

Intra-individual and Extra- individual predictors of text anxiety in Indian children:

A cross-cultural perspective

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ABSTRACT

The present study examined the nature of test anxiety from a cross-cultural perspective, with a specific reference to children in the Indian culture. In particular, the present study investigated the role of intra-individual variables (fear, anxiety, depression, and somatization) and extra-individual variables (activities schedule, consequences of failure, perceived parental expectations and involvement and parental expectations and involvement) in predicting test anxiety. A culturally sensitive methodology consistent with Berry's imposed etic-emic-derived etic approach was adopted wherein a combination of qualitative and quantitative data was examined. A sample of 231 children from government, government-aided, and private schools participated in the study. Qualitative data was collected using focus groups and open-ended questions and provided an enriched understanding of the manifestation of test anxiety and its correlates in a sample of school going children in India. Quantitative data was collected from translated and adapted western questionnaires and surveys that tapped intra-individual and extra-individual variables examined in the current investigation. Overall, the qualitative data indicated that social derogation and somatization were salient aspects of the phenomenological experience; while high stakes exams, authoritarian parenting styles, and poverty, were significant contextual factors related to test anxiety in Indian children. Quantitative data suggested that somatization was correlated to test anxiety and predicted test anxiety above and beyond other intra-individual variables. However, among the extra-individual variables, only consequences of exam failure and perceived parental expectations were correlated with test anxiety and these did not predict test anxiety above and beyond the intra-individual variables. Limitations and suggestions for future research are discussed.

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LIST OF TABLES

Table 1:	Focus Group Format	71
Table 2:	Qualitative Data: Focus group themes related to Test Anxiety	72
Table 3:	Qualitative Data from open-ended questions	74
Table 4:	Participant Characteristics	75
Table 5:	Descriptive Data for Test Anxiety Scores	76
Table 6:	Within Group differences for TAI	77
Table 7:	Tests of Between-Subjects Effects for TAI	78
Table 8:	One-Way ANOVA: Within Group differences for Social Derogation	79
Table 9:	Two- Way ANOVA: Between Group Differences for Social Derogation	80
Table 10:	Descriptive Data for Intra-Individual Variables - Fear, Anxiety, Depression, and Somatization Scores	81
Table 11:	Bivariate correlations between test anxiety (TAI) and Intra-individual variables of Fear, Anxiety, Depression, and Somatization Scores	82
Table 12:	Descriptive Data for Extra-Individual Variables	83
Table 13:	Bivariate Correlations between Test anxiety (TAI) and Extra--individual variables	83
Table 14:	Summary of Hierarchical Regression Analyses Relative contribution of the Intra-individual and Extra-individual variables.	84

LIST OF APPENDICES

Appendix A	Demographic Information Questionnaire	63
Appendix B	Open Ended Questions	64
Appendix C	Student Activity Schedule	65
Appendix D	Consequences of Exam Failure Scale	66
Appendix E	Perceived Parental Expectation Questionnaire:	67
Appendix F	Perceived Parental Involvement Questionnaire	68
Appendix G	Parental Expectation Questionnaire	69
Appendix H	Perceived Parental Involvement Questionnaire	70

TABLE OF CONTENTS

Abstract	ii
Acknowledgments	iii
List of Tables	iv
List of Appendices	v
Introduction	1
Method	23
Participants	23
Measures	23
Procedure	28
Results	30
Discussion	39
Limitations and Future Directions	48
References	52
Appendices	63
Tables	71
Curriculum Vitae	85

INTRODUCTION

Test anxiety has been widely researched. The first systematic investigation of test anxiety was undertaken at Yale University in 1952 by S.B. Sarason and Mandler. Specifically, these researchers reported that individuals low in test anxiety out-performed those high in test anxiety on intelligence tests (Mandler & Sarason, 1952). Since then, the construct of test anxiety has been researched extensively, leading to its further development in terms of conceptualization, assessment, and treatment.

CURRENT RESEARCH ON TEST ANXIETY

Nature and Phenomenology:

Since its initial conceptualization as a unitary construct, test anxiety research has progressed and evolved significantly to its current view as a complex, multi-dimensional, and dynamic concept. (Spielberger & Vagg, 1995; Zeidner, 1998). For example, the distinction between the cognitive and affective dimensions of test anxiety is now widely accepted in the literature on test anxiety (Hembree, 1988). Within the cognitive domain, *Worry* is considered the most influential component of test anxiety. The *Worry* component of test anxiety refers to evaluative concerns about one's performance (Liebert & Morris, 1967). Thus, in evaluative situations, test anxious individuals become preoccupied with implications and consequences of exam failure that prevent them from engaging in task-oriented thinking (I.G. Sarason, 1986). On the other hand, the affective component of test anxiety includes objective symptoms of physiological arousal as well as more subjective interpretations of emotional arousal (Zeidner, 1998). *Emotionality* refers to this affective component of test anxiety; it involves subjective awareness and interpretation of physiological arousal in evaluative situations (Deffenbacher, 1980; Liebert & Morris, 1967).

The *Worry* and *Emotionality* components of test anxiety can be differentiated through their temporal patterns and their impact on academic performance. In general, *Emotionality* tends to be more transient and rises immediately before the test and typically diminishes over the course of the

exam. *Worry*, on the other hand, is more enduring, is aroused several days before the exam, and persists throughout the course of the exam (Liebert & Morris, 1967; Zeidner, 1998).

The differential impact of *Emotionality* and *Worry* factors of test anxiety on performance has been well researched (Hembree, 1988). Studies examining the impact of the *Emotionality* factor on performance, however, suggest a lack of consistency in findings. Somewhat unexpectedly, the majority of the studies have found that the *Emotionality* factor (i.e., physiological arousal) has weak or insignificant effects on performance (Hembree, 1988). According to the Yerkes-Dodson law (1908), an inverted U-shaped function relates performance to arousal, with the peak of performance occurring at some intermediate level of arousal. Consistent with this theory, Cassady and Johnson (2002) provided evidence that moderate but not low or high levels of physiological arousal were related to higher exam performance. Most other studies, however, have failed to support this finding (Hembree, 1988; Hong, 1999; King, Ollendick, & Prins, 2000; I.G. Sarason, 1984).

In contrast to these mixed findings, the *Worry* component of test anxiety has been shown consistently to have an inverse relationship with performance; a relationship that has been observed in children as well as adults (Cassady & Johnson, 2002; Hembree, 1988; Hong, 1999; King et al., 2000; McIlroy & Bunting, 2002; I.G. Sarason, 1984; Seipp, 1991; Zatz & Chassin, 1983), in both genders (Sowa & LaFleur, 1986), and in different cultures (O'Neil & Fukumura, 1992; Padua, 1993). Moreover, these studies have reliably shown that *Worry* is manifested as task debilitating cognitions, including more negative self-evaluations and off-task thoughts and fewer positive self-evaluations and on-task thoughts.

Summarizing the findings from the test anxiety literature, it is evident that test anxiety is a multi-dimensional construct with *Worry* and *Emotionality* being its predominantly researched components. *Worry* and *Emotionality* differ in their manifestation, their temporal pattern and their impact on academic functioning. *Emotionality* is short-lived while *Worry* is more long lasting. It is also apparent that there is less evidence for the role of *Emotionality* in affecting performance of test

anxious children. In contrast, the *Worry* component of test anxiety is consistently seen to be debilitating to performance, especially academic achievement. Overall, the current research provides a relatively clear picture of the nature of test anxiety, its complex and multi-dimensional manifestation, as well as its relationship to academic performance.

Theory and conceptualization

Several theories and models have been proposed over the years to understand test anxiety in terms of its nature, causes, effects, and correlates. One line of reasoning attributes poor performance of high test-anxious individuals to the interfering effects of anxiety in evaluative situations. This perspective, known as the interference model, assumes that test anxiety interferes with *retrieval* of previously learned information in test situations by producing task-irrelevant responses (Alpert & Haber, 1960; Hembree, 1988; Liebert & Morris, 1967; I.G. Sarason, 1984; Wine, 1971). A number of theorists have built on and expanded upon this notion. However, the validity of these theories came into question when treatments designed to reduce test anxiety were successful in reducing anxiety but failed to show a corresponding and significant increase in academic performance (Tyron, 1980). In an attempt to explain these seemingly discrepant findings, an alternative *deficits* model of test anxiety was proposed by a number of researchers (e.g., Culler & Hollahan, 1980; Tobias, 1985), wherein poor performance of high test anxious individuals was attributed to lower ability and deficient study habits and not solely to anxiety (Hembree, 1988).

In contrast to these theories, Benjamin, McKeachie, Lin, and Holinger (1981) provided support for an information-processing model of test anxiety. This model is best viewed as a combination or synthesis of the interference and deficit models (see Naveh-Benjamin, 1991; Naveh-Benjamin, McKeachie, & Lin, 1987). According to this model, poor performance of test anxious individuals can be attributed to a number of cognitive deficits at all stages of information processing including encoding and organization deficits reflected in poor study skills, as well as problems with retrieval of information (due to interference).

Several theories have also been proposed to understand the onset and course of test- anxiety. Studies examining the origin and development of test anxiety have primarily focused on investigating the role of socialization practices. For example, Hill (1972, 1980) proposed a relationship between unrealistically high parental expectations and a critical parenting style and test anxiety in children. He theorized that as these children advance in school, they become afraid to fail in evaluative situations for fear of parental criticism. Along these lines, Krohne (1992) reported a significant relationship between test anxiety and the socialization variables of negative parental feedback, inconsistent child rearing practices, and a tendency to control the child. Further, these relationships were stronger for boys than girls, and for the *Worry* than the *Emotionality* component of test anxiety. However, some studies have failed to find significant relationships between these socialization variables and test anxiety (Rosenthal, 1990). Finally, in their review of test anxiety in children and adolescents, King, Ollendick, and Gullone (1991) enumerated other potential theories attempting to explain the development of test anxiety. Specifically, they reported early studies that attributed test anxiety to environmental variables such as school- related experiences that might lead to success and failure. Although King et al. (1991) recommended inclusion of parental and systemic variables they concluded that such research was difficult to conduct and that much of the current research on test anxiety was limited to the role of cognitive-attentional deficits.

Still other studies have investigated the relationship between test anxiety and general psychopathology; specifically, the anxiety disorders. For instance, elementary school children with severe test anxiety were assessed by Beidel and Turner (1988) using the Child Assessment Schedule (Hodges, McKnew, Cytryn, Stern, & Kline, 1982). Their findings indicated that high test-anxious children were more worried about academic performance, their popularity, and friendships as compared to non-test anxious children. Although none of the children from the non-test anxious group were diagnosed with an anxiety disorder, 60% of those in the high-test anxious group met criteria for at least one anxiety disorder. Similar results were obtained by King, Mietz, Tinney, and

Ollendick (1995) using the Interview Schedule for Children (ISC; Kovacs, 1985) in a sample of adolescents from Australia. Thus, there seems to be limited but strong evidence indicating that many children who are anxious in testing situations also experience diagnosable anxiety disorders, such that the presence of test anxiety in children serves as an indicator of more pervasive psychological distress (Beidel & Turner, 1988; King et al., 1995; King et al., 2000; Warren, Ollendick, & King, 1996). Indeed, King et al. (1995) reported that the high test-anxious group endorsed significantly higher levels of psychopathology on various self report measures, perceiving themselves as physiologically anxious, prone to *Worry*, and socially sensitive. Finally, King et al. (1995) and Warren et al. (1996) reported that that test anxious children, in addition to experiencing higher levels of anxiety, also reported higher levels of fearfulness and depression as compared to their low test-anxious counterparts. Collectively, these theories and empirical findings provide a rich and broad account of test anxiety and its relation to more generalized anxiety as well as other forms of psychopathology such as fear and depression.

Thus, in sum, a host of theories have been put forth to understand the manifestation, antecedents, consequences, and correlates of test anxiety. Yet, systematic and well-controlled research examining the etiological aspects of test anxiety is limited and the findings are inconclusive at this time (Wigfield & Eccles, 1989; Zeidner, 1998).

Assessment and Treatment:

Several assessment tools have been developed in response to the evolving theories of test anxiety. For example, Mandler and S.B. Sarason (1952) developed the Test Anxiety Questionnaire (TAQ), the first scale for assessing individual differences in test anxiety. Subsequently, as the field of test anxiety advanced, sophisticated tests based on factor-analytic strategies were developed. In 1960, the Test Anxiety Scale for Children (TASC) was developed by S. B. Sarason, Davidson, Lighthall, Waite, and Ruebush for younger children. This, in turn, was followed by development of the Worry – Emotionality Questionnaire (WEQ) by Liebert and Morris (1967) based on their

conceptualization of test anxiety as comprising these two primary components. In contrast to the TAQ and the TASC, the WEQ consisted of two rationally derived subscales and conceptualized test anxiety as a multi-dimensional construct. Later, the Test Anxiety Inventory (TAI; 1980) developed by Spielberger made an important contribution to the field by using a factor analytic approach to develop the *Worry* and *Emotionality* subscales. Subsequently, the WEQ was revised (Morris, Davis, & Hutchings, 1980) with the worry-emotionality subscales derived factor-analytically as well. More recently, I.G. Sarason developed the Reactions to Tests scale (RTA; 1984) that was based on his four-factor conceptualization of test anxiety, consisting of four distinct subscales, namely: worry, test irrelevant thoughts, tension, and bodily symptoms. Finally, Friedman and Bendas-Jacob (1997) developed a new measure of test anxiety (FREIDBEN) comprising three factors, namely, cognitive obstruction (*Worry*), tenseness (*Emotionality*), and social derogation which refers to the concerns of social belittlement and disapproval by significant others following failure on a test. Thus, over time, advances in research have led to the development of highly sophisticated and psychometrically sound measures of test anxiety, which reflect, at least in part, further development of the theory and a more refined conceptualization of the construct of test anxiety.

Researchers have also attempted to understand test anxiety by exploring children's cognitions. Based on Wine's cognitive-attentional theory (1971) of test anxiety, the Children's Cognitive Assessment Questionnaire (CCAQ; Zatz & Chassin, 1983) was developed to tap four types of cognitions, namely: off task thoughts, on task thoughts, positive evaluations, and negative evaluations. Likewise, Smith, Arnkoff, and Wright (1990) used the Checklist of Positive and Negative thoughts (CPNT; Galassi, Frierson, & Sharer, 1981) to tap the thoughts experienced by students during an exam. Assessment procedures, other than the conventional self-report questionnaires, have also been used in test anxiety research such as the "thought listing technique" (e.g., Prins & Hanewald, 1997; Smith et al., 1990), physiological measures (e.g., Beidel, 1988; Morris & Liebert, 1970), and behavioral observations (Wine, 1979).

Based on the “three response systems” approach to assessment, anxiety – as well as test anxiety – can be conceptualized in terms of three distinct response modes: cognitive, behavioral, and physiological (Lang, 1968). The measures of test anxiety that have been developed and used in research indeed reflect measurement of these three response modes. Moreover, multiple methods of measurement have been employed in research including self-reports, questionnaires, observational procedures, and physiological methods (Ollendick & Hersen, 1993).

