Orginal Article

Early maladaptive schemas as predictors of child anxiety: the role of child and mother schemas

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(Received: 28Sep 2014; Revised: 15Oct 2014; Accepted: 8Nov 2014)

Abstract

Introduction: This study investigated the relationship between symptoms of anxiety in children and early maladaptive schemas in children and their mothers. Early maladaptive schemas are dysfunctional ways of thinking, feeling and behaving that develop as a result of adverse experiences with significant others in childhood, and lead to a higher risk of psychopathology.

Methods: A sample of 200 non-clinical children (aged 9-13 years) completed the SCARED and SIC, their mothers completed the YSQ-SF.

Results: Regression analyses found that child anxiety scores were mainly predicted by the child schemas of loneliness, submission and vulnerability, which are similar to the anxiety predictors identified in adult samples. The failure schema was strongly related to anxiety symptoms in girls. Differences in schema predictors were found between girls and boys, and between different anxiety scales. Mother schemas were generally poor predictors of child anxiety symptoms. Support was found for the proposal that the schemas of self-sacrifice and enmeshment may not be maladaptive in children.

Conclusion: This study identified several early maladaptive schemas that are significantly related to child anxiety symptoms, but further research is required to establish the causal direction of these relationships. Research in clinical samples is recommended to determine whether specific child schemas can differentiate between different types of psychopathology. The reliability and validity of the SCARED in Iranian children is questionable, and requires further examination.

Declaration of Interest: None.

Key words: Early maladaptive schemas, Child, Anxiety.

Introduction

Anxiety is the most prevalent type of psychopathology among children (1). Although mild anxiety is part of normal development, high levels of anxiety can predict increased risk for psychosocial difficulties (2). Despite the high prevalence of childhood anxiety disorders they often go unrecognized, and only 30% of these children receive treatment (3). It is therefore of interest to increase understanding of the predictors of anxiety in children.

Contemporary models of child anxiety emphasise the importance of the interaction between genetics, gender, family environment, specific parenting styles and life events in the development of anxiety in children (4,5). There is also strong evidence from attentional and interpretation bias research that anxious children demon-

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strate an information processing bias towards threat. Children's locus of control, threat appraisal and outcome expectancy biases have also been linked to childhood anxiety (6,7,8,9). One area of information processing bias that has not received the same thorough investigation is the potential relationship between child anxiety and early maladaptive schemas (EMS). EMS are conceptualized as self-protecting but dysfunctional ways of thinking, feeling, and behaving that develop as a result of ongoing adverse or dysfunctional experiences with significant others early in life (10,11). These EMS are thought to arise from the frustration of core psychological needs, become entrenched and self-perpetuating, and lead to a greater risk of psychopathology (11). The relationship between EMS and psychopathology has been demonstrated in adults, with EMS shown to be related to anxiety, depression and personality disorders (12,13,14).

More recently there have been several studies emerging which have examined EMS in adolescents demonstrating a significant relationship between EMS and psychopathology in adolescents (15,16,17). For example, Van Vlierberghe and colleagues (15) showed that the following EMS were positive predictors of DSM-IV anxiety disorders in a referred and nonreferred sample of 12-18 year olds: abandonment/instability, failure to achieve, dependence/incompetence, relenting standards/hyper-criticalness, and entitlement/grandiosity.

Although the relationship between EMS and psychopathology is established in adults and adolescents, it is only a few that developmentally appropriate methods have been created to assess EMS in children.

Rijkeboer and de Boo (18) developed a comprehensive child EMS scale by rewriting the full YSQ-SF (19) to be appropriate for children. They found that EMS od children were related to positive and negative affect, depressed and aggressive mood in non-clinical children (18). However, the relationship between child anxiety and EMS was not examined in these studies, and Rijkeboer and de Boo (18) did not examine potential gender differences.

