

ORIGINAL RESEARCH

Medicine Science 2019;8(3):710-5

Evaluation of depression frequency and temperamental characteristics in parents of children and adolescents with major depression

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Received 22 April 2019; Accepted 20 May 2019

Available online 10.09.2019 with doi:10.5455/medscience.2019.08.9077

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Abstract

Depressive disorders in children and adolescents are caused by various risk factors. It is believed that the mood and temperament characteristics of the parent play a pretty decisive role on the relationship between the child, adolescent and their parents. The aim of this study is to examine the frequency of depression and temperament in parents of children and adolescents with major depression diagnosis. Parents of 102 children and adolescents between the ages of 7-18 with major depressive disorder were included in the study. Child Depression Inventory (CDI), Beck Depression Inventory (BDI), socio-demographic data form, and Temperament Assessment Scale (TEMPS-A) were applied to the children, adolescents and parents respectively. 86 (84.3%) mothers and 16 (15.7%) fathers were included in the study. Of the children and adolescents, 76 (74.5%) were girls and 26 (25.5%) were boys. The mean age of children and adolescents was found to be 14.3 ± 2.3 years. The mean age of parents was found to be 40.3 ± 6.16 years. In all cases, the number of patients with depression in their parents was 55 (53.9%). Depression scale scores were higher in the children of depressed parents ($p=0.000$). Significant positive correlation was found between CDI scores of children and BDI scores of parents and between BDI scores adolescent and BDI scores of parents (consecutively $r=0.700$, $p=0.000$; $r=0.663$, $p<0.000$). When the BDI score of the adolescents and the parental temperament scores was examined by simple linear regression, the depressive temperament of the parent was found to be effective on the depressive scale score of the adolescents ($r^2=0.445$, $p=0.000$). Depression is common in parents of children and adolescents with depression. Parental temperament, especially depressive temperament, is effective on child depression. This may be related to the genetic nature of the temperament and the fact that it causes domestic problems. In child and adolescent depression, it is recommended to examine the presence of depression in the parent and to pay attention to the characteristics associated with mood temperament.

Keywords: Depression, temperament, child, adolescent, parent

Introduction

Depression is considered as one of the diseases causing the highest rate of disability worldwide. Depression affects nearly 2.8% of children under the age of 13 and 5.6% of the 13-18 age groups [1]. The prevalence of depression in girls and boys is similar before adolescence; however, after the beginning of adolescence, depression is seen two times more in girls compared to boys. When major depressive disorder (MDD) was seen during childhood and adolescence, it was associated with lower school performance, difficulties in interpersonal relations in the forthcoming period, early parenting, other mental illnesses, and substance-related disorders [2,3]. It has been reported that the depression has continued to increase gradually from childhood to adolescence and then until adulthood [4]. In USA, approximately

12.8% of the population aged between 12-17 was diagnosed with at least one major depressive episode in 2016. Approximately 8% of adolescents diagnosed with MDD completed suicide in young adulthood and reported as the second cause of death among adolescents aged between 12-17 years [5]. Studies of recognition and prevention of early-onset depression, especially for the high-risk groups (those who are behaviorally inhibited, sexually abused, those who live in incompatible families, alcohol and substance users) have gained importance [6].

While evaluating the child or the adolescent with depression, the family structure and the communication characteristics with the parent should be examined and the obtained data should include the quality of the relationships between the patient and other family members, the patient, his / her friends and peers [7]. Twin and child adoption studies have shown that genetic factors are 50% effective in the transmission of temperament and mood related disorders. The family environment experienced in childhood creates an additional impact. It is stated that the rate of psychopathology is high in the children of parents who have depression in family

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aggregation studies [6,8]. This rate is higher in both parents when there is a major episode of depression. It is known that parental depression increases medical and psychiatric disorders in children. In studies with children and adolescents with depression, the rate of depression in first degree relatives varies between 20-46% [9]. Rates are high in also relatives of patients with early onset of depression [10]. In particular, if both parents have psychopathology, rates of adolescent depression increases even if parents have separate disorders (for example, maternal depression, father alcoholism) [10]. Anxiety and depression in parents and grandparents cause a higher risk of anxiety and depression in children. It is known that parental behavior plays a direct role in the relationship between temperament, psychopathology and adaptative / maladaptive behaviors of children [11,12]. When compared with fathers, problems in mothers' relations (mother's negative mood, negative temperament characteristics, negative behaviors, lack of close-warm relationship) and mother's psychiatric problems (such as MDD) have been reported to be more effective on the occurrence of MDD in children [13,14].

