

The Relationships between Perceived Parental Rearing Style and Anxiety Symptoms in Malaysian Adolescents: The Mediating Role of Early Maladaptive Schemas

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Abstract

Anxiety is among the most prevalent forms of psychopathology in adolescence. The Schema Theory emphasizes the role of the quality of the early experiences and parents-child relationship and its impact through the cognitive schemas on emotional health. The present study examined the influence of parental behavior rearing and cognitive schemas on the development of anxiety in Malaysian adolescents. Further, the mediating role of early maladaptive schemas in the link between parenting variables and anxiety symptoms in adolescents were examined. Using multiple cluster sampling, 38 classrooms from 11 international secondary schools in Kuala Lumpur, Malaysia were selected. A sample of 612 non-clinical adolescents (226 girls and 386 boys) aged 13-18 years (mean age = 15.48 years) completed the questionnaires measuring perceived parenting behaviors (EMBU-C), early maladaptive schemas (YSQ-S3) and anxiety symptoms (SCAS). The results indicated that there were positive correlations among adverse parenting behavior styles, EMSs and anxiety. Further, with regression analyses revealing two parenting styles (Anxious Rearing and Rejection) also, four particular EMSs were significant predictors of anxiety in adolescents. Furthermore, some early maladaptive schemas do mediate the relations between parenting variables and anxiety in adolescent. Findings of current study provide evidence for the notion that the relationship between negative parental rearing behaviors and anxiety is explained by maladaptive cognitive schemas. Finally, clinical significance of the findings was discussed.

Keywords: Early maladaptive schemas; Parenting style; Mediating role; Anxiety symptoms; Malaysian; Adolescents

Introduction

Anxiety is among of the most prevalent forms of psychopathology in adolescence [1-3]. An estimated prevalence of 10% to 15% of children and adolescents are affected by some kind of anxiety disorders [4-6]. Anxiety disorders can lead to a severe degree of functional impairment or disability [6,7].

In the last three decades, interest in the etiology of anxiety disorders in children and adolescents has grown [7,8]. Risk factors identified in the pathogenesis of anxiety in children and adolescents, include heritability and temperament [9,10], negative learning experiences [11,12], quality of the parent-child relationships [13-16] and negative or maladaptive schemas [17,18]. The Schema Theory [19] emphasizes the role of the quality of the early experiences and parents-child relationship and its impact through the cognitive schemas on emotional health. In this study based on the schema theory, adolescents' perceived parental behavior dimensions and early maladaptive schemas were examined to investigate its significance in adolescents' anxiety.

Clinical cognitive models emphasized the impact of faulty cognitive processes on the development of anxiety and depression [17,20-22]. More recently, the cognitive models placed additional emphasis on childhood experiences and interaction with parents as a base for the formation of cognitive schemas [19,23,24]. The models further postulate negative parental rearing behaviors characterized by over controlling, rejection and low care increases an individual's vulnerability to developing anxiety through the development of dysfunctional cognitive schemas that are biased towards threat and negative outcomes [17,21,25]. For example, Vasey explained overprotective parenting, rather than making the child feel safer, alerts them to possible dangers and makes them believe they are vulnerable (in need of protection) and may lead to a cognitive bias towards threat.

Young [26] hypothesized connectedness, autonomy, worthiness, reasonable expectations and realistic limits are five core psychological

needs in childhood. According to the schema theory [19], maladaptive schemas arise from the frustration of these primary psychological needs through the repetitive patterns of adverse experiences with parents, peers and particularly traumatization or inappropriate boundaries. Young et al. [27] referred to these schemas as "Early Maladaptive Schemas" (EMSs). An EMS is defined as "a broad, pervasive theme or pattern, comprised of memories, emotions, cognitions, and bodily sensations, regarding oneself and one's relationships with others, developed during childhood or adolescence, elaborated throughout one's lifetime and dysfunctional to a significant degree" [19]. The EMSs serve as a framework for interpreting of events and the behavior of others in a biased and self-perpetuating way, leading to a greater risk of psychopathology [28,29]. Therefore, maladaptive schemas which are originated from early childhood and adolescence experiences can be considered as a core feature of anxiety disorders. Young [30] based on his clinical observations, introduced a comprehensive listing of "EMSs" including 18 schemas, grouped within five schema domains.