Although little is known about the relationship between EMS and anxiety in children, this early research provides an indication that EMS may fit well with existing theories of anxiety development. Welburn et al. (14) identified different patterns of schema relationships specific to symptoms of anxiety, depression and paranoia in an adult clinical population. Specific predictors for anxiety symptoms were vulnerability to harm, abandonment, failure, self-sacrifice and emotional inhibition schemas. Calvete, Estévez, López de Arroyabe, and Ruiz (20) identified subjugation, failure and abandonment as predictors of anxiety symptoms in a university population. These themes are central to the cognitive biases already identified in anxious children (21). Pinto-Gouveia et al. (12) further proposed that EMS may be able to differentiate between specific anxiety disorders in adults. It is of great interest to see whether this discriminatory ability is also evident in child anxiety, as previous information processing research has shown mixed ability to distinguish between different types of anxiety (21).

One of the other significant unanswered questions relevant to this area is whether maternal cognition plays a role in the development of child anxiety. Few studies have specially considered the potential effect of maternal cognition on anxiety in children. As noted before, specific parenting styles have significant influences on the thoughts, behaviors, and emotions of children. It is believed that these influences can be beneficial or costly for the children (22). Parenting behaviors of mothers and fathers may also have differential influence across the life span. Connell and Goodman's (23) meta-analysis found that maternal psychopathology had a stronger effect than paternal psychopathology on the internalizing disorders of preadolescent children, potentially due to mothers' greater role in care-giving for that age group. That is not to say that negative parenting styles of mothers are possible pathways for the development of mental health problem such as social fears and anxiety in children (4,24,25). Although, it is not completely understood how these negative parenting styles interact with the child's temperament and result in anxiety, contemporary models of parent-child interaction emphasize that cognitive processes have the influence on the actions and emotions of family members (22). Evidence from the developmental

literature suggests that parental beliefs may impact upon the parenting strategies they use.

Therefore, as parental factors have been shown to influence information processing (26), this raises the question of whether maternal EMS may influence the development of child anxiety. In other words, it is conceivable that mothers with strong EMS could convey to their child the message of their vulnerability, incompetence or inability to cope, and a perception of the world as being unsafe.

It is clear that EMS relates to symptoms of psychopathology in adults and children, but the specific relationship between EMS and child anxiety has not been examined. The purpose of this study was to explore the relationship between mother and child EMS and child anxiety symptoms in a sample of non-clinical children.

Methods

The sample consisted of 200 Iranian students (9 to 13 years) and their mothers, who voluntarily participated in the study. These students were recruited from the north, center and south of Tehran to include families from a range of socioeconomic status backgrounds. In each region four schools were selected; two primary schools (grades one to five) and two guidance schools (grades six to eight), one girls' and one boys' school from each school type. From each of these schools, three classes between grades four to eight were randomly chosen to participate in the study. After appropriate permission from the School Boards, students completed questionnaires during regular class hours, with a research assistant present to answer questions. Children were given written consent forms to take home to their parents and return to school. All children received a standardized set of instructions, advising them to read each item carefully, to select the answer that seemed most appropriate, and that their answers would be kept confidential. Children then took the mothers' questionnaire pack home to return after three days.

The questionnaire measures used were translated from English to Persian by a bilingual Iranian psychologist. The Persian version was then back translated to English by a different bilingual psychologist. The two versions of the questionnaires were compared by the two psychologists, and any discrepancies were resolved. Both translators had lived in English-speaking countries for at least four years.

Screen for Child Anxiety Related Emotional Disorders (SCARED): The SCARED (27) is a 41-item self-report measure assessing anxiety disorder symptoms in children and adolescents from 8 to 18 years old. The scales of the questionnaire assess symptoms of panic disorder, generalized anxiety disorder, separation anxiety disorder, social phobia, and school phobia. Items are rated on a 3-point scale from 0 to 2. The SCARED has excellent psychometric properties in clinical (28), community (29), and primary care samples (30). Cross-cultural studies have found consistent psychometric properties and gender differences, with females scoring higher than males for all scales except school phobia (31, 32). The five factors demonstrate good internal consistency and test–retest reliability (27,28).

This study found the following internal consistencies using Cronbach a: total score a = .88, panic disorder a = .76, generalized anxiety disorder a = .70, separation anxiety disorder a = .52, social phobia a = .54 and school phobia a = .53. The internal consistency for the total score is comparable with both the original SCARED (a =.90 approximately; 28) and other translated versions (Italian a = .89, Dutch a = .94; 33). Internal consistency for panic disorder and generalized anxiety is acceptable, though lower than most published samples (31), however for separation anxiety disorder, social phobia and school phobia it is unacceptably low.