The term temperament is derived from the word 'temperare', which means the 'mixture'. It describes attitudes and behaviors based on structural, genetic and biological basis. Akiskal and Akiskal (1992) have noted that temperament was the basis of mood disorders and defined five major mood disorders: depressive, hyperthymic, cyclothymic, irritable, and anxious. In the studies conducted, depressive, hyperthymic, cyclothymic, irritable and anxious temperaments identified by temperament evaluation scales were examined for whether they were specific to depressive disorder or bipolar disorder [15]. As a result of the study, it was found out that the temperament determined the occurrence and the characteristics of mood disorder [16]. In the literature search the number of studies investigating the relationship between the temperament of the parents and the adaptation problems of the child and the severity of depression are rare. It has been reported that especially the negative temperamental characteristics of mothers cause psychopathology and behavior problems in children and adolescents [11,13,14]. It is inevitable that the relationship the child establishes with her mother is influenced by the temperamental characteristics of her mother and the general temperament structure which can be defined as the child's behavioral style [17]. Both the child's and the parents' temperament characteristics have been reported to affect their relationship with each other. Considering that one of the important objects of identification for a child is the mother and the child establishes a long-term relationship with his mother from birth; it could be recommended that the temperament characteristics of the mother may be effective in coping with stressful events of the child and development of depression [18,19]. No studies have been found on the relationship between parental temperament and child and adolescent depression severity in our country.

The aim of this study was to determine the frequency of depression of the parents of children and adolescents aged between 7-18 years with the diagnosis of major depressive disorder, to compare the temperament characteristics of parents with and without depression, and to investigate the relationship between temperament and child and adolescent depression. Our hypothesis is that the frequency of depression and temperament scores will be high and there will be an association between child and adolescent depression in the parents of children and adolescents with major depressive disorder.

Material and Methods

Parents of 102 children and adolescents with the diagnosis of MDD admitted to University of Health Sciences, Dr. Behçet Uz Children's Hospital, Child and Adolescent Psychiatry polyclinic between May 2015-2017 were included in the study. The parents agreed to participate voluntarily in the study. The parents of children and adolescents who were followed-up by the child and adolescent psychiatrist with the diagnosis of MDD according to DSM-IV criteria were referred to adult psychiatry. The severity of depression in children was assessed using Child Depression Inventory (CDI), and the severity of depression in adolescents was assessed using Beck Depression Inventory (BDI) by child and adolescent psychiatrist. Psychiatric interviews based on DSM-IV were conducted with parents by adult psychiatrist, and Turkish form of the Beck Depression Inventory (BDI) and the Temperament Assessment Questionnaire of Memphis, Pisa, Paris and San Diego (TEMPS-A) were applied. Individuals being uneducated, having mental retardation, using substance in the last 3 months, having bipolar disorder, psychotic disorder, and diagnosed with neurological and medical diseases affecting the central nervous system were excluded from the study. The approval for the study was obtained from the local ethics committee of the hospital in accordance with the Declaration of Helsinki. Written informed consents were obtained after all the study protocol was described. Parents of children and adolescents with depression were investigated in terms of the frequency of depression, and parents with and without depression were compared in terms of temperament, and the relationship between temperament and child and adolescent depression was examined.

Measures

Sociodemographic data form: It was developed to evaluate demographic and some clinical features of the patients by the researchers.

Structured Clinical Interview Form for DSM-IV Axis I Disorders (SCID-I): It is a diagnostic form developed by First et al [20]. SCID-I was translated into Turkish and validity and reliability studies were performed [21].

Children's Depression Inventory (CDI): Children's Depression Inventory was developed by Kovacs to determine the severity of depression in children and adolescents [22]. It was reported that CDI was a good instrument for measuring the severity of depression. It is a self-assessment scale; it is filled by the child himself/herself or the questions are read to the child. It consists of 27 items; each item evaluates the child's last two weeks, including three sets of sentences to choose from. Each set contains statements about the symptoms of childhood depression. Responses are given between 0-2 points. The high score indicates the severity of depression, its cut off is 19. The highest score to be received from the scale is 54. The scale was adapted into Turkish by Öy in 1990 [23].

