

Relationships between family functioning, parenting and peer victimization in adolescent depression: A cross-sectional study

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ABSTRACT

OBJECTIVE: Major depressive disorder (MDD) in adolescence is a prevalent mental health problem with a complex etiology and a rising incidence. The aim of the study investigated functioning of family, attitudes of parents, and peer victimization in adolescents with MDD and to compare those with healthy adolescents.

METHODS: The study was designed as a multi-center, cross-sectional, case-control study. 98 adolescents diagnosed with MDD and 99 healthy controls were recruited for the study. Beck depression inventory, parental attitude research instrument (PARI) tool, family assessment device (FAD), and multidimensional peer victimization scale (MPVS) were applied to all participants. Descriptive, correlational, and bivariate group comparisons were used in analyses.

RESULTS: The average ages of adolescents with MDD and control adolescents were 14.7 (S.D.=1.5) and 15.0 (S.D.=1.6) years, respectively. Females formed 74.5% of youth with MDD (vs. 70.3% of controls). The groups were similar in terms of socio-demographic features (all $p>0.05$). Adolescents with MDD had significantly elevated scores in FAD subscales except problem solving, PARI rejection of homemaking, marital conflict, and authoritarian subscales, and all MPVS subscales. Adolescents with MDD also displayed significant positive correlations between all MPVS subscales and FAD subscales except FAD problem-solving.

CONCLUSION: This cross-sectional, multi-center study suggests that family dysfunction and peer victimization may be higher in youth with MDD. Although cross-sectional design precludes evaluation of causality, it may be prudent to evaluate family functions as well as peer victimization of depressed youth.

Keywords: Adolescent; depression; family; peer victimization.

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Major depressive disorder (MDD) is one of the prevalent psychopathologies worldwide with an estimated prevalence of 2.0–4.0% in community and 6.0–8.0% in primary care [1]. MDD is related to import-

ant morbidity and mortality and adolescence is a critical period for its onset [2]. Both MDD diagnosis and sub-threshold symptoms increase with age. MDD prevalence in preschool, school-age, and adolescence was reported



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as 1.0%, 3.0%, and up to 20.0%, respectively [3, 4]. Beside suicidality, MDD in youth is associated with social, familial and academic impairment as well as homotypic and heterotypic continuity in adulthood [5].

Victimization can be defined as intentional, recurrent, and infliction of physical/ mental pain by a more powerful individual (i.e., “bully”) on less powerful ones (i.e., “victims”) [6, 7]. Related terms include peer victimization, relational aggression, harassment, and maltreatment [8]. Power imbalance, intentionality, and repetition are major characteristics for victimization. Peer victimization is a growing problem among adolescents [6]. Peer victimization has been proposed as one of the modifiable risk factors for depression. In meta-analyses and cross-sectional studies, peer victimization in pediatric populations was found to be associated with clinical depression [9]. A previous study from our country also found a positive correlation between peer abuse and depression scores in adolescents living in Turkey [10].

MDD in adolescents may develop through biological, cognitive, developmental, and relational factors [4]. Among relations, family functioning may be especially pertinent. Although the family’s functioning involves narrower structures associated with parenting behavior, the emphasis is on the collective health of the family unit [11]. Several studies up to date have suggested that reduced warmth, elevated discordance and conflict and limited emotional availability at the family of origin may be related to adolescent MDD [12]. Alternatively, family discord and low compliance may be significant predictors of child psychopathology in general and they may not be specific predictors of childhood depression. Supporting this view, those factors were also predictors for substance use in young people [13].

Different parental styles have various effects on self-esteem which is a protective factor against peer victimization [14]. Authoritative parenting style is defined as being high in responsiveness and demandingness. Authoritarian parenting style is characterized by lower responsiveness but higher demandingness. Authoritarian parents tend to use hostile control or harsh punishment in a highhanded way to gain compliance, but they rarely provide expression or allow verbal communication [15]. Studies have demonstrated that the authoritative parenting style is related to higher self-esteem than authoritarian and permissive parenting styles [16, 17]. Bilsky et al. found that supportive parenting and peer victimization

Highlight key points

- Family dysfunction and peer victimization may be higher in youth with MDD.
- Family dysfunctions in adolescent MDD (females at least) may be associated with peer victimization.
- Peer victimization domains and family functioning could only explain a limited part of the variance in depression symptoms of youth.

did not interact in the prediction of depressive symptoms and depression-related cognition in children [18]. Papatzetskakou et al. [19] showed that parental support decreased depressive symptoms in offspring, irrespective of victimization, or gender. Although there are studies assessing family functioning and peer victimization separately in adolescents with depression, studies evaluating relationships between all those constructs together are scarce. Therefore; in this study, we aimed to investigate family functioning and peer victimization in adolescents diagnosed with MDD and to compare the results with those of healthy controls and to investigate relationships between family functioning and peer victimization in adolescents with depression.

