DOI: 10.14744/DAJPNS.2022.00201
Dusunen Adam J Psychiatr Neurol Sci
2023;36:4-12

RESEARCH ARTICLE

Investigation of emotional schemas between adolescents and their mothers

Tugba Kara[1], Kaasim Fatih Yavuz[2], Sevinc Ulusoy[3], Ayse Fulya Maner[4], Ali Guven Kilicoglu[5]

[1]Kayseri Training and Research Hospital, Department of Psychiatry, Kayseri, Turkiye
[2]Istanbul Medipol University, Department of Psychology, Istanbul, Turkiye
[3]Bakirkoy Prof. Mazhar Osman Training and Research Hospital for Psychiatry, Neurology, and Neurosurgery, Department of Psychiatry, Istanbul, Turkiye
[4]Kirklareli University, Health Sciences Institute, Department of Child Development, Kirklareli, Turkiye
[5]Private Practice, Department of Child and Adolescent Psychiatry, Istanbul, Turkiye

ABSTRACT

Objective: It is common to see that child-parent interaction affects psychological problems in adulthood. This interaction process may also be effective in developing emotional schemas and attitudes. The present study aimed to investigate the similarities or differences in emotional schemas between mothers and adolescents in both clinical and control groups.

Method: Eighty-two adolescents who applied to the child and adolescent outpatient clinics and their mothers (assigned as the clinical group) and 80 adolescents without any psychiatric problems and their mothers (assigned as the control group) were examined using a Sociodemographic Characteristics Form and Leahy Emotional Schema Scale Turkish Version (LESS-T). A multivariate analysis of variance test was used to determine the intergroup differences in emotional schema levels.

Results: LESS-T was applied to all participants. No statistically significant difference was found between mothers and their adolescents on the LESS-T subscales in the control group (p=0.89). Mothers in the clinical group reported higher levels of demand for rationality (p=0.003) and emotional avoidance (p=0.01) than mothers in the control group. In the clinical group, adolescents reported higher levels of uncontrollability (p=0.007), and mothers reported higher levels of comprehensibility (p=0.001), demand for rationality (p=0.001), and emotional avoidance (p=0.007).

Conclusion: Mothers' emotional schemas, such as avoidance and demand for rationality, may prevent their children from expressing and experiencing emotions sufficiently. Findings emphasize the importance of healthy mother-child interaction for developing emotional skills.

Keywords: Adolescent, avoidance behavior, emotional schema, metacognition, mother-child relations

INTRODUCTION

There is a common view that psychological disorders are developed by biological and environmental factors. One of the known environmental factors is a child's interaction styles with their parents, which relates to psychological problems emerging in adulthood (1). Attachment theory, a well-known approach focused on the interactive process between caregiver and child, proposes that an infant is motivated to be close to their primary caretaker to enable and keep a safe feeling (2). Numerous authors

How to cite this article: Kara T, Yavuz KF, Ulusoy S, Maner AF, Kilicoglu AG. Investigation of emotional schemas between adolescents and their mothers. Dusunen Adam J Psychiatr Neurol Sci 2023;36:4-12.

Correspondence: Tugba Kara, Kayseri Training and Research Hospital, Department of Psychiatry, Kayseri, Turkiye
E-mail: tugbakara111@yahoo.com

Received: July 27, 2022; **Revised:** December 03, 2022; **Accepted:** December 28, 2022

also highlight the importance of early-period experiences of individuals with their parents. Beck's cognitive model attributes the existence of negative schemas and cognitions to repudiated parents (3). Young also posits that negative experiences associated with family members in early childhood are one of the main reasons for developing early maladaptive schemas. However, the cognitive and emotional processes of parental influence on children have yet to be clearly elucidated (4).

Calkins classified the developmental factors over emotion regulation into two components, internal (e.g., behavioral traits, cognitive beliefs, and expectations) and external (e.g., caregiving and emotion regulation training), and stated that these fed each other throughout interaction between parents and child during the developmental period (5). While earlier studies focused on these external factors found that children with aggressive and critical parents remain incapable of developing adaptive coping strategies (6), newer studies also express the effect of parental styles on a child's emotion regulation skills (7). Similarly, negative parenting styles (e.g., rejection, control, anxious rearing, and lack of emotional warmth) have also been found to be closely related to maladaptive schemas and various coping strategies in children (1). Nevertheless, a meta-analysis conducted by McLeod et al. (8) showed that interactions between parents and children explain only 4% of anxiety-related problems in children, and other factors, such as internal emotional and cognitive processes, are also important.