In accordance with theory, research in adults showed that EMSs were significantly related to a variety of psychiatric symptoms and disorders including: personality disorders [31-33] substance abuse [34,35], eating disorders [36,37], social phobia [38-40], anxiety [41-43] and depression [44,45]. Also, a number of studies showed that certain

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EMS is more strongly related to symptoms of anxiety and depression and the EMS's ability to predict these disorders [40,46,47]. For example, Welburn et al. [46] examined the ability of EMS's to predict depression and anxiety in an adult clinical sample. Results indicated that there was significant predictive relationship between abandonment, vulnerability to harm, failure to achievement, self-sacrifice and emotional inhibition EMSs and anxious symptoms. In a similar study, Calvete et al. [47] investigated how EMS's can predict both depressive and anxious symptoms in a non-clinical sample. Results indicated that abandonment, failure to achievement and subjugation EMSs were significant predictors of anxiety symptoms.

On the other hand, several retrospective studies in adults confirmed the relevance of EMSs with dimensions of perceived parental rearing behaviors [28,48,49]. A few studies have investigated EMSs in adolescents [11,50-53], and the schema scales were found to be related to a variety of psychological symptoms in adolescents. For example, Van Vlierbergh and colleagues [53] studied the dimensionality of Young's schemas and their content-specific association with psychopathology in an adolescent sample. They reported that anxiety problems were specifically associated with the schemas Vulnerability to Harm/Illness and the schemas of the Over vigilance/Inhibition domain. Further schemas including Abandonment/ Instability, Failure to Achieve, Dependence/Incompetence, Unrelenting Standards and Entitlement/Grandiosity were positively predictive of the presence of an anxiety disorder.

In addition, empirical studies confirmed problems in the parent-adolescent relationship relates to the adolescent's anxiety symptoms [54]. Studies have shown parental over control [14,55], rejection [56], anxious rearing behaviors [19,57,58] and low parental warmth [59], linked to adolescents anxiety; with parental rejection and parental control appear to have the strongest indication [60].

Despite the fact that numerous models now posit a mediating role for negatively biased cognition in the relationship between parenting and anxiety, there is little empirical research to support them [61]. As summarized above, research has shown significant associations between these constructs separately. However, no research has been conducted to examine how the perception of parenting and EMSs might be related to one another in predicting adolescent's anxiety. This study, therefore, aims to address gaps in the existing literature in order to achieve a better understanding of the relation between negative parenting behaviors and EMSs in their contribution to anxiety in adolescents. It was hypothesized that an overprotecting, rejecting and anxious rearing parenting styles and some early maladaptive schemas predict adolescents' anxiety symptoms. Moreover, the mediating effect of EMSs on the relation between perceived parenting dimensions and anxiety in adolescents were explored. Finally, there is added cross-cultural value provided by the Malaysian sample.

Method

Participants

Participants were 612 Malaysian adolescents (386 boys and 226 girls) recruited from the international and private English language type secondary schools in the Kuala Lumpur-Malaysia. Using multiple cluster sampling, 15 schools were randomly chosen from the list of international secondary schools that was obtained from The Ministry of Education Malaysia website. In total eleven schools authorized this study to be conducted in their schools. Then, 38 classrooms within these schools were randomly selected. All students of the classrooms were examined. The mean age of the participants was 15.48 years (SD=1.12,

ranged 13–18 years). In terms of ethnicity; 22.4% (n=137) Malay, 54% (n=331) Chinese, 17.9% (n=110) Indian and others 5.7% (n=35). With regards to religious background, 26.1% of participants were Muslim, 39.5% were Buddhism, 14.5% were Christian, 14.7% were Hindu and 5.1% of participants did not report their religion. According to finding of parents' occupation and education, the participants were mainly from the middle/upper socio-economic classes. Approximately over 57% (n=345) of participants reported their fathers' job as professional (23%) and entrepreneur (34%). In, 61.5% (n=376) of their fathers had Diploma (18.9%), Tertiary education (29.2%) and post-graduate degree (13.4%); for mother, 47% (n=287) were Diploma, Tertiary education level and above.