The primary hypothesis of the study was that adolescents with depression would report higher levels of peer victimization and worse family functioning compared to healthy adolescents. The secondary hypothesis was that impaired family functioning and higher peer victimization would interact in predicting depressive symptoms of adolescents.

MATERIALS AND METHODS

Study Design, Date, Setting, and Ethical Issues

The study was designed as a multi-center ($k=3$), cross-sectional, and case–control study. The study was conducted at the Department of Katip Celebi University, Nevsehir State Hospital and Dokuz Eylul University Child and Adolescent Psychiatry, in between August 2017 and March 2018. Ethical approval was obtained from the Ethics Committee for Clinical Trials of the Izmir Katip Celebi University Clinical Trials Ethics Committee (date: July 5, 2017, number: 127). Parents provided written while adolescents provided verbal informed consent before participation in the study. All study procedures have been carried out in accordance with the Helsinki Declaration and local laws and regulations.

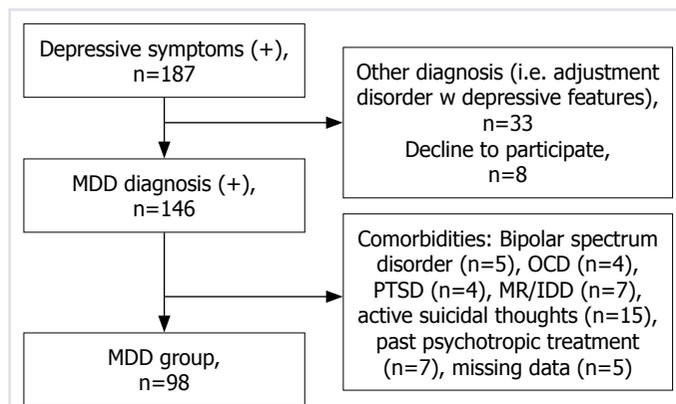


FIGURE 1. Study flow-chart.

Participants

Inclusion criteria for MDD group were; age between 12 and 18 years old, ascertainment of MDD diagnosis with School-Age Children-Present and Lifetime Version (K-SADS-PL)-Turkish version and as per DSM-5 criteria, being treatment naïve, lack of active suicidal ideation, lack of chronic medical/neurological diseases (i.e., epilepsy, and diabetes), and providing informed consent for study participation.

Exclusion criteria for the MDD group were comorbid psychopathologies in youth other than anxiety disorders. Attention deficit/hyperactivity disorder, disruptive behavior disorders, intellectual disabilities, and learning disorders were excluded from clinical examination and academic history in the MDD group. Children whose parent's separated/divorced/died and who had attended parent training programs in the past were also excluded in the MDD group (Fig. 1 for study flow-chart).

The selection of the healthy control group was made after the participants in the MDD group were selected. Between December 2017 and March 2018, it consisted of children between the ages of 12 and 18 selected from the children's clinics of the three centers. Pediatrics clinics are free and routine service in our country and adolescents come to this clinic from the general population. Adolescents between the ages of 12 and 18 were identified in pediatrics clinics and asked parents if they would like to participate in the research. In the healthy control group, the inclusion criteria set for adolescents were that they had to come to one of the child clinics with non-psychiatric symptoms and acute medical conditions between December 2017 and March 2018 and had to live with both parents. The exclusion criteria were that the adolescents presented psychiatric disorders and used

psychotropic drugs; divorced in the family or one or both of their parents died; the mothers of the adolescents experienced to a parent training program; and adolescents had a chronic medical and neurological disorders, or adolescents were admitted to a psychiatric clinic. During the study period, 101 healthy adolescents applied to pediatric clinics. Two of those declined study participation leading to 99 adolescents in the control group.

