SUMMARY

Emotions rule our daily lives. We make decisions based on whether we are happy, angry, sad, bored, or frustrated. Emotions are one of the most pervasive and complex psychophysiological aspects of human experience. In psychology, the term emotion is often used to describe a complex state of feeling that results in physical arousal, psychological changes and a behavioral response. The emotions have been an area of interest for researchers since time immemorial. A considerable amount of literature supports the notion that negative emotions can be best understood in terms of separate components.

Last few decades have witnessed a burgeoning attention of behavioural scientists in the dimensional structure of negative affect and the relationship of its latent constructs (e.g. Watson & Clark et al., 1995). This interest has been sparked by the evidence of strong relationship between some of the negative emotions, like fear, anxiety and depression. And, it was presumed that such constructs are difficult to differentiate empirically. For example, studies have consistently shown that self-report measures of anxiety and depression are strongly interrelated, with correlations typically in the range of .45 to .75 (e.g., Barlow et al., 1996). More so, considerable overlap has been found between the constructs of anxiety and depression, leading some investigators to suggest a new diagnostic category of mixed anxiety-depression (Zinbarg et al., 1994). The commonality and distinctiveness of anxiety and depression were further elaborated upon by tripartite model (Clark & Watson, 1991), which groups symptoms of negative affect into three factors Negative Affect, Autonomic Hyperarousal and Low Positive Affect corresponding to a general common factor, anxiety and depression respectively.
In the later years, researchers have discriminated the constructs of anxiety and depression. Barlow et al. (1996) proposed a three-factor structure that discriminates the emotions of anxiety, depression and fear. Phenomenon of anxiety has often been compared to fear. However, anxiety is triggered by distal threat, whereas fear is triggered by immediate threat. But, both fear and anxiety correspond to related neurological systems (Fowles, 1995). Further, an association of fear and the construct of anger has also been explored by researchers. Fear arises from threat of harm (Frijda, 1986, p.197), when there is an anticipation of something aversive, whereas, anger is the reaction to the actual occurrence of something aversive (Carver & Harmon-Jones, 2009). Anger and fear have been empirically found to be closely related (Watson & Tellegen, 1999; Russell, 2003). Anger which is not expressed and is held-in leads to depressive syndromes thereby impacting the emotional regulation of an individual. Anger arises when other person is to be blamed for the fault whereas sadness arises when nobody is responsible for the fault. Inner-directed anger in combination with sadness and other emotions can lead to depression.

Some studies have been carried out to explore the underlying structural components of the negatively valenced emotions anxiety, depression, fear and anger. However, as compared to clinical and adult population, there is paucity of research which examined the advanced structural models of the negative emotions among non-clinical population of children. It has also been noticed that the emotion anger remains a lesser explored area specifically in combination with anxiety, depression and fear, per se. The literature addressing the issues relating negative emotions in children and adolescents, points to certain gaps and conflicting findings relating tripartite model or comorbidity between certain negative emotions. Moreover, many of the childhood measures have been found to be suffering
from the lack of discriminant validity, thereby obfuscating the relation among various measures and the latent constructs to which they refer (Wolfe et al, 1987). The present study attempts to examine the structure of negative emotions by taking more comprehensive measures of fear, anxiety, depression and anger in non-clinical children population.

Along with negative emotions, the construct temperament occupies a special place in research, among the many determinants of individual differences. A surge of interest has been noted in the area of temperament that has been developing parallel to the researches on emotion. Although there is not a clear consensus on the meaning of the construct, there is a general acceptance that temperament involves individual differences in behavioural and emotional processes during development and is shaped by biological processes. The tradition to confine temperament to the emotional characteristics of behaviour was proposed by Allport (1937) and advocated by Thomas and Chess et al. (1963), Buss and Plomin (1984), Mehrabian (1991) and (Strelau, 1987). Review of literature relating temperament encompasses many higher order constructs, such as effortful control/regulatory capacity, positive emotionality/extraversion and negative emotionality/affect (Gartstein & Rothbart, 2003; Rothbart & Bates, 1998; Rothbart, 1989). Two constructs that are central to most models of temperament are positive emotionality (PE) and negative emotionality (NE). Negative emotionality is a broad construct that is central to most models of temperament. It includes finer constructs of anxiety, sadness, anger and irritability. According to Strelau (2001), the functional significance of temperament can be understood when an individual is confronted with an emotion arousing situation. Temperamental traits associated with emotionality and the tendencies to generate negative emotion would make an individual vulnerable to severe stress reactions. Strelau’s inquisitive research

**OBJECTIVES OF THE STUDY**

*Main objectives of the study and formulated hypotheses are listed below.*

1. To examine gender differences in negative emotions.
2. To examine gender differences in temperamental traits.
3. To study the relationship between different negative emotions among children.
4. To study the relationship between negative emotions and temperamental traits.
5. To explore the structural organization of negative emotions in children.
6. To study the communality between latent structure of negative emotions and temperamental traits.