Procedure

Following ethical approval of the study by the Ethics Committee of the University of Malaya, Medical Center and the Ministry of Education Malaysia, selected students filled the research questionnaires in groups within the school setting, under the supervision of the researcher. Written informed consents were obtained from all the participants. In addition, parents in the selected schools were informed about the nature of the study via a letter to the parents sent through the school principal. They were requested to contact the school if they did not want their adolescent to participate in the study. None of the adolescents had their participation withheld by their parents. However, 25 adolescents elected not to participate. Thus, the response rate was 96.7%. The researcher spoke to all the participants on how to fill in the questionnaires. They were instructed to score the statements of scales based on current experiences (e. g., current anxiety symptoms and parental behaviors). All questionnaires were administered in English since it is the language of instruction for all international schools in Malaysia. The students read the scales themselves and informed they could request assistance. However, since the mother tongue of the participants were not English, it was anticipated some might have difficulty in understanding some words or phrases particularly on the items of the YSQ, S-3. In the pilot study, the problems were detected and replaced with alternative words in order to facilitate understanding of the statement for them. For example on YSQ, S-3 in item 5; "faults" replaced with "defects", in item 7 "living" instead of "getting by", in item 16 "valuable" replaced with "worthwhile".

Measures

The Modified Egna Minnen Betr"affande Uppfostran (EMBU-C)

EMBU-C which is Swedish for My Memories of Upbringing [62]. In the current study, the modified version of EMBU-C [63] was used which consists of 40 items and producing four subscales representing domains of parental rearing behaviors; emotional warmth, control/overprotection, rejection and anxious rearing. For each EMBU-C item, participants first assessed father's rearing behavior and then mother's rearing behavior, using 4-point Likert-scales (1=No, never, 2=Yes, but seldom, 3=Yes, often, 4=Yes, most of the time). The psychometrics of the modified EMBU-C were tested in a large sample of children and adolescents (N=1702). The results showed that the scale has a clear-cut 4-factor structure, which is in correspondence with the hypothesized subscales. Furthermore, EMBU-C scales were reliable in terms of internal consistency and test-retest stability. Cronbach's alpha for the modified version of the EMBU-C has been reported as follows: emotional warmth = 0.89, overprotection = 0.64, rejection = 0.83, anxious rearing = 0.81[63].

In the current study, reliability coefficient of scales were calculated and indicated alpha coefficients for this scale was 0.90 and for subscales were as follows: emotional warmth = 0.90, overprotection = 0.80, rejection = 0.90, anxious rearing = 0.89.

Young schema questionnaire-Short 3 (YSQ-S3)

It was used to assess the EMSs and 5 schema domains (Young, 2005). The YSQ-S3 consists of 90 items and assesses 18 EMSs. Each EMS consists of 5 items, and the scores for each EMS are calculated by summing the items. The higher score on a scale indicates a greater presence of a particular EMS. Participants rated items using a 6-point scale from 1 (completely untrue of me) to 6 (describes me perfectly).

To date, five studies have tested the psychometric properties of the latest version of the YSQ, YSQ-S3 (short version) which was used in this study, [64-68]. All studies found good discriminant validity with regard to differentiating clinical versus non-clinical samples and correlations with other measures of psychopathology, and internal consistency of all subscales was high. In the current study, alpha coefficient was 0.95 for YSQ-S3 measure and for each schema domains were as follows: Disconnection/Rejection= 0.89, Impaired autonomy and Performance= 0.83, Other-Directedness= 0.72, Impaired Limits= 0.67 and for Overvigilance and Inhibition= 0.80.

The Spence Children's Anxiety Scale (SCAS)

It is a 45-item, Likert-style (0-3) and self-report anxiety measure for children and adolescents. SCAS [69] measures adolescents' anxiety according to DSM-IV diagnostic criteria and anxiety disorders classification. This questionnaire measures symptoms of anxiety based on a total score and six subscales including: separation anxiety, social phobia, obsessive-compulsive disorder, physical injury fears, panic/agoraphobia and generalized anxiety. Further, previous studies found the SCAS as a reliable and valid screening instrument for normal adolescents. Results of the confirmatory and exploratory factor analyses of this scale confirmed six specific subscales and one general underlying concept of anxiety [69,70]. Results of internal consistency calculation in the current study showed alpha coefficient 0.94 for SCAS-C and for its subscales were: Separation Anxiety= 0.86, Social Phobia= 0.78, Obsessive-Compulsive= 0.77, Panic/Agoraphobia= 0.94, Physical Injury Fears= 0.70 and Generalized Anxiety= 0.77.