There is still a lack of data on whether there are differences between parents and their children in terms of emotion-related processes. Jacobi et al. (9) conducted a study with nonclinical adolescent and parent pairs to investigate relationships between state and trait anxiety, obsessive-compulsive disorder (OCD) symptoms, OCD-related beliefs, and metacognitive beliefs. They found a significant relationship between some OCD-related beliefs (responsibility/threat estimation, importance of thoughts/control of thoughts, and perfectionism/intolerance of uncertainty). However, there was no significant relationship between metacognitive beliefs (cognitive self-consciousness, the tendency to focus attention on thought) and state and trait anxiety between parents and adolescents. In a recent study conducted with parents and adolescents, Costa et al. (10) investigated the effect of parenting styles and parental emotional intelligence (EI) on adolescents' EI. They showed that maternal trait EI predicted adolescent trait EI. Luebbe and Bell (11) also conducted a study with adolescents and their mothers. They found that maternal psychological control and family negative emotion expressiveness predicted greater anxiety and depression in adolescents, mediated by experienced negative affect. They also found that low maternal warmth and low positive emotion expressiveness predicted depression in adolescents and were mediated through lowered experiences of positive affect by adolescents. These studies demonstrated that the individual's emotional development process might be shaped by their parents' attitudes and strategies toward emotions.

The metacognitive approach to emotions focuses on the responses of individuals given them (12). As an extension, Leahy developed a new model based on Wells et al.'s metacognitive model and addressed the plans, approaches, and strategies applied in reaction to emotion by using the term "emotional schema" (13–15). With the emotional schema model, Leahy identified 14 dimensions reflecting beliefs about duration, control, numbness, comprehensibility, consensus, higher values, rational, guilt/shame; evaluations such as simplistic view; and strategies such as acceptance, rumination, validation, expression, and blame. Relationships between emotional schemas and several clinical problems have also been shown. Leahy et al. (16) conducted significant research with adult psychotherapy patients to assess the predictive effects of risk aversion, emotional schemas, and psychological flexibility on depressive symptoms with a stepwise multiple regression analysis. They found four emotional schemas: beliefs about control of emotions, guilt/shame, rumination, and invalidation to predict depressive symptoms. In another study, psychological flexibility and emotional schema dimensions, which are "beliefs about control" and "duration of emotions," were found to be predictors of anxiety-related disorders (17). Rezaei et al. (18) also examined the mediating role of negative emotional schemas (obtained by reversing the points for validation, comprehensibility, higher values, controllability, expression, and acceptance dimensions) on a sample of female college students. The findings showed that these negative emotional schemas mediated the relationship between disconnection and rejection schemas and depression. In addition to anxiety and depression, some positive

emotional schemas (higher validation, less blame, higher values, less simplistic view of emotion, higher comprehensibility, and greater acceptance of feelings) are predictors of marital satisfaction (19). From this point of view, one might suggest emotional schemas to be transdiagnostic processes that are effective in the emergence and persistence of various psychopathologies.

Despite numerous studies emphasized above that focused on the emotional characteristics of parents, there still needs to be more research exploring specific strategies and attitudes of parents regarding emotions. Therefore, investigating the differences and similarities between parents and their children regarding emotional schemas may contribute to understanding emotion-related disorders. Accordingly, the first aim of this research was to investigate whether there were similarities or differences in emotional schemas between mothers and adolescents. The second aim was to determine the possible differences between a clinical and a control group of adolescents and their mothers regarding emotional schemas.

In this respect, the first hypothesis of our study was that there were differences between the control and the clinical groups in terms of disruptive emotional schemas. Based on the first hypothesis, our second hypothesis was that there was a difference in emotional schemas between adolescents and their mothers in the clinical group.

METHOD

Participants

As a clinical group, we included 110 adolescents and their mothers who were admitted to the child and adolescent outpatient clinic of Bakirkoy Prof Mazhar Osman Training and Research Hospital for Psychiatry, Neurology, and Neurosurgery. One hundred and twenty-two adolescents with no history of psychiatric disorders and treatment and their mothers were included in the study as a control group. To form the control group, the authors took permission from the administrations of two high schools in the Bahcelievler district with similar socioeconomic status. After informing about the study, mothers who agreed to participate were asked to fill out the informed consent form. Written informed consent was obtained from all participants. The study was approved by the local Ethics Committee [IRB: 02.04.2013 - 41340010/17046-285].

