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The relationship of emotion regulation and attachment styles in adolescents diagnosed with major depressive disorder

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ABSTRACT

Aim: To compare emotion regulation and attachment styles between a patient groups aged 12-18 years, diagnosed with major depressive disorder (MDD), and a healthy control group.

Methods: 51 MDD patients, and 51 age-matched healthy control participants made up the study sample. A child psychiatrist applied the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) on each of the research participants. The following scales were also applied to all the patients and control subjects: the Children's Depression Inventory (CDI), the Adolescent Friendship Attachment Scale (AFAS), and the Difficulties in Emotion Regulation Scale (DERS).

Results: The CDI total points, the AFAS avoidance attachment, anxious/ambivalent attachment subscale points, and the DERS total and subscale points were found to be statistically significantly higher in the MDD group than in the control group. The AFAS secure attachment subscale points were found to be statistically significantly higher in the control group than in the MDD group. A statistically significant positive correlation was determined between the CDI total points and the DERS goals, impulse control, awareness, strategy, clarity and the DERS total points, and between the AFAS anxious/ambivalent attachment and the DERS total points. A statistically significant negative correlation was determined between the AFAS secure attachment subscale points and the DERS acceptance subscale points. The avoidance attachment style points and the DERS total points may be highly predictive of MDD, according to the results of the logistic regression analysis.

Conclusions: The study's findings showed that the avoidance attachment, anxious/ambivalent attachment, and difficulty in emotion regulation scores were higher in adolescents diagnosed with MDD than in control subjects. These findings showed that the severity of depression in adolescents with MDD is significantly correlated with difficulty in emotion regulation. The study's findings also point to avoidance attachment style and difficulty in emotion regulation as potential risk factors for MDD.

Key words: Attachment styles, emotion regulation, major depressive disorder, adolescent, depression.

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1. Introduction

In adolescence, young people pass through important turning points in physical, psychological, and social development. Therefore, they are at increased risk in this period in respect of the onset of some psychiatric disorders [1]. One of the psychiatric illnesses that

affect adolescents most frequently is major depressive disorder (MDD) [2]. MDD can be defined as being in a continuous state of negative emotions and having difficulty in experiencing positive emotions [3]. The prevalence of MDD has been reported to be 2% in children and 4-8% in adolescents [4]. In addition to negative mental and physical health outcomes, adolescents with depression have been reported to be at greater risk in respect of poor social functionality, academic performance and quality of life [5]. The etiology of MDD has been researched for many years and psychosocial and biological variables have been suggested to function together in this process [6].

Mental health critically depends on one's capacity to respond to and manage unpleasant emotions, particularly in the midst of stressful situations. It has been demonstrated that inadequate regulation of emotions can be a major contributing factor to depression [3]. Individuals with depression have been reported to experience more difficulty in emotion regulation than those without depression. Some research in the literature have indicated that have suggested that difficulties in emotion regulation in adolescence could be associated with the development and maintenance of MDD in particular [7,8]. It has also been suggested that there could be a relationship between difficulties in emotion regulation and attachment styles [9].

Attachment theory has been proposed as a series of behaviors from birth which aim to protect the closeness to caregivers who are accepted as attachment figures. It has been hypothesized that these attachment behaviors regulate emotions, ameliorate problems, and provide protection against physical and emotional threats [10,11,12]. A sensitive, consistent, accessible, and trustworthy approach to a child by the primary caregiver creates a secure attachment style, and thus an individual with this attachment style can develop positive beliefs about other people [10,11]. In contrast, neglectful, inconsistent, and rejectionary behavior of the primary caregiver to a child will cause the child to have an insecure attachment style. Insecure attachment style is examined in two dimensions of anxiety and avoidance [13,14]. Studies related to attachment have suggested that attachment problems could be associated with depressive disorder. There are also studies in the literature that have reported higher levels of depression in adolescents with anxious or avoidance attachment styles compared to adolescents with secure attachment [15,16,17].

As stated above, there is interaction of attachment styles and emotion regulation with MDD diagnosis. However, to the best of our knowledge, no research has been done to compare the attachment styles and emotion regulation of adolescents who have been diagnosed with depression with those of a healthy control group after they have had a structured interview with a child psychiatrist.