Young Schema Questionnaire-Short Form (YSQ-SF): The YSQ-SF (19) is a 75-item self-report questionnaire scored on a six point Likert scale ranging from 1 to 6. Higher values reflect stronger schema valence and more maladaptive core beliefs. The questionnaire is designed to assess 15 early maladaptive schemas. The YSQ-SF has been widely used to assess unhealthy core beliefs (34,35), is suitable for use in non-clinical groups (36,37), and has been previously used with mothers of infants and pre-school children (38). The YSQ-SF demonstrates good validity (14,39), and strong internal

consistency (a=.96, 37). Internal consistency for the current study was excellent: a = .95.

Schema Inventory for Children (SIC): Rijkeboer and De Boo (18) developed the SIQ to assess the same schemas as the YSQ-SF. It is for children aged 8-13 years. Each item is rated on a 4-point Likert scale ranging from 1 to 4. Higher scores indicate a greater strength of that maladaptive schema for the child. The SIC factors were loneliness, vulnerability, mistrust/abuse, defectiveness, failure, submission, unrelenting standards, self-sacrifice, enmeshment, entitlement, and insufficient self-control. The concurrent validity and test-retest reliability of the questionnaire were established by Rijkeboer and De Boo (18). The internal reliability of the SIC in this study was a = .70.

A series of student's t tests were used to examine gender differences in child anxiety and EMS scores. In order to further examine expected gender differences. Stepwise regression analyses were conducted to further examine the relationship between anxiety and early maladaptive schemas, with child and mother EMS as the independent variables and child anxiety scale scores as the dependent variables. The regression analyses were calculated separately for boys and girls in order to examine potential gender differences in the relationship between anxiety symptoms and EMS. All analyses were conducted using SPSS v19.0 for Windows.

Results

Of the original 200 participant pairs, 49 were excluded from analysis; 47 due to incomplete data and 2 because the child was too old. The mean age of the remaining sample was 11.35 years (SD = 1.12; range = 9-13 years), 82 (54%) were female.

Using the recommended clinical cut-off score of 25 or above (40), 36 girls and 23 boys reported total anxiety scores that indicate an anxiety disorder may be present. This represents 39% of the sample analyzed, higher than the 30% reported in an African American high school sample (41). Clinical cut-off scores for the individual anxiety scales (27, Screen for Child Anxiety Related Disorders) showed that 53% of the total sample scored in the clinical range for separation anxiety symptoms, 38% for school phobia symptoms, 37% for panic symptoms, 16% for generalized anxiety symptoms, 9% for social phobia symptoms and 37% for total anxiety. It is important to note that interpretations of the separation anxiety, social phobia and school phobia scales should be made very cautiously due to their poor internal reliability in this sample.

As girls are known to have higher levels of anxiety on standardized measures than boys, a series of independent samples t-tests were conducted comparing scores on the SCARED anxiety scale by gender (see Table 1). Girls reported significantly higher total anxiety ($p = .020$), panic ($p = .019$), and generalized anxiety (p value = .020) symptoms than boys. There were no significant differences in separation anxiety, social phobia or school phobia symptoms between boys and girls. Gender differences in child EMS have not been examined thoroughly in children, so a series of independent samples t-tests were conducted comparing SIC scale scores by gender (see Table 2). Girls reported more loneliness ($p = .003$) and greater mistrust/abuse ($p = .020$) than boys. No other significant gender differences in EMS were identified.

Furthermore, significant gender differences in mother EMSs were identified in abandonment (p value = .001), mistrust/Abuse (p value = .024), vulnerability to Harm (p value = .004), enmeshment (p value = .012), entitlement (p value = .043), and insufficient Self-Control (p value = .003), which mother of girls reported more scores in these schemas.