**HYPOTHESES**

1. Girls are likely to be higher on negative emotions than boys.
2. Girls are likely to be higher on temperamental traits-sensory sensitivity, emotional reactivity, and perseverance.
3. There is likelihood of no gender differences in the temperamental traits-briskness, endurance, and activity.
4. Different negative emotions are likely to correlate positively with each other.
5. Negative emotions are likely to correlate positively with sensory sensitivity, emotional reactivity, and perseverance.
6. Negative emotions are likely to correlate negatively with briskness, endurance, and activity.

7. Structural analysis of negative emotions is likely to replicate the three factor model of emotions.

8. Broader factors of negative emotions are likely to show differential overlap with energetic and temporal temperamental traits.

**METHOD**

**Sample**

The present study was conducted on a sample of 403 children (197 male and 206 female) in the age range of 10 to 12 years (mean age = 11.92 years; SD = .59), drawn from VI\textsuperscript{th} and VII\textsuperscript{th} grades of five schools in Delhi using the technique of cluster random sampling. In order to have a homogenous academic setting, only CBSE affiliated public schools were chosen, at least one from each of the five zones of East, West, North, South and Central Delhi.

**Measuring Instruments**

1. **Fear Survey Schedule for Children- Revised (FSSC-R).** The Fear Survey Schedule for Children- Revised (Ollendick, 1983) is a revision of Scherer and Nakamura’s (1968) original Fear Survey Schedule for Children. The 80 items scale assesses children and adolescents’ (7-16 years) fears, and consists of five subscales: Failure and Criticism, Unknown, Minor Injury and Small Animals, Danger and Death, and Medical Fears. Cronbach’s alpha coefficients for the total fearfulness score have been reported to be above .90, whereas the factor subscales coefficients ranged from .57 to .89.

2. **State-Trait Anxiety Inventory for Children (STAIC).** The State-Trait Anxiety Inventory for Children (Spielberger, 1973) measures anxiety in 9 to 12 year old children. The inventory consists of 40 items distributed
under two scales- A-State scale which measures transitory anxiety states, and A-Trait scale which measures relatively stable individual differences in anxiety proneness. The alpha coefficients were .82 for males and .87 for females; and .78 for males and .81 for females, for A-State scale and A-Trait scale respectively.

3. **Children's Depression Inventory (CDI).** The Children’s Depression Inventory (Kovacs, 2003) is a 27-item scale that assesses depression in children aged 7 to 17 years. The inventory yields scores for five factors: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia and Negative Self-Esteem, in addition to the total score. CDI possesses good internal consistency of .86.

4. **State-Trait Anger Expression Inventory-2 Child and Adolescent (STAXI-2 C/A).** The STAXI-2 C/A (Brunner & Spielberger, 2009) is a 35-item inventory that provides assessment of anger in children and adolescents in the age range of 9 to 18 years. The inventory comprises of five major scales: State Anger (S-Ang), Trait Anger (T-Ang), Anger Expression In (AX-I), Anger Expression Out (AX-O) and Anger Control (AC). The internal consistency alpha coefficients for the S-Ang and T-Ang scales were > .80. Alpha Coefficients for Anger Expression-In (AX-I), Anger Expression-Out (AX-O) and Anger Control (AC) were moderate to high, ranging between .57 - .87.

5. **Formal Characteristics of Behaviour-Temperament Inventory (FCB-TI).** The FCB-TI (Strelau & Zawadzki, 1993) contains 120 items which tap six temperamental traits: Briskness (BR), Perseverance (PE), Sensory Sensitivity (SS), Emotional Reactivity (ER), Endurance (EN) and Activity (AC). The Cronbach’s coefficient alpha for the six scales ranged between .74 and .83.
Statistical Analyses

The obtained data were processed through SPSS 12.0 for descriptive statistics, correlational analysis, z-test, and factor analysis. Correlation coefficients among variables were computed through Pearson’s product moment method. The z-test was carried out for studying gender and birth-order differences, if any, in the measured variables. Factor analysis (Principal Component) was conducted at two levels. Firstly, it was run to find the factor structure of negative emotions. Then the second order factors obtained so were further analyzed along with temperamental traits to explore higher order factors among emotions and temperament.