Thus, the purpose of this study was to assess the relationship between depression severity and emotion regulation and attachment styles by comparing the attachment styles and emotion regulation of adolescents with MDD with those of a healthy control group. The study hypotheses were that (1) the emotion regulation problems of the adolescents diagnosed with MDD would be greater than those of the healthy control group, (2) there would be a difference in attachment styles between the adolescents diagnosed with MDD and the healthy control group, and (3) there would be a significant relationship between the level of severity of depression in the MDD patient group and emotion regulation and attachment style.

2. Materials and metods

2.1 Sample and Research Design

The study was planned as a cross-sectional, single-center, case-control investigation. Patients who presented at the Child and Adolescent Psychiatry Polyclinic of Afyonkarahisar Health Sciences University Medical Faculty Hospital between December 2023 and April 2024 and met the study inclusion criteria were included in the study. The MDD group was formed of 51 adolescents aged 12-18 years who were diagnosed with MDD according to the DSM-5 diagnostic criteria and were applied with the K-SADS-PL by a child psychiatrist. In addition to having an MDD diagnosis and clinically normal intelligence, adolescent participants in this group did not take any mental health drugs. The study's exclusion criteria included the presence of concurrent psychopathology, psychotropic drug usage, clinically mental retardation, active suicidal thoughts, or any persistent neurological or medical condition that required medical attention (epilepsy, diabetes, etc.).

51 age- and gender-matched adolescents who arrived at the polyclinic for a variety of reasons (routine check-up, or for counselling on subjects such as adolescence, school, or friendship problems) made up the control group. These patients were determined to have no previous or current psychiatric disease when evaluated with the K-SADS-PL and had no chronic medical disorder (eg., genetic disorders, hypertension, diabetes mellitus, rheumatismal or immunological disease, epilepsy).

After the adolescents who fulfilled the study inclusion criteria had their diagnostic evaluations, details regarding the research were provided. Both written and verbal informed consent was given by the patients' parents and adolescents to participate. The scales and tests were then applied to all the study participants. Evaluations of the patient and control group adolescents were made using the Difficulties in Emotion Regulation Scale (DERS), the Children's Depression Inventory (CDI), the Adolescent Friendship Attachment Scale (AFAS), and the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL).

Thirteen adolescents who did not meet the MDD diagnostic criteria, three who did not wish to participate in the study, nine who were using psychotropic drugs, and eleven who had comorbid diseases were among the eighty-seven adolescents who presented with depressive symptoms between December 2023 and April 2024 and were thus excluded from the research. Thus the study was completed with an MDD group of 51 adolescents.

2.2. Data Collection Tools

2.2.1. Sociodemographic Data Form: This form was prepared by the researchers to elicit demographic information such as age, gender, parental age, and parental education level.

2.2.2. Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL): This semi-structured interview form was developed to examine present and lifetime psychopathologies in children and adolescents aged 6-18 years [18]. It has been discovered that there is 93–100% interobserver agreement for screening scores and diagnosis. The validity and reliability studies of the Turkish version of this form were conducted by Gökler et al. [19].

2.2.3. The Adolescent Friendship Attachment Scale (AFAS): This 5-point Likert-type scale was developed by Wilkinson (2008) and is formed of the subscales of secure attachment, avoidance attachment, and anxious/ambivalent attachment. The Cronbach alpha reliability coefficients have been calculated

to be 0.88 for the total scale, 0.85 for secure attachment, 0.78 for anxious/ambivalent attachment, and 0.75 for avoidance attachment [20]. The adaptation of this form to Turkish was conducted by Ercan [21]. The Cronbach's alpha value for the AFAS in the present study is 0.93.

2.2.4. Children's Depression Inventory (CDI): This 27-item self-report measure is appropriate for use with children between the ages of 6 and 17. The severity of each symptom is taken into account when assigning a score of either 0, 1, or 2. Elevated scores signify an increased level of depression severity. The maximum score is 54. A cutoff value of 19 points is recommended. The validity and reliability studies of the Turkish version of this form were conducted by Oy et al. [22,23]. The Cronbach's alpha value for the CDI in the present study is 0.95.