We excluded 2 participants from the control group for having received psychiatric treatment, 31 participants for having incomplete scale items, and 14 participants for having their father complete the scales for the mothers' part. We excluded 25 participants from the clinical group for having incomplete scale items and 3 participants for having unclear psychiatric diagnoses. Finally, the clinical group included 82 adolescents and 82 mothers, and the control group included 80 adolescents and 80 mothers.

Of the adolescents in the clinical group, 41 (50%) were females, and the mean age was 16.10 years (SD: 1.35). Of the adolescents in the control group, 40 (50%) were females, and the mean age was 16.00 years (SD: 1.06). The mean age of mothers was 42.19 years (SD: 5.27) in the clinical group and 40.89 years (SD: 5.38) in the control group. The divorce rate of the parents of adolescents in the clinical group (9, 11%) was detected to be higher than ($p=0.03$) that in the control group (2, 2.5%).

The diagnosis of the adolescents in the clinical group was checked from the medical records based on DSM-IV-TR. Twenty-three (28%) of them had conduct disorder, 12 (14.6%) had attention deficit hyperactivity disorder, 11 (13.4%) had depression, 11 (13.4%) had panic disorder, 6 (7.3%) had a generalized anxiety disorder, 6 (7.3%) had OCD, 3 (3.7%) had anxiety disorders not otherwise specified, 2 (2.4%) had social phobia, 1 (1.2%) had Asperger's syndrome, 1 (1.2%) had nocturnal enuresis, and 1 (1.2%) had anorexia nervosa. Five adolescents (6.3%) had subthreshold symptoms but were not diagnosed accurately. The presence of psychiatric treatment history of the mothers in the clinical group (n=40, 50.6%) was found to be higher than the mothers in the control group (n=1, 2.4%), and the difference was statistically significant ($p<0.01$).

Procedure

Both study groups were matched with their respective son/daughter-mother. Inclusion criteria for both groups were being literate (both adolescents and mothers) and adolescents in the age group 14–18 years. The clinical group included adolescents with psychiatric symptoms and treatment.

The exclusion criteria were having any psychiatric disorder for participants (adolescents and their mothers) of the control group and having any disorder such as mental retardation, acute stage bipolar disorders, and psychotic disorders that may prevent effective scoring for participants of the clinical group (adolescents and their mothers).

Participants were informed of the voluntary nature of the study. After evaluating the exclusion criteria and taking written informed consent from both the control and clinical groups, scales were applied to adolescents and their mothers. Adolescents who met the inclusion and exclusion criteria were sequentially included in the study according to gender in both groups. Scales were applied to adolescents in the control group in their school and after their mothers fulfilled the scales. Psychiatric diagnoses of adolescents in the clinical group were obtained from the medical records, whereas, in the sociodemographic form, mothers in both groups and adolescents in the control group were asked whether they had any history of psychiatric disorders and current psychiatric symptoms.

Measurements

Sociodemographic Characteristics Form

It is a semi-structured self-report form prepared to determine the sociodemographic characteristics of the sample. The form contains questions about age, gender, marital status of parents, by whom the adolescent was raised, separation–migration status, the history of psychiatric disorders or any present psychiatric problems, and the psychoactive drugs used.

Leahy Emotional Schema Scale Turkish Version (LESS-T)

The term "emotional schema" emphasizes the plans, approaches, and strategies determining the person's responses against their emotions. Robert Leahy conceptualized the term as "plans, concepts, and strategies employed in 'response to' an emotion" (13). In LESS, individuals' particular interpretations, attitudes, and coping strategies are defined in 14 dimensions to enable emotional schemas to be understood. The scale consists of 50 items and 14 subscales. Participants rate between 1 (very untrue of me) and 6 (very true of me) according to their agreement level with each item. For assessing the emotional schema dimensions separately, the total score of each subscale is considered rather than the total score of the LESS-T. In some studies, a composite score of LESS called "Negative Beliefs of Emotions" is used by adding the subscales scores (16). The reliability and validity study of the LESS-T was conducted by Yavuz et al. (20), who reported the alpha coefficient to be 0.86 for the total scale, which includes 14 subdimensions. Emotional avoidance, weakness, view of emotions as harmful, discrepancy, and denial of emotions have been demonstrated in the Turkish version of the scale. However, expression, numbness, higher values, a simplistic view of emotion, and blame subscales have not been demonstrated. All LESS-T subscales were not included in the study to reduce the number of variables to avoid type-2 error, considering that the sample size calculated by power analysis could not be reached. Five of 14 subscales, which are strongly in relationship with clinical disorders (13), were used in this study:

