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# The Mediating Role of Early Maladaptive Schemas in the Relationship Between Mental Toughness and Perceived Parental Attitudes in Athletes

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## What is already known on this topic?

- It is known that perceived parental attitudes in childhood can have an impact on an individual's mental toughness.
- Early maladaptive schemas that are formed through influences from perceived parental attitudes in childhood, relate to an individual's ability to cope with stress and difficult situations, and are important for understanding the cognitive infrastructure of mental toughness.
- However, the multifaceted relationships between parental attitudes, schemas, and mental toughness, as well as the possible mediation mechanisms in these relationships, have not yet been sufficiently clarified.

## What does this study add on this topic?

- In this study, it was found that parental attitudes characterized by emotional warmth were negatively and significantly related to failure and vulnerability schemas, while this parental attitude was positively and significantly related to unrelenting standards and punitiveness schemas.

## Abstract

The aim of this study is to investigate the relationship between perceived parental attitudes, early maladaptive schemas, and athletes' mental toughness from a Schema Therapy perspective. The sample of the study consists of a total of 325 athletes licensed for at least two years, including 153 female and 172 males, aged between 18 and 30, engaged in individual or team sports. It is benefited from the demographic information form, "Young Schema Questionnaire—Short Form 3," "Short-form Egna Minnen Barndoms Uppfostran—Child Form (S-EMBU-C)," and "Sports Mental Toughness Questionnaire" for collecting the data. The results of the mediation analysis showed that the schemas of failure ( $R^2=0.25, p < .001$ ), and vulnerability to harm/illness ( $R^2=0.109, p < .001$ ) partially mediate the relationship between perceived parental rejection and mental toughness. When the Sobel test was examined, it was found that the vulnerability schema shows a full mediation effect in the relationship between perceived parental overprotection and mental toughness ( $z = -3.52, p < .001$ ) and failure schema has a partial mediation effect in the relationship between perceived parental emotional warmth and mental toughness ( $z = 3.84, p < .001$ ). In this respect, it can be expressed that perceived parental attitudes has an effect on the mental toughness of athletes through failure and vulnerability schemas.

**Keywords:** Athletes, early maladaptive schemas, mental toughness, parental attitudes, schema therapy, sports

## Sporcularda Zihinsel Dayanıklılık İle Algılanan Ebeveyn Tutumları Arasındaki İlişkide Erken Dönem Uyum Bozucu Şemaların Aracı Rolü

### Öz

Bu çalışmanın amacı, algılanan ebeveyn tutumları, erken dönem uyum bozucu şemalar ve sporcuların zihinsel dayanıklılığı arasındaki ilişkiyi şema terapi modelinden analiz etmektir. Çalışmanın örneklemini en az 2 yıllık lisanslı spor deneyimi olan, 18–30 yaş aralığında, bireysel veya takım sporlarıyla uğraşan 153'ü kadın ve 172'si erkek olmak üzere toplam 325 sporcu oluşturmaktadır. Verilerin toplanması için demografik bilgi formu, "Young Şema Ölçeği - Kısa Form 3," "Kısaltılmış Algılanan Ebeveyn Tutumları Ölçeği-Çocuk Formu" ve "Sporda Zihinsel Dayanıklılık Envanteri" nden yararlanılmıştır. Aracılık analizi sonuçları, başarısızlık ( $R^2 = .25, p < .001$ ) ve dayanıksızlık şemalarının ( $R^2 = .109, p < .001$ ) algılanan ebeveyn reddi ile zihinsel dayanıklılık arasındaki ilişkiye kısmen aracılık ettiğini göstermiştir. Sobel testi incelendiğinde ise dayanıksızlık şemasının algılanan ebeveyn aşırı korumacılığı ile sporcuların zihinsel dayanıklılığı arasındaki ilişkide tam aracılık etkisi ( $z = -3.52, p < .001$ ), başarısızlık şemasının ise algılanan ebeveyn duygusal yakınlığı ile zihinsel dayanıklılık arasındaki ilişkide kısmi aracılık etkisi ( $z = 3.84, p < .001$ ) gösterdiği görülmüştür. Bu bağlamda algılanan ebeveyn tutumlarının başarısızlık ve dayanıksızlık şemalarının aracı etkisiyle sporcuların zihinsel dayanıklılığı üzerinde etkili olduğu ifade edilebilir.