Data Collection

Beck depression inventory (BDI), parental attitude research instrument (PARI), family assessment device (FAD), and multidimensional peer victimization scale (MPVS) were applied to all adolescents who participated in the study. Child and adolescent psychiatrists evaluated adolescents through schedule for affective disorders and schizophrenia for K-SADS-PL. All adolescents fulfilled the paper and pencil versions of the questionnaires in a fixed order.

Socio-demographic data form

This form was created to obtain information about the socio-demographic properties of adolescents and their parents. The form contains questions that examine the adolescent's age, gender, socio-economic level (based on monthly income), academic status, peer relationships, and mother's age, marital status, and profession. The clinicians filled out this form.

Schedule for affective disorders and schizophrenia for K-SADS-PL

The diagnosis of adolescents was made using K-SADS-PL, a semi-structured diagnostic interview designed to evaluate current and past psychopathology based on DSM-III-R and DSM-IV criteria in children and adolescents. The scores obtained from the child and the family are combined [20]. The form has three parts: (1) Socio-demographic characteristics, (2) current and past sections of psychiatric symptoms, and (3) general functional evaluation of adolescents. The second and third sections of K-SADS-PL were applied in this study. During the interview, psychotic disorders, mood disorders, anxiety disorders, disruptive behavioral disorders, elimination disorders, eating disorders, alcohol and drug use disorders, and tic disorders can be assessed. Translation of K-SADS-PL into Turkish and its study on validity and reliability was conducted Gökler et al. (2004) [21]. Inter-rater agreements for diagnoses in the study by Gökler et al. [21] var-

ied between 0.46 (oppositional defiant disorder) and 0.89 (attention deficit/hyperactivity disorder). K-SADS-PL interviews in the present study were conducted by clinicians who were trained in its application by the Turkish Association for Child and Adolescent Psychiatry.

Beck Depression Inventory (BDI)

The BDI is a 21-item, 3-point, Likert-type self-report for screening depressive symptoms in the past 2 weeks. Higher scores indicate greater depressive severity. Scores ≤ 13 were accepted to denote minimal while those ≥ 29 may denote severe symptoms. Scores between 14 and 19 were classified as mild while those between 20 and 28 were accepted as moderate symptoms [22]. The reliability and validity study of the Turkish version was conducted by Hisli and Cronbach alpha was found to be 0.80 [23]. The BDI is validated for age 13 years and above. In our study, we added 12-year-old (six adolescents with MDD and seven healthy control adolescents). There was no statistically significant difference between the BDI scores of 12 years and other age groups ($p > 0.05$). Adolescents completed BDI for themselves in this study and it was given only the MDD group. Cronbach's alpha in this sample was 0.81.

Multidimensional Peer Victimization Scale (MPVS)

This scale was developed and validated by Mynard and Joseph [24] to evaluate the experiences of peer victimization. The MPVS is a 16-item, three points, Likert-type scale, validated for ≥ 11 years old youth which yields four factors including social manipulation, physical victimization, verbal victimization, and attack on the property. Gültekin and Sayıl [25] in (2005) conducted the reliability and validity study of the Turkish version. The authors reported that 11 items had to be added to the original to improve psychometrics and that the factor analysis revealed five factors (e.g., terror, teasing, overt victimization, relational victimization, and attack on the property) rather than four in the original. Cronbach's alpha in the original study was 0.90. MPVS was completed by adolescents in MDD and control groups in this study and Cronbach's alpha was 0.93.

Family Assessment Device (FAD)

Epstein et al. [26] developed this scale and it evaluates multiple domains of family functioning (i.e., problem-solving skills; intra-familial communication; family's roles; effective reactions to emotions; active participation of family members; behavior control; and general func-

tions in the family) with 60 items. All items are rated on a 4-point Likert scale, with answer choices from "1-strongly agree" to "4-strongly disagree." High scores obtained from the scale indicate that the family shows poor functionality. The FAD is commonly used in many fields such as research and clinical practice [26]. It is designed to be completed by every family member over the age of 12 years. Bulut [27] (1990) translated the Turkish version and conducted its validity and reliability study. In the original study of this measurement, the range of Cronbach's alphas was between 0.72 and 0.92 for subscales. The scale is completed by parents in this study and Cronbach alphas for subscales were similar (i.e., between 0.70 and 0.90).