- Demand for rationality (the stress on antiemotionality, overemphasis on rationality, and logic; 4 items, e.g., "It is important for me to be reasonable and practical rather than sensitive and open to my feelings")
- Uncontrollability (emphasizes the perception about the uncontrollability of intense negative emotions; 6 items, e.g., "If I let myself have some of these feelings, I fear I will lose control")
- Comprehensibility (the opinion that one's emotions make sense to self; 3 items, e.g., "My feelings do not make sense to me")
- Emotional avoidance (unique to the Turkish version of LESS and expresses efforts to get rid of unpleasant emotions; 5 items, e.g., "I try to get rid of an unpleasant feeling immediately"); rumination (repetitive thinking about negative emotions; 4 items, e.g., "When I feel down, I sit by myself and think a lot about how bad I feel")

Higher scores of subscales show negative attitudes except for comprehensibility. Internal validity of LESS analyzed for participants of the current study and Crohnbach alfa coefficients for each subscale are found as follows: comprehensibility (0.701 for mothers, 0.738 for adolescents); demand for rationality (0.650 for mothers, 0.600 for adolescents), uncontrollability (0.703 for mothers, 0.785 for adolescents), emotional avoidance (0.690 for mothers, 0.610 for adolescents); and rumination (0.685 for mothers, 0.728 for adolescents). The scale, including the Turkish-translated version, was used on the adolescent population in many previous studies (21,22).

Statistical Analysis

The data obtained from the participants were subjected to statistical analysis using SPSS (Statistical Package for the Social Sciences) version 20. After performing descriptive statistics, the multivariate analysis of variance (MANOVA) test was used to determine the intergroup differences in emotional schema levels. Preliminary assumption testing to check for intergroup homogeneity was evaluated using Levene's test, and data were checked for distribution normality and for

Table 1: In-group comparisons of LESS-T subscales

	Clinical group (Mean±SD)				Control group (Mean±SD)			
	Mothers (n=82)	Adolescents (n=82)	F(1, 16)	p	Mothers (n=80)	Adolescents (n=80)	F(1, 16)	p
Demand for rationality	17.44±3.71	15.50±3.84	11.00	0.001*	15.70±3.81	15.95±3.45	0.19	0.661
Uncontrollability	18.23±6.46	21.34±8.14	7.53	0.007*	16.72±7.10	17.26±6.99	0.23	0.630
Comprehensibility	11.86±4.54	9.54±4.53	11.24	0.001*	12.21±4.21	11.76±4.14	0.46	0.503
Emotional avoidance	23.10±5.29	20.95±4.58	7.37	0.007*	21.13±5.25	20.98±4.45	0.04	0.846
Rumination	15.12±5.24	16.20±5.42	1.59	0.209	14.10±4.97	13.86±4.93	0.09	0.763

MANOVA. *: P<0.01; LESS-T: Leahy Emotional Schema Scale Turkish Version; SD: Standard deviation.

Table 2: Comparisons of LESS-T subscales between mothers and between adolescents

	Clinical group (Mean±SD), mothers (n=82)	Control group (Mean±SD), mothers (n=80)	F(1,16)	p	Clinical group (Mean±SD), adolescents (n=82)	Control group (Mean±SD), adolescents (n=80)	F(1, 16)	p
Demand for rationality	17.44±3.71	15.70±3.81	8.63	0.004*	15.50±3.84	15.95±3.45	0.61	0.435
Uncontrollability	18.23±6.46	16.72±7.10	1.99	0.161	21.34±8.14	17.26±6.99	11.66	0.001*
Comprehensibility	11.86±4.54	12.21±4.21	0.25	0.615	9.54±4.53	11.76±4.14	10.50	0.001*
Emotional avoidance	23.10±5.29	21.13±5.25	5.57	0.010*	20.95±4.58	20.98±4.45	0.01	0.960
Rumination	15.12±5.24	14.10±4.97	1.61	0.202	16.20±5.42	13.86±4.93	8.26	0.005*

MANOVA. *: P<0.01; LESS-T: Leahy Emotional Schema Scale Turkish Version; SD: Standard deviation.

outliers. No serious violations were noted. To eliminate type-1 error, a Bonferroni adjustment was made, and the statistical significance level was accepted as p<0.01 (α=0.05/5=0.01) for each comparison. Pearson's correlation analysis was used to detect the relationship between age and LESS-T subscales, and the significance level was accepted as p<0.05.