**Anahtar Kelimeler:** Erken dönem uyum bozucu şemalar, Anne-baba tutumları, Spor, Sporcu, Şema terapi, Zihinsel dayanıklılık

- While perceived parental rejection was found to have a positive and significant relationship with failure and vulnerability schemas in the individual, a positive and significant relationship was found between approval-seeking, punitiveness, and vulnerability schemas of overprotective parental attitudes. In addition, it was found that failure, approval-seeking, and vulnerability schemas had a negative and significant relationship with mental toughness.
- In addition, this study, for the first time, demonstrated the partial or full mediation role of early maladaptive schemas in the relationship between parental attitudes and mental toughness, specifically in terms of failure and vulnerability schemas, and made an original contribution to the literature by shedding light on these mechanisms.

## Introduction

Sport which integrates people, originates from the Latin words “disportere” or “deportere” which means to separate and disperse as a word (Lalehan et al., 2023). Aracı (1999) defines sports as the development of a person’s physical and mental health, their struggle, racing, and victory within the scope of competition according to clear and certain rules, increasing the power that comes from success and the high effort they put forth to reach optimal performance for herself/himself.

The concept of mental toughness is of great importance for those who participate in sports, especially at an elite level. At this level, one element that puts an athlete ahead and makes her/him different from others is how she/he manages the process mentally in view of her/his mental abilities (Silva, 1984). The first person to mention the concept of mental toughness was sports psychologist James Loehr. He stated that he found this concept important in order to maintain the ideal performance level continuously during the race (Loehr, 1982; Mack & Ragan, 2008). There have been many different definitions of mental toughness over time. According to Tutko and Richards (1971, p. 49), mental toughness is the skill of an athlete to avoid being upset and to withstand harsh criticism when she/he perform poorly or lose, while Goldberg (1998, p. 219) and Teitelbaum (1998, p. 2), it is a psychic skill that allows the athlete to recover again and again after defeats and failures, to stand tall in the face of adversities, and to help the person progress steadily for certain victories she/he have decided to achieve, no matter what life brings. According to Jones, Hanton and Connaughton (2002), mental toughness in sport is explained by the athlete’s ability to manage difficulties better than competitors, to have higher determination, consistency and self-confidence, to concentrate on the goal and to maintain control under pressure. In addition, mental toughness becomes more and more important in environments that carry the possibility of experiencing difficulties and negativities and require taking action; individuals with higher mental toughness are those who—as previously emphasized—take more responsibility for the events that occur in their own lives, pay attention to things they can control and do, and can maintain their calmness in the face of sudden situations and accordingly develop reactions (Gucciardi et al., 2009).

According to Richardson and his colleagues (1990), some individuals and living conditions make it easier for a person to cope with challenging events, while others make it more difficult. Depending on the quality of an attitude, parental attitudes toward the child can be an important facilitator or hinderer. To give an example, parent who has an overprotective attitude makes it more difficult for the child to cope by preventing the child from taking responsibility for a bad decision and taking on the consequences herself/himself. On the other hand, parents who are there for their children when they need them, who show that they value their children’s efforts and experiences, and who provide emotional closeness to them, can be thought to be exhibiting an attitude that facilitates coping by providing important social support (Galli & Vealey, 2008). Looking at another study, showing more love and attention within the family, which can be evaluated within the scope of emotional warmth, is a factor that supports the strengthening of mental toughness, while more conflicts in the family and harsh maternal discipline are seen as a barrier to the strengthening of mental toughness (Fan et al., 2018). This finding was supported by the finding in another study that receiving more love and affection from parents is associated with stronger mental toughness (Vega-Díaz & González-García, 2024). In addition, Qi et al. (2023) revealed the effect of parents and their parents’ strong mental toughness on youths’ strong mental toughness. In another study, authoritative parenting style, which can be thought as supportive parenting style where love and boundaries are balanced, was found to be associated with strong mental toughness in children, while permissive parenting style, which includes attitudes such as difficulty in setting boundaries and generally saying yes to the child’s requests, was found to be associated with weak mental toughness (Yousefi & Dehaghani, 2018). In the light of the above information, it is thought that parental attitudes have a very important role in mental toughness. One of the study’s aims is to examine this role.

Another importance of parental attitudes in childhood comes from its relationship with the “early maladaptive schemas” that can be formed in the child. When psychological theories are examined, it is seen that childhood is quite effective on the problems experienced in adulthood (Young et al., 2003; Klein, 1959; Cervone & Pervin, 2018). The Schema Therapy model addresses the development process of personality with both temperamental factors and environmental factors. These environmental factors contain how the person’s basic emotional needs were met in the experiences in especially early childhood. Schema Therapy model defines these basic needs as “secure attachment to others (including security, stability, nurturing, and acceptance),” “freedom to express needs and emotions,” “spontaneity and play,” “realistic limits and self-control,” and “sense of autonomy, competence, and