Parental Attitude Research Instrument (PARI)

The scale was developed by Schaefer and Bell [28] in 1958 to evaluate parental child-rearing attitudes. The scale yields five domains in the form of "Overprotective mothering," "Democratic treatment and granting equality," "Rejection of home-maker role," "Incompatibility," and "Rigid disciplining." Increased scores for factors other than "Democratic treatment and granting equality" indicate negative parenting attitudes. The Chronbach's alpha was 0.64 in the original study (Schaefer and Bell, 1958). The PARI is validated children and adolescents. The validity and reliability study of the Turkish version was performed by Küçük and reliability was found to be similar to the original (i.e., 0.67, Küçük, 1987) [29]. The scale is completed by parents in this study and Cronbach's alpha was found to be 0.65 for the study sample.

Statistical Analysis

The statistical analysis of the data obtained in the research was made with the program of Statistical Package for the Social Sciences (SPSS) 22.0 (SPSS, IBM Inc.). Socio-demographic and clinical categorical variables were reported as numbers and frequencies. Quantitative variables were summarized as either arithmetic means and standard deviations or medians and inter-quartile ranges depending on the presence of outliers and assumptions of normality. Assumptions of normality were evaluated through Kolmogorov-Smirnov test. Bivariate comparisons were conducted with Chi-square test (with Yates' and Fisher's corrections as needed) and Student's t-test for independent groups or Mann-Whitney U-test depending on normality. In bivariate correlations, the normal distribution was first looked after and then it was carried out with the correlation analysis of Pearson

or Spearman. Partial correlation analyses controlling for BDI scores were conducted for evaluating relationships between domains of peer bullying and family functioning. Logistic regression analyses were conducted to evaluate the predictive value of victimization and family functioning. *P* was set at 0.05 (two-tailed).

RESULTS

Within the study period, 98 adolescents with MDD and 99 control youth were eligible to be enrolled. Adolescents with MDD (mean age=14.7±1.5 years) were younger than control group (mean age=15.1±1.6 years) as showed by *t*-test ($t[195]=2.0$; $p<0.05$). Females were the majority in both groups (69.7% in control vs. 75.5% in MDD) with no significant difference (Yates' $\chi^2=0.57$, $p=0.45$). Mean BDI scores in adolescents with MDD were 20.7±7.5.

Maternal ages, educational and vocational status, academic achievement, and self-reported peer relationships according to groups are listed in Table 1. Family income (Cramer's $V=0.28$) and academic achievement (Cramer's $V=0.31$) were significantly higher with a small to medium effect size in control youth. In addition, self-reported psychopathology in relatives was significantly more frequent in youth with MDD (Chi-square=12.0, $p=0.003$, Cramer's $V=0.25$).

Over a third of our sample of adolescents with MDD had comorbid anxiety disorders ($n=35$, 36.1%). The disorders in decreasing order were specific phobia ($n=8$, 22.9%), separation anxiety disorder ($n=7$, 20.0%), social phobia ($n=5$, 14.3%), generalized anxiety disorder ($n=4$, 11.4%), and panic disorder ($n=1$, 2.9%). Ten patients (28.6%) had multiple comorbid anxiety disorders.

Self-reported parenting and family functioning differed significantly across groups except problem-solving, rejection of homemaking, and family conflict (Table 2). Effect sizes for general family functioning and communication were moderate while family roles, affective responsiveness, and involvement and behavior control were large. For domains of parenting only overprotective behavior had a large effect size, while democratic and authoritarian parenting had moderate effect sizes.

Adolescents with MDD scored significantly higher than controls in all subscales of MPVS with all differences having a large effect size (Table 3). Bivariate correlations in the MDD group between MPVS-subscales and FAD subscales revealed that none of the dimensions of peer victimization were associated with problem-solving in

TABLE 1. Socio-demographic features of adolescents with MDD and controls enrolled in the study to evaluate relationships between family functioning, parenting, and peer victimization