Statistical Analyses

Statistical analyses were done using the SPSS (Version 22) including: descriptive statistics, T-tests, Pearson's correlation coefficient, linear and multiple regression analyses. The mediating effects of EMSs in the relationship between parenting styles and anxiety were examined via various regression analyses. In all regression analyses, bootstrapping sampling procedure was applied for control over Type I error. In brief, bootstrapping is a nonparametric resampling procedure where a large number of samples (5000 in the current study) are drawn with replacement from the full data set. In addition, bootstrapping is recommended when the assumption of normality of the sampling distribution is questionable [71,72]. Prior to analyses, all questionnaires had been checked in order to detect incomplete or skipped questions. From 628 set of collected questionnaires, 16 were dropped out because of not answering enough items on measures. In addition, the data was examined for correct entry, missing values and acceptable skew and kurtosis. A Kolmogorov-Smirnov test indicated that scores on the SCAS, YSQ-S3 and rejection subscale of EMBU-C were not normally distributed. Skewness ranged from 0.012 to 0.95. With regarding the sample size of current study parametric analyses can tolerate this degree of skewness and kurtosis [73].

Results

Before addressing main results of the study, some significant gender differences on scales should be mentioned. Although, girls scored higher than boys on the most subscales of anxiety, T-tests revealed significant differences on the total anxiety score ($p < 0.001$), generalized anxiety ($p < 0.005$) and physical injury fears ($p < 0.001$). Furthermore, boys perceived significantly more parental rejection ($p < 0.005$). Across gender, no significant differences were observed in any of schema domains.

Bivariate correlations between dimensions of parental rearing styles, schema domains, and anxiety symptoms are displayed in Table 1. As shown in Table 1, parental rejection, overprotection, and anxious rearing were positively associated with all anxiety symptoms with an exception of physical injury fears. Higher significant associations were found for Parental Rejection ($r = 0.319$, $p < 0.001$) and Anxious Rearing ($r = 0.273$, $p < 0.001$). Emotional Warmth was negatively related to social phobia and panic/agoraphobia symptoms. All five schema domains related to overprotection, anxious rearing and rejection parenting practices and were negatively associated with emotional warmth.

In the correlation between the five schema domains (Table 1) as well as 18 EMSs (Table 2) and anxiety score as measured by the SCAS, cognitive variables i.e. Total YSQ-S3 were highly correlated with the total score of anxiety ($r = 0.560$, $p < 0.001$). Further, all five-schema domains were significantly and positively correlated with anxiety. The higher correlations were for Impaired Autonomy ($r = 0.539$, $p < 0.01$), Disconnection and Rejection ($r = 0.503$, $p < 0.001$) and Over-vigilance and Inhibition ($r = 0.475$, $p < 0.001$) schema domains. Furthermore, all 18 EMSs were significantly and positively correlated with anxiety with the higher correlations were for Vulnerability to Harm ($r = 0.519$, $p < 0.001$), Abandonment ($r = 0.508$, $p < 0.001$) and Pessimism/Worry ($r = 0.474$, $p < 0.001$).

To allow estimation of the independent contribution of each variable, three separate hierarchical multiple regression analyses were conducted (Table 3). In each regression analyses, adolescents' gender and age were entered in the first and second steps as control variables and each predictor variables separately entered in the following steps. The results of regression analyses on parenting styles as the predictors of anxiety indicated just two types of parenting styles anxious rearing and rejection were significant predictors of anxiety which refers to the independent contribution of parenting styles ($\Delta R^2 = 0.217$) in the variance of anxiety symptoms.

In the next regression analyses, 18 EMSs (YSQ, S-3) were the predictor variables and total anxiety score (SCAS) was the dependent variable. Results showed four out of 18 EMSs were accounted as significant predictors of anxiety in this population: Abandonment, Vulnerability to Harm, Pessimism/Worry and Enmeshment maladaptive schemas. These cognitive variables were stronger predictors of anxiety compare to parenting variables and explained 37.1 % of total variance of anxiety after controlling demographic variables.

The final goal of the study was to test the hypotheses if any particular EMSs mediate the relationship between perceived parenting style and anxiety. The criteria for mediation according to Baron and Kenny [74] are as follows: A) Independent variable (IV) must be significantly correlated with dependent variable (DV). B) Mediator variables must be substantially correlated with dependent as well as independent variables. C) When relation (B) is controlled the previously significant relationship of IV and DV should no longer be significant or the predictive strength of IV will be shown a significant decrease.