In addition to these developments, numerous investigations have been carried out to determine the effectiveness of a variety of interventions on the deleterious effect of test anxiety on academic performance in children and youth. A comprehensive meta-analytic investigation by Hembree (1988) found behavioral and cognitive behavioral interventions that address both the *Emotionality* and *Worry* components of test anxiety to be more effective in reducing test anxiety as well as improving performance. In addition, testwiseness training has been shown to be effective in reducing test anxiety for students with poor test taking skills, and study skills training was found to be effective when combined with cognitive behavioral treatments. In general, reductions in test anxiety have been accompanied by improved test performance. In sum, integrated approaches to treatment appear to be more effective in reducing test anxiety (Hembree, 1988).

CROSS-CULTURAL RESEARCH ON TEST ANXIETY

Theory, Assessment, and Conceptualization:

The construct of test anxiety has been examined in many countries including Africa (e.g., Mwamwenda, 1994), America (e.g., I.G. Sarason, 1984), China (e.g., Yue, 1994), Czechoslovakia (e.g., Man, Budejovice, & Hosek, 1989), Egypt (e.g., El-Safty, 1995; Hocevar & El Zahhar, 1985), Germany (e.g., Hodapp & Benson, 1997), Holland (e.g., van der Ploeg, 1983), India (e.g., Sud, 2001), Israel (e.g., Peleg-Popko & Klingman, 2002; Zeidner & Nevo, 1992), Italy (e.g., Comunian, 1989), Japan (e.g., Araki, 1992), Jordan (e.g., Ahlawat, 1989b), Korea (e.g., Schwarzer & Kim, 1984), Saudi Arabia (e.g., El-Safty, 1995), Turkey (e.g., Aysan, Thompson, & Hamarat, 2001), and

Uruguay (e.g., Richmond, Rodrigo, & Lusiardo, 1989), suggesting that this problem is pervasive across geographic and cultural boundaries.

Much of the cross-cultural research has been focused on investigating the factor structure of test anxiety by adapting existing “Western” assessment measures to the particular culture being studied. For instance, Spielberg’s TAI (1980) has been translated and adapted into numerous cross cultural editions. Other studies have compared two or more cultures in terms of their scores on equivalent measures of test anxiety, task performance, and other related constructs (e.g., Pang, 1991; Sharma, Parnian, & Speilberger, 1983; Sharma & Sud, 1990; Sud, 1991; Yue, 1996).

A meta-analytic study conducted by Seipp and Schwarzer (1996) examined TAI (Spielberger, 1980) data obtained from 14 different nations. Seipp and Schwarzer reported that women in the majority of the cultural groups tended to report higher levels of test anxiety than men. Moreover, this pattern was more prominent on the *Emotionality* scores than the *Worry* scores. The role of socialization practices that encourage women to express their emotions and men to suppress their emotions including anxiety has been implicated in an attempt to explain these cross-cultural trends (Seipp & Schwarzer, 1996; Zeidner, 1998). Overall, Islamic countries reported the highest levels of test anxiety while Western European and Asian countries reported the lowest levels of test anxiety. Seipp and Schwarzer (1996) attributed the high scores of Arabic students on the test anxiety scale to the severe negative consequences associated with poor examination performance in these countries.

In general, two primary hypotheses have been proposed to explain the cross-cultural differences in test anxiety (Seipp & Schwarzer, 1996; Zeidner, 1998). First, it has been proposed that socialization practices and parental expectations in certain cultures may put excessive pressure on students to achieve. Second, and somewhat complementary, the impact of high stake examination systems has been hypothesized to cause high levels of test anxiety. For instance, Schwarzer and Kim (1984) compared levels of test anxiety in Korean youth with those from other

countries. With reference to their scores on the TAI, Schwarzer and Kim found that Korean students had higher mean scores on test anxiety than students from other nations. The authors attributed the high scores of the Korean youth to authoritarian parenting and a high stress school and examination system. Similar explanations have been enlisted in understanding relatively high levels of test anxiety among students in Jordan (Ahlawat, 1989a). However, these hypotheses failed to hold true for students from Turkey (Oner & Kaymak, 1987) and Japan (Araki, Iwawaki, & Spielberger, 1992). Thus, Oner and Kaymak (1987) found that Turkish youth had lower or equal levels of test anxiety as compared to youth from Korea, India, America, Germany, and Hungary. Likewise, and surprisingly, Japanese youth had significantly lower levels of anxiety as compared to students from Czechoslovakia, Korea, Germany, Hungary, and the United States. Thus, the empirical evidence for these hypotheses is mixed.

Finally, cross-cultural research examining the effectiveness of interventions for test anxiety has mirrored the research in western societies, and has been primarily cognitive-behavioral in orientation (e.g., Hwang, 1997; Sud & Prabha, 1995; Sud & Sharma, 1990).

Test Anxiety Research in India:

Theory and Conceptualization

The first attempt to investigate the phenomenon of test anxiety in school children in India was made in 1972 by Nijhawan. She translated the Test Anxiety Scale for Children (TASC; S. B. Sarason et al., 1960) into Hindi and Punjabi and explored the nature of test anxiety using an unselected sample of school children. Her initial work demonstrated the negative impact of test anxiety on task performance and prompted further research in the field of test anxiety in that country.

Several other early studies have attempted to investigate the nature of test anxiety in India. For example, Sud and Sharma (1989) examined the role of cognitive interference in understanding test anxiety and reported that attention-directing (task-focusing) prompts not only reduced self-

preoccupying intrusive thinking, but also improved performance on an anagram task. Sud and Katoch (1994) investigated the cognitions of test anxious children at different times during an actual examination. In line with Western findings obtained by Zatz and Chassin (1983), results of this study indicated that all participants, including highly test anxious children, tended to report more task facilitating than task debilitating cognitions. However, and unexpectedly, the task facilitating cognitions were not associated with better task performance for either group. They also found that the level of anxiety and frequency of off-task (task-debilitating) cognitions was much higher when children were in the middle of the test as compared to the beginning or end of the test, but, surprisingly, there were no differences between groups.

Pursuing a different line of research, a few studies have explored the role of psychosocial factors on the development of test anxiety (Kochagaway, 1993; Singh & Broota, 1992). For instance, Singh and Broota reported that parental pressure was associated with higher levels of test anxiety. They also reported that parents' educational and occupational status was related positively to test anxiety in children. Similarly, Kochagaway reported positive correlations between test anxiety and various areas of adjustment including home, health, social, and emotional adjustment wherein higher scores indicated increased maladjustment. More recently, a study by Sovani, Thatte, and Nadkarni (2000) assessed perceived sources of examination anxiety among high school and college students. Students, studying in 8th, 9th, and 10th grades (the latter representing the year of the School Board Examination) were assessed using the FRIEDBEN test anxiety scale (Friedman & Bendas-Jacob, 1997), a 23 item paper-pencil test in English and Marathi that was piloted before use in India. The 'Social Derogation' factor, which taps concerns related to social deprecation following failure in a test, was found to be a principal factor in the year when the Boards were given, and the year prior to that. 'Tenseness' (i.e. *Emotionality*) was a stronger factor in the younger group (Standard 8th). Interestingly, neither group scored high on the factor of cognitive obstruction (i.e. *Worry*), although most poor exam performances were attributed to this factor.

Lastly, some studies have compared the nature of test anxiety among Indian youth with that among youth of other cultures vis-à-vis gender and educational levels. For instance, Sharma et al. (1983) compared the test anxiety levels of 160 Iranian and 160 Indian school children and undergraduates and contrasted them with normative data reported for American youth (Spielberger, 1980). Sud (1990) examined the nature of test anxiety among Indian and Italian high school and college students using the Italian normative data reported by Comunian (1985) while Sud and Sharma (1990) compared student samples in India and the United States. Overall, the mean total test anxiety for Indian males ranged from 36.9 to 39.7 (standard deviation ranging from 6.7-10.4) while that for Indian females ranged from 42.1 to 50.1 (standard deviation ranging from 8.7-10.8) across studies (Sharma et al., 1983; Sud & Sharma, 1990). Thus, compared to the normative data for American males ($M = 40.9$; $SD = 12.8$) and American females ($M = 45.7$; $SD = 13.6$), the Indian males reported somewhat lower levels of test anxiety whereas Indian females reported about the same levels of test anxiety as their American counterparts. Overall, these and other cross-cultural studies report a number of specific comparisons vis-à-vis gender, educational level, and the components (*Worry* and *Emotionality*) of test anxiety between youth in India and other countries; however, clear findings have not been obtained and relatively few generalizations can be made from these studies at this point in time (Bodas & Ollendick, 2005).

Summarizing the studies discussed above, some studies have explored intra-individual variables such as the cognitions of test anxious students while others have investigated the role of social and interpersonal variables such as parental education and expectations. Lastly, some studies have attempted to examine cross-cultural differences in test anxiety using data from different countries. However, more extensive investigations need to be conducted to substantiate and extend these results.

Assessment and Treatment

Research on the assessment of test anxiety has mainly involved the simple translation of the available western instruments into Indian languages without due consideration of cultural differences. Initially, Hindi and Punjabi versions of the Test Anxiety Scale for Children (TASC, S.B. Sarason et al., 1960) were developed (Nijhawan, 1972). These measures were developed by simple translation and slight modification of some test items to make them more culturally appropriate. Subsequently, reliability and validity of this scale was determined using samples of Indian schoolchildren. This was followed by the translation and adaptation of the Test Anxiety Inventory (TAI, Spielberger, 1980) into Hindi (TAI-H, Sharma, Sud, & Spielberger, 1983). Sharma et al. prepared an experimental version of the TAI-H by translating the original TAI into Hindi and having bilingual experts evaluate the translated version in terms of its adequacy and equivalence. Alternative wordings were then created for several items and a total set of 59 items was presented to psychometricians who rated the Hindi translation. Finally, based on these ratings, a set of 20 Hindi items, equivalent to the original TAI was selected and administered along with the original TAI to a sample of 151 bilingual students in the tenth grade. Based on the obtained correlations between these measures, the items of the two versions were equivalent. The internal consistency coefficients of the TAI-H scale also approximated the ones obtained for the original TAI using American participants. Furthermore, the concurrent and construct validity of the TAI-H was reported using the Test Anxiety Scale (TAS; I.G. Sarason, 1958) and measures of intelligence and academic achievement respectively (Sharma et al., 1983). Using a similar methodology, Sud and Singh (1991) developed the Hindi version of I.G. Sarason's Reactions to Tests scale (RTT, 1984). As in the Sharma et al. study, the equivalence of these measures was demonstrated using means, standard deviations, and correlations. Likewise, the internal consistency coefficients were calculated for the entire scale as well as the subscales and were reported to be comparable to the original RTT (I.G. Sarason, 1984).

Finally, in addition to these measures of test anxiety, efforts have been made to develop other measures used in research on test anxiety including performance measures such as parallel forms of difficult anagram tasks in Hindi (Sud & Prabha, 1993), measures to assess cognitions such as the Children's Cognitive Assessment Questionnaire (CCAQ; Sud & Katoch, 1994), Cognitive Interference Questionnaire (Prabha, 1984), and academic stress (Verma & Gupta, 1990). In sum, preliminary efforts have begun the process of assessing test anxiety and related constructs in India.

Treatment outcome research has mainly examined the efficacy of a variety of cognitive behavioral interventions for test anxious individuals in India, based on research conducted in the West, including the efficacy of attentional skills training (Sud & Sharma, 1995), cognitive modeling (Sud, 1994), relaxation training (Sud & Prabha, 1995), and stress inoculation training (Sharma, Kumaraiah, & Mishra, 1996)

Overall, a considerable number of studies appear to have addressed, to some extent, the issues of conceptualization, assessment, and treatment of test anxiety in India. However, more refined research is required to further these developments and advance the field of test anxiety in India.

A CRITIQUE OF THE EXISTING LITERATURE

Western research on test anxiety has flourished since the pioneering work of S.B. Sarason and Mandler in 1952. It has made important advances in all aspects including theory and conceptualization, assessment, and treatment. With regard to cross cultural research on test anxiety, it is interesting to note that the construct of test anxiety has been investigated in many different countries and cultures. However, it is also important to consider some of the shortcomings of this research.

A decontextualized approach

A significant limitation of the research conducted in the field of test anxiety is that it lacks a context-based approach. Consistent with the individualistic perspective of the western culture

(Triandis, 1995); much of the western research has focused on individual differences in test anxiety with respect to conceptualization, assessment, and treatment considerations. In other words, contextual factors - including interpersonal and ecological factors - have not been measured and systematically analyzed to determine their impact on test anxiety. This focus on individual differences appears to be based on the assumption that test anxiety lies *within* the individual and that extra-individual, contextual variables are common to all children and accordingly contribute less significantly to the nature or expression of test anxiety. Much of the cross-cultural research in general and Indian research in particular lacks a context-based approach. Having its roots in western research, much of the cross-cultural research in test anxiety is decontextualized and individualistic in its orientation.

With increasing globalization and the ensuing multicultural society in which we live, the need for understanding individuals as “embedded” in their familial and cultural context has become particularly relevant (Szapocznik & Kurtines, 1993). Contextualist influences in psychology have come from many sources. However, Urie Bronfenbrenner’s ecological systems approach has been *the* major contextualist influence in psychology (1993; Bronfenbrenner & Morris, 1998). His ecological-systems approach conceptualizes context in terms of four interacting levels of environment nested within each other, namely: microsystem, mesosystem, exosystem, and macrosystem.

The *microsystem* is the immediate context of development which involves “activities, roles, and interpersonal relations” of a child in a “face- to-face setting” (Bronfenbrenner, 1993). The *mesosystem* involves an interaction of two or more microsystems. Thus, it comprises “the linkages and processes taking place between two or more settings that contain the developing person,” such as between peer groups and parents or between home and school (Bronfenbrenner, 1993). The *exosystem* involves “linkages and processes between two or more settings,” one of which does not involve the child such as the relation between home and parents’ workplace (Bronfenbrenner, 1993).

Finally, a *macrosystem* is composed of an “overarching pattern of micro, meso, and exosystems” characteristic of a given culture, particularly with reference to belief-systems, lifestyles, and opportunity structures that characterize that culture. These levels interact with each other such that what impacts one level affects the other levels as well. The concept of goodness of fit is applicable here, such that the same environmental conditions may not be descriptive of all children (Miller, 2000). For example, temperamental differences result in different children seeking out different environments. Based on this perspective, the need for understanding and conceptualizing a construct vis-à-vis intra-individual variables as well as the context variables that impact the individual is evident.