identity" (Young et al., 2003). According to this model, these needs are universal and it is a right to be met for every child. In addition, the most important role in meeting these needs is took part by parents through the relationships they establish with their children. Depending on the nature of this relationship and the needs seen and met in this relationship, and how much and how these needs are met, some early maladaptive schemas can be formed on children and these schemas will now affect how they evaluate the events and moments which they experience and witness throughout their life, how they feel in the face of these and how they react to them by choosing which behaviors, and their choices. Therefore, depending on both the influence of their temperament and how and to what extent their basic emotional needs are met by their parents and significant other people for them, they will continue their lives with some early maladaptive schemas (Young et al., 2003). In particular, certain parenting styles play a role in the formation of early maladaptive schemas (McCarthy & Lumley, 2012). To give an example, the parents who exhibit a neglectful attitude—considering that they might also be neglectful in meeting the child's basic emotional needs—might play a significant role in the formation of early maladaptive schemas in the child (Young et al., 2003). The findings of another study showed that there is a positive relationship between negative parenting and the formation of early maladaptive schemas, while there is a negative relationship between positive parenting style and early maladaptive schemas (Maçik, 2021). Another study showed that the attitudes of both parents are related to the emergence of early maladaptive schemas. Accordingly, loving and rejecting attitudes are the attitudes most associated with these schemas (Talarowska & Juraś-Darowny, 2024). In this respect, it can be stated that the parental attitudes toward their children is of critical importance in terms of the early maladaptive schemas their children will have.

Another important aim of the study is to examine the relationship between early maladaptive schemas and mental toughness. However, studies on the relationship between mental toughness and early maladaptive schemas are very limited and studies done on this context is generally about that the relationship between psychological resilience and early maladaptive schemas—which can also provide insight on this subject. A study done found that there was a significant and negative relationship between resilience and the schemas of emotional deprivation, social isolation, mistrust/abuse, defectiveness/shame, emotional inhibition, enmeshment/undeveloped self, abandonment, vulnerability to harm/illness, failure, negativity/pessimism, entitlement/grandiosity, insufficient self-control, self-sacrifice, punitiveness, approval/recognition-seeking, except for the unrelenting standards schema (Faraji et al., 2022). Another study revealed that early maladaptive schemas predict individuals'

resilience (Gorji & Salehi, 2020). Other study showed that early maladaptive schemas were an important predictor of resilience, emotional dysregulation, and coping (McDonnell et al., 2018). As a result, the structures that Young and his colleagues (2003) explained as early maladaptive schemas actually lead to rigid mental working models in life—which also stand against mental toughness—and the nature and quality of parenting play a significant role on these. Therefore, this study also aims to address the mediator role of early maladaptive schemas in the relationship between parental attitudes and mental toughness in athletes.

## Material and Methods

### Subjects

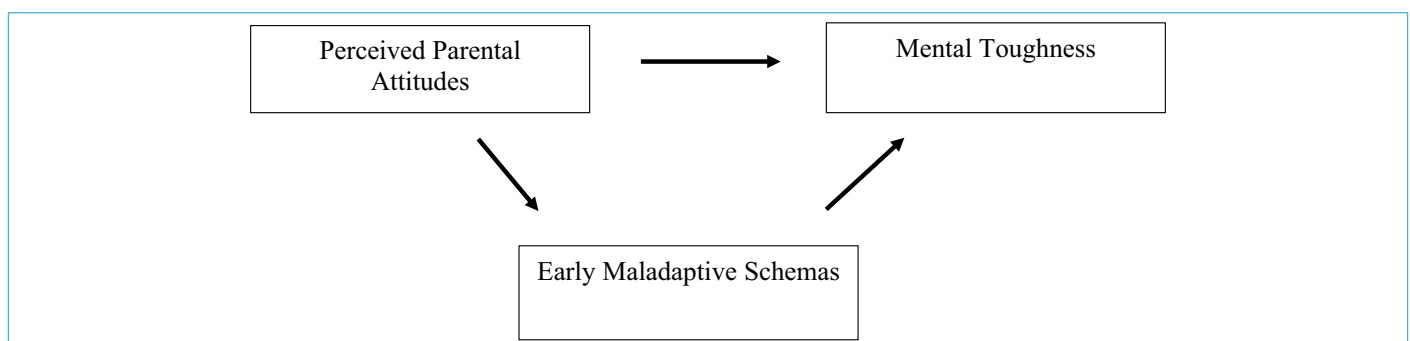
Athletes from various provinces in Türkiye, between the ages of 18–30, with at least two years of licensed sports experience, and from 28 different branches of sports including individual and team sports participated in the study. The participants of the study were reached by using the convenience sampling method, which is a non-probability sampling method. In the sample of 325 athletes who met the inclusion criteria for participating to the study, 153 (47.1%) of the participants were female and 172 (52.9%) were male. While 203 (62.5%) of these athletes were engaged in team sports, 122 (37.5%) were engaged in individual sports. The average age of the athletes included in the analysis ( $n=325$ ) was  $19.846 \pm 2.259$ . The participants included team athletes who performed in regional leagues and world championships, as well as individual athletes who competed in regional and Olympic games. The average length of licensed sports experience of the athletes was found to be  $8.262 \pm 3.58$  years.