Scales	Mean (SD)		t	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Boys	Girls																
(1) Separation Anxiety	1.41(0.60)	1.43(0.50)	-0.33	1														
(2) Social Phobia	1.61(0.51)	1.84(0.53)	-5.29	0.38**	1													
(3) Obsessive/Compulsive	1.58(0.51)	1.55(0.49)	0.88	0.42**	0.39**	1												
(4) Panic/Agoraphobia	1.28(0.48)	1.27(0.43)	0.15	0.46**	0.42**	0.44**	1											
(5) Physical Injury Fears	1.44(0.58)	1.73(0.54)	-5.90**	0.36**	0.43**	0.30**	0.38**	1										
(6) Generalized Anxiety	1.53(0.46)	1.66(0.50)	-3.14**	0.37**	0.53**	0.47**	0.45**	0.37**	1									
(7) Total Anxiety score	37.18(13.50)	44.89(15.66)	-6.18**	0.46**	0.64**	0.51**	0.52**	0.46**	0.70**	1								
EMBU-C																		
(8) Overprotection	23.52(4.56)	23.00(4.90)	1.33	0.12*	0.14*	0.21**	0.13*	-0.01	0.22**	0.22**	1							
(9) Emotional Warmth	26.50(5.46)	27.19(4.48)	-1.36	0.04	-0.10*	-0.03	-0.10*	-0.04	-0.03	-0.06	0.18*	1						
(10) Rejection	19.21(5.64)	17.90(5.50)	2.80**	0.12*	0.26**	0.23**	0.22**	0.06	0.29**	0.32**	0.41**	-0.42**	1					
(11) Anxious Rearing	27.35(5.40)	27.54(6.04)	-0.40	0.18**	0.20**	0.21**	0.09	0.04	0.23**	0.27**	0.60**	0.19**	0.26**	1				
YSQ-S3																		
(12) Disconnection/Rejection	14.95(3.73)	15.01(4.50)	-0.15	0.23**	0.43**	0.30**	0.34**	0.19**	0.44**	0.50**	0.17**	-0.32**	0.44**	0.18**	1			
(13) Impaired Autonomy	15.17(3.66)	15.01(3.85)	0.53	0.29**	0.43**	0.31**	0.33**	0.18**	0.44**	0.54**	0.29**	-0.25**	0.45**	0.31**	0.70**	1		
(14) Other Directedness	16.40(3.44)	16.55(3.56)	-0.53	0.18**	0.37**	0.31**	0.21**	0.13**	0.37**	0.40**	0.28**	-0.13**	0.35**	0.25**	0.63**	0.61**	1	
(15) Impaired Limits	16.99(3.76)	17.12(3.88)	-0.42	0.17**	0.33**	0.26**	0.22**	0.17**	0.36**	0.35**	0.17**	-0.18**	0.33**	0.20**	0.53**	0.55**	0.59**	1
(16) Over vigilance/Inhibition	17.21(3.34)	17.14(3.61)	0.24	0.27**	0.44**	0.38**	0.28**	0.15**	0.49**	0.48**	0.23**	-0.11**	0.29**	0.28**	0.66**	0.65**	0.61**	0.59**

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

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

SCAS: Spence Children's Anxiety Scale; EMBU-C: Modified Egna Minnen Betröffande Uppfostran for children; YSQ-S3: Young Schema Questionnaire-Short-3 (schema domains).

Table 1: Mean scores and standard deviations for various subscales of questionnaires included in the study, as well as correlations among these variables.

	M	SD	Total SCAS	Overprotection	Warmth	Rejection	Anxious Rearing
Anxiety (SCAS)	40.03	14.80	1	0.22**	-0.06	0.32**	0.27**
EMSs (YSQ-S3): Emotional Deprivation	13.73	5.40	0.26**	0.041	-0.38**	0.41**	0.05
Abandonment	16.79	5.92	0.51**	0.18**	-0.22**	0.33**	0.23**
Mistrust/Abuse	16.75	4.70	0.39**	0.15**	-0.13**	0.21**	0.19**
Social Isolation	14.37	5.11	0.38**	0.15**	-0.21**	0.31**	0.13**
Defectiveness	13.17	5.22	0.39**	0.14**	-0.31**	0.41**	0.11**
Failure to Achieve	15.83	5.46	0.39**	0.14**	-0.27**	0.34**	0.17**
Practical Incompetence	14.62	4.23	0.38**	0.18**	-0.16**	0.31**	0.21**
Vulnerability to Harm	15.81	5.29	0.52**	0.21**	-0.20**	0.37**	0.31**
Enmeshment	14.12	4.41	0.34**	0.38**	-0.13**	0.37**	0.29**
Subjugation	15.10	4.78	0.40**	0.24**	-0.18**	0.38**	0.20**
Self-Sacrifice	16.69	4.51	0.21**	0.19**	-0.05	0.21**	0.18**
Emotional Inhibition	15.54	4.66	0.36**	0.16**	-0.15**	0.26**	0.15**
Unrelenting Standards	18.26	4.38	0.23**	0.18**	0.04	0.09	0.17**
Entitlement/Superiority	16.90	4.28	0.20**	0.15**	-0.09	0.25**	0.14**
Insufficient Self-control	17.18	4.78	0.38**	0.14**	-0.20**	0.29**	0.19**
Admiration seeking	17.57	4.97	0.27**	0.18**	-0.05	0.18**	0.17**
Pessimism/Worry	18.08	5.20	0.47**	0.18**	-0.16**	0.28**	0.28**
Self-Punitiveness	16.85	4.68	0.29**	0.15**	-0.04	0.18**	0.18**
Total YSQ-S3	287.46	56.45	0.56**	0.27**	-0.26**	0.46**	0.29**