Lack of a theory-driven approach

Another problem associated with cross-cultural research on test anxiety, but not necessarily with the western research per se, is a lack of a clear theoretical framework. As aptly noted by Zeidner (1998) cross-cultural research on test anxiety lacks specific hypotheses based on an understanding of a culture, its norms, values, socialization practices, and other variables relative to the construct of test anxiety. Furthermore, although researchers have demonstrated some cross-cultural differences in the levels of test anxiety, they have not examined the causal mechanisms through which cultural variables systematically influence test anxiety (Zeidner, 1998). As is true for cross-cultural research on test anxiety in general, Indian research too lacks a theory driven, context-based approach. Consequently, the research has not generated a cohesive body of knowledge on the nature of test anxiety in Indian children.

Methodological issues

A number of methodological issues have been raised in the context of cross-cultural research in general as well as in the area of test anxiety in particular. Specifically, and as noted by van de Vijver and Leung (2000), these studies have a “western bias” in their choice of a research topic, the methodology used to investigate the topic, the conceptualization of a construct under study, and

“blind importation” of assessment tools. Such an approach has been criticized on the basis that it fails to capture the essence of the new culture that is being studied in a cross-cultural paradigm. In other words, using a western framework for investigating a phenomenon will yield ‘western results’ that may be inapplicable or uninterpretable for any other culture.

Another methodological problem with the current cross-cultural research on test anxiety is related to the interpretation of the cross-cultural differences that are observed. By and large, most of the cross-cultural studies on test anxiety have reported mean differences in the levels of test anxiety between samples of participants from two or more countries (Bodas & Ollendick, 2005). In these studies however, the specific cultural variables that might be responsible for these differences have not been delineated, measured, or analyzed; as a result, it is unclear as to what cultural factors are implicated in explaining these mean differences.

Finally, most of these studies have assumed cross-cultural equivalence. Construct or conceptual equivalence refers to whether a construct has the same meaning in two different cultures. The concept of construct validity is especially pertinent to the issue of translation and adaptation of instruments for use in a different culture. Indeed, to what extent do the various test anxiety instruments measure test anxiety among Indian children? Thus, a significant failing of cross-cultural research on test anxiety is that construct equivalence has been presupposed and not examined in most studies of test anxiety.

A number of these limitations of research on test anxiety are due to the use of what has come to be called the “imposed etic” approach (Berry, 1969, 1989). In 1967, Pike coined the terms “emic” and “etic” in describing the above-mentioned perspectives to understanding behavior from a cultural standpoint. Specifically, the etic approach involves examining a behavior from “outside of a particular system,” entailing a comparative approach for studying a behavior across different cultures (Pike, 1967). An emic approach, in contrast, examines a phenomenon “from inside the system” (Pike, 1967) and involves exploring and understanding the behavior within the specific

cultural framework of the individual. Further elaborating on these concepts, Berry (1969, 1989) offered a three step “imposed etic – emic – derived etic” procedure for using these concepts in cross-cultural research. Specifically, according to Berry, cross-cultural research begins with using a concept from the researcher’s culture, assuming it a valid basis for examining the concept in another culture, and then the researcher compares it across the two cultures. Based on the assumptions related to this approach, Berry (1989) referred to this methodology as the “imposed etic” approach. That is, the researcher first imposes his or her outlook on that of the to-be-studied culture. The next step involves thoroughly examining the concept within the new cultural context, which is the emic approach and which (hopefully) will lead to the last “derived etic” stage. This last stage involves deducing features that are common to both cultures and that have been derived, in the first place, by emic research conducted in each culture. Basically, the emic approach allows one to “derive” a view based on the to-be-studied culture. Emphasizing the necessity of such a three-step process, Berry (1969) has criticized the widespread sole use of the imposed etic approach because of the risks involved in making erroneous assumptions that one’s own culture provides an adequate basis for studying the phenomenon in another culture. According to Berry (1969), sole reliance upon the imposed etic approach has generated largely uninterpretable cross-cultural findings. Conversely, however, the derived etic notion allows the researcher to make potentially well-founded and well-informed comparisons between the two cultures.

Empirically, the validity of this approach needs to be examined more extensively (Bodas & Ollendick, 2005). Nevertheless, at the conceptual level, this approach attempts to overcome methodological limitations of current cross-cultural research on test anxiety. In sum, it is an integrated approach that endeavors to be context-sensitive in its pursuit of universal psychological principles. This approach will be espoused in the current study.

PURPOSE, RESEARCH QUESTIONS, AND HYPOTHESES OF THE PRESENT STUDY

The present study added to this literature by examining the nature of test anxiety from a cross-cultural perspective by using Berry's imposed etic - emic- derived etic approach and using a relatively comprehensive battery of instruments tapping intra-individual and extra-individual contextual variables to explore issues related to test anxiety in children and adolescents in India. Specifically, the study explored the following six areas.

First, western instruments were translated and adapted to the Indian culture using Berry's (1969, 1989) derived etic approach (see *Procedure* section for a detailed description). Presently, there are no psychometrically sound assessment measures of fear, anxiety, or depression for children and adolescents in India (Bodas & Ollendick, 2005). Next, the translated and adapted measures were examined to determine if they were psychometrically sound.

Second, the study investigated qualitative and quantitative differences in the nature of test anxiety among Indian children. In particular, within-subject and between-subject effects were examined for the levels of *Total* test anxiety, *Worry*, and *Emotionality* scores for Indian children. Consistent with data on test anxiety in western and cross-cultural research (Hembree, 1988; Spielberger, 1980; Zeidner, 1998), it was predicted that participants would report higher scores on the *Emotionality* as compared to the *Worry* component of test anxiety. Between-subject comparisons were made on the basis of gender and school level differences in test anxiety scores. Based on current findings in the cross-cultural test anxiety literature, it was predicted that females would endorse higher levels of test anxiety than males (Hembree, 1988; Seipp & Schwarzer, 1996; Sowa & LaFleur, 1986; Spielberger, 1980; Zeidner, 1998). Pertaining to age, a number of trends have been reported based on data collected in America (Wigfield & Eccles, 1989). With regard to Indian children, it was anticipated that the high school children would experience more anxiety than middle school children in the context of the preparation for National /State Board exams that typically

begins during the high school years (Bodas & Ollendick, 2005; National Advisory Committee, 1993)

Current research on test anxiety suggests that feelings of shame and disgrace to oneself and one's parents and family may be associated with examination failure in collectivistic cultures like India (Sovani et al., 2000; Viswanathan, Shah, & Ahad, 1997; Wang & Ollendick, 2001). Hence, this study also attempted to examine “social derogation” as a component of test anxiety for the Indian children. Preliminary evidence indicates that social derogation is a primary component of test anxiety endorsed by 9th and 10th grade children in India (Sovani et al., 2000). Hence, the role of social derogation vis-à-vis the cognitive and affective components of test anxiety was explored for the participants in the present study. Thus, within – subject (comparing relative strength of the various components of test anxiety) as well as between-subject (comparing across gender and school-levels) analyses were conducted. It was expected that, in general, children would report more social derogation than cognitive obstruction (*Worry*) or tenseness (*Emotionality*) on the measure of test anxiety. Existing research does not warrant gender-specific hypothesis regarding social derogation; therefore, the purpose of these analyses was exploratory. However, high school children were expected to endorse greater social derogation than middle school children due to the impact of the impending National / State Board exams.

In addition, cross – cultural comparisons were made based on the normative data for the Test Anxiety Inventory available for the US and other countries. Current metaanalytic cross- cultural research suggests that the mean test anxiety levels across nations is about 40 points on the TAI (within a potential range of 20 – 80 points), with a standard deviation of approximately 10 points (Seipp & Schwarzer, 1996; Zeidner, 1998). In general, current research has provided inconclusive findings regarding the relationship of cultural variables to test anxiety. The present study attempted to shed further light on these issues by contrasting cross-cultural data on test anxiety, specifically focusing on comparison of American normative data to the obtained data on Indian children to

determine if any clear-cut trends emerge. It was anticipated that Indian children would report higher levels of test anxiety than American children.

The third research question was directed toward the exploration of the clinical correlates of test anxiety by investigating its relationship to internalizing symptoms of fear, anxiety, and depression. The research reviewed in the earlier sections indicated that test anxious children would report higher levels of anxiety, depression, and fear. These relationships have been reported for western populations (Beidel & Turner, 1988; King et al., 1995; King et al., 2000; Warren, et al., 1996) but have not been examined in Indian children. The present study attempted to replicate these findings using a sample of Indian children. It was hypothesized that, as for the western populations, there would be a positive relationship between test anxiety and the internalizing symptoms of fear, anxiety, and depression.

Fourth, based on the research that psychopathology has a somatic expression among Indian people, this study examined whether test anxiety was correlated with somatization symptoms in Indian children. For example, with regard to depression, at least five studies including two cross-cultural studies using adults from India indicate that depressed individuals tend to present with somatic problems more commonly (Raguram, Weiss, Keval, & Channabasavanna, 2001; Sethi, Nathawat, & Gupta, 1973; Srinivasa, Subramaniam, & Chatterji, 1990) than either their American (Derasari & Shah, 1988) or British counterparts (Teja, Narang, & Aggarwal, 1971). Studies involving samples of children from India are scant. However, one study by Verma and Gupta (1990) reported that the primary symptoms of academic stress in schoolchildren included headaches, stomachaches, fever, and tenseness. Although some physiological symptoms are addressed by the *Emotionality* subscale of test anxiety, some of the more somatic symptoms such as headaches, pains, and vomiting have not been examined heretofore. Thus, in the present study, it was predicted that somatization symptoms would be positively correlated with test anxiety

Fifth, the study explored the relationship between extra-individual variables and test anxiety in Indian children. Specifically, the relationship between test anxiety and child-reported contextual variables of activity schedule, consequences of exam failure, perceived parental expectations, and perceived parental involvement were studied. Similarly, the relationship between test anxiety and parent-reported contextual variables of parental expectations and parental involvement were examined. A few studies in the western literature (Hill 1972, 1980; King et al., 1991; Kronhe, 1992) implicated the role of unrealistic parental expectations in test anxiety among children. Cross-cultural research on interpersonal relationships in the Asian culture has also provided support for the examination of these variables vis-à-vis test anxiety. In general, a high level of parental involvement and an expectation of academic achievement is characteristic of Indian families. In particular, traditional Indian family values interdependence, hierarchical relationships, and reverence towards elders (Verma & Saraswathi, 2002). Thus, a high level of parental involvement and control, particularly in middle class families, is typical. Moreover, like other Asian cultures, Indian parents are highly active participants in their child's education. They emphasize academic achievement, and often enroll their children in after-school educational activities such as "tuitions" to advance their academic achievements even though their children are not "struggling" in school (Cho, 1995; Verma, Sharma, & Larson, 2002). Lastly, the expectations of significant others such as parents, teachers, and peers have been reported to be the most important determinants of achievement goals among Indian youth (Singhal & Misra, 1989, 1994). Kagitcibasi (1996) aptly labels this tendency, which is also seen among youth from other collectivistic cultures such as Japan (DeVos, 1968), as "social achievement motivation." Based on this review, it was hypothesized that perceived parental expectations (as well as parental expectations) of high educational achievements would be related positively to higher levels of test anxiety in Indian children. Likewise, greater perceived parental involvement (as well as parental involvement), would be related to higher levels of test anxiety. Additionally, the relationship between the amount of time spent in academic activities and test

anxiety was examined. Hembree's (1988) meta-analytic review suggests that test anxious children tend to spend more time studying as compared to non-test anxious children. Thus, it was expected that test anxiety would be positively related to more time spent on homework and other academic activities (e.g., tutoring). Finally, the impact of perceived consequences of exams failure on test anxiety was examined for Indian children. The current education system in India is considered to be stressful and demanding inasmuch as it is characterized by "high stake" examinations (see Bodas & Ollendick, 2005, for review). These exams have dramatic impact on the lives of children and their parents, as performance on these exams is crucial for seeking admission for higher education at universities and colleges and to gain access to prestigious professional careers. Such practices put considerable pressure on students. Furthermore, as discussed above, concerns about disappointing parents and family members and feelings of shame associated with exam failure (Sovani et al., 2000; Viswanathan et al., 1997; Wang & Ollendick, 2001) may further increase the severity of perceived consequences among Indian children. Thus, given the demanding nature of the examination system, and its impact on the lives of students, it was expected that there would be a positive relationship between the perceived consequences of exam failure and test anxiety in Indian children.

Sixth, and finally, the study examined the relative contribution of the various (intra-individual and extra-individual) predictors to test anxiety. On the basis of the literature reviewed, it was anticipated the intra-individual clinical variables of fear, anxiety, and depression would be significant predictors of test anxiety in these Indian children. However, it was also predicted that somatization would contribute to the prediction of test anxiety above and beyond that predicted by fear, anxiety, and depression in Indian children. Furthermore, it was expected that the contextual variables (child and parent reported) would predict test anxiety above and beyond the prediction of all the intra-individual variables of fear, anxiety, depression, and somatization.

METHOD

Participants

Participants included 231 middle school (i.e., grades five through seven) and high school (i.e., grades eight through ten) children from government schools, government-aided schools, and private schools in Mumbai, India. The government schools provide free education and the children attending these schools come from the lowest socio-economic strata of the society. Government – aided schools provide education for a minimal fee for boys while the education for girls is free. The children attending these schools largely come from middle class families; although some children from the lower as well as upper socio economic levels also attend these schools. Lastly, the private schools charge relatively high fees and the children in these schools are primarily from the elite sections of the society; however, a few children from the middle class may also attend these schools. The participants ranged from 10 to 15 years of age (M age = 12.52; SD = 1.39) out of which 121 children went to middle school (age group of 10– 12 years of age) and 110 children went to high school (age group of 13 – 15 years). Additionally, 75 children (32.47%) went to government schools, 79 (34.20%) children went to government-aided schools, and 77 children (33.33%) went to private schools. There were 116 males (50.22%) and 115 females (49.78%) with mean ages of 12.59 (1.44) and 12.43 (1.33) respectively.

Measures

Demographic Information Questionnaire: A demographic information questionnaire seeking information regarding the child's gender, age, date of birth, grade (standard), address, religion, parental education and occupation, number of siblings, and languages spoken at home was administered to all children (See Appendix A).

Intra-individual variables

Test Anxiety Inventory: (TAI; Spielberger, 1980). The TAI is a 20-item rating scale that yields a *Total* score and two factor scores of *Worry* and *Emotionality*. The inventory assesses reactions

before, during, and after exams. Subjects are asked to rate their agreement on a four-point scale (1 to 4) with *Total* scores ranging from 20 to 80. Test-retest reliabilities for TAI total scores for groups of high school, college, and graduate students over time periods ranging from two weeks to six months have been reported (Spielberger, 1980). For all groups, the test-retest reliability was in the range of .80 to .81 for two-week to one-month time periods. For a group of high school students, six-month test-retest reliability was .62. The alpha coefficients for TAI total scores ranged from .92 to .96; for the TAI Worry subscale, the alphas ranged from .83 to .91 where as for the TAI *Emotionality* subscale, the alphas ranged from .85 to .91 (Spielberger, 1980).