2.2.5. Difficulties in Emotion Regulation Scale (DERS): This scale was developed by Gratz and Roemer (2004) to measure difficulties in emotion regulation. The scale consists of six subscales of Awareness, Clarity, Acceptance, Impulse Control, Goals, and Strategy. The most important characteristic of this scale is that it evaluates the general difficulty experienced in emotion regulation in addition to the difficulties in emotion regulation in these six different dimensions [24]. Psychometric evaluations of the Turkish version of the scale for adolescents were conducted by Saritaş and Gençöz (2011). Similar to the original scale, the overall difficulty internal consistency coefficient was found to be 0.93 and the test-retest reliability coefficient was 0.83 (p<0.01, n=59) [25]. The Cronbach's alpha value for the DERS in the present study is 0.97.

2.3. Statistical Analysis

SPSS 26.0 (Statistical Package for the Social Sciences) program was used in the statistical analysis of the data obtained in the study. The analysis of the study sample's demographic characteristics was conducted using descriptive statistics. Shapiro-Wilk and Kolmogorov-Smirnov tests were used to determine whether all variables were normal. The data of the MDD group and the control group were compared using the Student's t-test or the Mann Whitney U-test according to the normality distributions. The Spearman correlation test was applied for non-parametric variables and the Pearson correlation test for parametric values in order to determine relationships between the variables. Potential components found by univariate analyses were added to logistic regression analysis to find independent predictors of MDD for multivariate analysis. Results were presented in a 95% confidence interval and a value of p<0.05 was accepted as statistically significant.

3. Results

Evaluation was made of a total of 102 adolescents, as 51 in the MDD patient group and 51 in the healthy control group. No statistically significant difference was determined between the groups in respect of mean age (z = -1.74, p=0.08), gender distribution (x^2= 1.32, p=0.25), maternal age (t = -0.407, p=0.68), paternal age (z = -0.12, p=0.901), and the education level of mothers and fathers (x^2=2.78, p=0.42; x^2=2.31 p=0.51, respectively) (Table 1).

The CDI total points (z = -8.68, p < 0.001), avoidance attachment (z = -6.48, p < 0.001), and anxious/ambivalent attachment (z = -6.79, p < 0.001), DERS subscale points of acceptance (z = -7.56, p < 0.001), goals (z = -8.108, p =< 0.001), impulse control (z = -8.42, p < 0.001), awareness (z = -7.58, p < 0.001), strategy (z = -8.28, p < 0.001), and clarity (z = -8.18, p < 0.001), and DERS total points (z = -8.62, p < 0.001) were determined to be statistically significantly greater in the MDD group than in the healthy control group. The AFAS secure attachment subscale

Table 1. Evaluations of the group's according to age, gender, parental age, and parental level of education.

Variables		**MDD (n=51)**		**Control (n=51)**		***p***
		No	**%**	**No**	**%**	
Adolescent age (years)		14.82±0.19		14.23±0.26		*0.08*
Gender	Female	41	80.4	36	70.6	*0.25*
	Male	10	19.6	15	29.4	
Maternal education level	Primary school	16	31.3	22	43.1	*0.42*
	Middle school	16	31.3	10	19.6	
	High school	6	11.8	6	11.8	
	University	11	21.6	13	25.5	
Paternal education level	Primary school	10	19.6	15	29.4	*0.51*
	Middle school	15	29.4	10	19.6	
	High school	13	25.5	15	29.4	
	University	13	25.5	11	21.6	
Maternal age (years)		40.17±0.74		39.74±0.75		*0.68*
Paternal age (years)		43.78±0.79		43.29±0.74		*0.901*

Table 2. Distributions of the CDI total, AFAS subscales, and DERS subscales and total points of the MDD group and the control group.