A series of stepwise regression analyses were carried out to further explore the relationship between child and mother EMS and child anxiety. Child and mother EMS scales were the independent variables and the anxiety scales were the dependent variables. The analyses were carried out separately for boys and girls in order to examine potential gender differences in the relationship between anxiety and EMS. Forward selection method was used with probability of F to enter $p \leq 0.5$ and probability of F to remove $p \geq .10$. Final model predictors for each anxiety scale are presented in Table 4.

Table 1. Mean Scores (and Standard Deviations) of Anxiety Scales for Girls and Boys

SCARED Scale	Girls (n=82)	Boys (n=69)	t	p
Total Anxiety	24.1(11.2)	20.1(10.7)	2.34	0.20
Panic Disorder	6.4(4.2)	4.8(3.9)	2.37	0.19
Generalized Anxiety Disorder	6.1(3.3)	4.6(3.0)	2.88	0.005
Separation Anxiety Disorder	5.4(3.1)	4.6(2.6)	1.80	0.74
Social Phobia	4.1(2.2)	4.0(2.8)	0.16	0.874
School Phobia	2.3(1.7)	2.0(1.6)	1.00	0.321

Table 2. Mean Scores (and Standard Deviations) of EMS Scales for Girls and Boys

SIC Scale	Girls (n=82)	Boys (n=69)	t	p
Loneliness	9.2(2.7)	8.0(2.4)	2.99	0.003
Vulnerability	15.3(3.2)	14.3(3.4)	1.92	0.057
Mistrust/Abuse	7.1(1.9)	6.4(1.9)	2.36	0.020
Defectiveness	4.7(1.6)	4.8(1.8)	-0.30	0.768
Failure	5.0(1.9)	4.6(1.6)	1.46	0.147
Submission	9.8(3.2)	9.0(2.8)	1.72	0.87
Unrelenting Standards	9.1(1.8)	9.1(1.9)	-0.05	0.964
Self-Sacrifice	10.7(1.3)	10.5(1.4)	1.08	0.282
Enmeshment	9.5(1.5)	9.3(1.7)	0.79	0.433
Entitlement	6.5(2.0)	6.36(2.4)	0.49	0.628
Insufficient Self-Control	6.0(2.0)	5.32(2.21)	1.86	0.066

Table 3. Mean Scores (and Standard Deviations) of Mother EMSs Scales for Girls and Boys

YSQ-SF Scale	Girls (n=82)	Boys (n=69)	t	p
Emotional Deprivation	11.77 (5.94)	10.61 (6.11)	1.18	0.24
Abandonment	14.04 (6.22)	10.90 (4.77)	3.43	0.001
Mistrust/Abuse	11.28 (5.41)	9.44 (4.50)	2.28	0.024
Social Isolation	8.71 (4.33)	8.20 (4.05)	0.74	0.461
Defectiveness/Shame	7.50 (4.01)	7.24 (3.48)	0.45	0.656
Failure	9.87 (5.08)	10.15 (5.57)	-0.31	0.754
Dependence/Incompetence	10.02 (5.19)	8.42 (4.87)	1.96	0.52
Vulnerability to Harm	10.53 (5.84)	8.03 (4.37)	2.93	0.004
Enmeshment	12.25 (6.33)	9.90 (4.71)	2.55	0.012
Subjugation	10.51 (5.23)	9.74 (5.44)	0.88	0.379
Self-Sacrifice	19.68 (5.56)	18.70 (5.08)	1.14	0.257
Emotional Inhibition	11.90 (5.45)	11.24 (5.95)	0.71	0.481
Unrelenting Standards	18.12 (5.56)	17.09 (5.64)	1.12	0.262
Entitlement	14.76 (5.94)	12.79 (5.86)	2.04	0.43
Insufficient Self-Control	14.14 (5.63)	11.62 (4.74)	2.99	0.003

Note. YSQ-SF = Young Schema Questionnaire-Short Form

Table 4. Hierarchical Stepwise Regression Analyses Predicting Child Anxiety Scale Scores from Child and Mother EMS