Beck Depression Inventory (BDI): It is a self-report scale developed in 1961 by Beck [24]. It has quite good psychometric features in distinguishing adolescents and adults with depressive disorder admitting to the polyclinic, from those without depressive disorder. The validity and reliability studies of BDI were conducted by Hisli (1988) in our country [25]. It consist of 21 items related to depressive symptoms such as pessimism, sense of failure,

lack of satisfaction, feelings of guilt, restlessness, tiredness, loss of appetite, instability, sleep disturbance, and social exclusion. Each item includes a four-grade self-evaluation statement that determines behavior specific to depression. The patient is asked to select and mark the sentence that best expresses how he or she feels within the last week, including the day of practice. Each item gets scores between 0 and 3. The highest score to be received from the scale is 63. The high score in total indicates a high level of depression or severity. It could be applied on adolescent age group. In developing the Turkish version of the BDI, the cut-off points were examined, and it was seen that scores 17 and above could distinguish the depression that might require treatment with an accuracy above 90%.

Turkish Form of Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto questionnaire (TEMPS-A): The parents' temperament was evaluated with the Turkish form of TEMPS-A [15]. The questionnaire consists of 100 items in order to determine depressive, hyperthymic, irritable, cyclothymic and anxious temperaments. The individual answers the items as yes or no considering his / her entire life. In order to determine the presence of dominant depressive (19 items), cyclothymic (19 items), hyperthymic (20 items), irritable (18 items) and anxious (24 items) temperament characteristics in a person, the cut-off points are 13, 18, 20, 13 and 18 points, respectively. The validity and reliability studies of the Turkish form were performed by Vahip et al. The test-retest reliability of the Turkish form, calculated separately for each temperament feature, is between 0.73 and 0.93 and the Cronbach-alpha coefficient is between 0.77 and 0.85 [26].

Statistical Analysis

SPSS 21.0 version was used to evaluate the data. Since the data were not distributed normally, numerical variables were evaluated by non-parametric Mann-Whitney test and categorical variables by chi-square test. The relationships between the numerical variables were evaluated by spearman correlation analysis and a simple linear regression analysis was performed between the significant variable and the dependent variable.

Results

86 (84.3%) mothers and 16 (15.7%) fathers were included in the study. Of the children and adolescents, 76 (74.5%) were girls and 26 (25.5%) were boys. The mean age of children (n=20) and adolescents (n=82) was 14.3 ± 2.3 years. The mean age of the parents was 40.03 ± 6.16 years.

In all cases, the number of patients with depression in their parents was 55 (53.9%). Parents with and without depression were found similar with respect to age ($p=0.439$), gender ($p=0.422$) and education ($p=0.288$). There was no statistically significant difference in terms of socioeconomic status ($p=0.064$) and marital status ($p=0.675$) in parents with and without depression. Children of parents with depression had a higher mean CDI score than the children of parents without depression ($p=.000$). Moreover, the mean BDI scores of the adolescents with depressed parents were found to be higher than the adolescents with parents without depression ($p=.000$). Parents with depression were more likely to have all temperament scores higher except for hyperthymic temperament compared to parents without depression (Table 1).

Table 1. Comparison of socio-demographic features and clinical scale scores of parents of children and adolescents who were diagnosed with depression

	Parents with depression (n=55)	Parents without depression (n=47)	z or x ²	P
Sex				
Female	48 (74.5 %)	38 (84.3 %)	0.79	0.422
Male	7 (25.5 %)	9 (15.7 %)		
Child	14 (25.5 %)	6 (12.8 %)	2.58	0.86
Adolescent	41 (74.5 %)	41 (87.2 %)		
	mean±sd	mean±sd		
Age (year)	39.5±7.07	40.6±4.8	0.774	0.439
Education (year)	9.9±2.7	9.2±2.8	1.063	0.288
Child-CDI score	37.8±8.95	27.3±3.87	5.820	.000
Adolescent-BDI score	36.1±10.4	26.1±4.04	3.938	.000
Parent-BDI score	29.49±7.84	10.91±4.05	8.477	.000
TEMPS-A-Depressive score	9.78±3.23	6.24±2.44	5.013	.000
TEMPS-A-Cyclothymic score	9.8±4.12	7.78±3.55	2.330	0.020
TEMPS-A-Hyperthymic score	9.1±3.84	11.07±4.14	2.254	0.024
TEMPS-A-Irritable score	5.57±4.22	2.76±1.95	3.401	0.001
TEMPS-A-Anxious score	11.31±5.23	7.53±6.05	3.377	0.001