### Design and Procedure

In the study where quantitative data was collected, a questionnaire consisting of self-report scales was designed to evaluate variables within the scope of the aim. Participation was based on voluntariness. In this study, which was conducted using the correlational survey design, the mediating effect of early maladaptive schemas on the relationship between perceived parental attitudes and mental toughness was investigated. The examined mediation model is presented in the figure below (Figure 1).

### Materials

"The demographic information form," "Young Schema Questionnaire—Short Form 3" (YSQ-SF3; Young & Brown, 2005), "Short-form Egnä Minnen Barndoms Uppfostran—Child Form (S-EMBU-C)" (Arrindel et al., 1999), and "Sports Mental Toughness Questionnaire" (Sheard et al., 2009) respectively were applied to the participants.



**Figure 1.**  
The Examined Mediation Model in the Study.

### **Demographic Information Form**

This personal information form was prepared by the researchers to obtain some information that will facilitate the examination of the hypotheses of the study. It includes information about the gender, age, education level of the participants, the age of their mothers and fathers, which branch of sports they engaged in, and how many years they have been licensed athletes.

### **Young Schema Questionnaire—Short Form 3**

The Young Schema Questionnaire—Short Form 3 was developed by Young (2005). The scale includes a total of 18 early maladaptive schemas, thus 18 schema dimensions, addressed within the scope of five schema domains. The five schema domains are as follows: Disconnection and Rejection, Impaired Autonomy and Performance, Impaired Limits, Other-Directedness, and Overvigilance and Inhibition. This scale is a shortened companion, 90-item version of the third edition Young Schema Questionnaire-Long Form, consisting of 232 items. It is scored with a 6-point Likert scale (1: Entirely untrue of me, 6: Describes me perfectly). This scale was adapted to Turkish by Soygüt, Karaosmanoğlu, and Çakır (2009). According to the test-retest reliability analyses conducted for this scale, Pearson correlation coefficients for subscales were found to be between 0.66 and 0.82, and for schema domains were found to be between 0.66 and 0.83. According to the results of the analysis regarding internal consistency, Cronbach alpha values were found to be between 0.63 and 0.80 for subscales and between 0.53 and 0.81 for schema domains (Soygüt et al., 2009). Considering the disadvantages of administering the entire scale in terms of factors such as participant fatigue and distraction, and also in order to focus on specific schemas that are predicted to affect the mental toughness of athletes, instead of all sub-dimensions of the Young Schema Questionnaire, seven specific schemas that have the potential to lead to higher functional difficulties in sports were selected for this study in line with literature and field experience: failure, approval-seeking, entitlement/insufficient self-control, punitiveness, vulnerability to harm or illness, and unrelenting standards. The reasons for selecting these schemas are as follows: Beliefs about failure are related to individuals' self-efficacy perception and the effort they put in to achieve high performance (Su et al., 2021; Schunk, 1989). The approval-seeking schema, which is dominated by extrinsic motivation, and the unrelenting standards schema, which can be characterized by perfectionism on the one hand, are frequently observed schemas, especially in young age group athletes, and it has also been observed that they negatively affect athletes, especially after failure experiences (Sagar & Stoeber, 2009). Entitlement and insufficient self-control schemas are associated with violations of rules in sports, egocentric attitudes, conflicts, impulsive behaviors such as aggressive behavior, and illegal performance-enhancing behaviors such as doping use (Chan et al., 2015; Chen et al., 2019; Gailliot et al., 2012). It has been found that the punitiveness schema has a strong and negative relationship with resilience (Faraji et al., 2022). Lastly, according to a study conducted on male athletes, the vulnerability schema was found to be effective in the winning or losing status of athletes (Reyhan et al., 2020).

While the internal consistency value for the Failure subscale was 0.80, the Pearson correlation coefficient for test-retest was 0.70. These two values were 0.74 and 0.72 for the Approval-Seeking schema, 0.72 and 0.66 for Entitlement/Insufficient Self-Control, 0.71 and 0.67 for Punitiveness, 0.63 and 0.68 for Vulnerability to Harm or Illness, and 0.70 and 0.76 for Unrelenting Standards, respectively.

