major depression, generalized anxiety disorder, specific phobias, and ADHD, while little comorbidity was present for the nongeneralized subtype of social anxiety disorder. Logistic regression analyses indicated that generalized social anxiety disorder was the only anxiety disorder associated with an increased likelihood of major depression (OR=5.1). In all cases, social anxiety disorder had a significantly earlier age of onset than major depression. It can be concluded that generalized social anxiety disorder is strongly associated with depressive illness in youth. Early intervention to treat social anxiety disorder may prevent later depressive disorders.

In order to investigate whether anxiety and depressive disorder symptoms indicate one general factor or they represent two distinct disorders. Hale et al. (2009) conducted a study by taking sample of adolescents from the general community. Additional analyses were conducted to explore the comorbidity of adolescent anxiety and depressive disorder symptoms and the effects that adolescent anxiety and depressive disorder symptoms have on each other's symptom severity growth. Two cohorts of early and middle adolescent boys and girls were prospectively studied annually for five years. These two adolescent cohorts were further divided into five groups. Self-reported anxiety and depressive disorder symptoms were analyzed with latent growth modeling. Comparison of the fit statistics of the two models clearly demonstrated the superiority of the distinct disorders with parallel growth processes model above the one factor model. It was also demonstrated that the initial symptom severity of either
anxiety or depression is predictive of the development of the other, though in
different ways for the at-risk and healthy adolescent groups. Overall, results
established that the development of anxiety and depressive disorder
symptoms of adolescents from the general community occurs as two distinct
disorders with parallel growth processes, each with their own unique growth
characteristics.

A sequel of studies has paid attention to the empirical testing of
tripartite model of anxiety and depression. Many of them have linked
Negative Emotionality (Neuroticism) with anxiety disorders and Positive
Emotionality (Extraversion) with mood disorders. However, Watson, Clark
and Carey (1988) proposed that mood disorders and anxiety disorders share
a common component of general distress or negative affectivity which leads
to comorbidity. According to them negative affectivity represents a non-
specific factor common to depression and anxiety, whereas positive
affectivity represents a specific factor related to depression. Clark and
Watson (1991) extended this model by proposing a factor- physiological
hyperarousal that is relatively specific to anxiety. A tripartite model was
proposed by them, that groups symptoms of anxiety and depression into
three basic types: symptoms of general distress or negative affect that are
largely non-specific and includes symptoms that are prevalent in mood and
anxiety disorder, manifestation of somatic tension/hyperarousal that are
unique to anxiety and symptoms of anhedonia and low positive affect that
are specific to depression. A key prediction of this model is that anxiety and
depression can be differentiated better by deemphasizing the largely
nonspecific symptoms and by focussing more on the fare specific clusters.

The tripartite model of emotion posits several factors to account for
the relation between anxiety and depression. The three factors as defined by
Clark, Watson, Mineka (1994) are – (a) Negative Affectivity (NA) defined as
temperamental sensitivity to negative stimuli, (b) Positive Affectivity (PA),
defined as positive emotionality, energy, affiliation and dominance, and (c)
Physiological Hyperarousal (PH), defined as heightened physiological
(autonomic) arousal, symptoms of which include racing heart, trembling,
shortness of breath, dizziness. NA and PA are hypothesized to represent risk
factors for the development of anxiety and depression (Watson, Clark &
Harkness, 1994). NA is hypothesized to be positively related to anxiety and
depression, whereas, PA is hypothesized to be negatively related only to
depression. Enough evidence appears in child and adult research for this
model (e.g., Brown, Chorpita & Barlow, 1998; Daleiden, Chorpita & Lu, 2000;

samples (three samples of college students, N=516, 381, 522; one adult
sample, N=329; and one sample of psychiatric patients, N=410) using the
Mood and Anxiety Symptom Questionnaire (MASQ) which was designed to
assess the hypothesized symptom groups, along with other symptom and
cognition measures. Using the tripartite model as a conceptual guide, Mood
and Anxiety Symptom Questionnaire (MASQ) was constructed by Watson and
Clark (1991). It consists of two sets of anxiety and depression scales- General
Distress: Anxious Symptoms (GD: Anxiety), General Distress: Depressive
Symptoms (GD: Depression), Anxious Arousal and Anhedonic Depression.
The first two scales assess anxious and depressive moods as well as other
relatively non-specific symptoms. These scales were expected to be highly
interrelated and to have relatively poor discriminant validity. In contrast the
other two scales- Anxious Arousal and Anhedonic Depression assess somatic
hyperarousal and Anhedonia/low Positive Affect, respectively. These scales
were expected to be weakly related and to show better discriminant validity.
Consistent with the tripartite model, Anxious Arousal and Anhedonic
Depression scales both differentiated anxiety and depression well and also showed excellent convergent validity (.76 and .67 respectively for anxiety scales and .76 and .71 respectively for depression) in every analysis. Thus, different measures of the same construct tended to be strongly interrelated. In addition, Anxious Arousal and Anhedonic depression scales showed best discriminant validity (.25). Similar results were found across students, adults and patient samples. These findings thus corroborated a key prediction of Clark and Watson’s tripartite model that is, anxiety and depression can be differentiated better by deemphasizing the importance of non specific symptoms and by focusing instead on the symptoms that are relatively unique to each construct.