% (Median, IQR when indicated)	Depression (n=98)	Control (n=99)	<i>p</i> *
Maternal age (years, Median, IQR)	5.3	7.0	0.12
Maternal education (year)			
≤8	74.4	66.6	0.25
>8	25.6	33.4	
Paternal age (years, Median, IQR)	5.4	6.5	0.13
Paternal education (years)			
≤8	51.0	57.6	0.11
>8	49.0	42.4	
Maternal vocation			
Housewife/unskilled	76.5	73.7	0.45
Semi-skilled	8.2	4.0	
Skilled	14.3	21.2	
Retired	1.3	1.1	
Paternal vocation			
Unskilled/menial	51.0	50.5	0.29
Semi-skilled	12.2	15.2	
Skilled	26.5	31.3	
Retired	10.3	3.0	
Family income (self-reported)			
Low	13.2	23.2	<0.001
Middle	48.0	58.6	
High	38.8	18.2	
Achievement (self- and parent-reported)			
Low	14.3	3.0	<0.001
Middle	30.6	15.2	
High	55.1	81.8	
Peer relations (self- and parent-reported)			
No problems	77.6	81.8	0.57
Problems	22.4	18.2	

IQR: Interquartile range; *: Mann-Whitney U and Chi-square tests (yates, likelihood and linear trend when indicated).

the family. Strongest relationships were observed between family roles and domains of victimization. Furthermore, the destruction of and damage to property as part of victimization was not related to family functioning among youth with depression (Table 4). Controlling for BDI

TABLE 2. Comparison of family functioning and parental attitudes according to diagnostic groups in adolescents enrolled in the study to evaluate relationships between family functioning, parenting, and peer victimization

Mean (SD)	Depression group	Healthy control group	p	t	Cohen's d
FAD problem solving	2.1 (0.6)	2.1 (0.7)	0.43	-0.80	-
FAD communication	2.3 (0.4)	2.1 (0.6)	0.01	2.69	0.4
FAD roles	2.4 (0.4)	2.0 (0.6)	<0.001	6.89	0.8
FAD affective responsiveness	2.4 (0.6)	1.8 (0.5)	<0.001	6.96	1.1
FAD affective involvement	2.6 (0.5)	2.1 (0.6)	<0.001	5.88	0.9
FAD behavior control	2.5 (0.5)	1.9 (0.5)	<0.001	8.33	1.2
FAD general	2.2 (0.5)	2.0 (0.6)	<0.001	3.00	0.4
PARI- Overprotective	40.3 (7.4)	34.3 (6.7)	<0.001	5.97	0.9
PARI- Democratic	26.0 (3.4)	24.7 (3.3)	0.01	2.67	0.4
PARI- Rejection of homemaking	29.9 (5.8)	30.5 (5.8)	0.49	-0.69	-
PARI- Marital conflict	14.2 (3.7)	14.4 (3.3)	0.66	-0.44	-
PARI- Authoritarian	30.5 (6.4)	28.3 (5.3)	0.01	2.58	0.4

SD: Standard deviation; PARI: Parental attitude research instrument; FAD: Family assessment device; t-test for independent groups.

TABLE 3. Comparison of peer victimization status according to diagnostic groups in adolescents enrolled in the study to evaluate relationships between family functioning, parenting, and peer victimization

Mean (SD)	Depression group	Healthy control group	p	t	Cohen's d
Terror	3.4 (2.7)	1.8 (1.8)	<0.001	4.96	0.7
Teasing	4.9 (2.9)	1.3 (1.8)	<0.001	10.55	1.5
Overt victimization	2.0 (1.6)	1.5 (1.3)	0.02	2.31	0.3
Relational victimization	3.5 (2.0)	1.0 (1.3)	<0.001	10.35	1.5
Attack on property	1.6 (1.5)	0.9 (1.1)	0.001	3.54	0.5
Total score	15.4 (8.2)	6.5 (4.2)	<0.001	9.49	1.4

SD: Standard deviation; Student's t-test for independent groups.

TABLE 4. Bivariate correlations between multi-dimensional peer victimization subscales and family functioning domains in adolescents with major depressive disorder

Rho	FAD- problem solving	FAD- communication	FAD- roles	FAD- affective responses	FAD- affective involvement	FAD- behavior control	FAD- global functioning
MPVS-terror	-	0.33**	0.57**	0.39**	0.26*	0.50**	0.52**
MPVS-teasing	-	0.20**	0.46**	0.26*	0.29**	0.33**	0.32**
MPVS-overt victimization	-	-	0.30**	0.24*	0.22*	0.27*	0.29**
MPVS-relational victimization	-	-	0.30**	0.20*	-	0.30**	0.23**
MPVS-attack on property	-	-	0.27**	-	-	-	-
MPVS-total score	-	0.22**	0.51**	0.27**	0.27**	0.41**	0.40**

Spearman's rho; *: P<0.05; **: P<0.01; MPVS: Multi-dimensional peer victimization scale; FAD: Family assessment device.