### **“Short-form Egna Minnen Barndoms Uppfostran—Child Form (S-EMBU-C)”**

This retrospective self-report scale was formed by Arrindell and colleagues in 1999 in order to understand how adults perceive their parents' attitudes during childhood. This scale is a 23-item short form of the 81-item scale developed by Perris, Jacobsson, Lindström, von Knorring, and Perris in 1980. The scale consists of three factors: rejection, overprotection, and emotional warmth. Adapted to Turkish by Dirik, Yorulmaz, and Karancı in 2015, this scale is a 4-point Likert-type (1: No, never; 4: Yes, most of the time) self-report scale. When Cronbach's alpha values were examined to understand the internal consistency of the subscales of this scale, internal consistency values for father emotional warmth, overprotection and rejection are as follows: 0.79, 0.73, 0.71. These values for mother emotional warmth, overprotection and rejection are as follows: 0.75, 0.72, 0.64.

This scale addresses three different parental attitudes in child rearing. The first of these is emotional warmth, which refers to the love and support that children receive from their parents. The second is rejection, which refers to the hostile, harsh, critical, degrading and punitive attitudes displayed by the parent toward the child. The third is overprotection, which includes parents exhibiting high levels of intrusive, controlling behaviors, imposing strict regulations on the child and monitoring him/her (Deković et al., 2006). The analysis of the study was done by taking the average of these three separate dimensions separately for achieving a score for parental attitudes from maternal and paternal attitudes. In this respect, this variable was examined in three separate dimensions as perceived parental overprotection, perceived parental rejection and perceived parental emotional warmth.

### **Sports Mental Toughness Questionnaire**

This scale, developed by Sheard and his colleagues in 2009, contains 14 items. It includes three sub-dimensions (Confidence, Control and Constancy) and is scored with a 4-point Likert type (1: not at all true; 4: very true). In the study conducted for the original version of the scale, the Cronbach Alpha values determined for the confidence, constancy and control sub-dimensions are as follows: 0.81, 0.74, 0.71 (Sheard et al., 2009). The adaptation of this scale to Turkish was carried out by Altıntaş and Bayar-Koruç (2016). For the Turkish adaptation, the Cronbach Alpha values of the scale for the confidence, constancy and control sub-dimensions are as follows: 0.84, 0.51, 0.79.

### **Data Collection**

Ethical committee approval was received from the Institute of Health Sciences' Ethics Committee for the scientific and ethical compliance of Marmara University (Approval no: 12, Date: 21.02.2024). After this, the necessary permissions for the scales to be used within the scope of the study were obtained from the researchers who adapted the scales into Turkish. In order to collect data from athletes studying at universities, the data collection process began after the necessary permissions were obtained from universities. When starting to collect data, firstly the athletes read the Informed Consent Form and approved that they accepted voluntarily participation in the study, then they filled out the other scales required for the study. Although the data of the study was mostly collected in a face-to-face way, some athletes were also reached online via “Google Forms” to obtain data from participants for whom this opportunity could not be found.

### **Results**

The data collected within the scope of the research was analyzed using SPSS 30.0 (IBM SPSS Corp.; Armonk, NY, USA). The data were first

investigated from the point of missing and outlier values, z-scores, Cook distance and Mahalanobis distance. In order to understand whether the data meet the necessary assumptions for parametric tests, reliability of the scales, normality, homogeneity, and linearity analyses were performed. Since all skewness and kurtosis values are between  $\pm 2$ , it can be stated that the data is normally distributed (Tabachnick & Fidell, 2007). After that, parametric tests were used for statistical analyzes. First, the sample's demographic characteristics were analyzed, then Pearson product-moment correlation coefficient analysis was performed to understand the strength and direction of the relationships between the variables considered in this study. After that, mediation analyses were conducted using the PROCESS developed by Hayes (2018). In this study, there is an independent variable which is "perceived parental attitudes in childhood," a dependent variable which is "mental toughness," and a mediator variable that is "early maladaptive schemas."

**Bivariate Correlations**

The values of Pearson's Correlation Coefficient for the relationship between all variables in this study is given in Table 1.