In another study Watson, Clark, Weber et al. (1995) tested the tripartite model in the same five samples (3 student samples, 1 adult sample and 1 patient sample) by conducting factor analyses of the 90 items in Mood and Anxiety Symptom Questionnaire. The same 3 factors (General Distress, Anhedonia vs. Positive Affect, Somatic Anxiety) emerged in each data set, suggesting that the symptom structure in this domain is highly convergent across diverse samples. The 90 MASQ items were subjected to separate principal factor analyses in each sample. The five solutions across the 5 samples showed a very similar pattern suggesting evidence of structural convergence across these samples. Thus the three factor structure was highly replicable across the different types of participants. The solutions were highly convergent upto and including three factors but then diverged sharply from one another. The nature of the predicted structure was considered in more detail by performing orthogonal varimax rotation of MASQ items. The overall structure obtained, was found to be broadly consistent with tripartite model. The analysis of MASQ items demonstrated that the three symptom factors (factor of non specific symptoms of general distress, factor of symptoms of
anhedonia and low positive affect which is relatively unique to depression and factor of symptoms of somatic tension and arousal that are relatively specific to anxiety) emerged in each of the five samples. As predicted, one of the factors (General Distress) was nonspecific to depression and anxiety, and each of the other symptom factors was more specifically related to one of the constructs, corresponding to the symptom groups proposed by the tripartite model.

Cannon and Weems (2006) used cluster analysis in a community sample of youth, to test tripartite model predictions regarding the grouping of individuals based on their levels of anxiety and depression symptoms. Findings were consistent with tripartite model predictions that four groups would emerge (primarily elevated on anxiety symptoms only, elevated on depression symptoms only, elevated on both anxiety and depression symptoms, and a low symptom group). Analyses using specific tripartite model variables and parent report of internalizing symptoms provided additional support for the groupings and tripartite model predictions. Findings supported the tripartite model in youth.

In order to examine the structure of mood-related symptoms among youngsters, Joiner et al. (1996) tested the tripartite model of anxiety and depression in a sample of youth psychiatric inpatients. Children’s Depression Inventory, Revised Children’s Manifest Anxiety Scale and Positive and Negative Affect Schedule were administered to 116 child and adolescent psychiatric inpatients (66 boys; 50 girls) aged 8-16 (M = 12.46; SD = 2.33). Consistent with the tripartite model, a 3-factor (Depression, Anxiety, and Negative Affect) model represented a good fit to the observed data. The finding supported the hypothesis that depression and anxiety overlap which represented generalized Negative Affect; furthermore, that depression and anxiety were distinguishable despite overlap representing their specificity.
The result analyses also indicated that the 3 factors may be preferable to a hierarchical position.

Austin and Chorpita (2004) examined the ethnic differences in anxiety and depression symptoms, in a sample of 1,578 children and adolescents in age range of 7 to 18 (M = 12.61, SD = 2.75) belonging to 5 largest ethnic groups, along with two temperamental characteristics – negative affectivity (NA) and positive affectively (PA) – within the context of the tripartite model of anxiety and depression. Minimal ethnic group differences in temperament were found. With respect to ethnic group differences in symptoms of anxiety and mood disorder, ethnic variations in specific anxiety disorder were found. Good fit was found for a multi-sample model relating NA and PA to anxiety and depressive dimensions consistently across all groups. Temperament was related to anxiety and depression symptoms such that high NA was associated with greater levels of anxiety and high NA and lower PA were associated with greater depression.

For examining the structure of neuroticism, anxiety, and depressive symptoms in young, middle, and older adult cohorts, Teachman et al. (2007) evaluated negative affect in a cross-sectional community sample of adults aged 18-93 (N = 335). Structural equation modelling was used to contrast 3 nested models: a 1-factor general distress model; a 2-factor high negative-low positive affect model; and a 3-factor "tripartite model" reflecting a higher order Negative Affect factor that is common to depression and anxiety problems and 2 lower order factors, Low Positive Affect (mostly specific to depression) and Arousal (specific to anxiety/panic). The tripartite model fit best for all age groups. Multigroup analyses indicated age invariance for the tripartite model, which suggest that the model can be effectively applied with older populations.
In a recent study, Anderson et al. (2010) sought to evaluate the tripartite model of anxiety and depression in relation to social phobia in a nonclinical sample of adolescents (ages 13-17). The sample met the 6-month duration criteria for a diagnosis of social phobia. 170 Adolescents (81 boys and 89 girls) and their parents participated in a semistructured interview and completed four self-report measures namely Positive and Negative Affectivity Scale (PANAS) Beck Anxiety Inventory (BAI), Social Anxiety Scale for Adolescents (SAS-A) and Social Phobia and Anxiety Scale for Children (SPAI-C). Besides, Adolescents gave an impromptu speech, and heart rate was monitored. Correlational Analysis and Between-groups Analyses of Variance were applied. Results found that social anxiety was negatively correlated with PA. Low positive affect, high negative affect, and high physiological hyperarousal were found characteristic of adolescents diagnosed with social phobia. But Adolescents with elevated social anxiety symptoms did not evidence low positive affect. Results also indicated that adolescents in the social phobic and socially anxious groups would exhibit lower PA than adolescents in the nonanxious group. Heart rate reactivity during the speech did not show significantly correlation with social anxiety symptomatology or with self-reported physiological hyperarousal.