FRIEDBEN Test Anxiety Scale (FTA; Friedman & Bendas-Jacob, 1997). The FTA is a 23-item scale consisting of the following three subscales: (a) Social Derogation (worries of being socially belittled and deprecated by significant others, following failure on a test), (b) Cognitive Obstruction (poor concentration, failure to recall, difficulties in effective problem solving, before or during a test), and (c) Tenseness (bodily and emotional discomfort) (Friedman & Bendas-Jacob, 1997). Cronbach coefficient alphas for the whole scale and three subscales are reported to be .91, .86, .85, and .81, respectively. Concurrent validity coefficients for the FTAS were obtained by correlating the scores on Hebrew version (Zeidner & Nevo, 1992) of TAI (Spielberger, 1980) and FTAS and were reported to be .84 for boys and .82 for girls. This measure was included in the current study to primarily investigate the role of social derogation in test anxiety.

Fear Survey Schedule for Children–Revised (FSSC-R; Ollendick, 1983) is a 80-item scale on which children report their level of fear in response to various stimuli on a 3-point scale (none, some, or a lot). The FSSC–R has five primary factors, namely, Fear of Failure and Criticism, Fear of the Unknown, Fear of Injury and Small Animals, Fear of Danger and Death, and Medical Fears (Ollendick, 1983; Ollendick, King, & Frary, 1989). Adequate reliability and validity have been documented for this scale in a variety of countries. Specifically, Cronbach’s alpha coefficients for the total fearfulness score have consistently been reported to be above .90 whereas the factor

subscale scores have ranged from .57 to .89, with the lower coefficients being associated with the Medical Fears factor that possesses only 4 items and the higher coefficients being associated with the Failure and Criticism factor that contains 18 items (Ollendick, 1983). Test-retest reliability for overall fearfulness has been estimated to be .82 for one week, .85 for two weeks, and .62 for three months (Ollendick, 1983). Factor subscale scores and specific fear items have been related to specific types of phobias and to specific anxiety disorders providing evidence for both convergent and divergent validity of the measure.

Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997). The MASC is a 39-item rating scale, designed to assess several domains of anxiety including physical symptoms, harm avoidance, social anxiety, and separation/panic. Children are asked to rate the frequency with which they experience particular symptoms on a four-point scale: 0 = never; 1 = rarely; 2 = sometimes; and 3 = often. Adequate reliability and validity have been documented for this scale (March et al., 1997). Single-case interclass correlation coefficients (ICC) for the MASC total score were .64 at 3 weeks and .87 at 3 months; mean ICC scores over the same period were .79 and .93, indicating satisfactory to excellent test-retest reliability. Chronbach alpha reliability coefficients for the Total and factor scores on the MASC are in the range of .60 and .90. The MASC total score was significantly correlated with the total score of the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Paget, 1981) ($r = .633, p < .01$), but not with the Children's Depression Inventory (CDI; Kovacs, 1981) and Abbreviated Symptom Questionnaire (ASQ; Conners, 1990) thus providing evidence for convergent and divergent validity.

Children's Depression Inventory (Kovacs, 1981). The Children's Depression Inventory is a 27-item inventory designed to measure depressive symptoms such as sleep disturbance, appetite loss, suicidal thoughts, and general dysphoria. The items are scored on a three point rating scale from 0 - 2 with total score ranging from 0 to 54; higher scores suggesting increasing severity. This scale has been widely used and possesses acceptable reliability and validity (Kovacs, 1981). Thus, the

Cronbach alpha coefficients for the CDI range from .71 to .89 while the test retest reliability coefficients over a period of 1 week to 6 months range from .54 to .87. Furthermore, adequate concurrent validity has been demonstrated by significantly positive correlations ranging between .66 and .72 for depression and low self esteem using the Coopersmith Inventory (Coopersmith, 1981) and Piers - Harris Children's Self Concept scale (Piers, 1984).

Children's Somatization Inventory (CSI; Garber, Walker, & Zeman, 1991): The CSI was used to assess the extent of children's somatic complaints. Children rate the degree to which they have experienced each of the 35 symptoms in the last two weeks using a 5-point rating scale ranging from not at all (0) to a whole lot (4). A total score ranging between 0 to 140 is obtained by adding the ratings on individual test items. CSI test-retest reliability is reported for intervals ranging from 2 weeks to five years. In a clinical sample, test-retest reliability coefficient was .81 for a time period of two weeks, .60 for a time period of six weeks, and .62 for a time period of three months following baseline, and .34 one year later. Test-retest reliability coefficient measured for the well patient sample was .62 after one year. Alpha reliability coefficients were .90 for the clinical sample and .91 for the school sample, indicating acceptable internal consistency.

Extra-individual contextual variables

Child reported surveys:

Student Activity Schedule: The Student Activity Schedule was developed for the purpose of this study to measure the amount of time spent per week by students in performing various academic and non-academic activities during the school year. This scale was adapted from original questionnaires obtained from the National Educational Longitudinal Study (National Center for Educational Statistics, 1988). For the purpose of this study, only the academic activities schedule was used. It consists of two items relating to time spent on academic activities, scored on a six-point rating scale ranging from "None" (scored as 1) to "15 hours or more" (scored as 6) (See Appendix C).

Consequences of Exam Failure Scale: The Consequences of Exam Failure Questionnaire has been developed by the author and her advisor Dr. Ollendick for purposes of this study. It consists of 15 items measuring perceived personal, familial, and social consequences of examination failure for students and is scored on a 4 point rating scale (1= not at all or not very much 2 = somewhat or a little bit 3 = very or quite a bit 4 = extremely). (See Appendix D).

Perceived Parental Expectation Questionnaire: The Perceived Parental Expectation Questionnaire measures children's perceptions of their parents' expectations regarding their academic achievement. This scale was adapted from the original questionnaire used in the National Educational Longitudinal Study (National Center for Educational Statistics, 1988). This variable was measured by the survey question: "How far in school do you think your father and your mother want you to get?" Responses were coded from 1 to 7 as follows: (1) Will not finish high school (2) Will finish high school (3) Will complete a vocational or technical course (4) Will attend college (5) Will complete Bachelor level education from college (6) Will complete a Master's level of education or a professional course and (7) Will pursue education beyond Master's level. A total score was used to record perceived parental expectation. (See Appendix E).

Perceived Parental Involvement Questionnaire: The Perceived Parental Involvement Questionnaire measures children's perceptions of their parents' involvement in their academic life. This scale was adapted from the original questionnaire used in the National Educational Longitudinal Study (National Center for Educational Statistics, 1988). This questionnaire consists of questions related to perceived parental involvement via monitoring of academic activities, discussion of academic concerns, and participation in academic events. It consists of 12 items that are scored on a 4 point rating scale (1= not at all or not very much 2 = somewhat or a little bit 3 = very or quite a bit 4 = extremely). (See Appendix F)

Parent reported surveys:

Parental Expectation Questionnaire: The Parental Expectation Questionnaire is the parent reported version of the Perceived Parental Expectation Questionnaire. This scale was adapted from original questionnaires obtained from the National Educational Longitudinal Study (National Center for Educational Statistics, 1988). The items on this questionnaire are similar to those on the child reported questionnaire but were worded to address the concerns of parents of the children (See Appendix G).

Perceived Parental Involvement Questionnaire: The Parental Involvement Questionnaire is the parent reported version of the Perceived Parental Involvement Questionnaire. This scale was adapted from original questionnaires obtained from the National Educational Longitudinal Study (National Center for Educational Statistics, 1988). The items on this questionnaire are similar to those on the child reported questionnaire but worded to address the concerns of parents of the children (See Appendix H).

Procedure

Data collection for this study was completed in Mumbai, India. To collect data in India, collaboration with a clinical psychologist/associate professor from Bombay University, Dr. Anuradha Sovani, was established. Additionally, a panel of three mental health professionals (two clinical psychologists and one psychiatrist) agreed to serve as cultural experts and provided consultation throughout the project. In order to collect data in India, translation and adaptation of the test instruments was undertaken. A culturally sensitive derived etic methodology developed for translation and adaptation of the measures in this study is described below. The translation and adaptation of the measures was followed by pilot testing (described below) of the adapted measures. Research assistants supervised by Dr. Sovani were responsible for data collection, scoring, and data entry. The research assistants were fluent in all languages spoken in the area, particularly Marathi, the state language, and Hindi, the national language of India, as well as with English. They were trained on the administration, scoring, and interpretation of the assessment tools and were

familiarized with the research process. Assent and informed consent was obtained from children and their parent/caregivers respectively.

Translation and Adaptation:

The scales were translated into Hindi, the national language of India. The translation procedure was carried out in three steps. First, the scales were translated into Hindi by three language experts familiar with Indian culture. Second, the translated versions were translated back into English. The derived translations were examined for discrepancies with each other as well as with the original version. Discrepancies were resolved by discussion among the three experts. Third, the derived English translation was translated back into the regional languages by another independent panel of three language experts. However, simple back translation of western measures for use in different cultures has been criticized (Bodas & Ollendick, 2005; Van Widenfelt, Treffers, de Beurs, Siebelink, & Koudijs, 2005). Based on the guidelines offered in cross-cultural literature, a culturally sensitive approach was adopted in this study. Specifically, the translated Hindi scales as well as the original English version were examined for cultural appropriateness of the individual test items (emic considerations). First, culturally inappropriate items were identified using the panel of three independent judges. Second, the judges were asked to modify the items independently, and third, items were selected for inclusion when there was at least a 2-judge consensus.

Furthermore, in order to avoid a “blind importation” of western instruments, an exploratory (emic) approach was adopted to examine these constructs in the Indian culture. Specifically, a focus group methodology was used to obtain the perspectives of schoolchildren, teachers, parents, and mental health professionals regarding fear, anxiety, test anxiety, and depression in Indian children. The content from these focus groups was transcribed and used to determine whether the emic conception of the construct was consistent with the western conceptualization. Further, based on the content that emerged from the focus group discussions, open-ended questions (See Appendix H) about fear, anxiety, depression, and test anxiety were formulated and administered to the participants

of the study. The rationale underlying the incorporation of open-ended questions was to enable the exploration of these constructs in the Indian culture rather than impose the existing western notions (Bodas & Ollendick, 2005). It was anticipated that this more emic-based approach would ensure that a derived etic approach was truly accomplished in this cross-cultural study.

Pilot study

The translated and culturally adapted instruments were administered along with the open-ended questions for fear, anxiety, depression, and test anxiety measures to 20 children (10 from each of the two targeted age groups). The children were able to comprehend the instructions and respond to the test items with ease for the most part. However, for the younger children, unfamiliarity with the testing format appeared to be a concern. Specifically, the children were apprehensive about whether they were doing the “right thing.” Reassurance on part of the proctor was important for these children. However, no significant problems about the content of the measures emerged during the pilot testing.

RESULTS

Qualitative Analysis

Focus group format: Five focus group discussions were conducted by the author, Dr. Anuradha Sovani, and the research assistants. The groups were conducted at the Institute for Psychological Health, Thane, Mumbai. Group 1 consisted of seven children from middle and upper socio-economic status groups, from educated families. Group 2 comprised of 21 children from lower socio-economic status that were mostly first-generation school-goers. Group 3 was conducted with parents of school-going children and included seven couples. Mental health professionals comprised the fourth group with a total of nine participants. Lastly, four schoolteachers participated in a focus group discussion on mental health issues for school-going children. Based on discussions with the panel of cultural experts, a set of questions were formulated to give direction to each focus group discussion. (See Table 1).

Content Analysis

Focused Group: Major themes that emerged in the focus group discussions are summarized in Table 2. Some culture specific emic themes emerged as salient vis-à-vis the constructs of fear, anxiety, depression, and test anxiety. Specifically, an important source of fear, anxiety, and depression among these children appeared to be school-related stress, high-stake exams, and the pressure to perform. Concerns related to bringing shame to the family, about letting one's parent's down, and approaching an authority figure to ask a question were verbalized and seen as significant factors at the root of children's test anxiety, fear, anxiety, and depression. Poverty was another major theme that emerged, primarily in the discussions involving first-generation school-going children but also among other groups. Interestingly, the manifestation of fear, anxiety, and depression largely involved physiological and somatic symptoms, although some cognitive (*Worry*) and behavioral responses (need to spend more time study, need tutoring, social isolation) were also reported. In general, it was noted that the younger children found it difficult to comprehend the more subtle distinctions between feelings of anxiety and depression. However, the constructs of fear and anxiety specific to evaluative situations were more easily distinguishable. These observations are supported by current western research on the overlap between anxiety and depression in children (e.g., Chorpita, Albano, & Barlow, 1998; Seligman & Ollendick, 1998; Seligman, Ollendick, Langley, & Baldacci, 2004)

Open-ended questions - Data from the focus group discussions were used to formulate open-ended questions, which were administered to the participants separately (see Table 3). Children's responses were coded in categories and a frequency count was conducted to quantify the responses.

With regard to test anxiety, 55.36% of children reported that they were anxious about doing poorly in exams because of fear of disapproval and about 29.46% because of feelings of shame and 15.16% because of fear of punishment. Moreover, 59.65% reported that they "studied" when anxious, 32.16% reported that they "prayed," and 8.19% reported that they sought social support.

Additionally, 58.06% of the children reported that they confided in their friends when upset while 31.61% of children confided in parents or other family members when upset.

Conclusion: Overall, the emic methodology of focus group discussions and open-ended questions provided rich qualitative data about the nature of test anxiety as well anxiety, fear, and depression in Indian children. Although, the content analysis indicated that the constructs of fear, anxiety, test anxiety, and depression were consistent to the western conceptualization of these concepts, some specific cultural themes were also evident. Specifically, vis-à-vis test anxiety, the centrality of academic stress in the lives of children particularly with regard to exams was apparent. Additionally, the notions of shame and disapproval associated with test anxiety, the role of parents and family, and the somatization of symptoms were the predominant culture-specific themes related to test anxiety in Indian children. In general, these themes were consistent with the hypotheses of the study.

Quantitative Analysis

Descriptive Results: Intra-individual measures-

Test Anxiety Inventory (TAI): The mean (standard deviation) *Total* score on the TAI for the whole sample was 34.79 (8.16) and the mean (standard deviation) scores for *Worry* and *Emotionality* subscales for the whole sample were 12.27 (3.77) and 15.92 (4.26) respectively. The internal consistency reliability estimates for the *Total* scale as well as *Worry* and *Emotionality* subscales were acceptably high, with α 's = .85, 0.77, and 0.77, respectively. These were slightly lower than the alphas reported for the American normative sample (ranging from .86 to .93) (See Table 5), but well within acceptable limits.

Friedben Test Anxiety Scale (FTAS): Since the number of items in the FTAS sub-scales is unequal, the FTAS total and sub-scale scores were converted to ratio scores (range of 0 to 1), to allow meaningful comparisons. Thus, as seen in Table 5 the mean (standard deviation) total ratio score on the FTAS for the whole sample was .37 (.16). The mean (standard deviation) ratio scores for Social Derogation, Cognitive Obstruction, and Tenseness sub-scales for the whole sample were .51 (.26),

.33 (.31), and .43 (.25) respectively, with obvious elevations on the social derogation factor. The total scale alpha reliability estimate was moderately high ($\alpha = .70$). Internal consistency scores for the subscales of Social Derogation, Cognitive Obstruction, and Tenseness were also moderate with α 's = .65, .68, and .53 respectively. These alpha coefficients are somewhat lower than those reported by the authors (ranging from .81 to .91 (Friedman & Bendas-Jacob, 1997), but, for the most part, acceptable.