Variables		**MDD** (n=51)	**Control** (n=51)	**z**	***p***
CDI Total points		27.19±1.05	5.35±0.507	-8.68	*<0.001****
AFAS	Secure	34.00±1.19	43.29±0.39	-5.87	*<0.001****
	Avoidance	18.19±0.72	11.41±0.41	-6.48	*<0.001****
	Anxious/ambivalent	21.71±0.71	13.64±0.51	-6.79	*<0.001****
DERS	Acceptance	15.61±0.81	7.43±0.29	-7.56	*<0.001****
	Goals	20.71±0.59	10.35±0.39	-8.108	*<0.001****
	Impulse Control	21.82±0.77	8.17±0.36	-8.42	*<0.001****
	Awareness	19.19±0.61	11.03±0.44	-7.58	*<0.001****
	Strategy	28.05±0.99	10.58±0.41	-8.28	*<0.001****
	Clarity	17.49±0.59	8.01±0.34	-8.18	*<0.001****
	Total	122.88± 2.78	55.58±1.89	-8.62	*<0.001****

*Mann Whitney-U test; * p<0.05, **p<0.01, ***p<0.001; MDD: Major Depressive Disorder; CDI: Children's*

points (z = -5.87, $p < 0.001$) were found to be statistically significantly higher in the control group than in the MDD group (Table 2, Figure 1).

To find out if there was any association between the DERS subscales and total points, the AFAS subscale points, and the CDI total points, Spearman correlation analysis was used on the MDD cases. There were determined to be statistically significant positive correlations between the CDI total points and DERS subscale points for goals (r=0.504, $p< 0.001$), impulse

control (r=0.609, $p< 0.001$), awareness (r=0.306, p=0.029), strategy (r=0.462, p=0.001), and clarity (r=0.341, p=0.014) and the DERS total points (r=0.596, $p< 0.001$), and between the AFAS anxious/ambivalent attachment points and the DERS total points (r=0.296, p=0.035). A statistically significant negative correlation was determined between the AFAS secure attachment points and the DERS acceptance subscale points (r=-0.333, p=0.017). There were no correlations

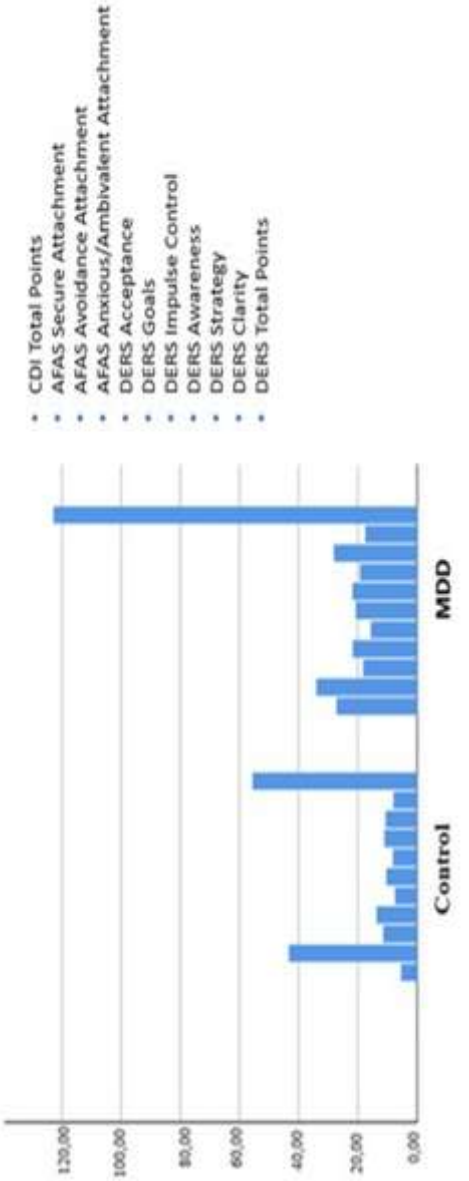

Figure 1. Distributions of the CDI total, AFAS subscales, and DERS subscales and total points of the MDD group and the control group.

Table 3. Distributions of the correlations between the CDI total points, AFAS subscale points, and DERS subscales and total points of the MDD patients.