4. Fear/Anxiety and Depression

Substantial literature exists to support the presence of distinct and meaningful components of negative emotions in adults. Fowles (1995) suggested that fear and anxiety may correspond to separate but related neurological systems. Barlow et al. (1996) outlined a similar three-factor structure suggesting discriminability of the emotions of depression, anxiety and fears. They suggested that negative affect is a pure manifestation of the emotion of anxiety and that autonomic arousal is a manifestation of the emotion of fear. Both models agree that symptoms of depression may involve
a combination of higher order general distress factor (i.e. anxiety or negative affect) and an additional factor unique to depression: dysthymia (Barlow et al., 1996) or low positive affect.

A study was conducted by Ollendick and Yule (1990) to investigate the relationship among anxiety, depression and fear by administering Children’s Depression Inventory (CDI), the Revised Children’s Manifest Anxiety Scale (RCMAS), and the Fear Survey Schedule for Children – Revised (FSSC-R) on 327 British and 336 American children between 8 and 10 years of age. Relationship among anxiety, depression and fear was found similar for both samples of children. Depression was found to be more closely related to anxiety than to fear. Children who reported high levels of depression were found to have high levels of anxiety and social evaluative fears as well. The overlap in the construct may be related to comorbidity of anxiety and depressive disorders. In a study by Last et al. (1987), up to 50% of children with a primary diagnosis of one of the three major childhood anxiety disorders (e.g., separation anxiety disorder, overanxious disorder, avoidant disorder) also carried a secondary diagnosis of major depression.

Kessler et al. (1999b) studied comorbidity between lifetime social phobia and mood disorders by using normal population data from the US National Comorbidity Survey (NCS). Results reported that strong associations exist between lifetime social phobia and major depressive disorder (odds ratio 2.9), dysthymia (2.7) and bipolar disorder (5.9). Odds ratios increase in magnitude with number of social fears. Age of onset is earlier for social phobia than mood disorders in the vast majority of comorbid cases. Temporally-primary social phobia predicts subsequent onset of mood disorders, with population attributable risk proportions of 10-15%. Social phobia is also associated with severity and persistence of comorbid mood disorders.
Sellbom et al. (2008) examined the hierarchical structure of the diagnostic categories for mood and anxiety disorders proposed by Watson (2005) which was conceptualized for the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-V). In Study one, 502 undergraduate students completed several symptom measures of mood and anxiety disorders and the Minnesota Multiphasic Personality Inventory-2. The authors replicated Watson's distress and fear disorder model by employing confirmatory factor analysis. Path analyses showed that demoralization was a primary marker of distress disorders, whereas dysfunctional negative emotions were primary marker of fear disorders. Low positive emotions were specific marker of depression and social phobia. This 3-factor path model was associated with better fit than was a 2-factor model excluding demoralization.

Chorpita, Albano & Barlow (1998) conducted a similar study on a sample of 216 seven to sixteen year old children with mood and anxiety disorders. They sought to define latent factors associated with childhood anxiety and depression by involving multiple informants (i.e. parent and child report) of symptoms. This study supported three factor structure of negative affect emerging from a confirmatory factor analysis. Sample consisted of 216 children with presence of anxiety disorder or mood disorder as per DSM-III-R. Females were 111 (51.4 %), mean age of sample was 12.53 years (SD= 2.85). It was hypothesized that fear, anxiety and depression, when modeled as three separate factors, would best explain observed correlations between selected sets of items describing negative emotions in children and adolescents. Linear structural relations approach was used to comparatively evaluate the validity of a three-factor structure of anxiety, depression and fear in children and adolescents with anxiety disorder or anxiety and mood disorders. Similar results were found in non-clinical samples of adolescents (Muris, Schmidt, Merkelbach & Schouten, 2001).
Barlow et al.’s (1996) confirmatory factor-analytic study supported 3 factor solutions (fear, anxiety and depression) that were consistent with recent conceptual models of anxiety and depression (e.g., tripartite model). Anxiety-depression correlation was 0.54 (SE=0.32); anxiety-fear correlation was 0.71 (SE=0.35); and fear-depression correlation was 0.41 (SE=0.21). In general, the analyses supported the notion that within a population of clinically anxious children, the latent constructs of fear, anxiety and depression are reasonably distinct and got correlated, a conceptualization that bears similarity to existing theories of anxiety and depression. Fear corresponded to Clark & Watson’s Physiological Hyperarousal, Anxiety corresponded to Negative Affect; and Depression corresponded to low Positive Affect. There have been other parallel efforts to understand the components of emotions in children. Some studies have reported significant overlap between the constructs of anxiety and depression (e.g., Lonigan, Carey & Finch 1994; Tannenbaum, Forehand & McCombs-Thomas, 1992) and have suggested a higher order construct of negative affect.