**Mediation Analyses**

The mediation analysis indicated that perceived parental rejection is a significantly predictor of failure schema ( $R^2=0.041$ ,  $F(1.323)=13.79$ ,  $p < .001$ ), showing that 4.1% of the variance in failure schema is explained by perceived parental rejection. The combined regression model, which approaches both perceived parental rejection and failure schema as predictors and predicts mental toughness, showed that predictors explain 25.25% of the variance in mental toughness ( $R^2=0.2525$ ,  $F(2.322)=54.38$ ,  $p < .001$ ). When examined the coefficients table, it was seen that both perceived parental rejection ( $B = -1.21$ ,  $SH=0.396$ ,  $\beta=-0.150$ ,  $t(322)=-3.06$ ,  $p = .002$ ) and failure schema ( $B = -0.232$ ,  $SH=0.0253$ ,  $\beta=-0.45$ ,  $t(322)=-9.143$ ,  $p < .001$ ) had a negative and significant effect on mental toughness. Lastly, the Sobel test indicated partial mediation ( $z = -3.44$ ,  $p < .001$ ), showing that failure schema partially mediates the relationship between perceived parental rejection and mental toughness.

The other mediation analysis showed that perceived parental rejection is a significantly predictor of vulnerability to harm/illness schema ( $R^2=0.082$ ,  $F(1.323)=28.85$ ,  $p < .001$ ), indicating that 8.2% of the variance in vulnerability schema is explained by perceived parental rejection. The combined regression model, which examined both perceived parental rejection and vulnerability schema as predictors and predicts mental toughness, showed that predictors explain 10.9% of the variance in mental toughness ( $R^2=0.109$ ,  $F(2.322)=19.609$ ,  $p < .001$ ). When looking at the coefficients table, it was seen that both perceived parental rejection ( $B = -1.408$ ,  $SH=0.442$ ,  $\beta=-0.174$ ,  $t(322)=-3.18$ ,  $p = .001$ ) and vulnerability schema ( $B = -0.089$ ,  $SH=0.0210$ ,  $\beta=-0.233$ ,  $t(322)=-4.256$ ,  $p < .001$ ) had a negative and significant effect on mental toughness. Lastly, the Sobel test done indicated partial mediation ( $z = -3.33$ ,  $p < .001$ ), showing that vulnerability schema partially mediates the relationship between perceived parental rejection and mental toughness. Regression table for these two mediation analyses is presented in Table 2.

The other one indicated that perceived parental emotional warmth is a significantly predictor of failure schema ( $R^2=0.0534$ ,  $F(1.323)=18.23$ ,  $p < .001$ ), showing that 5.34% of the variance in failure schema is explained by perceived parental emotional warmth.

**Table 1.**  
Pearson Product Moment Correlations Among the Variables

Subscales	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. S-KAET-C: Parental emotional warmth	1												
2. S-KAET-C: Parental rejection	-0.352**	1											
3. S-KAET-C: Parental overprotection	0.022	0.487**	1										
4. YSQ: Failure	-0.231**	0.202**	0.107	1									
5. YSQ: Unrelenting Standards	0.114*	0.044	0.066	0.084	1								
6. YSQ: Entitlement/Insufficient Self-Control	0.094	0.069	0.062	0.051	0.314**	1							
7. YSQ: Approval-Seeking	0.072	0.028	0.156**	0.153**	0.218**	0.286**	1						
8. YSQ: Punitiveness	0.133*	0.006	0.228**	0.085	0.221**	0.180**	0.355**	1					
9. YSQ: Vulnerability to Harm or Illness	-0.117*	0.286**	0.284**	0.384**	0.156**	0.222**	0.386**	0.330**	1				
10. SMTQ-Total	0.311**	-0.242**	-0.155**	-480**	0.016	0.037	-0.158**	0.018	-0.284**	1			
11. SMTQ-Confidence	0.334**	-0.127**	-0.024	-411**	0.157**	0.147**	0.022	0.096	-0.112*	0.821**	1		
12. SMTQ-Constancy	0.256**	-0.172**	-0.079	-0.396**	0.040	-0.018	-0.111*	0.145**	-0.132*	0.750**	0.524**	1	
13. SMTQ-Control	0.093	-0.247**	-0.252**	-0.264**	-0.178**	-0.069**	-0.283**	-0.194**	-0.394**	0.654**	0.243**	0.216**	1

\*  $p < .05$ .  
\*\*  $p < .01$ .

**Table 2.**  
 Regression Table for the Mediation Analyses Where Parental Rejection is Treated as Independent Variable

Mediator	Effect of IV on Mediator (a)	Unique Effect of Mediator (b)	Indirect Effect (ab)	BC 95% CI	
				Lower	Upper
Failure Schema	3.16 (0.85)**	-0.23 (0.02)**	-0.73 (0.21)	-1.17	-0.339
Vulnerability Schema	6.03 (1.1)**	-0.089 (0.02)**	-0.539 (0.15)	-0.89	-0.268

Notes. \*  $p < .01$ , \*\*  $p < .001$ .