Note: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). SCAS: Spence Children's Anxiety Scale; EMBU-C: Modified Egna Minnen Betröffande Uppfostran for children; YSQ-S3: Young Schema Questionnaire-Short-3 (EMSs; early maladaptive schemas).

Table 2: Mean scores and standard deviations for 18 Early Maladaptive Schemas (YSQ-S3) and total anxiety score (SCAS) as well as correlations among these variables and perceived parenting dimensions (EMBU-C).

	ΔR2	f	B#	SE	t	p
Demographic variables						
Age	<0.001	0.997	0.531	0.496	1.10	0.281
Gender	0.062	21.22	8.95	1.71	7.93	<0.001
EMBU-C						
Rejection	0.184	46.70	.928	0.107	9.56	<0.001
Demographic variables						
Age	<0.001	0.997	0.614	0.480	10.30	0.201
Gender	0.062	21.22	8.68	1.15	7.84	<0.001

EMBU-C						
Anxious Rearing	0.134	32.56	0.505	0.108	5.18	<0.001
Rejection	0.217	43.23	0.794	0.107	8.06	<0.001
Demographic variables						
Age			0.655	0.401	1.63	0.103
Gender	0.063	21.65	7.37	0.953	7.73	<0.001
YSQ-S3 (EMSs)						
Vulnerability to Harm	0.339	105.28	0.76	0.111	6.83	<0.001
Abandonment	0.404	104.45	0.59	0.093	6.36	<0.001
Pessimism/Worry	0.426	91.70	0.49	0.107	4.55	<0.001
Enmeshment	0.434	78.81	0.35	0.118	2.93	0.003

Note. SCAS: Spence Children's Anxiety Scale; EMBU-C: Modified Egna Minnen Betr'affande Uppfostran for children; YSQ-S3: Young Schema Questionnaire-Short 3 (EMSs; early maladaptive schemas). B^{*}: Bootstrap coefficient, bootstrap results are based on 5000 bootstrap samples. ΔR²: Adjusted R square for the model.

Table 3: Last step of 3 separate linear regression analyses for parenting (EMBU-C) and EMS (YSQ-S3) variables as predictors and anxiety score (SCAS) as a dependent variable.

All preliminary criteria for the mediation analyses have been met. Vulnerability to Harm, Enmeshment and Pessimism/Worry EMSs were identified as highly correlated with perceived Anxious Rearing and the EMSs including; Abandonment, Social Isolation, Defectiveness, Failure to Achieve, Practical Incompetence, and Vulnerability to Harm, Enmeshment and Subjugation EMSs were also identified as highly correlated with parental Rejection as well as Anxiety in the previous analyses. Thus, only these 9 EMSs were considered as potential mediators on the link between parenting styles and the anxiety.

For the next set of mediation analyses; three separate regression analyses were conducted to investigate the mediating roles of these variables on the relations between parenting styles and anxiety. The first regression model, gender was entered in the first step as control variable and each mediator variables separately entered in the following steps. In the last step, Anxious Rearing and Rejection (parental dimensions) separately entered as predictors of anxiety. As shown in Table 4, Vulnerability to Harm, Enmeshment and Pessimism/Worry EMSs mediated the relations between parental anxious rearing and anxiety. Abandonment and Vulnerability to Harm schemas partially mediated the relations between parental rejection and anxiety. In the final regression analyses, after entering the gender, all significant EMSs as mediators were simultaneously entered into the model. The results indicated that 43.3% of total variance of anxiety was explained by mediating variables (EMSs) and in the final step the additive prediction of parenting after controlling EMSs was 0.9%. That means the predictive strength of parenting dimensions as the independent variable for anxiety decreased, suggesting mediation.