TABLE 5. Partial correlations controlling for beck depression inventory scores between multi-dimensional peer victimization subscales and family functioning domains in adolescents with major depressive disorder

Rho	FAD- problem solving	FAD- communication	FAD- roles	FAD- affective responses	FAD- affective involvement	FAD- behavior control	FAD- global functioning
MPVS-terror	–	0.32**	0.51**	0.34**	0.28**	0.39**	0.47**
MPVS-teasing	–	0.23*	0.42**	0.28**	0.31**	0.29**	0.38**
MPVS-overt victimization	–	–	0.23*	0.20*	0.23*	–	0.25*
MPVS-relational victimization	–	–	0.37**	0.24*	–	0.31**	0.27**
MPVS-attack on property	–	–	0.26**	–	–	–	–
MPVS-total score	–	0.25*	0.49**	0.31**	0.31**	0.37**	0.43**

Spearman's rho; *: P<0.05; **: P<0.01; MPVS: Multi-dimensional peer victimization scale; FAD: Family assessment device.

scores lowered those associations mostly (Table 5). Finally, we evaluated the roles of domains of peer victimization (i.e., terror, teasing, overt and relational victimization, and attack on the property) along with those of family functioning (communication, roles, affective responses and involvement, behavior control, and global functioning) on symptoms of depression in our sample. Due to non-normality, we dichotomized the sample according to BDI scores (i.e., <13=non-depressed and ≥13=depressed) and attempted binary logistic regression (with entering method). Each predictor was used in separate steps. Although each of the steps was statistically significant (Hosmer and Lemeshow Test, $p>0.05$), they could only explain a limited portion of the variance in depression status (Nagelkerke R^2 s varied between 0.01 and 0.07). Furthermore, none of the individual predictors reached significance (Table 6).

DISCUSSION

This multi-center, cross-sectional, and case-control study aimed to compare peer victimization in adolescents with MDD and healthy adolescents and to elucidate relationships between family functioning, parenting and peer victimization in youth with MDD. As a result, we found that adolescents with MDD scored significantly higher than controls in all subscales of MPVS with all differences having a large effect size. Functioning of their families as significantly lower compared to controls in depressed adolescents, except problem-solving. On the other hand, they were rather ambivalent about the parenting they received. They rated their parents as displaying significantly higher democratic and authoritarian attitudes at the same time as well as being over-protective. We also found

TABLE 6. Variables related to depression status for adolescents in logistic regression analysis (n=98)

Variables	Odds ratio	95% CI	p
MPVS-terror	0.95	0.69–1.30	0.74
MPVS-teasing	1.02	0.77–1.36	0.90
MPVS-overt victimization	0.89	0.57–1.40	0.62
MPVS-relational victimization	1.22	0.82–1.83	0.33
MPVS-attack on property	1.14	0.75–1.72	0.54
FAD communication	0.41	0.09–1.95	0.26
FAD roles	0.41	0.06–2.89	0.37
FAD affective responsiveness	1.29	0.40–4.14	0.67
FAD affective involvement	1.17	0.31–4.47	0.82

Hosmer and Lemeshow test: $P=0.17$; Nagelkerke $R^2=0.07$; CI: Confidence interval; MPVS: Multi-dimensional peer victimization scale; FAD: Family assessment device.

that MPVS were associated with all domains of family functioning (except problem-solving). Contrary to our hypothesis, we observed that domains of victimization and family functioning could only explain a limited part of the variance in depression symptoms of youth.