Literature on childhood phobias can provide some insight into the influence of culture on anxiety and depressive disorders. Certain ‘species relevant’ childhood fears involving such things as loud noises, separation from caregivers and dangerous animals appear to occur with relative developmental consistency (Ollendick, Yang, King, Dong, & Akande, 1996). These types of fears may be categorized as adaptive for evolution of species as they protect children from potential predators.

Dong et al., (1995) argued that whereas most fears of childhood and adolescence are relatively stable within developmental periods, some types of childhood fears may vary depending on the child’s surrounding culture. For example, higher levels of social evaluative fears have been observed among 11 to 13 years old Chinese children. Dong et al. argued that the levels of
familial and societal pressure to be successful academically are at their peak between the ages of 11 and 13 due to the structure of Chinese Education System, which accounts for high level of social evaluative fears. Similarly, evolutionary adaptiveness and cultural factors are hypothesized to influence the manifestation of anxiety and depression.

Gender differences in anxiety appear to follow a general pattern. Higher prevalence and intensity of fears and anxiety have been reported in girls than boys (e.g. Beidel, Turner, Hamlin & Morris, 2000, Ollendick & King, 1991). Higher rates of specific anxiety disorders have been reported in boys than girls (Chorpita, Yim et al., 2000). Girls reported a greater number of excessive fears than did boys and also greater fear of certain animals, lizards, worms, loud sirens and mystery movies. Similarly, during adolescence, girls tend to report higher levels of depression than boys (Makini et al., 1996).

Muris, Merkekelbach, Mayer and Musters (1998) studied the relationship of common fears to anxiety disorders symptomatology in 178 boys and girls aged 8-13 years. The finding suggested that there exists a relationship between the common fears (as examined by revised fear survey scheduled for children FSSC-R) and anxiety disorders symptomatology in normal children. Birmaher et al., 1997 have demonstrated that fearfulness and anxiety disorders symptomatology appear to decline with age.

Descriptions of fearful temperament and anxiety disorders show strong similarities. Fearful temperament, identified as one of the risk factors for anxiety disorders, is a key etiological component in the development of anxiety disorders (Chorpita & Barlow, 1998; Hudson & Rapee, 2004; Kimbrel, 2008). However, it is both theoretically and empirically difficult to distinguish these constructs (Nigg, 2006). Nevertheless, several studies have shown only modest overlap between categories of high fearful temperament and anxiety
disorder. Research into the relationship between worry and generalized anxiety disorder has shown that it is possible to identify individuals at the high end of the worry dimension who do not meet full criteria for a diagnosis of Generalized Anxiety Disorder (Ruscio & Borkovec, 2004). Although, worry is not a temperament type, it is conceptually related to fearful temperament. Such research findings which indicate little overlap between the constructs support the contention that temperament and anxiety disorder are separate constructs. Similarly convincing is the data suggesting that psychological interventions have a stronger effect on anxiety disorders than on fearful temperament. Large number of studies point out the key difference between high levels of fearful temperament and psychopathology is that the latter is perceived by the sufferer as producing marked interference and impairment in the individual’s life (Rapee & Spence, 2004).

5. Anger/Depression and Anxiety

The theoretical literature regarding anger has traditionally postulated that substantial gender differences exist in the experience and expression of this emotion (Sharkin, 1993). Males tend to be less emotionally expressive than females in a general sense, with the exception of anger (Sharkin, 1993). Expressing anger is incompatible with the feminine gender role (Newman, Gray, & Fuqua, 1999, p. 198). Because of the personal and social unacceptability of anger, females tend to suppress anger, only to have it manifest itself in other forms of negative affective experiences (e.g., depression, anxiety, or guilt; Kopper & Epperson, 1996; Sharkin, 1996). One of the prominent affective experiences that has long been believed to be associated with anger is depression. For some time, clinicians have speculated that, in some cases, depression may actually represent anger turned inward. Both classic psychoanalytic theory and more contemporary theories have postulated that a relationship exists between anger turned
against oneself and depression (Clay, Anderson, & Dixon, 1993). Several empirical studies have lent support to this hypothesized relationship (e.g., Biaggio & Godwin, 1987; Clay et al., 1993; Moore & Paolillo, 1984).

A considerable amount of literature has documented correlation between child self-report measures of depression, self-report measures of anger (Saylor et al., 1984) and self-report measures of anxiety (Eason, Finch, Brasted & Saylor 1985).