Fear Survey Schedule for Children – Revised (FSSC-R): Only the total score on the FSSC-R score was used as part of the current study. On the FSSC-R, the mean (standard deviation) total score for the whole sample was 130.25 (26.41) (see Table 11). These scores were somewhat lower than those reported for western samples (Ollendick et al., 1989) The total scale alpha reliability estimate was high (.95) for this study and consistent with that reported for the normative sample of American children (Ollendick, 1983).

Multidimensional Anxiety Scale for Children (MASC). In the current study, only the MASC total raw score was used. On the MASC, the mean (standard deviation) total score for the whole sample was 28.42 (9.13). The internal consistency coefficient was moderately high for this sample ($\alpha = .77$) which is somewhat lower than that reported by the author ($\alpha = .90$; March et al., 1997) (see Table 11)

Children's Depression Inventory (CDI): Only the total raw score on the CDI was used as part of the current study. The mean (standard deviation) total score for the whole sample on this measure was 8.67 (8.03), consistent with that found in western studies. The internal consistency coefficient for the current study was high ($\alpha = .89$) and consistent with that reported for the normative sample (Kovacs, 1981) (see Table 11).

Children's Somatization Inventory (CSI): The mean somatization score obtained for the present study was 14.11 with a standard deviation of 10.84. The alpha reliability coefficients was .90 which was

consistent with that reported for school children by the test developers ($\alpha = .91$; Walker & Garber, 2003) (see Table 11).

Extra-individual measures:

Child - reported surveys

Student Activity Schedule: Only the academic activities sub-scale was used for the current study.

This subscale consists of two items related to time spent per week on academic activities. The higher the scores on this measure the more time spent on academic activities during the week. On this scale, the mean ratio score was .63 with a standard deviation of .20. The internal consistency coefficient for this subscale was moderately high ($\alpha = .62$) (see Table 13)

Consequences of Exam Failure Scale: This scale was developed to tap the negative socio-emotional consequences such as feelings of shame and guilt related to exam failure for the child

Higher scores on this scale indicate more severe consequences of failure. On this scale, the mean ratio score was .84 with a standard deviation of .14. The alpha reliability estimate was high ($\alpha = .90$) (see Table 13).

Perceived Parental Expectation Questionnaire: This survey measures children's perceptions of their parents' expectations regarding the level of their academic achievement. Higher scores on this survey indicate expectations of higher levels of education. On this measure, the mean ratio score was .84 with a standard deviation of .23 (see Table 13).

Perceived Parental Involvement Questionnaire: This questionnaire consists of questions related to perceived parental involvement via monitoring of academic activities, discussion of academic concerns, and participation in academic events. Higher scores denote greater perceived involvement on the part of the parents. The mean ratio score on this survey was .73 and the standard deviation was .12. The alpha reliability estimate obtained for this measure was moderately high ($\alpha = .69$) (see Table 13).

Parent - reported surveys

Parental Expectation Questionnaire: This questionnaire is the parent-reported version of the Perceived Parental Expectation Questionnaire. Higher scores on this survey are indicative of expectations of higher levels of education. On this measure, the mean ratio score was .84 with a standard deviation of .20 (see Table 13).

Parental Involvement Questionnaire: This questionnaire is the parent-reported version of the Perceived Parental Involvement Questionnaire. Higher scores denote greater involvement as reported by the parents. The mean ratio score on this survey was .71 and the standard deviation was .11. The internal consistency coefficient for this scale was moderately high ($\alpha = .67$) (see Table 13).

The nature of test anxiety among Indian children

Within-subject comparison:

To examine the nature of test anxiety in Indian children, a paired t-test analyses was performed to compare the Worry and *Emotionality* factor scores of the TAI. As seen in table 6, significant differences in endorsement of *Worry* and *Emotionality* factors were obtained. Specifically, the *Emotionality* scores ($\underline{M} = 15.92$, $\underline{SD} = 4.26$) were reported to be significantly higher than the *Worry* scores ($\underline{M} = 12.27$, $\underline{SD} = 3.77$) across the whole sample [$t(157) = 13.31$, $p = .00$]. Moreover, this pattern held true across gender (for males as well as for females) and school levels (for middle school as well as high school children) (See Table 6). This trend is consistent with normative American data (Spielberger, 1980), as well as other cross-cultural research on test anxiety (Zeidner, 1998).

Between-subject comparison

A 2x2 between subjects ANOVA was computed to determine gender and school-level differences on the *Total*, *Worry*, and *Emotionality* scores of the TAI. Overall, the results obtained suggested no main or interaction effects for the variables of gender and school-levels.

Thus, as seen in Table 7, the TAI *Total*, *Worry*, and *Emotionality* mean scores for the males were not significantly lower than those for the females as hypothesized. These results do not support the predictions of the current study and other findings in western and cross-cultural research (Hembree, 1988; Seipp & Schwarzer, 1996; Sowa & LaFleur, 1986; Spielberger, 1980; Zeidner & Nevo, 1992; Zeidner, 1998). These studies have consistently reported females score significantly higher than males on test anxiety measures.

Table 7 also summarizes the data for school-level differences in test anxiety and, again, no significant differences in the mean *Total*, *Worry*, and *Emotionality* scores were found for the middle school and high school children. These findings are consistent with some age trends reported in the test anxiety literature (Araki et al., 1992; Hembree, 1988; Zeidner, 1998); however, they are not as predicted for the Indian children in the present study wherein high school children were expected to report higher levels of test anxiety than middle school children.

Role of Social Derogation factor in test anxiety

The role of social derogation factor in test anxiety among Indian children was examined using the Friedben Test Anxiety scale (FTAS) which comprises three test anxiety sub-scales including Cognitive Obstruction, Tenseness, and Social Derogation. The Cognitive Obstruction and Tenseness subscales are conceptually similar to the *Worry* and *Emotionality* factors of the TAI (Friedman & Bendas-Jacob, 1997).

Within-subjects comparison

A One-way ANOVA was used to examine the relative strength of each factor. Consistent with the hypothesis of this study, participants reported higher levels of social derogation scores as compared to Cognitive Obstruction or Tenseness. In general, significantly higher levels of Social Derogation were endorsed as compared to Cognitive Obstruction or Tenseness (See Table 9). Thus, for the whole sample, the mean ratio score for Social Derogation ($M = .51$, $SD = .26$) was significantly

higher than the mean ratio score for Tenseness ($M = .43$, $SD = .25$), which in turn was significantly higher than Cognitive Obstruction ($M = .33$, $SD = .31$).

Between-subject comparison

A 2x2 between subjects ANOVA was computed to determine gender and school-level differences for Social Derogation. The analyses showed no significant interaction effects between gender and school level. Additionally, no main effect for gender was noted ($F(1, 231) = 1.46$, ns). However, a significant main effect for school level was obtained ($F = 18.18$, $p = .00$), such that the middle school children reported significantly higher scores ($M = .57$, $SD = .26$) on the Social Derogation factor as compared to the high school children ($M = .43$, $SD = .23$) (See Table 10). These findings are contrary to the hypotheses of the present study according to which the high school children were expected to report higher levels of social derogation.

Is test anxiety an indicator of underlying psychopathology among Indian children; especially of internalizing symptoms such as fear, anxiety, and depression?

Bivariate correlations between the variables of fear, anxiety, and depression and the test anxiety total scores were conducted to determine relationships between these internalizing symptoms and test anxiety. Consistent with current research findings in the field of test anxiety (Beidel & Turner, 1988; King et al., 1995; King et al., 2000; Warren et al., 1996) and as predicted in the current study, significant and positive correlations were obtained among the measures of test anxiety and the internalizing symptoms of fear, anxiety, and depression. These data are summarized in Table 12, which shows moderate but significant correlations between TAI total scores and the FSSC-R, MASC, and CDI total scores for the whole sample.

Is test anxiety correlated with somatization symptoms in Indian children?

Bivariate correlations between the somatization scores on the CSI (Garber, Walker, & Zeman, 1991) and the total test anxiety scores were conducted to determine the relationships between somatization symptoms and test anxiety. As predicted, a positive and significant correlation between

somatization scores and test anxiety was obtained. As seen in Table 12, the CSI scores showed a moderately strong and positive correlation ($r = 0.44$; $p = .00$) with the TAI total scores.

Are extra-individual contextual variables correlated with test anxiety in Indian children?

Bivariate correlations between the test anxiety total scores and the child-reported extra-individual contextual variables of activity schedule, consequences of exam failure, perceived parental expectations, and perceived parental involvement were conducted to assess the relationship between these variables. These results are summarized in Table 14. Only the contextual variables of ‘consequences of exam failure’ and ‘perceived parental expectations’ were significantly related to test anxiety. The relationship between test anxiety and consequences of exam failure was positive and significant ($r = .190$; $p < .01$) indicating that more severe consequences of exam failure were associated with greater test anxiety. Interestingly, the relationship between test anxiety and perceived parental expectations was negative and significant ($r = -.160$; $p < .05$) indicating that lower perceived parental expectations were correlated with greater test anxiety. These latter results are not in the expected direction predicted in the study.

Similarly, bivariate correlations between the test anxiety total scores and the parent-reported extra-individual contextual variables of parental expectations and parental involvement were also conducted (see Table 14). Contrary to expectations, the relationship between these variables and test anxiety was not significant.

What is the relative contribution of the various (intra- individual and extra-individual) predictors of test anxiety?

Hierarchical regression analyses were performed to determine the relative contribution of the various intra- individual and extra-individual predictors of test anxiety. Specifically it was hypothesized that somatization would predict test anxiety above and beyond the other intra-individual clinical variables including anxiety, fear and depression, while extra-individual variables would account for variance in test anxiety above and beyond all of the intra-individual clinical

variables combined. A hierarchical regression analysis was performed in which the demographic variables were entered in Step 1. In step 2, intra-individual variables of fear, anxiety, and depression were entered. To determine whether somatization predicted test anxiety above and beyond the other intra-individual clinical variables, it was entered in Step 3 of the analysis. Finally, to determine whether extra-individual variables account for variance in test anxiety above and beyond all of the intra- individual variables, those variables that were significantly correlated with test anxiety (consequences of exam failure and perceived parental expectations) were entered in Step 4 of the analysis. In this analysis, TAI total scores were entered as the dependent variables. As seen in Table 15, results indicated that only the MASC and CDI mean total scores were significant predictors of test anxiety. FSSC-R scores did not significantly predict test anxiety when the variance due to generalized anxiety and depression was taken into account. However, as predicted, Somatization scores predicted test anxiety in Indian children above and beyond the contribution made by fear, anxiety, and depression. Lastly, contrary to expectations, the extra-individual variables of consequences of exam failure and perceived parental expectations did not predict test anxiety above and beyond the intra-individual variables.

DISCUSSION

The goal of the present study was to examine the nature and level of test anxiety among schoolchildren in India using Berry's imposed etic-emic-derived etic model for cross-cultural research. The primary emphasis of this approach involves the use of a culturally sensitive methodology in conducting cross-cultural research. Within the framework of this model, an attempt was made to obtain qualitative data through focus-group discussions and open-ended questions as well as quantitative data via the use of translated and adapted measures and surveys tapping contextual information relevant to test anxiety in Indian children based on current research.

Qualitative Analysis: Emic Exploration of Test Anxiety in Indian Children

Qualitative data obtained through focus group discussions and administration of open-ended questions to the participants afforded emic explorations of the nature of test anxiety among schoolchildren in India. The emic analyses throw light on the centrality of test anxiety for these children and highlight important culture-specific aspects of the phenomenological experience, behavioral presentation, as well as contextual factors associated with test anxiety. On the basis of these data, it was evident that the phenomenological experience of test anxiety primarily involved somatic and physiological symptoms coupled with fears about parental disapproval, punishment, and feelings of shame and guilt. Cognitive components of test anxiety were also reported albeit less frequently. Behavioral responses to test anxiety centered primarily on coping behaviors to deal with the anxiety, which included studying, praying, receiving tutoring, seeking support from friends, and escaping by running away. Lastly, the contextual factors for the experience of test anxiety included high stake exam environments, authoritarian parenting styles, and poverty as a stressor, with education perceived as a means to a better quality of life.

Overall, the qualitative data afforded an enriched understanding of the cultural nuances specific to test anxiety among children in India and thus allowed for a more meaningful interpretation of the quantitative information.

Quantitative Analysis:

The present study focused upon a series of six research questions. Specific aims included a) examining the psychometric properties of the translated and adapted western measures, b) exploring the nature of test anxiety among Indian children, c) investigating the relationship between test anxiety and the internalizing symptoms of fear, anxiety, and depression, d) exploring the relationship between somatic symptoms and test anxiety, e) examining the relationship between test anxiety and child and parent reported contextual measures, and lastly f) investigating the relative contribution of various intra-individual and extra-individual variables in predicting test-anxiety.

Several hypotheses were proposed and tested to address these research questions; only partial support for them was obtained.

Psychometric properties of translated and adapted western measures

All the measures had adequate internal consistency with reliability estimates ranging from moderate to high; the only exception being the Tenseness sub-scale of the FTAS which had a marginal alpha coefficient of .53. Thus, overall, the psychometric properties of the translated and adapted western measures used in the present study were acceptable and comparable to those reported for the normative data for these measures.

Nature of test anxiety in Indian children

Evaluating the findings for the current study, the significance of physiological symptoms and social derogation to the experience of test anxiety among Indian children becomes evident. In particular, it was observed that Indian children endorsed higher levels of *Emotionality* than *Worry* on the TAI. Likewise, on the FTAS it was noted that among the three sub-scales of test anxiety, social derogation was endorsed the most, followed by tenseness (conceptually similar to *Emotionality*), and then cognitive obstruction (conceptually similar to *Worry*). On the basis of these results, it can be inferred that social derogation and physiological symptoms appear to be prominent aspects of the phenomenological experience of test anxiety among Indian children while the *Worry* or the cognitive component appears to be less significant. This finding is consistent with the qualitative data reported earlier.

Further, results of the study suggest that although a high-stake school environment and the stressful nature of the exams is present in the lives of these children, it does not appear to be associated with test anxiety. Specifically, in the present study, it was observed that the increase in stakes associated with exam performance as the children advance to the higher grades was not accompanied by a corresponding increase in test anxiety levels. Indeed, no significant difference in the test anxiety among the middle and high school children was obtained in the current study. In

fact, to the contrary, middle school children reported significantly higher levels of social derogation as compared to high school children indicating that they experienced their environments as more stressful as compared to the high school children. In other words, even though the literature reviewed for the current study and the qualitative data obtained from focus groups and open-ended questions indicate that Indian children experience high-stake examination environments; quantitative data does not suggest correspondingly higher levels of test anxiety among Indian children. Two complementary hypotheses, implicating the role of desensitization to stress and enhanced coping, respectively, can be enlisted to help explain the relationship (or the lack of it) between a high stake exam environment and test anxiety in Indian children.