CDI: Child Depression Inventory, BDI: Beck Depression Inventory, TEMPS-A: Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire, $p<0.05$ was considered as statistically significant

There was a significant positive correlation between the scores of depression in parents and the scores of depression in children ($r=0.700/p=0.000$) (Table-2). There was a significant positive correlation between adolescents' mean depression scale score and the parents' depressive temperament, and between the children's mean depression scale score and depressive, irritable and anxious

temperament scores (Table-2). When the relationship between the mean BDI score of the adolescents and the parental depressive temperament score was examined by simple linear regression, the depressive temperament of the parent was found to be effective on the depressive scale score of the adolescents ($r^2=0.445$, $p=0.000$).

Table 2. The correlation between parental depression scores and temperament scores and child-adolescent depression scale scores

ccc	1	2	3	4	5	6	7
1-Parent BDI							
2-Adolescent BDI	0.663**						
3-Child CDI	0.700*	0.999**					
4-Depressive temperament	0.636**	0.580**	0.559**				
5- Cyclothymic temperament	0.259**	113	0.182	0.471**			
6-Hypertymic temperament	-0.315**	-0.179	-0.128	-0.512**	-0.370**		
7-Irritable temperament	0.389**	0.229	0.281**	0.549**	0.502**	-0.342**	
8-Anxious temperament	0.312**	0.144	0.256*	0.401**	0.480**	-0.238*	0.563**

BDI: Beck Depression Inventory, CDI: Child Depression Inventory, **<0.000, *<0.05

Discussion

In this study, depression and temperament characteristics of the parents of children and adolescents with depression were examined. Depression was more frequent in parents of children with depression, and it was found that there was a relationship between parental temperament, especially depressive temperament, and child and adolescent depression.

It was reported that in the family of depressive children [27,28] and adolescents [29,30] there was a high level of relationship between early onset depression and familial risk. When the literature is reviewed, prevalence rates of first-degree relatives of adolescents with depression vary between 17% and 46% [28,30]. In the first-degree relatives of depressive adolescents who have in-patient treatment, acute mood disorder rates are higher than the general population. Similarly, in the first-degree relatives of unipolar depressive adolescents, the rate of depression (20%) was reported to be higher than the relatives of the controls (4%) [29]. In terms of prepubertal onset depression, the frequency of depression in the first (34% versus 16%) and second-degree (8% vs. 4%) relatives of depressed children is approximately two times higher than in normal controls [27]. In another study, the rate of MDD was reported to be high in the first (46%) and second degree relatives (25%) of prepubertal depressive children [28]. One of the important results of our study was the high rate of depression in the parents of children and adolescents with depression as 53.9%. In addition, the severity of depression in children and adolescents with depression in their parents was found to be higher than the ones with non-depressive parents. Our results have supported the above mentioned literature data.

When the temperament dimensions of the parents were examined; the anxious, depressive, cyclothymic and irritable temperament scores were found to be significantly higher in the parents with depression. The parents without depression had a significantly higher hyperthymic temperament score. In order to support this result; hyperthymic temperament has been reported to be associated with good prognosis [16], and children of parents with hyperthymic temperament may have mild depression. Moreover, Akbaş et al. found the presence of hyperthymic temperament in mothers of depressed adolescents as a factor protecting against suicide [18]. Ibiloglu et al. also emphasized that depressive and anxious temperament were significantly predominant similar to our study. In various studies examining the relationship between depression and a particular temperament (affect regulation), researchers have defined a depressive temperament that is longitudinally permanent similar to our results and can help identify subtypes of depressive disorders [15,31].