	Adjusted R^2	t	p	Beta	Partail	Part
Girls						
Total Anxiety Predictors						
Failure[a]	0.30	5.95	0.000	0.55	0.55	0.55
Vulnerability[a]	0.40	3.77	0.000	0.34	0.39	0.32
Subjugation[b]	0.44	2.54	0.013	0.21	0.28	0.21
Submission[a]	0.46	2.24	0.028	0.22	0.25	0.18
Panic Disorder Predictors						
Failure[a]	0.36	6.82	0.000	0.61	0.61	0.61
Subjugation[b]	0.43	3.41	0.001	0.29	0.36	0.28
Vulnerability[a]	0.46	2.24	0.028	0.19	0.25	0.18
Generalized Anxiety Disorder Predictors						
Submission[a]	0.18	4.31	0.000	0.43	0.43	0.43
Loneliness[a]	0.24	2.80	0.006	0.29	0.30	0.23
Vulnerability[a]	0.28	32.14	0.036	0.22	0.23	0.20
Failure[b]	0.30	2.00	0.049	0.20	0.22	0.19
Separation Anxiety Disorder Predictors						
Vulnerability[a]	0.13	3.65	0.000	0.38	0.38	0.38
Failure[a]	0.18	2.48	0.015	0.26	0.27	0.25
Social Phobia Predictors						
Submission[a]	0.17	4.16	0.000	0.42	0.42	0.42
Defectiveness[a]	0.24	2.88	0.005	0.29	0.31	0.28
Loneliness[a]	0.28	2.36	0.021	0.24	0.26	0.22
School Phobia Predictors						
Vulnerability[a]	0.12	3.47	0.001	0.36	0.36	0.36
Failure[a]	0.18	2.65	0.010	0.28	0.28	0.27
Boys						
Total Anxiety Predictors						
Vulnerability[a]	0.20	4.30	0.000	0.46	0.46	0.46
Submission[a]	0.29	2.96	0.004	0.33	0.34	0.30
Loneliness[a]	0.32	2.15	0.035	0.24	0.26	0.21
Panic Disorder Predictors						
Submission[a]	0.20	4.21	0.000	0.46	0.46	0.46
Vulnerability[a]	0.28	3.03	0.003	0.33	0.35	0.31
Generalized Anxiety Disorder Predictors						
Loneliness[a]	0.17	3.85	0.000	0.43	0.43	0.43
Vulnerability[a]	0.22	2.40	0.019	0.27	0.28	0.26
Separation Anxiety Disorder Predictors						
Vulnerability[a]	0.11	3.05	0.003	0.35	0.35	0.35
Social Phobia Predictors						
Loneliness[a]	0.12	3.22	0.002	0.37	0.37	0.37
Vulnerability to Harm[b]	0.21	2.94	0.005	0.32	0.34	0.32
Unrelenting Standards[b]	0.25	2.07	0.042	0.22	0.25	0.22
School Phobia Predictors						
Submission[a]	0.12	3.16	0.002	0.36	0.36	0.36
Enmeshment[b]	0.18	2.48	0.016	0.27	0.29	0.27

[a]Child EMS measured by the Schema Inventory for Children.

[b]Mother EMS measured by the Young Schema Questionnaire-Short Form.

Conclusion

We examined child anxiety symptoms and their relationship to child and mother EMS in non-clinical children. The results provided mixed support for the reliability of the SCARED anxiety scale in this sample. Differences emerged in the relationship between EMS and anxiety scores for boys and girls, and for across the anxiety scales. Both child and mother EMS were significant predictors of child anxiety scores, though the relationships were stronger for child EMS. Girls reported significantly higher levels of anxiety than boys for the total anxiety, panic and generalized anxiety scales, but not for the separation anxiety, social phobia or school phobia scales. It is a robust finding that females score significantly higher on all SCARED scales except school phobia (31), so the lack of a significant difference in separation anxiety and social phobia scores was unexpected. Girls also reported significantly higher scores on the loneliness and mistrust/abuse EMS than boys. The only other study that examined gender differences using another child EMS questionnaire (42, 43) found that girls scored significantly higher than boys on social isolation, which is one of two original schemas comprising the loneliness factor in the SIC.