	CDI		Acceptance		Goals		Impulse Control		Awareness		Strategy		Clarity		Total	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
CDI	1.000	-	0.062	0.666	0.504	< 0.001***	0.609	< 0.001***	0.306	0.029*	0.462	0.001**	0.341	0.014 *	0.59	< 0.001***
AFAS secure attachment	-0.109	0.448	-0.333	0.017*	-0.041	0.774	-0.16	0.235	0.134	0.347	-0.201	0.157	-0.17	0.218	-0.23	0.092
AFAS avoidance attachment	0.011	0.940	0.037	0.798	0.076	0.597	-0.19	0.177	-0.17	0.209	-0.138	0.336	-0.06	0.656	-0.12	0.397
AFAS anxious/ ambivalent attachment	0.038	0.791	0.170	0.233	0.169	0.235	0.266	0.059	-0.11	0.937	0.221	0.118	0.119	0.405	0.29	0.035*

*Spearman's correlation; * p<0.05, **p<0.01, ***p<0.001; CDI: Children's Depression Inventory, MDD: Major Depressive Disorder; AFAS: Adolescent Frienship Attachment Scale; DERS: Difficulties in Emotion Regulation Scale*

between the other factors (Table 3).

Binary logistic regression analysis evaluated the contribution to explaining MDD of age, gender, avoidance attachment, anxious/ambivalent attachment, and DERS total points. The analysis's findings suggested that avoidance attachment style (B=0.582, *p*=0.042) and DERS total points (B=0.282, *p*=0.02) would be important predictors of MDD (Table 4).

Table 4. Logistic Regression analysis results related to age, gender, avoidance attachment, anxious / ambivalent attachment, and DERS total points in the prediction of MDD.

Parameters	Coefficient	Standard error	Wald	p-value	Odds ratio (95% CI)	Cox & Snell R2
						0.726
Age	0.137	0.696	0.039	0.844	1.146 (0.293-4.487)	
Gender	-0.075	2.320	0.001	0.974	0.928 (0.01-87.619)	
DERS total points	0.282	0.121	5.415	0.02*	1.326 (1.045-1.682)	
Avoidance attachment	0.582	0.286	4.131	0.042*	1.789 (1.021-3.135)	
Anxious/ambivalent attachment	0.129	0.243	0.282	0.595	1.138(0.707-1.831)	

** p<0.05, **p<0.01, ***p<0.001*

4. Discussion

The study's findings showed that difficulties in emotion regulation, avoidance attachment, and anxious/ambivalent attachment styles were present at higher rates in the adolescents diagnosed with MDD than in the healthy control group. These outcomes support the conclusions of earlier research that have established correlations between MDD and attachment styles and difficulties in emotion regulation [7,16].

Some previous studies have suggested that there is a relationship between difficulties in emotion regulation in adolescence and the development of MDD, similar to the results of the current study [7,8]. Following the regression analysis in this study, it was also determined that difficulties in emotion regulation could predict MDD at a significant level. These findings indicate that one possible risk factor for MDD is difficulty regulating emotions. The existence of issues with regulating emotions was linked to depressed symptoms in a 2019 longitudinally study including 246 adolescents [26]. In another more recent study, it was shown that the strategies of emotion regulation were more inappropriate in adolescent girls with MDD than in the healthy group [27]. Moreover, the current study results showed that when depression severity increased in adolescents diagnosed with MDD, there was also an increase in difficulties in emotion regulation. It has been reported that difficulties in negative emotion regulation and the ability to cope with negative emotions could cause the development of depressive disorder [3]. Similarly, it is thought that the lack of sufficient ability to regulate emotions in stressful, difficult situations could be associated with the development of depressive disorder [3,28].

Adolescence is known to be a period when there can be extremely difficult and stressful

situations such as removal of parental support, increasing importance of friends and romantic relationships, and increasing academic expectations, and it has been identified as a period when there are important changes in the ability of an individual to regulate emotions [8]. In adolescence, which can be defined as a physically and socially difficult development period, young people may not effectively use emotion regulation strategies such as understanding, awareness, and using goal-oriented behaviors [26]. Adolescence is also defined as a period in which the frequency of depressive disorders is increased together with more risky behaviors and increased emotional responses. It has been suggested that difficulties in emotion regulation may have an effect on the development and continuation of depressive disorder in adolescence [7,8]. In the light of this information, the results of the current study suggest that the development of effective interventions for emotion regulation strategies in adolescence and even in childhood could be effective and important in being able to prevent increases in MDD in adolescence.