Thus, one potential explanation for these results is that as children are continually exposed to the stressful situation they become increasingly desensitized to the level of stress and it becomes a “way of life” (Bodas & Ollendick, 2005) for them. Several behavioral mechanisms have been put forward to explain the relationship between exposure and desensitization (e.g. Wolpe, 1995). With respect to the current study, the principle of habituation may be particularly useful in explaining the relationship between test anxiety and a high stake exam environment. Habituation involves decreases in a response due to prolonged exposure (Emmelkamp & Felten, 1985; Harris, 1943). In the context of the present study, children are desensitized to test anxiety because of continuous exposure to high stake exams that are essentially unavoidable. That is, children get habituated to the level of stress induced by exams by having to experience them consistently over the years of schooling. In other words, the stressful academic environment is a ubiquitous aspect of the lives of these children, and it is likely that these children perceive this as a somewhat “normal” experience.

The idea that desensitization to test anxiety may result from continual exposure to a high-stake examination environment can be extended to understand the absence of gender differences observed in the current study. Comparing the results of the current study with the earlier Indian studies (Sharma et al., 1983; Sud & Sharma, 1990) it is evident that females participating in the

current study have reported lesser test anxiety than those in the earlier studies; however, the test anxiety scores of the male students have remained comparable across studies. In other words, it appears that women (but not men) are endorsing lesser test anxiety in the present times as compared to earlier years. One factor that needs to be addressed in this context involves the consideration of changing gender roles and societal expectations for education of women, especially in an urban setting like Mumbai. More generally, over the past several years, female literacy in India has significantly increased (Central Advisory Board of Education, 2005). Several initiatives on the part of the government have attempted to encourage education for females (Central Advisory Board of Education, 2005). More specifically, in the metropolitan city of Mumbai, the gender roles have undergone a significant change with dual-income families being the norm and necessity rather than exception and privilege. The enrollment of female students in higher education institutions has also increased appreciably (Central Advisory Board of Education, 2005). Consequently, the context in which females are seeking education has changed significantly over the past two decades and has become increasingly high stake over time. In other words, the academic environment that females are exposed to at this time is more competitive than before and also more comparable to that experienced by males in the Indian culture. Females in the Indian culture are now expected to perform, compete, and pursue higher education more so than before and are thus exposed, to an even greater extent, to the competitive exam experiences of their male counterparts. These experiences likely result in desensitization to test anxiety in Indian girls in the present cohort as they have in the Indian males for several cohorts. The above reasoning thus helps understand some of the reasons as to why test anxiety scores of the females in the current study are lower than those reported in earlier studies and further illuminate why they are now not significantly different from those of their male counterparts whose scores, on the other hand, have not changed across studies.

Secondly, it is conceivable that these children may respond to the stressful situation with enhanced coping behavior as they become progressively better equipped with skills that help them

adapt to the stressful situation, but also because of access to services and supports in their society that provide them coping resources. In fact, several resources are available to the Indian children at the societal, school, and familial level that may be distinctive to the Indian culture. These unique cultural resources include, at the societal level, after-school coaching classes that are regularly attended by many school children of all grade levels and hotlines to support children during exam. Additionally, most schools in India provide practice tests, testwiseness training, and advice and support to students and parents in preparation for the Board Exams. Children in the 10th grade typically complete their syllabus in months before their final exam and appear for a prelim /“mock” board exam as well as several practice exams in school before the actual final exam. At the familial level, parents usually provide financial support for coaching classes and tutoring. Parents also provide emotional support in several ways including taking leave from work during exam time, minimizing their social activities, minimizing the chores children have to do in the house, and actively being involved in helping children in their studying. In fact, it is possible that some aspects of what may be considered a “high-stakes” environment from a western perspective may actually serve as culturally unique active coping resources for Indian children (see Bodas & Ollendick, 2005). Additionally, consideration might also be given to the fact that despite being stressful, these high-stake exams are typically predictable and time-limited. Thus, they allow the children, and their parents and teachers, to plan and prepare for them and consequently exercise some control over the situation.

With respect to gender differences in test anxiety (or the lack of them) and the availability of culturally unique coping resources, it may be noted that parents have been historically more supportive of males with respect to their educational needs. Thus, traditionally, males have had more access to coping resources within the family as well as society. In contrast to this traditional notion, focus group discussions conducted for the present study were indicative of a lack of such a differential treatment for males and females in the modern families in India. Thus, it appears that

school-going boys and girls have access to equivalent coping resources in the present times. This reasoning helps appreciate the fact that test anxiety scores for girls have decreased across studies (and across cohorts) due to greater availability of coping resources in the present times as compared to earlier years. Further, it helps explain the fact that the test anxiety scores of the Indian girls are now comparable to those of the Indian males who have traditionally had access to the cultural coping resources (and thus have similar test anxiety scores across cohorts).

In summary, results of the current study provide important insights about the nature of test anxiety in the Indian culture. In general, however, and contrary to expectations, it appears that the high stake exam environments are not associated with increased test anxiety. Rather, such environments potentially result in desensitization to test anxiety and an enhanced use of coping skills and resources in evaluative situations.

Relationship between test anxiety and intra-individual and extra individual variables

Results of the current study indicate that the relationship between test anxiety and the intra-individual variables of fear, anxiety, depression, and somatization are moderately strong and positive. Specifically, this study replicated findings obtained in western research (Beidel & Turner, 1988; King et al., 1995; King et al., 2000; Warren et al., 1996) regarding the positive relationship between internalizing symptoms of fear, anxiety, and depression and test anxiety. Additionally, based on general research findings (Raguram, et al., 2001; Sethi, et al., 1973; Srinivasa, et al., 1990; Verma & Gupta, 1990) which suggests that individuals from India tend to express their psychological conflicts through somatic complaints, the present study examined the relationship between test anxiety and somatization symptoms in Indian children. The obtained results were in the expected direction, indicating a positive relationship between the two variables. This relationship has not been directly examined in studies on test anxiety to date and thus adds to the current research on test anxiety. Overall, consistent with western research, these findings suggest that test anxiety indeed serves as an indicator of more pervasive psychopathology in Indian children.

Furthermore, it is interesting to note that the relationship between test anxiety and somatization was the strongest as compared to the other intra-individual variables. Thus, the correlations suggest that somatization accounted for nearly 20 % of the variance in test anxiety, whereas fear, anxiety, and depression accounted for about 5, 15, and 12 % of the variance in test anxiety, respectively. In view of these findings, it is not surprising that when fear was entered into the regression equations along with anxiety and depression, the variance in test anxiety accounted for by fear was not substantial. Moreover, when somatization was entered into the regression equation after fear, anxiety and depression had been controlled for, it continued to predict test anxiety above and beyond the contribution made for by these more general internalizing variables (See Table 15). These findings are consistent with the hypotheses of the study and are further supported by the qualitative data obtained for the study. On the whole, the current findings provide consistent evidence suggesting that somatization plays a significant role in the prediction of test anxiety.

With regard to the correlations between test anxiety and extra-individual variables, the results of the current study indicate that this relationship was not found to be robust. Specifically, it was noted that only two out of four extra-individual variables were significantly related to test anxiety. Thus, test anxiety was positively and significantly related to ‘consequences of exam failure,’ indicating that more severe consequences were associated with higher levels of test anxiety. However, ‘perceived parental expectation’ was negatively and significantly related to test anxiety. These later results were contrary to expectations and suggested that lower perceived parental expectations were related to higher levels of test anxiety. Potentially, this relationship is moderated by a third variable such as the child’s ability level. Such a relationship, if substantiated, would be consistent with the deficit theory of test anxiety (Culler & Hollahan, 1980; Hembree, 1988; Tobias, 1985). However, further research is required to obtain a better understanding of the nature of this relationship. Additionally, inconsistent with previous research findings which suggest that test anxious children spend greater amount of time studying (Hembree, 1988), no significant relationship

was obtained between test anxiety and student activity schedule and test anxiety. Likewise, perceived parental involvement did not have a significant correlation with test anxiety.

In addition, it is important to note that although the extra-individual variables of ‘consequences of exam failure’ and ‘perceived parental expectation’ showed significant correlations with test anxiety, they accounted for less than 4 and 3 percent of the variance in test anxiety respectively. In light of these results, it is understandable that these variables did not predict test anxiety when entered into the regression equations after controlling for the contributions of the intra-individual variables, which in fact had stronger associations with test anxiety. Thus, findings of the current study are similar to those of a study (Ahlawat, 1989a) which examined the relationship between test anxiety and seven aspect of the home environment including over-demanding parents, critical/ repressive home environments, nurturing parent-child relationships, parenting strategies characterized by punishment and control, congenial parent child relationships, safe/happy home environments, and individual liberty and freedom in a sample of 720 Jordanian high school students. Of all the family environmental variables examined in the study, only ‘punitive control’ was a significant predictor of test anxiety.

In general, these findings are inconsistent with the hypothesis of this study as well as the qualitative data obtained from focus group discussions, which clearly implicated these variables as pivotal to the experience of test anxiety among Indian children.

One potential explanation for these results could be that such a family environment is indeed a “way of life” for these children and from an emic perspective it may not necessarily be experienced as stressful. Additionally, if parental involvement and expectations occur in the context of a positive and loving relationship between the parents and the children, then such a relationship may provide a coping resource for dealing with the high-stake exams. Furthermore, if education is the primary means of upward social mobility (Cho, 1995; Dhese, 2001), then intense preparation and involvement in academic work may be related to adaptive outcome rather than test anxiety.

However, these explanations are only speculative at this time and in need of prospective verification. It is obvious, though, that the relationship between these extra –individual variables and test anxiety is complex. Clearly, this relationship was supported by qualitative data. However, it is likely mediated and moderated by other parenting or schooling variables that were not explored in the current study.

LIMITATIONS AND FUTURE DIRECTIONS

Although the current study possesses several interesting findings, it is important to consider some of the limitations of the study as they provide an important context in which to understand and qualify the results obtained.

One limitation of the current study involved the use of questionnaires as the primary method of data collection. Although questionnaires are an economical and efficient research tool that can be used by researchers to investigate a wide range of constructs, several limitations of using questionnaire data in research have been identified. One drawback of this method is that it often requires considerable effort on the part of the participants. Moreover, the potential for respondent fatigue requires consideration of the quality of the data collected. In the present study, the participants were administered the questionnaires during school time. Although, the data collection process was completed over 2-3 sessions, it is possible that the participants experienced some fatigue and/or boredom during this process. Additionally, questionnaires can be subject to significant amounts of measurement bias. Measurement bias reflects the difference between the “true” responses that the researchers want to measure and those that they actually obtain through their measurement tools. In the present study, the purpose of the questionnaires was rather evident to the participants and it is possible that this information influenced their responses to some extent, potentially in the direction of providing socially desirable responses. Future research should examine the nature of test anxiety in Indian children using a multi-method approach.

Another limitation may be related to the sample used for the present study. Although an attempt was made to obtain a stratified sample with respect to the variables of age, gender, and socio-economic levels, the sample was obtained from schools in suburban Mumbai region and were thereby restricted with respect to diversity of geographical settings and representativeness of participants from rural areas. India as a multi-cultural and multi-lingual country and children from different geographical locations such as different states likely differ on several characteristics that could be relevant to the present study. Likewise, considerable differences potentially exist among urban and rural populations especially with respect to values regarding education and academic achievement. Thus, these findings may not be generalizable beyond the population sampled for the study. Further research is required to examine these relationships in diverse samples.

Another shortcoming of the present study was that the data were collected from participants in grades 5th to 9th only. Students in the 10th grade typically appear for the State/ National Board Exams at the end of the academic year. These exams are a source of significant stress and require time-intensive preparation on the part of the participants (see Bodas & Ollendick, 2005 for review). Thus, the data from these participants would have provided crucial information regarding the high-stakes exams and its relationship to test anxiety. In the present study, however, data could not be collected from these students as the schools declined permission to use classroom time to collect data from these children – yet another indication of the role of examinations at this grade level. Also, the study was further limited by the age range and school levels of the participants. In particular the sample did not include children in the age range of 6-9 attending elementary school. Inclusion of these children in the study may have afforded a better understanding of potential developmental trends.

An important drawback of the study involves consideration of method bias for this study. Van de Vijver and Tanzer (2004) identify three types of method biases in cross-cultural research :- i) sample bias resulting from comparison of samples differing on aspects other than the target variable; ii) instrument bias problems occurring from instrument characteristics; and iii) administration bias

arising from administration problems. For the current study, consideration of the sample bias is particularly important as some of the analyses involved comparisons between Indian children participating in the current study with normative American samples. There is debate in the cross-cultural literature about whether comparisons at the level of broad cultural dimensions such as nations are appropriate (Van de Vijver & Leung 2000). The current investigation, however, is limited by the fact that there is no normative data on Indian children on the variables being studied. To address issues of instrument bias specifically emerging from the western importation of measures, a culturally sensitive back translation approach was used (Van Widenfelt et al., 2005) to translate and adapt the measures used in the study. Also, within the framework of Berry's imposed etic-emic-derived etic methodology an attempt was made to obtain qualitative information through emic explorations to substantiate quantitative data collected for this study. Despite these considerations, some western bias may well continue to exist and could possibly be overcome by further research that continues to further our understanding of these psychological constructs in the Indian culture.

These problems notwithstanding, the statistical procedures used in the current study are sound and afford an excellent understanding of the relationships among the variables examined. However, use of structural equation modeling could have provided a more refined appreciation of interrelationships between these variables. Structural equation modeling is a technique that is derived from multiple regression and factor analytic techniques, but provides a more powerful approach for examining theoretical models purported to explain relations among variables. Structural equation modeling has several advantages over multiple regression analyses including the ability to test theoretical models with correlated independents (multicollinearity problem), multiple dependents, and mediational relationships (Pedhazur & Schmelkin, 1991). Future research should continue to examine these relationships using more refined statistical analyses such as the structural equation modeling, especially so with larger samples.

Finally, several other contextual factors have been implicated in the prediction of test anxiety that were not examined in the current investigation. Particularly, the role of school environment factors such as competitive climate, evaluative orientation and practice, and ability grouping, has been implicated (Zeidner 1998). In addition, important teacher variables may need to be examined. Finally, along with predictors of test anxiety, it is important to include a measure of performance to obtain a more complete understanding of the constructs studied here. Future research should address the role of these variables in understanding test anxiety.

SUMMARY

In conclusion, the current investigation was a cross-cultural study that examined the nature of test anxiety in Indian children. A culturally sensitive methodology using focus groups and open-ended questions was adopted for this study. A combination of qualitative and quantitative data provided an enriched understanding of the manifestation of test anxiety and its correlates in a sample of school going children in India. The current study made it possible to glean culture-specific aspects of test anxiety in Indian children as well as draw parallels with current western research and as such was the first attempt to understand test anxiety using Berry's culturally sensitive imposed etic-emic-derived etic approach.