RESULTS

One-way between-groups MANOVA was performed to investigate differences in subscale scores of LESS-T between mothers and their adolescents in the clinical and control groups. In the control group, there was no statistically significant difference between mothers and their adolescents on the subscales of LESS-T (demand for rationality, uncontrollability, comprehensibility, emotional avoidance, and rumination): F(5, 154)=0.32, p=0.89; Wilks' lambda=0.99; partial eta squared=0.01 (Table 1).

In the clinical group, statistically significant differences were found between mothers and their adolescents on the subscales of LESS-T: F(5, 158)=7.52, p=0.001; Wilks' lambda=0.80; partial eta squared=0.192. When the results for the subscales of LESS-T were considered separately, statistical significance was found in these variables: uncontrollability [F(1, 162)=7.53, p=0.007, partial eta squared=0.04]; comprehensibility [F(1, 162)=11.24, p=0.001, partial eta squared=0.06]; demand for rationality [F(1, 162)=11.00, p=0.001, partial eta squared=0.06]; and emotional avoidance [F(1, 162)=7.37, p=0.007, partial eta squared=0.04]. An inspection of the mean scores indicated that adolescents reported slightly higher levels of uncontrollability and mothers reported higher levels of comprehensibility, demand for rationality, and emotional avoidance (Table 1).

LESS-T subscale scores between two groups of mothers were also analyzed with MANOVA, and statistically significant differences between groups on these subscales were found: F(5, 156)=2.34, p=0.044; Wilks' lambda=0.93; partial eta squared=0.07. When the results for the subscales of LESS-T were considered separately, statistical significance was found on demand for rationality [F(1, 160)=8.81, p=0.003, partial eta squared=0.05] and emotional avoidance [F(1, 160)=5.57, p=0.01, partial eta squared=0.03] subscales of LESS-T. The mean scores of groups indicated that mothers in the clinical group reported higher levels of demand for rationality and emotional avoidance (Table 2).

LESS-T subscale scores of two groups of adolescents were also compared with MANOVA, and a statistically significant difference was found [F(5, 156)=3.24, p=0.008; Wilks' lambda=0.90; partial eta squared=0.094]. When the results were considered separately, significant differences were found on some of the subscales of LESS-T: uncontrollability [F(1, 160)=11.66, p=0.001, partial eta squared=0.06]; comprehensibility [F(1, 160)=10.50, p=0.001, partial eta squared=0.06], and rumination [F(1, 160)=8.26, p=0.005, partial eta squared=0.05]. The mean scores indicated that clinical group adolescents reported higher levels of uncontrollability and rumination and lower levels of comprehensibility (Table 2).

MANOVA test was performed to determine whether there was a difference in emotional schemas between mothers with and without a psychiatric history. No significant differences were found between the groups [F(5, 155)=1.23, p=0.299; Wilks' lambda=0.962; partial eta squared=0.038].

DISCUSSION

In the current study, we aimed to determine possible differences and similarities between mothers and their adolescents in terms of emotional schemas both in clinical and control groups. We found that mothers in the clinical group had higher levels of demand for rationality and emotional avoidance. In the clinical group, adolescents reported higher levels of uncontrollability, and mothers reported higher levels of comprehensibility, demand for rationality, and emotional avoidance.