The current study results showed that the avoidance attachment and anxious/ambivalent attachment styles were seen at significantly higher rates in the MDD group adolescents than in the healthy control group, and the secure attachment style was determined more in the healthy control group than in the MDD patient group. Additional research in the literature suggests that attachment styles may be connected to depression [15,29]. Anxious attachment and avoidance attachment styles were found to be statistically considerably greater in depressed adolescents in a recent research of adolescents [17]. Following the regression analysis in the current study, it was determined that avoidance attachment style could predict MDD at a significant level. In avoidance attachment style, the person avoids intimacy and close relationships, and tends to suppress attachment-related thoughts and feelings [30]. When the need to avoid attachment is felt, this may reflect negative beliefs and expectations related to others being ready and willing to help or provide care. These negative beliefs and expectations have been associated with the development of depressive symptoms in an individual [31,32] . However, while anxious attachment has been consistently associated with depressive disorder in literature, the results of an association between avoidance attachment and depressive disorder have been reported to be inconsistent [32]. The current study results suggest that avoidance attachment style could be a risk factor for MDD. When the inconsistent results in literature are taken into consideration, the current study results show a need for more comprehensive studies related to the effects of attachment styles on depressive disorder in adolescents.

The results of the current study showed a significant positive relationship between the AFAS anxious/ambivalent attachment subscale points and the DERS total points, and a significant negative relationship between the AFAS secure attachment subscale points and the DERS acceptance subscale points. According to attachment theory, the ability to effectively regulate emotions can be developed in the context of healthy relationships [10]. Although the attachment figure in the early developmental period is the parent or primary caregiver, attachment figures in adolescence can be extended to include peers and romantic partners [33]. It has been suggested that what is experienced with attachment figures could have an effect on the development of skills to cope with negative emotions that can emerge in stressful situations, and attachment style could be important in regulating emotion regulation strategies [10,11,34,35]. A meta-analysis

conducted in 2019 reported that children with secure attachment style were able to better regulate their emotions and those with avoidance and anxious attachment style had more difficulties in emotion regulation [36]. In a recent study, there was found to be a negative correlation between difficulties in emotion regulation and secure attachment in university students, and a positive correlation with insecure attachment styles [37]. In line with this knowledge, the findings of the present investigation showed that difficulty in emotion regulation increased when an adolescent had an anxious/ambivalent attachment style, and the greater the secure attachment style, the greater the acceptance of negative emotions. This suggests that insecure attachment may be related to emotion regulation difficulties.

As far as we know, there is no existing research in the literature that has compared the DERS and AFAS subscale points of adolescents with MDD who were assessed using the K-SADS-PL by a child and adolescent psychiatrist with those of a control group. Although the results of this study support the information in literature, there seems to be a need for further studies to provide a better understanding of the potential effects and interactions of attachment styles and difficulties in emotion regulation in adolescents with and without MDD.

Limitations of this study were primarily the cross-sectional design and relatively small sample size. Therefore it can be recommended that this study is repeated with larger samples. Another limitation can be said to be that self-reported scales were used to measure attachment styles and difficulties in emotion regulation. Furthermore, adolescents' mental capacities can be evaluated with objective intelligence tests. Strong components of the study include, however, the fact that a child and adolescent psychiatrist reviewed both the MDD and healthy groups that the K-SADS-PL was administered to both groups, and that patients with comorbidities and those on psychiatric medication were eliminated.

4.1. Conclusions

The results of this study demonstrated that the avoidance attachment, anxious/ambivalent attachment, and difficulty in emotion regulation scores were higher in adolescents diagnosed with MDD than in healthy control subjects, and secure attachment was seen at a higher rate in the control group than in the MDD group. Statistically significant positive correlations were determined between the CDI total points and the DERS subscales of goals, impulse control, awareness, strategy, clarity, and DERS total points, and between AFAS anxious/ambivalent attachment and the DERS total points. A statistically significant negative correlation was determined between AFAS secure attachment style and the DERS acceptance subscale points. The study results also showed that avoidance attachment style and difficulty in emotion regulation could be risk factors for MDD. When the relationships between MDD, difficulties in emotion regulation, and attachment styles are taken into consideration, future studies in the scope of this relationship could provide important targets for the awareness, treatment, and prevention of depressive disorder that can develop in adolescence.

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