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Appendix A
Demographic Information Form

Name: _____

Gender: Boy/Girl

Standard/ Grade: _____

Date of birth: _____

Age: ____years ____months

Religion: _____

Telephone number: _____

Address: _____

Father's education: _____

Mother's education: _____

Father's occupation: _____

Mother's occupation: _____

Brothers: ____older ____younger

Sisters: ____older ____younger

Language spoken at home: _____

Appendix B**Open-ended Questions**

1. When I get anxious during exams, I _____
2. The reason I am anxious about doing poorly in exams is _____
3. I sometimes feel very sad or anxious because _____
 - a. my parents are _____
 - b. and my brothers and sisters are _____
 - c. and our family is _____
4. The reason for my sadness or anxiety, according to me is _____
5. The reason (2) for my sadness or anxiety, according to me is _____
6. When I feel upset, this is what I do _____
7. When I feel upset, this is what I do (2) _____
8. When I feel upset, this is what I do (3) _____

Appendix C

Student Activity Schedule

Instructions: For the following questions, make a check mark (✓) against the appropriate answer to indicate the extent to which you do the following activities.

1 In a typical week, how much total time do you spend at “tuitions” or coaching classes?

- (a) None
- (b) Less than an hour
- (c) 1–4 hours
- (d) 5–9 hours
- (e) 10–14
- (f) 15 hours or more

2 Overall, about how much time do you spend on homework each week outside of school?”

- (a) None
- (b) Less than an hour
- (c) 1–4 hours
- (d) 5–9 hours
- (e) 10–14
- (f) 15 hours or more

Appendix D

Consequences of Exam Failure Scale

Instructions: For the following questions, write down the appropriate number in the blank space provided to indicate the extent of your feelings in the given situation.

1 = not at all or not very much 2 = somewhat or a little bit 3 = very or quite a bit 4 = extremely.

How important is it

1. For you to do well on an exam _____
2. For your parents that you do well on an exam _____
3. For your teachers that you do well on an exam. _____
4. For other family members (such as grandparents, aunts, uncles, cousins) that you do well on an exam. _____

If you do poorly on an exam

5. How guilty would you feel? _____
6. How embarrassed would you feel? _____
7. How happy would you feel? _____
8. How sad would you feel? _____
9. How angry would you feel? _____
10. How ashamed would you feel? _____
11. How hopeless would you feel? _____

If you do poorly on an exam

19. How upset would you be because you did not achieve your goals _____
20. How upset would you be because you let your parents down (made them upset) _____
21. How upset would you be because you let other family members such as grandparents down (made them upset) _____
22. How upset would you be because you let your teachers down (made them upset) _____
23. How upset would you be because you ashamed yourself _____
24. How upset would you be because you ashamed your parents _____
25. How upset would you be because you ashamed other family members such as grandparents _____
26. How upset would you be because you ashamed your teachers _____

Appendix E

Perceived Parental Expectation Questionnaire

1 How far in school do you think your father and your mother want you to get?

- (a) Will not finish high school (Will not pass the Tenth Standard Exam)
- (b) Will finish high school (Will pass the Tenth Standard Exam)
- (c) Will complete a vocational or technical course
- (d) Will attend college (complete Higher Secondary Certificate Exam [HSC] or Twelfth Standard Exam)
- (e) Will complete Bachelor level education from college
- (f) Will complete a Master's level of education or a professional course such as Medicine or Engineering, or Chartered Accountancy, or pursue higher education abroad
- (g) Will pursue education beyond Master's level such as Ph. D, M.D., or pursue higher education abroad

Appendix F

Perceived Parental Involvement Questionnaire

For the following questions, circle the appropriate number to indicate the extent to which you or your parents perform the activity mentioned

1 = rarely or never 2 = sometimes or occasionally 3 = often or frequently 4 = regularly or daily.

2 How often do your parents do the following?

- | | |
|--|---------|
| (a) Require you to do work or chores around the house (e.g., cleaning, tidying) | 1 2 3 4 |
| (b) Limit the amount of time you can spend watching TV or playing computer games) | 1 2 3 4 |
| (c) Limit the amount of time you go out with friends on school days. | 1 2 3 4 |
| (d) Check on whether you have done your homework | 1 2 3 4 |
| (e) Help you with your homework | 1 2 3 4 |
| (f) Give you special privileges because of good grades (e.g., buy gifts, take you out for dinner etc.) | 1 2 3 4 |
| (g) Limit privileges because of poor grades (e.g., no play time, no TV time) | 1 2 3 4 |

3 In the first half of the school year, how often have you discussed the following with either or both your parents or guardians?"

- | | |
|---|---------|
| 1. School activities or hobbies of particular interest to you | 1 2 3 4 |
| 2. Things you have studied in class | 1 2 3 4 |
| 3. Your grades | 1 2 3 4 |
| 4. Plans and preparation for the important exams | 1 2 3 4 |
| 5. Going to college | 1 2 3 4 |

4. In the first half of the school year, how often did either of your parents or guardians do any of the following?

- | | |
|---|---------|
| (a) Attend a school meeting | 1 2 3 4 |
| (b) Attend a school event in which you participated | 1 2 3 4 |
| (c) Act as a volunteer at your school | 1 2 3 4 |

Appendix G

Parental Expectation Questionnaire

1. How far in school do you want your child to get?

- a. Will not finish high school (Will not pass the Tenth Standard Exam)
- b. Will finish high school (Will pass the Tenth Standard Exam)
- c. Will complete a vocational or technical course
- d. Will attend college (complete Higher Secondary Certificate Exam [HSC] or Twelfth Standard Exam)
- e. Will complete Bachelor level education from college
- f. Will complete a Master's level of education or a professional course such as Medicine or Engineering, or Chartered Accountancy, or pursue higher education abroad
- g. Will pursue education beyond Master's level such as Ph. D, M.D., or pursue higher education abroad

Appendix H

Perceived Parental Involvement Questionnaire

For the following questions, circle the appropriate number to indicate the extent to which you do the things mentioned

1 = rarely or never 2 = sometimes or occasionally 3 = often or frequently 4 = regularly or daily.

3 How often do you do the following?

- | | | |
|-----|--|---------|
| (a) | Require your child to do work or chores around the house (e.g., cleaning, tidying) | 1 2 3 4 |
| (b) | Limit the amount of time your child can spend watching TV or playing computer games) | 1 2 3 4 |
| (c) | Limit the amount of time your child can go out with friends on school days. | 1 2 3 4 |
| (d) | Check on whether your child has done his/her homework | 1 2 3 4 |
| (e) | Help your child with his/her homework | 1 2 3 4 |
| (f) | Give your child special privileges because of good grades (e.g., buy gifts, take your child out for dinner etc.) | 1 2 3 4 |
| (g) | Limit privileges because of poor grades (e.g., no play time, no TV time) | 1 2 3 4 |

3 In the first half of the school year, how often have you discussed the following with your child?"

- | | | |
|----|--|---------|
| a. | School activities or hobbies of particular interest to your child. | 1 2 3 4 |
| b. | Things your child has studied in class. | 1 2 3 4 |
| c. | Your child's grades. | 1 2 3 4 |
| d. | Plans and preparation for the important exams. | 1 2 3 4 |
| e. | Going to college. | 1 2 3 4 |

4. In the first half of the school year, how often did you do any of the following?

- | | | |
|-----|---|---------|
| (d) | Attend a school meeting. | 1 2 3 4 |
| (e) | Attend a school event in which your child participated. | 1 2 3 4 |
| (f) | Act as a volunteer at your child's school. | 1 2 3 4 |

*Table 1:**Focus Group Format*

Group	Description	Number of participants
1	Children from middle and upper socio-economic status, from educated families	7
2	Children from lower socio economic status, mostly first generation school-goers	21
3	Parents	7
4	Mental Health Professionals	9
5	Teachers and community volunteers	4

Table 2:

Qualitative Data: Focus group themes related to Test Anxiety

Major Themes: Fears, Anxieties, Depression

Darkness, performance fears, examination, pests, heights, blood, heavy traffic, decisions, intruder, death of parent.

Examination performance, school , social / family issues, poverty, death.

Subthemes Related to Test Anxiety

Fear of Examinations: Blanking out, forgetting, physiological symptoms; falling sick

Need for self study, tutoring

Self doubt regarding answers, worry

Too frequent examinations

School:

Approaching authority to ask a question

Anxiety about letting parents down;

Shame about doing badly; bringing shame to family name

Social:

Isolation from peer group, siblings

Meeting parental expectations

Being teased by peers due to poor exam performance

Stage fright, Performance concerns

Low confidence in own performance

Poor self image, or high self doubt

Poverty:

Privation, Deprivation

Making time to study

Comparisons with others

Feel need for quick success

Money is a strong source of stress, for all SES levels

Perceived causes, and self talk

Adults do not engage in discussion of the problem, do not adopt problem solving approach

Feel alone “why me?” “ I am helpless”,

Performance comparisons, shame about poor performance”I am no good”

“Others have to suffer because of me”; Parents will be shamed

Feel unlucky; lack of control

Feel circumstances are unfair , feel angry

Coping resources/ methods

Confide in friends

Write a diary, Talk to self in mirror, Write letters, use technology to express themselves

(sms, chat) Distract self with music

Somatization of stress, Get bad dreams, Crying

Escape shame - Suicidal ideation, Run away from home, Steal money and escape

Table 3:
Qualitative Data from open-ended questions

Response Category	Responses	%
Causes of exam anxiety / anxiety	Fear of disapproval	55.36
	Shame	29.46
	Fear of punishment / lack of empathy	15.18
Causes of depression	Loneliess	43.28
	Guilt / regret	21.64
	Anger	17.91
	Shame	9.70
	Helpless	5.98
	Unlucky	1.49
Coping with exam anxiety and stress	Study	59.65
	Pray	32.16
	Support seeking	8.19
Coping with negative feelings	Confide in Friends	58.06
	Confide in Parents/ Teachers	31.61
	Escape	1.94
	Talk to self / write a diary	2.58
	Somatization	5.81

*Table 4:**Participant Characteristics*

	N	%	Mean Age (SD)	Age Range
Whole Sample	231	100	12.52 (1.39)	10 - 15
Males	116	50.22	12.43 (1.33)	10 - 15
Females	115	49.78	12.59 (1.44)	10 - 15
Middle School	121	52.38	11.43 (.89)	10 - 13
High School	110	47.62	13.71 (.65)	12 - 15

Table 5:

Descriptive Data for Test Anxiety Scores

Measure	Whole Sample	Males	Females	Middle School	High School
TAI Total					
Mean	34.79	34.41	35.18	35.78	33.64
SD	8.16	8.30	8.05	8.34	7.85
N	158	79	79	85	73
α	.85				
TAI Worry					
Mean	12.27	12.46	12.08	12.67	11.80
SD	3.77	3.89	3.66	3.92	3.56
N	158	79	79	85	73
α	.77				
TAI-Emotionality					
Mean	15.92	15.43	16.42	16.42	15.36
SD	4.26	4.14	4.36	4.43	4.02
N	158	79	79	85	73
α	.77				
FTAS (Social Derogation)					
Mean (Ratio scores)	0.51	.48	.53	.57	.43
SD	0.26	.24	.27	.26	.23
N	231	116	115	121	110
α	.65				
FTAS (Cognitive Obstruction)					
Mean (Ratio scores)	.33	.32	.34	.36	.29
SD	.31	.30	.33	.32	.30
N	231	116	115	121	110
α	.68				
FTAS (Tenseness)					
Mean (Ratio scores)	.43	.39	.46	.42	.43
SD	.25	.24	.25	.25	.24
N	231	116	115	121	110
α	.53				

Table 6:

Within Group differences for TAI

	TAI Emotionality	TAI Worry	df	t value
Whole Sample	15.92	12.27	157	13.31**
Males	15.43	12.46	78	7.86**
Females	16.42	12.08	78	11.25**
Middle School	16.41	12.67	84	9.11**
High School	15.36	11.79	72	9.99**

** t value is significant at the 0.01 level (2-tailed).

Table 7:

Tests of Between-Subjects Effects for TAI

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
GENDER	20.30	1	20.30	.315	.58
SCH_LEVEL	177.11	1	177.11	2.66	.11
GENDER * SCH_LEVEL	4.68	1	4.68	.07	.79

Dependent Variable: TAI Worry

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
GENDER	6.67	1	6.67	.468	.50
SCH_LEVEL	30.52	1	30.52	2.144	.15
GENDER * SCH_LEVEL	3.05	1	3.05	.214	.64

Dependent Variable: TAI Emotionality

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
GENDER	37.68	1	37.68	2.09	.15
SCH_LEVEL	42.72	1	42.72	2.37	.13
GENDER * SCH_LEVEL	.20	1	.20	.01	.92

Table 8:

One-Way ANOVA: Within Group differences for Social Derogation

Pairwise Comparison	X difference I-J	Standard Error	Significance
Social Derogation (I) – Cognitive Obstruction (J)	.180	.025	.00
Social Derogation (I) - Tenseness (J)	.08	.021	.00
Cognitive Obstruction (I) – Tenseness (J)	-.10	.023	.00

Bonferroni Adjustment made for multiple comparisons

*Table 9:**Two- Way ANOVA: Between Group Differences for Social Derogation*

Source	Sum of Squares	df	Mean Square	F
Gender	.09	1	0.09	1.463
School Level	1.113	1	1.113	18.19**
Gender * School Level	.02	1	.02	.373

** F value is significant at the 0.01 level (2-tailed).

Table 10:
Descriptive Data for Intra-Individual Variables - Fear, Anxiety, Depression, and Somatization Scores

Measure	FSSCR	MASC	CDI	CSI
Mean (Raw Scores)	130.25	28.42	8.67	14.12
SD	26.41	9.13	8.03	10.84
N	231	231	231	158
α	.95	.77	.89	.90

Table 11:

Bivariate correlations between test anxiety (TAI) and Intra-individual variables of Fear, Anxiety, Depression, and Somatization Scores

	1	2	3	4	5
1 TAI	1.00				
2 FSSCR	.23**	1.00			
3 MASC	.39**	.49**	1.00		
4 CDI	.36**	.20**	.27**	1.00	
5 CSI	.44**	.37**	.51**	.26**	1.00
N	158	231	231	231	158

** Correlation is significant at the .01 level (2-tailed).

Table 12:

Descriptive Data for Extra-Individual Variables

Measure	Academic Activities	Consequences of Failure	Perceived Parental Expectation	Perceived Parental Involvement	Parental Expectation	Parental Involvement
Mean (Ratio Scores)	.63	.84	.84	.73	.84	.72
SD	.20	.14	.23	.12	.20	.11
N	158	158	158	158	158	158
α	.62	.90	--	.69	--	.67

Table 13:

Bivariate Correlations between Test anxiety (TAI) and Extra--individual variables

	1	2	3	4	5	6	7
1 TAI	1.00						
2 Academic Activities	-.11	1.00					
3 Consequences of Failure	.19*	.03	1.00				
4 Perceived Parental Expectation	-.16*	.19*	-.03	1.00			
5 Perceived Parental Involvement	-.10	.03	.30**	.10	1.00		
6 Parental Expectation	-.12	.05	.13	.39**	.18	1.00	
7 Parental Involvement	-.004	-.01	.09	-.04	.31**	.19*	1.00
N	158	158	158	158	158	158	158

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 14:

Summary of Hierarchical Regression Analyses Relative contribution of the Intra-individual and Extra-individual variables.