Wolfe et al. (1987) investigated the use of the broad-band construct of negative affectivity with children’s self-report measures of depression, anxiety and anger. 102 hospitalized children and adolescents, mean age = 11.5 (SD=2.5) completed a series of self-report questionnaires- Children’s Depression Inventory, Children’s Manifest Anxiety Scale–Revised, State Trait Anxiety Inventory for Children and Children’s Inventory of Anger, as part of the battery of psychological tests that were designed to assess depression, anxiety and anger. Multitrait–multimethod analysis was conducted to intercorrelate scores from self-report measures with scale and sub-scale scores of Child Behaviour Checklist- Teacher Report Form. The resulting matrix revealed significant correlations among measures of depression and anxiety. The correlations of .56 was found between Children’s Depression Inventory and Children’s Manifest Anxiety Scale–Revised, of .36 between Children’s Depression Inventory and State Trait Anxiety Inventory for Children Trait scale and of .52 between Children’s Depression Inventory and State Trait Anxiety Inventory for Children State scale (p < .003). Children’s Inventory of Anger did not correlate significantly with any of the scales.

Clay, Hagglund, Kashani and Frank (1996) examined anger expression styles and their relationship to level of depressed mood and aggressive behaviour in male and female children and adolescents. Data was taken from
children and their parents on anger, anger expression and depressed mood. Heirarchical multiple regressions revealed that anger expression significantly predicted sadness but not aggression for females, after accounting for age and anger level. Among males, anger expression significantly predicted aggression but not sadness whereas age and anger level best predicted sadness. These results suggest that age, anger level, and anger expression may be risk factors for depression and aggression among children and adolescents. Sex appears to be an important factor in anger expression styles, aggressive behaviour and related depression.

Depression is a common concomitant of headache. Anger or the expression of anger has also been discussed in terms of its relationships to headache. Tschannen et al. (1992) examined the interrelationships among measures of anger expression, depression and self-reported disability in a sample of chronic headache patients. Path analysis was employed to investigate the relationships among the variables. Results showed a significant and positive relationship between depression and perceived disability. Anger expression was not significantly related to perceived disability. Anger-in, however, was strongly and positively related to depression. The suppression of anger acted as a moderating variable that amplified the experience of depression among chronic headache patients.

Painuly, Sharan and Mattoo (2005) reviewed the relationship of anger and anger attacks with depression. The occurrence of anger, irritability and hostility in depression has been known for many years. More recently, anger attacks have been proposed as a specific form of anger in depression. They are characterized by a rapid onset of intense anger and a crescendo of autonomic arousal occurring in response to trivial provocations. Though the presence or absence of hostility, anger and aggression in depression has been a matter of controversy, anger attacks have been found to occur more often in
depressed patients in comparison to healthy controls. Depressed patients with anger attacks differ from those without such attacks in terms of clinical profile, comorbid personality disorders and certain biological variables. Serotonergic dysfunction may characterize this distinct subtype of depression - depression with anger attacks.

Painuly, Sharan, and Mattoo (2007) explored some of the antecedents, concomitants, and consequences of anger attacks in patients with depression. The sample comprised three groups: depression with anger attacks (n=20), depression without anger attacks (n=20) and normal controls (n=20). Subjects were administered measures related to the variables under consideration. Depressed patients with anger attacks exhibited more suicide-related phenomena and dysfunction scores in comparison to depressed patients without anger attacks. Depressed patients with anger attacks also had higher scores of anxiety, irritability, trait-anger, anger-out, anger expression, psychoticism, hassles, and poor quality of life in comparison to the other two groups. In conclusion, anger attacks adversely affect the lives of depressed patients and may serve as a qualifier for partially distinct syndrome of depression.

A study carried out by Painuly, Grover, Gupta and Mattoo (2011) explored the prevalence of anger attacks in depressive and anxiety disorders. The sample comprised of patients with ICD-10-diagnosed depressive and anxiety disorders (n=328). All the subjects were given a demographic and clinical profile sheet, the Irritability Depression Anxiety Scale, World Health Organization Quality of Life - BREF Version and the Anger Attack Questionnaire. Using the Anger Attack Questionnaire they were divided into two groups- with anger attacks (n=170) and without anger attacks (n=158). Results revealed that anger attacks were associated with more anxiety and irritability, and poorer quality of life. Frequency of anger attacks had a
positive correlation with depression, irritability and aggression, and a negative correlation with education, income, and quality of life.

6. **Nature of Human Temperament**

Developmental Stability of temperament has been studied by many researchers. In a two year longitudinal study, Mufson, Fendrich and Warner (1990) found evidence of fair to moderate levels of temperamental stability in child self-report measures. Temperament stability is not confined only to a particular age group. Neppl et al. (2010) found stability of temperament from toddlers (24 months) to middle childhood (6-10 years). However more temperamental stability is expected in adulthood as it is marked by fewer familial pressures and higher financial security. Less temperamental stability is found in childhood which is characterized by rapid development. Using test-retest correlation, it was found by Roberts and Del Vecchio (2000) that correlation coefficients of consistency increased from a mean of .31 in childhood to .54 in early adulthood to .64 at age of 30 and .74 during 50-70 years of age.

Throughout the history of work on temperament, linkage has been made between temperament dimensions and human biology. Psychologists have identified neural systems that might underlie variability in temperamental dispositions. The work of psychologists mainly focuses on the emotional motivational aspects of temperament. Strelau (1983) described a reactivity-activity model in which high reactive persons would undertake activities to decrease stimulation when low-reactive individuals were continuing to engage in activities to enhance stimulative value.