The combined regression model, which examined both perceived parental emotional warmth and failure schema as predictors and predicts mental toughness, showed that predictors explain 27.28% of the variance in mental toughness ( $R^2 = 0.2728$ ,  $F(2,322) = 60.41$ ,  $p < .001$ ). When the coefficients table examined, although it was seen that perceived parental emotional warmth had a positive and significant effect on mental toughness ( $B = 0.127$ ,  $SH = 0.029$ ,  $\beta = 0.211$ ,  $t(322) = 4.317$ ,  $p < .001$ ) and failure schema had a negative and significant effect on mental toughness ( $B = -0.222$ ,  $SH = 0.0252$ ,  $\beta = -0.431$ ,  $t(322) = -8.837$ ,  $p < .001$ ). Lastly, the Sobel test done indicated partial mediation ( $z = 3.84$ ,  $p < .001$ ), showing that failure schema partially mediates the relationship between perceived parental emotional warmth and mental toughness. Regression table for this analysis is presented in Table 3.

Last one showed that perceived parental overprotection is a significantly predictor of vulnerability to harm/illness schema ( $R^2 = 0.0806$ ,  $F(1,323) = 28.302$ ,  $p < .001$ ), indicating that 8.06% of the variance in vulnerability schema is explained by perceived parental overprotection. The combined regression model, which examines both perceived parental overprotection and vulnerability schema as predictors and predicts mental toughness, showed that predictors explain 8.66% of the variance in mental toughness ( $R^2 = 0.0866$ ,  $F(2,322) = 15.26$ ,  $p < .001$ ). When examined the coefficients table, although it was seen that both perceived parental overprotection had a negative but insignificant effect on mental toughness ( $B = -0.059$ ,  $SH = 0.0409$ ,  $\beta = -0.081$ ,  $t(322) = -1.458$ ,  $p = .145$ ), vulnerability schema had a negative and significant effect on mental toughness ( $B = -0.099$ ,  $SH = 0.0212$ ,  $\beta = -0.260$ ,  $t(322) = -4.695$ ,  $p < .001$ ). Lastly, the Sobel test indicated partial mediation ( $z = -3.52$ ,  $p < .001$ ), showing that vulnerability schema fully mediates the relationship between perceived parental overprotection and mental toughness. Regression table for this mediation analysis is given in Table 4.

## Discussion

This study aims to examine the relationship between athletes' mental toughness levels, perceived parental attitudes and early maladaptive schemas, and to analyze the mediating effect of early maladaptive schemas in the relationship between perceived parental attitudes in childhood and mental toughness.

One of the significant findings is that perceived parental emotional warmth has a negative and significant relationship with schemas of failure and vulnerability to harm/illness. As the researchers of the study, the other one, which surprised us and for which can not be found any study supporting the finding in the literature, was that there was a significant and positive relationship between perceived parental emotional warmth and unrelenting standards and punitiveness schemas. The other ones reached in this study that while perceived parental rejection was found to be positively and significantly related to failure and vulnerability schemas, perceived parental overprotection was found to have a positive and significant relationship with approval seeking, punitiveness, and vulnerability schemas. Reviewing the literature, it is seen that the studies generally support the findings. A study on early maladaptive schemas and parenting styles showed a positive relationship between authoritarian parenting, which is characterized by high levels of control and discipline and low levels of care and emotional warmth, and schemas (Batool et al., 2017). Another study showed that a maternal attitude which is characterized by more control was a predictor of the impaired limits schema domain for young women, while a maternal attitude that can be described with lower nurturance could be a predictor of the disconnection and rejection schema domain for young men (Pellerone et al., 2017). In another study that assessed perceived parental attitudes with the long form of the scale used in this study, it was stated that perceived parental attitude explained a large extent of the variance in individuals' early maladaptive schema scores (between 5.9%

**Table 3.**  
 Regression Table for the Mediation Analyses Where Parental Emotional Warmth Is Treated as Independent Variable

Mediator	Effect of IV on Mediator (a)	Unique Effect of Mediator (b)	Indirect Effect (ab)	BC 95% CI	
				Lower	Upper
Failure Schema	-0.269 (0.06)**	-0.22 (0.02)**	0.06 (0.01)	0.0330	0.0916

Notes. \*  $p < .01$ , \*\*  $p < .001$ .