Discussion

The present study examined the relationship between perceived parenting behaviors, EMSs and anxiety symptoms in an adolescent population in Malaysia. In addition to correlational analyses, a series of multiple regression analyses were conducted in order to test the hypothesis that EMSs mediate the relationships between adverse parenting behaviors and anxiety.

Consistent with the research on adult [28,49,75], results indicated significant associations between negative parenting behavior styles and both EMS and anxiety symptoms. Perceived parental rejection, overprotection, and anxious rearing were positively associated with anxiety while less emotional warmth was significantly related to social phobia and panic/agoraphobia symptoms. However, the regression analyses indicated that only Anxious Rearing and Rejection parenting styles were accounted as significant predictors of anxiety. Theoretically,

rejection and anxious rearing may effect on adolescent's self-efficiency and undermining children's emotion regulation by increasing sensitivity to anxiety [76].

Contrary with previous researches [14,55,63,77], the current study found parental over control/protection and emotional warmth were not predictive of anxiety symptoms. As a possible reason, the current sample was a non-clinical and recruited from schools. Thus among these healthy adolescents, the association between parental control and anxiety may be different for the children diagnosed with anxiety disorders. Further, the participants were Malaysian that is an Asian country where children may interpret parental control and over protection as an expression of care, concern and warmth [75], so this type of parenting may have less negative effect on them.

On early maladaptive schemas, all five-schema domains were significantly related to anxiety symptoms as well as with all parenting dimensions. Consistent with previous research in adults [18,40], and studies on adolescents [53,61] the current findings indicated strong positive relations between early maladaptive schemas and total score of anxiety ($r=0.560$, $p<0.01$). Early Maladaptive Schemas such as Vulnerability to Harm or Illness, Abandonment and Pessimism/Worry EMSs demonstrated the highest contribution on anxiety symptoms in the adolescents with three EMSs justified 36.3 % of total variance of anxiety. These findings are consistent with the theoretical [19,22] and empirical [78] literature. The research suggests adolescents with anxiety problems are worried a catastrophe can happen anytime and they are unable to prevent this (Vulnerability to Harm/Illness and Pessimism / Worry). These cognitions combined with the belief in the unavailability of others for emotional support (Abandonment) and the fear they cannot cope without significant others (Enmeshment schema).

The findings also suggest negative parenting behavior contribute to the development of maladaptive cognitive schemas and indicating specific cognitive vulnerabilities linked with particular parenting behaviors style. Strong relationships were found between Disconnection and Rejection domain with high parental rejection and low parental warmth as well as parental overprotection and anxious rearing with Impaired Autonomy schema domain. These findings support the Young's schema theory assumptions that when parents are often unstable, rejecting and cold, the children's needs for safety, stability, empathy, connection and acceptance are not provided in a predictable manner. Schemas within Disconnection and Rejection domain will develop. Further, it was assumed that Impaired Autonomy schema domain is associated with parental overprotection; enmeshed child-parent relationship undermines the child's confidence and failing to empower the child's independent performance leading to

Model	ΔR ²	f	B [#]	Std. Er	t	p
Step 9						
Gender	.063	42.25	7.95	.952	8.13	<0.001
YSQ-S3 (EMSs)						
Vulnerability to Harm	.338	156.63	.946	.115	8.57	<0.001
Enmeshment	.362	116.15	.426	.117	3.51	<0.001
Pessimism/Worry	.395	100.43	.604	.111	5.58	<0.001
EMBU-C (parenting)						
Anxious Rearing	.398	81.55	.179	.089	2.01	.048
Step 9						
Gender	.062	41.24	8.09	.979	8.29	<0.001
YSQ-S3 (EMSs)						
Abandonment	301.	132.51	.532	.103	5.32	<0.001
Social Isolation	324.	98.66	.081	.134	.64	.534
Defectiveness	340.	79.39	.106	.135	.78	.425
Failure to Achieve	346.	65.55	.009	.118	.08	.939
Practical Incompetence	355.	57.07	.154	.149	1.07	.301
Vulnerability to Harm	415.	62.92	.792	.115	7.04	<0.001
Enmeshment			.230	.125	1.82	.068
Subjugation	.422	50.53	.153	.130	1.70	.236
EMBU-C (parenting)						
Rejection (Parenting)	428.	46.59	.245	.105	2.61	.022
Step 3						
Gender	.063	42.25	7.58	.926	7.95	<0.001
Abandonment			.555	.094	5.95	<0.001
Vulnerability to Harm			.697	.118	6.22	<0.001
Enmeshment			.233	.117	1.93	.048
Pessimism/Worry	.433	93.85	.451	.118	4.22	<0.001
EMBU-C (parenting)						
Anxious Rearing			.261	.103	2.88	.011
Rejection	.442	69.88	.138	.088	1.60	.113