Building on Akiskal's model on the multifactorial origin of mood disorders, Cassano et al. (1992) have found out that temperamental dysregulations constitute the intermediate step between predisposing familial-genetic factors in affective illness and gender-related clinical expressions of mood disorders [32]. There have been studies revealing that certain temperament characteristics mediate the transition of depression from generation to generation. Temperament characteristics may cause individuals to respond to depressogenic results in their interaction with the environment [33]. It is known that there is a lack of interaction between the depressive parents and their children and these deficiencies may have a detrimental effect on child development. Most studies have focused on the relationship between maternal depression

and temperament of children, and low positive emotionality in children has been reported to be closely related to mother [34]. The importance of effects of temperament either from mother to child or child to mother has been highlighted; mothers of difficult-tempered babies have been shown to be at greater risk of depression [35,36]. The mutual relationship between maternal depression and rhythm of children and attention period / persistence has been determined [37]. When the relationship between the severity of depression of children and their parents was examined, a positive correlation was found between them in our study. In addition, there was a significant positive correlation between BDI score averages of adolescents and depressive temperament of parents. There was also a significant positive correlation between the mean score of CDI in children and the depressive, irritable and anxious temperaments of the parents. In our study, it has been significant to detect more than one relationship of temperament dimension in the parents of pre-pubertal age group. The presence of parental depression may affect the nature and quality of parent-child interaction and thus affect the child temperament. It has been noted that depressed mothers showed less sensitivity and responsiveness to their babies and performed more punitive and less possessive parenting [38]. Limited number of evidences regarding the relationship between father depression and father-child interactions have been found [39]. The presence of depression in the parent also reduces the ability of the child to regulate emotions and support the development of temperament in a positive manner [40]. In our opinion, parental depression may affect the psychological structure of the child and adolescent through more indirect effects on the environment of the child and adolescent. The consequences of marriage conflicts, the negative impact of the depressive parent on the spouse and divorce may increase the risks. In our study, the presence of more than one negative temperament in the parents of the younger age group is related to childhood depression. However, it is essential that the depressive temperament of the parent is more related to adolescent depression as the child grows. Considering the psychosexual development theory, the child who has not fully developed defense mechanisms at a young age is prone to depression with any negative temperament. At the later stages of the development, apart from the child developmental process, it could be suggested that familial predisposition may cause depression, and depressive temperament may be a longer-term predisposing factor in the depression of the child. In the studies conducted in children and adolescents, it has been stated that, as age progresses, depressive symptoms become clearer and genetic characteristics of depression become more apparent [13,14,17]. It is recommended to conduct longitudinal analysis in terms of cause-effect relationship.

Some of our limitations were as follows; the study was a cross-sectional research, and the temperament dimension could not be compared since there was no control group. Subtypes of depression and related characteristics could not be reviewed due to the fewer number of subjects. Both parents could not be evaluated at the same time. The lack of confounding parameters such as parental divorce-conflicts, number of siblings, presence of early childhood traumas are the other limitations of our study. The family plays a key role in the development and progression of major depression. For this reason, despite the limitations of our study, we believe that our study is important for depression in children and adolescents to draw attention to parental depression and temperament.

According to the results of our study, it is significant to examine the parents of children and adolescents who are thought to have mood disorders or who are followed up, in terms of presence of depression. Considering that the child's mother is one of the important objects of identification and that she / he establishes a long-term relationship with her mother from birth; it is obviously seen that the parent's temperament characteristics affect the child in terms of coping with stressful events and in the development of depression. For this reason, it is recommended to investigate the pathological temperament characteristics of the parent and their relationship with their children, except for a significant genetic predisposition in the transfer of depression between the generations. As a result, the prevalence of depression in the parents of depressed children and adolescents is higher than the known frequency among the population. Parental temperament, especially depressive temperament, may be an important factor in child depression. It is significant that child and adolescent mental health professionals collaborate with adult psychiatrists in terms of parental mental health.

Conflict of interest

The authors declare that there are no conflicts of interest.

Financial Disclosure

All authors declare no financial support.

Ethical approval

The study was approved by the local ethics committee of the Izmir Bozyaka Training and Research Hospital in accordance with the Helsinki Declaration.

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