Regression analyses were conducted separately for boys and girls, as gender differences in anxiety symptoms and child EMS could make interpretation of whole sample regressions difficult. Therefore, we focus on explanation of total anxiety in both girls and boys. Total anxiety symptoms in girls were predicted by child failure and vulnerability, mother subjugation and child submission. Child vulnerability, submission and loneliness were significant predictors for boys. This confirms the key importance of those schemas for anxiety in children. It is important to note that these children EMSs are the most common schemas which have been found to predict various types of anxiety symptoms. Thus we can conclude that the plausible reason of comorbidity in different types of anxiety disorders might be the identical cognitive structure in these disorders. Total anxiety symptoms in girls also increased as mothers endorsed beliefs in their own subjugation, which involves the suppression of one's needs and surrendering control to others due to feeling coerced (11).

Failure was the most important predictor for most anxiety scales in girls, indicating that the expectation of failure and feelings of personal inadequacy may be particularly relevant for feelings of anxiety in girls. This schema result in children feels less positive about their experiences and involve in less activities than others because of expecting to fail, which seems to trigger through failure schema and result in anxiety. In comparison, Welburn et al. (14) identified vulnerability to harm, abandonment, failure, self-sacrifice and emotional inhibition as predictors of anxiety symptoms in a psychiatric population of adults. Calvete et al. (20) identified subjugation, failure and abandonment as predictors in a university population.

The strongest predictor of anxiety in boys was Vulnerability. This EMS had the second place in prediction of anxiety in girls. Overestimation of threat, fear of losing control, and vigilance for danger and illness are important themes in the cognitive structure of anxious children that seem to be associated with this EMS (44). Furthermore, due to vulnerability schema, these children would be more intolerant of uncertainty and therefore they seem to cope with stress mainly through worrying.

As noted before, another predictor of anxiety (in both girls and boys) was children Submission EMS. The first salient aspect of this result is that Children who have Submission schema could make children feel insecure about their ability to accomplish the tasks, and therefore they may report more negative coping styles such as shyness, submission, and self-blaming in response to environment (45).

The other result of the regression analysis in boys, allowed us to identify the children schema of Loneliness, was the third predictor of total anxiety. This EMS comprises questions about the adult EMS of emotional deprivation; the belief that your needs for emotional support will not be met by others, and isolation; the feeling that you are isolated from the rest of the world and different from others (11). Neither of these EMS have been identified as predictors of anxiety in adults, thus schemas about emotional deprivation and isolation may be particularly salient for anxiety in children. This schema also result in children feels lonely and unhappy in their relations, and consequently the anxious

thinking or excessive worry (e.g., I can't do this on my own, and I won't be successful when I am alone) (45).

Overall the results of this study validate a key foundation of the EMS model; that EMS are present in children are related to symptoms of psychopathology (11). It was also clear that child EMS play a more significant role in prediction of childhood anxiety than EMSs of mothers, and no mother EMS were significantly related to a broad range of child anxiety scales. A plausible explanation is that this study relied on a non-clinical sample, which means that most of the interactions seem to be normal and then the possibility of toxic interactions between family members, which are thought to be result from the distorted thinking patterns in parents, is considerably less. It is important to note that the child EMS identified as predictors of anxiety symptoms have also shown significant associations with negative affectivity, aggressive and depressed mood (Rijkeboer & De Boo, 18), thus they can not be assumed to be specific predictors of anxiety symptoms. It does appear that some child EMS may differentiate between anxieties and other concerns; entitlement and mistrust/abuse showed no relationship to anxiety scores in this study, but were significant predictors of negative affect and mood (Rijkeboer & De Boo, 18). Further research is needed in order to determine which EMS are specific predictors of anxiety, and which are more generally related to psychopathology.

This study had a number of limitations. The cross-sectional nature of this study does not allow any conclusions to be drawn about cause-effect relationships between maladaptive schemas, on the one hand, and anxiety variable, on the other hand. Thus additional research is needed to examine these associations in a longitudinal manner so that the causal role of EMSs of children and EMSs of mothers in the development and maintenance of anxiety can be further explored. The sample was non-clinical and relatively small, which itself may have limited our ability to detect significant relationships between EMS and anxiety types. So it would be particularly informative to investigate clinical population to detect significant relationships between EMS and anxiety disorders. Furthermore, it is suggested to evaluate psychometric properties of SCARED in next studies.

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