Note. YSQ-S3: Young Schema Questionnaire-Short 3 (EMSs; early maladaptive schemas); EMBU-C: Modified Egna Minnen Beträffande Uppfostran for children. B[#]: Bootstrap coefficient, bootstrap results are based on 5000 bootstrap samples ΔR²: Adjusted R square for the model

Table 4: Last step of three separate linear regression analyses for EMSs as mediators between rejection and anxious parenting style and anxiety.

the presence of feelings of incompetence. Such parenting behaviors serve to accommodate and increase avoidant strategies leading to the maintenance and development of anxiety symptoms.

The findings of the mediation analyses showed that EMSs were significant mediators between parental rearing behaviors and anxiety symptoms. However, small and marginal significant effects of parenting dimensions were also found when the effect of EMSs was controlled for. This finding suggests that negative parenting behaviors serve as a vulnerability factor in the development of both maladaptive schemas and anxiety symptoms. For example, both Rejection and Anxious rearing parenting practices likely convey to children that they are not in command of their environment and living in an unsafe and threatening world which results in the development of negative schemas with themes of loss of independence as well as impending threat or danger and leading to increased anxiety. In line with Young's schema model, negative parental rearing such as those characterized by rejection and anxious rearing lead to anxiety through the development of maladaptive schemas that are biased towards threat and negative outcomes.

There were some limitations in the present study that should be mentioned. First, the sample consisted exclusively of adolescents in schools, not a clinical sample. Studies comparing non-clinical to clinical groups can emphasize the roles of each risk factors on the psychopathology with a stronger discriminative power. Second, the specific population under study (adolescents who were studying at private and international secondary schools located in Kuala Lumpur) was not representative of Malaysian adolescents. As well, the participants were mainly from the middle/upper socio-economic classes. Thus, the results may not be generalizable to the lower socio-economic class Malaysian families and their adolescents. Third, although the current study attempts to consider possible predictor variables and anxiety, there are likely several other variables that influence the anxiety in adolescents (e. g., parent's anxiety, marital or parental conflict, temperament and social support). Finally, this is a cross-sectional self-report study which may limit the use of data. Causal inferences cannot be made due to the cross-sectional design of the study. Furthermore, self-report could be biased (e. g., by contextual factors, cognitive capacities of adolescents, etc.) whereas, in many situations (e.g., reporting negative parenting behaviors) adolescents may provide more objective information than their parents. Moreover, when the subjective and emotional experiences of the participants are of primary interest; using self-report questionnaire would be the most meaningful method.

In conclusion, significant associations between parental rearing behaviors, early maladaptive schemas, and anxiety were found in the present study. Findings provided further support for Young's schema theory that posited the relationship between negative parenting behaviors and psychopathology is mostly explained by maladaptive cognitive schemas. Likewise, the results of this study have important implications in assessment and treatment of anxiety, suggesting that the assessing of the parental rearing behaviors related to establishing specific EMSs is an important part of the evaluation, psychotherapy and family interventions. Furthermore, maladaptive schemas such as Vulnerability to Harm, Abandonment and Pessimism/Worry appeared as the most powerful predictors of anxiety in adolescents. It provided useful information about the core beliefs and the certain EMSs those highly associated with anxiety as well as a specific therapeutic approach for the maladaptive schemas with the use of schema-focused therapy.

In addition, the finding of mediation analyzes aid to understanding how the parent-adolescent relationship is important in the development of early maladaptive schemas as well as anxiety. Understanding which parenting behaviors increase an adolescent's risk for later anxiety disorders has direct implications for early intervention. For example, findings suggest that reducing parental rejection and anxious parenting would be important in preventing adolescents' anxiety. As a conclusion, it would suggest that parents should be taught to use strategies to increase their support and acceptance of adolescents feeling and behaviors as well as fostering adolescent's autonomy (rather than rejection, suppressing their feelings, anxious modeling and verbal transmission of threat and avoidance). Finally, findings of this study can be a foundation for understanding how parenting factors influence maladaptive schemas and adolescents' anxiety symptoms cross-culturally.

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