Studies designed differently (cross-sectional, retrospective, and longitudinal) have shown correlations between peer victimization and clinical depression [9, 30–32]. Bowes et al. [32] (2015) examined the relationship between peer victimization and depression through longitudinal study. They recruited 6719 participants who reported on peer victimization at age 13 years and followed 3898 participants on both victimizations by peers at age 13 years and depression at age 18 years. They found that

depression was two-fold higher in the peer victimization compared to not peer victimization participants. Williams et al. [33] investigated types of bullying victimization (physical, verbal/social, and cyberbullying) and their effects on depressive symptoms in the adolescents transitioning to high school in a large ($n=233$) sample. They found that verbal/social bullying was associated with depressive symptoms in both genders. They also found that victims of cyberbullying were more likely to report depressive symptoms, especially female adolescents. Our results support those previously reported studies.

Adolescents with depression in our sample reported significantly impaired family functioning in all domains except problem-solving. The previous studies showed that families of individuals with MDD reported greater dysfunction especially in domains of communication and affective involvement [34, 35]. A review on the relationship of adolescent internalizing symptoms and family functioning reported that both depressive symptoms and diagnoses of adolescents were related to overall family dysfunction and problems specific to various domains of family functioning [12]. Specifically, greater family conflict, lower family cohesion, and support and adolescents' dissatisfaction with the functioning of their families were found to be related to adolescent depression [12]. Daches et al. [36] in 2018 investigated family functioning in adolescents with low ($n=82$) and high familial risk ($n=79$) for depression. They found that high-risk adolescents and their mothers reported more extensive family dysfunction than low-risk adolescents and their mothers. What's more, both adolescents' and their mothers' reports of family dysfunction were positively correlated with adolescents' depressive symptoms. Therefore, it can be said that family dysfunction may predate the onset of depression in adolescence. Our results are following with those findings and suggest that family functioning should be addressed in treating adolescent depression.

Adolescents with MDD in our study also reported significantly elevated overprotective, democratic, and authoritarian parenting attitudes. Studies in the relationship between depression and parental attitudes report elevated depressive complaints in youth feeling over-controlled and over-guarded by their parents [37, 38]. In our country, Özbaran et al. [37] reported that parenting variables such as over-protection, marital discord, and authoritarian attitudes contributed to the pathogenesis of MDD in Turkish adolescents. Recognition of the importance of family dysfunction and parenting problems in childhood depression led to increasing use of

family-focused treatment methods [39, 40]. In a recent study, family-focused treatment in children with MDD was reported to reduce depressive symptoms both in clinician, child and parent ratings as well as improving parent-rated internalizing and externalizing symptoms. Those improvements were also maintained in 4 and 9 months of follow-up [40]. Our findings are also in partial agreement with those previously reported and underline the importance of over-protective and authoritarian parenting in adolescent MDD. The elevated democratic parenting scores in our sample may be due to reporting bias or reflect confusion and instability of parenting attitudes received by adolescents in our study.

MPVS scores in our sample displayed significant correlations with all domains of family functioning except problem-solving. Although the cross-sectional nature of the study precludes assumptions of causality, those findings may suggest that family dysfunction in various domains may be associated with various domains of MPVS. This makes theoretical sense due to the previous studies underlining the importance of family dysfunction on the mental health of youth [41]. It was also found that parent-child conflict was related to peer victimization among adolescents [42]. Luk et al. [43] in 2016 investigated relationships between peer victimization and externalizing and internalizing through retrospective study in young adults. They found that parent authoritative style was protective against peer victimization and depression through higher self-esteem. On the contrary, permissive or authoritarian parent's style was positively associated with bullying. Studies on peer victimization, family functioning, parenting, and depression in youth are scarce. Our results should be replicated with larger samples and using multiple informants.

Our findings should be evaluated within the context of limitations. One of them is over-representation of female participants. Although this female predominance increases external validity due to depression being more frequent in adolescent females, it may also reduce internal validity due to sample heterogeneity. We also did not evaluate the severity of depression in adolescents. Objective evaluations of the severity of MDD (e.g., HAM-D-17, CGI-S) may have enriched our findings. Furthermore, BDI was given only the MDD group. Lack of blinding, lack of evaluations for intellectual functioning and those for effects of treatment may also be listed among limitations. Finally, peer relationships, academic functioning, and family income were mostly evaluated with self- and parent-reports.

Conclusion

Regardless of limitations, our results suggest that family dysfunctions in adolescent MDD (females at least) may be associated with peer victimization. Although cross-sectional design precludes evaluation of causality, it may be prudent to evaluate family functions as well as peer victimization of depressed youth.

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