MAIN FINDINGS

The main findings of the study may be summarized as under:

1. As hypothesized, on eight of the nine negative emotions showing gender differences, girls scored significantly higher than boys. and girls scored almost the same. However, girls were found to be higher in overall fear \( F (1, 250) = 52.32, p < .0001 \) and trait anger \( F (1, 250) = 4.18, p < .05 \) than boys. The gender differences in trait anger show a clear departure from adult population in which males are found higher than females.

2. Boys and girls were found to differ significantly on four of the six temperamental traits, suggesting rejection of Hypothesis 2. On all the four traits: Perseverance \( F (1, 250) = 10.03, p < .002 \), Sensory Sensitivity \( F (1, 250) = 5.02, p < .03 \), Emotional Reactivity \( F (1, 250) = 4.43, p < .04 \) and Endurance \( F (1, 250) = 3.74, p < .05 \) boys were found to be higher than girls. These results show that among children boys tend to be higher on energetic characteristics (sensory sensitivity, emotional reactivity and endurance) of behaviour as well as on one of the temporal characteristics (perseverance).
3. In general the correlations between various negative emotions are positive and substantial. Trait Anxiety has shown strong positive association with fear of failure and criticism (r = .50, p < .0001), fear of unknown (r = .42, p < .0001), fear of minor injury and small animals (r = .32, p < .0001), fear of danger and death (r = .30, p < .0001), and overall fear (r = .49, p < .0001). Anxiety further correlates positively with negative mood (r = .34, p < .0001), interpersonal problems (r = .23, p < .0001), ineffectiveness (r = .26, p < .0001), anhedonia (r = .26, p < .0001), negative self esteem (r = .28, p < .0001) and overall depression (r = .31, p < .0001).

4. State anxiety yields positive correlation with state anger-feelings (r = .23, p < .0001); and trait anxiety also associates positively with state anger (r = .30, p < .0001), trait anger (r = .47, p < .0001), anger expression-out (r = .41, p < .0001) and anger expression-in (r = .26, p < .0001). Fear has positive correlation with negative mood (r = .22, p < .0001) anhedonia (r = .20, p < .0001) and overall depression (r = .20, p < .0001). Fear has shown positive association with trait anger (r = .31, p < .0001) and anger expression-out (r = .25, p < .0001). Depression correlates positively with state anger (r = .42, p < .0001), trait anger (r = .23, p < .0001) and anger expression-out (r = .28, p < .0001). Thereby, majority of the negative emotions correlate positively with each other, supporting Hypothesis 3.

5. Expectedly, temperamental trait emotional reactivity has strong positive association with overall fear (r = .50, p < .0001), trait anxiety (r = .40, p < .0001), trait anger (r = .30, p < .0001) and anger expression-out (r = .27, p < .0001). Interestingly, emotional reactivity did not yield significant relationship with any of the measures of depression.

6. Temperamental traits of briskness, endurance and activity have shown considerable degree of negative association with most of the negative
emotions thereby supporting Hypothesis 5. Briskness correlates -.22 (p < .001) with fear, -.28 (p < .001) with trait anxiety, -.29 (p < .001) with depression, -.31 (p < .001) with trait anger, -.29 (p < .001) with trait anger-reaction. These findings show that certain temperamental traits with positive connotation serve as buffer against negative emotions.

7. Principal components analysis located three robust factors of negative emotions, which were defined as Depression, Fear/Anxiety and Anger. A relatively weak fourth factor characterized Anger Control with fairly high loading of Anger Expression-In. The first three factors appear to be general components of respective domains, as all of their primaries loaded highly on the corresponding factors. In this sense, these results support Barlow et al.’s (1996) three factor model and the Hypothesis 6.

8. Conjoint analysis of four factors of negative emotions and six temperamental traits yielded four higher order factors. These factors exhibit marked overlap between temperamental traits and some of the second-order factors of negative emotions. The first factor is defined by two temperamental traits of energetic characteristics, viz. Emotional Reactivity and Endurance (reverse). Therefore, it was defined as ‘Reactive Temperament’. Temperamental trait Briskness loads negatively on this factor. Second-order factors of negative emotions- Depression, Fear/Anxiety and Anger also load positively on this factor, showing thereby emotional reactive temperament predispose negative emotions of this kind. Factor II signifies communality between Anger Control and Anger in general. Third factor marks clear distinction between Activity and Reactivity aspects of energetic temperament, as it loads highest for Activity. Fourth factor seems to be a residue of variance left untapped in temperamental trait perseverance, which does not share much in common with any other variable.