In accordance with our hypothesis, while there was no difference between mothers and adolescents in terms of emotion schemas in the control group, several differences were found in the clinical group. The emotional interaction between a child and mother begins with the birth, continues during adolescence, and provides a context for the development of effective emotional skills of both child and mother. In a healthy population, adolescents' emotional regulation styles (schemas) may be affected by interaction with their mothers through several processes, such as observing, modeling, the emotional climate of the family, and attachment style (23), besides other factors such as genetic inheritance. If the developmental nature of this emotional interaction is disrupted by any factor, a difference between mother and child in terms of emotional schemas could occur. Compatibly, the differences found in the clinical group between the adolescents and their mothers in the current study indicate the importance of healthy mother-child emotional interaction with regard to clinical problems. Nevertheless, the results of our study do not provide sufficient data to infer the causes for this difference. Many other factors, such as fathers and peers, impact emotional development, and more studies are needed to reveal the relationship of all these factors to emotional schemas (24,25).

Differences in emotional schemas between mothers and adolescents in the clinical group can also be understood as the fact that a dysfunctional schema in the mother may lead the child to develop another coping schema for adaptation. Therefore, one can argue that an excess or a deficit of one emotional schema in mothers can cause an excess or deficit of another in their children. However, it should be kept in mind that the difference in the emotional schemas of the mothers in the clinical group may be the response to their children's clinically related problems, given that emotional interaction is a two-way issue between a mother and her child (26,27). These findings suggest that interventions for improving parents' emotional schemas may have preventive effects on their children's maladaptive emotional schemas.

There is comprehensive literature on the essential role of unwillingness to experience negative internal experiences (e.g., emotions, thoughts, and physical symptoms) and related avoidance behaviors in many psychopathological conditions (28,29). We found higher emotional avoidance levels in mothers in the clinical group than in their children and mothers in the control group. Our results indicate that the mothers in the clinical group present significantly lower willingness to experience negative emotions and higher tendencies to avoid them. The above literature that refers to the central role of higher emotional avoidance on psychopathology and the data presenting a higher history of psychiatric treatment in the mothers of the clinical group also support current findings. It is also known that children perform their emotional interactions first with caregivers in the family environment, and mothers' expression of their emotions is beneficial for children's healthy emotional development (23). The higher emotional avoidance of mothers might have caused less emotional expression, which may interfere with children's emotional development, comprehensibility of emotions, and ability to handle them functionally.

In our research, the rationality levels of the mothers in the clinical group were higher than that of their children and mothers in the control group. Demand for rationality is treated as not taking emotions seriously into account in daily life. In the preliminary study of emotional schemas, Leahy (13) found that emphasis on rationality was not related to depression or anxiety levels but to greater guilt and numbness, less acceptance of feelings, and greater rumination. Yavuz et al. (20) also found that higher rationality is correlated with higher rumination, lower comprehensibility, and lower acceptance of feelings. All these data indicate the clinical and developmental importance of rationality about emotions. Indeed, it has been shown that children's emotion regulation processes can be affected by their parents' metaemotional patterns (30). Mothers' demands for rationality to their own emotions may create an emotionally poor environment for sufficiently learning to define, express, and accept emotional experiences for their children.

We found lower levels of comprehensibility schema in the clinical group of adolescents than in their mothers and the control group of adolescents. Comprehensibility is mainly concerned with the understanding of emotional arousal. When an individual cannot define his/her emotional experiences and label them as problematic, it will be very difficult to take a functional stance. As Leahy's emotional schema model pointed out, a higher level of incomprehensibility may cause a dysfunctional pattern, such as overt behavioral avoidance, and/or covert behaviors, such as rumination and worry (13). It can be concluded that comprehensibility of emotions is a crucial skill in adolescents but also need to be learned in an emotionally rich environment.

Another significant difference we found in the clinical group of adolescents was higher levels of uncontrollability schemas related to intense emotional experiences. Children's ability to understand how their minds work develops towards age 5 (31). It was indicated that 5-year-old children could not understand the difficulty in controlling their thoughts. This awareness does not begin to form until age 9, and their awareness of the difficulty in controlling thoughts does not develop completely until adolescence and adulthood (32). Several studies have shown that perceived loss of control when internal experiences, such as negative emotions and thoughts, arise are related to psychopathology (33).

Barlow (34) linked anxiety disorders, especially with a lack of perceived control over negative emotional experiences. Similarly, Wells also proposed that problematic mental control strategies lead to a psychopathological process called "cognitive attentional syndrome" and activate worry (35). Also, Leahy's (13) emotional schema model posits that uncontrollability and emotional avoidance come after negative interpretations such as "negative emotions are problematic." An individual, who tends to avoid his/her "uncontrollable problematic" emotional arousal, often faces consequences opposite to this expectancy. In another study addressed above, Leahy et al. (16) showed predicting effects of beliefs about control of emotions and rumination in addition to guilt/shame and invalidation. However, these predicting effects of emotional schemas on depressive symptoms lost their significance when they put together the regression model with Risk Aversion and Psychological Flexibility.