Rothbart, Ahadi and Evans (2000) in their research on children’s temperament using the Children’s Behaviour Questionnaire (CBQ) found that Fear and Inhibitory Control to be relatively independent dimensions.
Correlations between Inhibitory Control and attentional scales suggested that self-regulatory system was related to attentional control.

Research shows that there are important implications of temperament on children's mental health. In a 30-year study of children, Werner (1988) found that children with easy temperaments in infancy and toddlerhood were more likely to have positive outcomes as adults. Conversely, toddlers possessing difficult temperament, low adaptability, high intensity and more negative moods at age 2 were more likely to have behaviour problems at age 3 (Earls & Jung, 1987). As suggested in many researches children's temperament lays impact on parents. Mothers and fathers who rate their toddlers as having difficult temperament feel less effective with their children (Gross & Tucker, 1994). However, there is no research finding to clarify whether it is the toddlers with difficult temperament styles who cause their parents to feel ineffective or whether it is the parents who feel ineffective and view their toddlers as difficult to manage. As Rothbart (1989a, p.195) puts it, 'the infant’s temperament regulates and is regulated by the actions of others from the earliest hours'.

Else-Quest & Hyde et al. (2006) using meta-analytical techniques estimated the magnitude of gender differences in mean level and variability of 35 dimensions and 3 factors of temperament in children aged 3 months to 13 years. Effortful control showed a large difference favouring girls and the dimensions within that factor (e.g., inhibitory control: $d = -0.41$, perceptual sensitivity: $d = -0.38$) showed moderate gender differences favoring girls, consistent with boys' greater incidence of externalizing disorders. Surgency showed a difference favouring boys, as did some of the dimensions within that factor (e.g., activity: $d = -0.33$, high-intensity pleasure: $d = -0.30$), consistent with boys' greater involvement in active rough-and-tumble play. Negative affectivity showed negligible gender differences.
Berkel and Kathryn (2009) explored the relationship between personality and stress in 201 students from the University of Canterbury. The results showed that participants with high harm avoidance and low self-directedness reported increased stress, anxiety and depression, while low harm avoidance and high self-directedness appeared to be a protective factor against the development of distress. High harm avoidance was associated with avoidant coping, resulting in greater distress than either predictor alone. Strong associations were also found between personality and coping styles, as individuals with high reward dependence were more inclined to engage in emotion-focused coping, while high self-directed individuals engaged in more problem-focused coping. Avoidant coping was shown to be the most maladaptive coping style as it was associated with increased stress, anxiety and depression, while problem-focused coping appeared to reduce depressive symptoms. Thereby, the study suggests that our personality and the coping styles we employ may influence whether we experience stress anxiety and depressive symptoms.

In a study conducted on late adolescents and early adults, temperamental traits emotional instability and introversion were found to be the strongest predictors of factors as anxiety, depression, loss of control and emotional ties (Windle, 1989). Aldwin et al. (1989) conducted a study on over one thousand adult men to show the effect of emotionality in moderating the effect of stressors on the vulnerability to behaviour disorders. It was found that individuals characterized by high emotionality report more stressors as compared with low emotional persons. Using multivariate analysis of data the authors have shown that emotionality had a stronger effect on mental health than hassles and life events, but that together, emotionality, life events and hassles accounted for almost 40% of the variance in mental health symptoms.
Carey (1989) introduced the concept of temperament risk factor (TRF) in stress. Strelau (1989) modified the concept of TRF. According to him temperament risk factor is any temperamental trait or configuration of traits that in interaction with other factors acting excessively, persistently or recurrently increase the risk of developing behaviour disorders or pathology or which favours the molding of a maladjusted personality. Pellegrini (1990) and Rutter (1991) in their studies on contribution of temperament to unfavourable consequences of the state of stress accept temperament as one of the many risk factors that contribute to behaviour disorders. Kyrios and Prior (1990) have also considered temperament as a codeterminant along with other factors for the development of early childhood behavioural disturbances.

There exists link between temperament and such stress-related phenomena as the state of stress, coping with stress and psychophysiological and psychological costs of the state of stress. Strelau (1995) considers that stress is a state that is characterized by strong negative emotions, such as fear, anxiety, anger, hostility or other emotional states evoking distress, accompanied by physiological and biochemical changes that evidently exceed the baseline level of arousal. Lazarus (1993) does not recognize the place of arousal as a component of stress, and reduces state of stress to emotions.

Watson (2000) has described negative affect (NA) and positive affect (PA) using two axes wherein NA is characterized by feelings like anger, fear, nervousness and subjective stress; conversely, PA is characterized by feelings like enthusiasm, energy, and happiness. Measures of NA and PA have been found to be strongly and systematically associated with two personality factors- neuroticism and extraversion. Neuroticism stands for the general tendency to experience distressing emotions such as fear, depression, and frustration, whereas extraversion reflects the disposition towards
cheerfulness, sociability and high activity (Costa & McCrae, 1980). Watson & Clark (1992) equated that high NA leads one to experience discomforts at all times even in the absence of overt stress.