	Variable	B	SE B	β	ΔR^2
Step 1					.01
	Age	-.54	.45	-.10	
	Gender	.73	1.30	.05	
Step 2					.22**
	Age	.33	.43	.06	
	Gender	.36	1.22	.02	
	FSSCR	0.009	.03	.03	
	MASC	.27	.07	.31	
	CDI	.31	.08	.30	
Step 3					.07**
	Age	.50	.41	.09	
	Gender	.77	1.17	.05	
	FSSCR	-0.006	.03	-.02	
	MASC	.17	.08	.19	
	CDI	.28	.08	.27	
	CSI	.23	.06	.31	
Step 4					.02
	Age	.50	.42	.09	
	Gender	.25	1.21	.02	
	FSSCR	-0.006	.03	-.02	
	MASC	.15	.08	.18	
	CDI	.26	.08	.25	
	CSI	.23	.06	.30	
	Consequences of Failure	6.97	4.07	.12	
	Perceived Parental Expectation	-1.39	2.51	-.04	

** R^2 is significant at the 0.01 level.

CURRICULUM VITAE

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Current Position: Predoctoral Intern, Devereux Institute of Clinical Training and Research (APA Approved site).

Education:

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ Doctor of Philosophy -
University:
Specialization:
Advisor: | <ul style="list-style-type: none"> Psychology, expected in May, 2006
Virginia Tech, Blacksburg, VA
Child Clinical Psychology
Dr. Thomas H. Ollendick |
|---|---|

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Master of Science -
University:
Specialization:
Advisor: | <ul style="list-style-type: none"> Psychology, December, 2003
Virginia Tech, Blacksburg, VA
Child Clinical Psychology
Dr. Thomas H. Ollendick |
|--|--|

- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ Master of Arts -
University:
Specialization:
Advisor: | <ul style="list-style-type: none"> Psychology, May 1997
Mumbai (Bombay) University, Mumbai
Applied Clinical Psychology
Dr. Anuradha V. Sovani |
|---|--|

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ Bachelor of Arts - | <ul style="list-style-type: none"> Psychology, May 1995
Ruparel College, Mumbai University |
|--|---|

RESEARCH EXPERIENCE

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ January 2003 -
May 2004 | <ul style="list-style-type: none"> Research Assistant, Child and Adolescent Phobia Project, Blacksburg, Virginia.
Responsibilities: Assessment of children and parents using diagnostic interview schedules, self-report measures, physiological measures (EKG, GSR, and salivary cortisol); behavioral avoidance tasks; presentation of assessment findings for consensus diagnosis based on parent and child report.
Supervisor: Thomas H. Ollendick, Ph.D. |
|--|---|

- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ January 2002 -
December 2002 | <ul style="list-style-type: none"> Research Assistant, FEMA Residential Fire Grant, Blacksburg, Virginia.
Responsibilities: Assessment of child and adult residential fire victims, data analyses, data management, undergraduate supervision and training.
Supervisors: Russell T. Jones, Ph.D and Thomas H. Ollendick, Ph.D. |
|---|--|

- **August 2000 - July 2001:** **Research Project Coordinator for *Prafulta-A Mental Health Clinic for Children and Youth, Bombay, India:*** Funded research project entitled, “A Comparative Study of Various [Indian] Versions of the Wechsler's Intelligence Scale for Children”, Mumbai, India.
Responsibilities: Data collection, administrative duties, supervision of data entry, data analysis, training.
Supervisors: Anuradha Sovani, Ph.D. and Fr. Godfrey D'Sa, M.S.

CLINICAL EXPERIENCE

- **September 1-present** **Clinical Psychology Internship: Devereux Institute of Clinical Training and Research, Mapleton Program (Residential Treatment Facility for children with emotional and behavioral disorders)**
Responsibilities: Clinical case management in concert with regional social service organizations, assessment and treatment of children and adolescents using evidence-based practices, family, group, and milieu therapy, participation in inter-disciplinary treatment team meetings.
Supervisor: Dr. Marsha Richardson, Psy. D.
- **August 2001 - June 2005** **Graduate Clinician, Psychological Services Center, Virginia Tech.**
Responsibilities: Assessment and treatment of children, adolescents, and adults in individual, couples, and family therapy setting; case conceptualization and report writing; individualized and team based case review and treatment planning on a weekly basis.

Received training and have experience in administration, scoring, and interpretation of the following tools: Beck Depression Inventory, Rorschach Inkblot Test, Millon Clinical Multiaxial Inventory-III, Minnesota Multiphasic Personality Inventory-2, Wechsler Adult Intelligence Scale, 3rd Edition.
Supervisors: George Clum, Ph.D., Lee D. Cooper, Ph.D. and Thomas H. Ollendick, Ph.D.
- **August 2004 - December 2004** **Clinical Psychology Externship: Southwest Virginia Mental Health Institute (Adolescent Inpatient Unit)**
Responsibilities: Intake interviews, psychological assessments, participation in interdisciplinary treatment team meetings, group therapy, attending commitment hearings.
Supervisor: Ron Parsons, M.A.
- **August 2002 - July 2004** **Graduate Clinician, Child Assessment Clinic, Child Study Center, Virginia Tech.**
Responsibilities: Psychological, neuropsychological, and educational assessment of children and adolescents using standardized assessment batteries; child, parent, teacher reports; clinical interview; school observation visits; scoring and interpretation of test results; assessment

report writing; meeting with parents and educators for feedback and delivery of assessment results.

Received training and have experience in administration, scoring, and interpretation of the following assessment tools: Anxiety Disorders Interview Schedule for DSM-IV (child and parent versions), Kiddie SADS, Wechsler Intelligence Scale for Children, 4th Edition, Wechsler Individual Achievement Test, 2nd Edition, tests of visual motor skills, self, parent, and teacher report questionnaires,

Supervisor: Thomas H. Ollendick, Ph.D.

- **August 2003 - April 2004 - Clinical Psychology Externship: Montgomery County Public Schools, Special Education Department.**

Responsibilities: Observing administrative meetings, participating in behavioral consultations, positive behavioral support plan development sessions, Individualized Education Program development meetings, and educational consultations with parents and teachers.

Supervisor: Christina Gilley, M.A., Director of Special Education.

Clinical Experience in India

- **September 1998 - Child Clinical Psychologist, Prafula - A Don Bosco Project - July 2001 Mental Health Clinic for Children and Youth, Bombay, India.**

(Part-time; 20 hours/week).

Responsibilities: Psychological, neuropsychological, and intellectual assessment of children with behavioral, emotional, and educational problems using standardized measures, projective tests, and clinical interview; writing assessment reports; meeting with parents for delivery of assessment results.

Supervisors: Harish Shetty, M.D. and Fr. Godfrey D'Sa, M.S.

- **December 1998 - Clinical Psychologist, Nityanand Clinic, Bombay, India. July 2001**

(Part-time; 16 hours/week)

Responsibilities: Psychological assessment of children and adults; Rational Emotive Behavior Therapy based intervention for children and adults; conducting workshops, seminars, and lectures related to increasing awareness about mental health issues.

Supervisor: Harish Shetty, M.D.

- **November 2000 - Counselor, Jamnabai Narsee School, Bombay, India. July 2001**

(Part-time; 12 hours/week)

Responsibilities: Psychological and intellectual assessment of youth with education related problems.

Supervisors: Harish Shetty, M.D. and Anjali Chabbria, M.D.

- **November 1997- June 1999 - Clinical Psychologist, Drishti - A Developmental Learning Center Bombay, India (Part – time; 12 hours/ week).**

Responsibilities: Educational and intellectual assessment of youth with learning difficulties.

Supervisor: Smita Desai, Ph.D.

- **June 1997-
May 1998** **Clinical Psychology Intern, *K.B. Bhabha Municipal Hospital*
Bombay, India.**
Responsibilities: Observing a clinical psychologist conducting assessment and treatment sessions for clients with severe psychiatric conditions.
Supervisors: Ajit Dandekar, M.D. and Minal Sule, M.A.
- **August 1996 -
March 1997** **Clinical Psychology Intern, *Thane Mental Hospital, Bombay,*
India.**
Responsibilities: Assessment and treatment planning for institutionalized psychiatric patients.
Supervisor: Anuradha Sovani, Ph.D.

TEACHING EXPERIENCE

- **May 2005 -
July 2005** **Course Instructor, Virginia Tech Department of Psychology,
Social Psychology**
Supervisor: Thomas H. Ollendick, Ph.D.
- **July 2004 -
May 2005** **Course Instructor, Virginia Tech Department of Psychology,
Abnormal Psychology**
Supervisor: Thomas H. Ollendick, Ph.D.
- **August 2001 -
May 2002** **Teaching Assistant, Virginia Tech Department of Psychology,
Undergraduate psychology recitation class instruction.**
Supervisor: Chris Dula, M.A.

AWARDS

- Galper Graduate Fund Awards, 2004-2005, Virginia Tech.
- Clinical Child Research Fund Award, Virginia Tech, for dissertation research, 2004-2005
- Graduate Student Assembly of Virginia Tech Conference Travel Award, 2003-2004.
- Best Scientific Paper Award (Students' Session) at South Asian Association of Clinical Psychologists (SAAP) Conference, Mumbai (Bombay), 1996.
- Second Prize for research paper (Students' Session) presented at Bombay Psychological Association (BPA) Conference, Mumbai (Bombay), 1995.

PUBLICATIONS AND PRESENTATIONS

- Bodas, J. & Ollendick, T.H. (2005). Test Anxiety: A cross-cultural perspective. *Clinical Child and Family Psychology Review*, 8, 65-88.
- Ollendick, T.H. & Bodas, J. (in preparation). The Unique Contributions of Positive Affect and Physiological Arousal in the Prediction of Depression and Anxiety.
- Bodas, J. & Ollendick, T. H. (2004, November). The Role of Positive Affect in Distinguishing between Depression and Anxiety: A Test of the Tripartite Theory [Poster Presentation]. 38th Annual Convention of the Association for Advancement of Behavior Therapy: New Orleans, Louisiana, U.S.A.
- Bodas, J. & Ollendick, T. H. (2004, November). The Moderating Role of Anxiety in Predicting Academic Achievement in Children [Poster Presentation]. 38th Annual Convention of the Association for Advancement of Behavior Therapy: New Orleans, Louisiana, U.S.A.
- Bodas, J. & Sovani, A.S. (2004, March). Nature of test anxiety among children in India [Poster Presentation]. 24th Annual Conference of the Anxiety Disorders Association of America, Miami, Florida, U.S.A.
- Bodas, J. (2003, October). The Moderating Role of Anxiety in Predicting Academic Achievement in Children. Unpublished Master's Thesis.
- Bodas, J., Horsch, L. M., & Ollendick, T. H. (2003, November). Unique contribution of positive affect and physiological arousal in prediction of depression and anxiety [Poster Presentation]. 37th Annual Convention of the Association for Advancement of Behavior Therapy: Boston, Massachusetts, U.S.A.
- Horsch, L. M., Bodas, J., & Ollendick, T. H. (2003, November). Anxiety Sensitivity in children and parental anxiety: A failure to replicate [Poster Presentation]. 37th Annual Convention of the Association for Advancement of Behavior Therapy: Boston, U.S.A.
- Jones R. T., Ollendick, T. H., & Bodas, J. (2002, November). Residential fire: The effects of parents' distress reactions on children. Paper presented at the International Society for Traumatic Stress Studies, Baltimore.
- Sovani, A., Bodas, J., Bhave, S. (2002). Relevance of IQ testing in the assessment of learning disabilities in the Indian context. *Asian Journal of Pediatric Practice*, 6, 45-49.
- Sovani, A. S. & Bodas J. (2001, December). A comparative study of WISC norms, a new methodology. Paper presented at International Conference of Cross Cultural Psychology, Mumbai (Bombay).
- Bodas, J. & Sovani, A.S. (2001, February). Comparative evaluation of original and Indian versions of the WISC. National Annual Conference of the Indian Association of Clinical Psychologists, New Delhi.

- Bodas, J. & Sovani, A.S. (2001, February). A methodological critique of a widely used Indian version of WISC. Annual Conference of Delhi Association of Clinical Psychologists (DACP), New Delhi. Selected for award session.
- Sovani, A. S. & Bodas J. (2001, September). A Comparative Study of Various Versions of the Wechsler's Intelligence Scale for Children. Research Project Report.
- Sovani, A. S. & Bodas J. (2001, December). A comparative study of three versions of the WISC. Paper presented at the Southeast Asia Regional Conference on Scientific and Applied Psychology, Mumbai (Bombay).
- Bodas J., Chincholikar M., Joshi, M.S., & Bhide, D. (1996). Working Women: A comparison with working men and home-makers on daily hassles, satisfaction in family life, assertion of autonomy and lack of social self confidence. Paper presented at the First Conference of South Asian Association of Psychologists (SAAP). Adjudged 'The Best Scientific Paper' in students' session.
- Rajgopalan, A. & Bodas J. (1996). Self-Defeating Personality: It's relation to hopelessness and self-reinforcement. Paper presented at the National Annual Conference of the Indian Association of Clinical Psychologists (NACIACP).
- Bodas J. & Chincholikar M. (1996). Dual career families: Effect of Day care facilities on parental guilt and job involvement. Paper presented at the Conference of Indian Psychological Association (IPA).
- Bodas, J. (1995). Comparative study of anxiety and life satisfaction of mediators and non-mediators. Paper presented at the Conference of Bombay Psychological Association (BPA). Awarded the second prize in the students' session.

AFFILIATIONS

- American Psychological Association, Student Affiliate.
- Association for Advancement of Behavior Therapy, Student Member.
- Anxiety Disorders Association of America, Student Member.

PROFESSIONAL DEVELOPMENT ACTIVITIES

- **August 2005 – October 2006** – **Member, Scientific Committee, Fourth International Conference on Child and Adolescent Mental Health, Mumbai, India.**
Organized by Elsevier, in association with Child Study Center at Virginia Tech, VA, USA, and Institute of Psychological Health, Mumbai, India.
Responsibilities: Review of abstracts, planning and organizing research symposia, poster presentations, and workshops.
- **May 2003 -** 3 day - SAS training seminar conducted by SAS Institute, Cary, NC

- **October 2003** – Workshop on Collaborative Problem Solving approach, a model of intervention for explosive/noncompliant youth by Ross Greene, Ph.D.
- **March 1998** Rational Emotive Behavior Therapy Primary Course, Institute of RET, New York; Prof. K.M. Phadke.

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