Nevertheless, this study provides evidence for the importance of negative emotional schemas in clinical conditions. We found that rumination and uncontrollability of emotion subscales of LESS-T were significantly higher in the clinical group of adolescents than that in the control group. Finally, our findings show that adolescents in the clinical group have a skill/information deficit on how to evaluate and what to do when negative experiences occur.

This finding is also consistent with the literature on the relationship between ruminative response and psychopathology (36). This finding is also consistent with the literature on the relationship between ruminative response and psychopathology (36). Considering the higher levels of the ruminative response style and the lower levels of emotional avoidance, according to their mothers, the clinical group of adolescents uses ruminative coping styles more than the avoidance toward their emotions. As opposed to studies showing that rumination is transmitted among generations, there is also widespread literature on the absence of a meaningful relationship between the ruminative response patterns of mothers and their children (37,38). In our study, ruminative response patterns were quite similar between adolescents and their mothers, and no significant difference was found between them. Further work is needed to understand the underlying mechanisms of this similarity, such as genetic or learning processes.

Limitations and Further Considerations

Our research has several limitations. We did not use any diagnostic clinical interview with the participants. Psychiatric diagnoses of the adolescents in the clinical group were obtained from present clinicians' medical records. We received information about psychiatric disorder history or any current psychological problem of the control group of adolescents and both groups of mothers via the self-report form. The scales we used in our research were all self-report style, and also current medications and therapeutic interventions may have affected our data. Because most of the parents who accompanied their children were mothers, the study was conducted only on mothers, so we could not investigate the possible strong effects of fathers on children's emotional schemas. Another limitation was that we did not analyze the effect of divorce rates on emotional schemas. Although we determined high divorce rates in the clinical group, further analysis could not be performed because of the small sample size. Considering the previous studies regarding higher behavioral, psychological, and cognitive problems among children of fragmented families (39,40), similar results were found in this research. Also, we did not assess some subscales of LESS-T. Further research is needed on larger samples to eliminate this limitation.

Our research is one of the few studies investigating the differences and similarities between mothers and their children in emotion-related attitudes. The absence of a significant difference in the emotional schemas of the adolescents and mothers in the control group supports the widespread belief that a healthy mother-child interaction is important for developing emotional skills.

The presence of higher emotional avoidance and rationality schemas in mothers of adolescents with clinical problems may not allow them to express and experience emotions sufficiently and develop functional attitudes, such as acceptance and validation of emotions. Our findings also support this approach, with the low comprehensibility, high perceived uncontrollability, and rumination levels in adolescents in the clinical group.

Finally, the emotional interactions of adolescents with their parents and other social environments may be related to psychological problems that may arise in the future. However, although mothers' attitudes are known to impact their children's emotional development, we should emphasize that emotional attitudes are open to mutual interaction and that our statistical design and findings do not represent a causal relation. Further research is needed to investigate the effects of other factors, such as fathers, siblings, friends, media, and mothers, during the establishment of emotional schemas in the developmental period.

Contribution Categories		Author Initials
Category 1	Concept/Design	T.K., K. F.Y., S.U.
	Literature review	T.K., A.G.K.
	Data analysis/Interpretation	T.K., S.U., A.F.M.
Category 2	Drafting manuscript	K.F.Y., T.K., S.U.
	Critical revision of manuscript	K.F.Y., A.F.M.
Category 3	Final approval and accountability	A.F.M., K.F.Y, T.K., S.U., A.G.K.
Other	Technical or material support	T.K.
	Supervision	A.F.M., K.F.Y.

Acknowledgments: We thank all the adolescents and their mothers who made time for our study and the hospital staff for providing an appropriate working environment.

Ethical Approval: Approval was granted by Bakirkoy Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital Ethics Committee (date: 02.04.2013, number: 41340010/17046-285).

Informed Consent: Informed consent was obtained from all participants.

Peer-review: Externally peer-reviewed.

Conflict of Interest: The authors declare that they have no conflict of interest.

Financial Disclosure: The authors declare that they have no financial support.

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