Eysenck’s prediction concerning the correlation of personality to arousal at higher level of stress was investigated by LeBlanc, Ducharme and Thompson (2004). Twenty young adults were exposed to a physical stress causing great discomfort specifically a cold wind. ANS responses were also measured and the personality traits were assessed with the Big Five Inventory Test. Results indicated that higher levels of traits extraversion were positively correlated with discomfort rating and with increased heart rate. On the other hand, Neuroticism was negatively correlated to discomfort and ANS. The findings support Eysenck theory on the role of personality on arousal at higher level of stress. Smith, Jaser and Sarah (2004) suggested that the temperamental characteristics of positive and negative emotionality and to a lesser extent attentional control are implicated in depressive symptoms. The role of stress, stress responses and coping are than examined in the association of temperament and depression. Temperamental characteristics may moderate and be moderated by stress response and coping in their effects on depression.

The relationship between physiological stress reactivity and temperamental fearfulness was examined by Talge, Donzella and Gunnar (2008) in 162 preschool-aged children. Both the autonomic and neuroendocrine arms of the mammalian stress system were examined. Larger stress responses were defined as greater sympathetic activation, parasympathetic withdrawal and cortisol increases to stressor tasks. Fearful temperament was examined using parent report and behavior in response to fear-evocative laboratory tasks. There was little evidence that larger sympathetic activation or parasympathetic withdrawal was associated with
fearful temperament. Additional analyses examined those children who were consistently fearful across all measures and the results remained largely the same. However, there was some suggestion that consistently fearful compared with non-fearful children might be more likely to exhibit sympathetic activation to the fear-evocative stimuli. These findings provide support for the argument that fearful temperament is associated with greater stress reactivity in young children.

The most representative studies which consider temperament as inherent attribute of stress and emotion (Frankenaneser, 1986; Magnusson et al., 1992) tend to conclude that the state of stress underlying the importance of both emotions and arousal as inseparable components of the state of stress.

Strelau and Zawadzaki (1995) predicted that briskness is positively related to strength of excitation and mobility, to activity, flexibility, and extraversion. Perseverance should be positively correlated with all emotionality, characteristics and negatively with flexibility and mobility. Also a negative correlation may be expected with strength of excitation because of the close links between the latter property with strength of excitation, and to a lesser degree mobility, extraversion and sensation seeking.

Mehrabian (1996) presents evidence for the pleasure-Arousal-dominance (PAD) Emotional State Model, showing that is three nearly orthogonal dimensions provide a sufficiently comprehensive description of emotional states. Temperament is defined as average emotional state across a representative sample of life situations. The PAD Temperament Model is also described evidence relating to PAD Temperament Model to 59 individual difference measures was reviewed and summarized using linear regression equations. Formulas are offered for the use of PAD temperament scales to
compute and predict a variety of personality scores.

7. **Temperament and Emotions**

Increasing attention has been focused on the concept of temperament by the researchers. The concept of temperament has been studied in relation to the dynamics of personality, phenomena of stress, emotions, parenting styles and childhood disorders to name a few. Temperamental factors have been found to exert a relatively stable influence across development (Thomas & Chess, 1977). This section covers the researches in the area of temperament with a focus on its bearing on emotions, especially in children.

It is important to understand the mechanisms involved in the development of anxiety and depression in adolescents, because of the high rates of prevalence of these disorders. In addition, the co-occurrence of these disorders increases the likelihood of development of feelings of hopelessness which is linked with suicidal ideation and suicidal behaviours (Hankin, Abramson & Siler, 2001; Thompson et al., 2005; Brozina & Abela, 2006; Becker–Weidman et al., 2009). Akiskal (1996) has proposed that dysregulation of temperament is the fundamental pathology underlying mood disorders, as its presence reflects an increased predisposition for developing affective disorders. Temperamental characteristics have a bearing on the makeup of child and adolescent anxiety and depressive disorders (Lonigan & Phillips, 2001).

Iliceto et al. (2011) studied the relationship between temperament, anxiety, depression and hopelessness in adolescents. 18-19 years old 210 high school students were investigated to assess temperament, depression, anxiety and hopelessness. Two factors significantly correlated, labeled as—Unstable Cyclothymic Temperament including Dysthymic/ Cyclothymic/ Anxious temperament, Irritable temperament and Depression, and the
second labeled Demoralization including Anxiety (State/Trait) and Hopelessness. It was found that depression, anxiety and hopelessness are in a complex relationship partly mediated by temperament.

Anxiety as a state plays important adaptive functions in everyday behaviour. However, high intensity of anxiety, when present consistently may lead to anxiety disorders which belong to emotion-related disorders (American Psychiatric Association, 2000). Many studies have demonstrated that one of the factors related to these disorders is trait anxiety or temperamental traits related to anxiety, such as, fearfulness, inhibited temperament, neuroticism harm avoidance (Strelau & Zawadzki, 2011). Trait anxiety and temperamental constructs similar to anxiety may be considered as predisposing factors favouring the development of emotional disorders. However, emotional disorders may also trigger changes in temperament.

Taking into account of factor identified as neuroticism/negative affectivity (N/NA), considered as a temperamental sensitivity to negative stimuli, Clark, Watson and Mineka (1994) summarized data from several studies in which (N/NA) factor was related to anxiety disorder. Recent studies have shown that symptoms such as irritability, attacks of panic and social anxiety correlate positively with negative temperament defined as (N/NA) (Watson, Gamez & Simms, 2005); there is positive correlation between emotional disorders and neuroticism and factor N/NA predicts anxiety (Lonigan, Vasey, Phillips & Hazen, 2004).

Studies conducted within the framework of biological model of temperament by Cloninger provide evidence regarding the relationship between temperament and emotional disorders. Jylha and Isometsa (2006) demonstrated that harm avoidance correlates significantly with symptoms of anxiety disorders. Another study by Rettew, Doyle, Kwan, Stanger and
Hudziak (2006), high correlations were obtained between GAD and harm avoidance despite the fact that GAD was present in individuals representing low scores on this temperament dimension.

Studies show that inhibited temperament diagnosed in early childhood may predict emotional disorders in adolescence (Kagan & Snidman, 1999). Adolescents with high scores on inhibited temperament have demonstrated five times higher levels of social anxiety as compared to adolescents characterized by uninhibited temperament. Studies based on regulative theory of temperament (RTT) have demonstrated that emotional reactivity and perseveration and briskness are strongly related to fearfulness considered as a symptom of trait-anxiety.

A study conducted by Strelau and Zawadzki (2011) on a sample of 3000 males and females aged 14-80 yrs. indicates that fearfulness and RTT traits - emotional reactivity, preservation and briskness have essential factor loadings on the factor neuroticism and all the three RTT traits correlated significantly with fearfulness. Findings also show that there is a genetic covariance between fearfulness and emotional reactivity, perseverance and briskness. This suggests the existence of some genes common for both fearfulness and selected RTT traits. It was also demonstrated in the study that it is emotional reactivity which is mainly associated with symptoms of anxiety disorders. Briskness and perseverance are associated to a lower extent.

Anxiety Disorders are one of the most common forms of psychopathology in children and adolescents (Costello et al. 2003). The temperament style Behavioural Inhibition (BI) has been identified as an early risk factor for the development of anxiety disorder. Hudson, Dodd and Bovopoulos (2011) studied 202 pre-school children and their parents to find association between BI, family environment and anxiety. Results showed that
children categorized as behaviourally inhibited are likely to meet the criteria for a range of anxiety diagnosis. No interactions between temperament and family environment were found for child anxiety. Further, a wide range of family environment factors including maternal anxiety, parenting and attachment were significantly associated with BI.

Lewis and Olsson (2011) examined the relationship between stressful infant environments and later childhood anxiety and depressive symptoms as a function of individual differences in temperament style. The study examined 3425 infants assessed at three time points, at 1 year, at 2/3 years and 4/5 years indicated that reactive, avoidant and impulsive temperament styles and stress exposures are independent and notable predictors of later anxiety and depressive problems in childhood.

The two broad dimensions of individual differences neuroticism and extraversion have been included in almost every prominent trait model of personality developed during the 20th century. They are the key components in both the Big Three and the Big Five structures, (Watson, Clark and Harkness, 1994). These two basic traits of neuroticism and extroversion represent the basic dimensions of temperament. Two defining features of temperaments: (a) they are attributable (at least partly) to innate genetic factors and (b) they have emotional processes as core features (Digman, 1994).

Neuroticism and Extraversion clearly show both of these key characteristics, both traits have substantial genetic evidence. Heritability estimates based on twin studies typically fall in 0.40 to 0.60 ranges (Eysenck, 1990; Finkel & McGue, 1997). Secondly, both traits have systematic links to emotional experience. Neuroticism is broadly associated with the negative emotionality, whereas Extraversion is strongly correlated with positive
emotionality. A correlation of 0.58 has been obtained between neuroticism and trait form of negative affect scale of PANAS- Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988) and Extraversion correlated at 0.51 with trait form of PANAS Positive Affect Scale (Watson, Wiese, Vaidya & Tellegen, 1999).

Clark and Watson's model of emotionality provides support to the linkage between temperament and emotions. The genesis of the two broad dimensions of individual differences in personality- Neuroticism and Extraversion lies in the realms of emotional experience. These dimensions further have been understood and elaborated as basic dimensions of temperament by Clark and Watson (1999).

One of the primary predictors studied in relation to childhood anxiety is temperamental reactivity to novelty, known as Behavioural Inhibition (BI). Temperament of BI is associated with the risk for anxiety disorders and internalizing problems (e.g., Hudson et al., 2008). Furthermore, consistently high levels of BI from toddlerhood through middle childhood have been linked to increased risk for phobias in childhood (Hirshfeld et al., 1992) and social anxiety in early adolescence (Chronis-Tuscano et al., 2009).

Temperamental risk factors like BI have been studied along with the moderating factors such as environment. It is difficult to disentangle the effects of environmental context (e.g., parents, peers, childcare providers) from the child's temperament. Both temperament and environment show transactional effects (Sameroff & Mackenzie, 2003) thereby influencing one another over time and effecting psychopathology of the child throughout development.