**Table 4.**  
 Regression Table for the Mediation Analyses Where Parental Overprotection is Treated as Independent Variable

Mediator	Effect of IV on Mediator (a)	Unique Effect of Mediator (b)	Indirect Effect (ab)	BC 95% CI	
				Lower	Upper
Vulnerability Schema	0.547 (0.10)**	-0.099 (0.02)**	-0.05 (0.01)	-0.093	-0.025

Notes. \*  $p < .01$ , \*\*  $p < .001$ .

and 27.1%) According to the results of this study which are generally consistent with the findings in this study, perceived parental emotional warmth had a negative and significant relationship with failure schema, while perceived parental rejection had a positive and significant relationship with failure schema and entitlement/insufficient self-control schemas. In addition, in this study, researchers reversed the emotional warmth scores and added the scores of these three separate dimensions (i.e., emotional warmth, rejection and overprotection) and examined the relationship between this total score and the schemas. Accordingly, the total score in perceived parental attitudes was found to have a positive and significant relationship with failure, vulnerability, entitlement/insufficient self-control, and unrelenting standards schemas. (Muris, 2006). Another study showed that the schema dimensions which are disconnection and rejection, autonomy and performance, other-directedness, vigilance and overinhibition were positively and significantly correlated with maternal and paternal rejection, the impaired limits dimension was positively and significantly correlated with paternal rejection, and there was a negative and significant correlation between maternal emotional warmth and the other-directedness and overvigilance and overinhibition sub-dimensions (Thimm, 2010). According to the findings in this study, a positive relationship was found between perceived parental rejection and the dimension of impaired autonomy and performance which includes the failure and vulnerability schemas, and this is consistent with the findings given by Thimm (2010), while the other finding in this study, the positive and significant relationship between the dimension of overvigilance and overinhibition which includes unrelenting standards and punitiveness schemas and perceived parental emotional warmth, contradicts with the other finding in that study. This contradictory finding is surprising because emotional warmth is generally seen as a factor that prevents the formation of such maladaptive schemas, symptoms and behaviors by meeting the needs of being accepted, supported, and affection in the child (Rohner et al., 2005; Batoöl, Shehzadi, Riaz, & Riaz, 2017). However, this finding can be interpreted in different ways. Especially if children are members of a family with a perfectionist attitude but also showing love and affection, they can think emotionally supported, but grow up with high performance expectations and high standards. In this case, which can be consistent with "conditional love," although the affection and care shown by the parent is perceived as emotional warmth, the child might have received this affection and care on the condition of "achieving success/high standards" or "obeying the rules" and might have been blamed and criticized by her/his parents if s/he could not provide these (Young & Klosko, 2015). This contradictory attitude might have created a perception of parental emotional warmth in the child on the one hand, while on the other hand, it might have led to the formation of the unrelenting standards schema in the child. On the other side, it can be stated that the punitiveness schema includes the one's belief that a person should be punished harshly for their mistakes. People with this schema might have an angry, intolerant and punitive attitude toward people who do not meet the standards or expectations (including themselves if they think they cannot meet them). They have difficulty forgiving mistakes (Young et al., 2003). From this perspective, if the parents sometimes approach their children with showing affection and care, but if they display such an attitude toward their children when they do not meet their expectations, the child might have developed a punitiveness schema. Another explanation for this result might be that children might idealize their families or that people sometimes use idealization as a defense mechanism (Bowins, 2004). For this reason, even if the parent's attitude is not emotionally warmth, it is possible that the child made such an assessment

through idealization. In other respect, unrelenting standards and punitiveness schemas were considered as early maladaptive schemas within the scope of this study, but nevertheless, perfectionism, which is experienced quite intensely in both schemas, might be functional for some people. To be more clear, when the literature is examined, it is seen that perfectionism is examined in two categories: adaptive and maladaptive. From this perspective, perfectionism is not something that can be evaluated unilaterally (Hutchinson & Yates, 2008). Stoeber and Otto (2006) made a statement about "perfectionist strivings," while Stoeber and Kersting (2007) mentioned the advantages gained by the students who make this effort, such as getting better scores on exams. Moreover, another study showed that self-oriented perfectionism leads to better interpersonal relationships, better relationships with parents, and a better grade point average (Gilman & Ashby, 2003). Although this again suggests "conditional acceptance" as mentioned above, for individuals, receiving care and affection from their parents in moments when they achieve success might lead them to assess their parents' attitudes as an emotionally warmth. However, further studies on this subject are needed. Lastly, a study investigating parenting in Mediterranean countries, including Türkiye, found that obedience and loyalty are seen as factors that create mutual commitment within the family for these countries (Palut, 2010). In this respect, if future studies examine what these parenting styles encompass in the Turkish sample, this surprising finding in the study can be better understood, because perhaps parenting that offers emotional warmth may encompass concepts such as obedience and perfectionism depending on this culture.

The other findings of this study show that some early maladaptive schemas (failure, approval seeking, and vulnerability to harm/illness) are negatively and significantly related to individuals' levels of mental toughness. Mental toughness is related to an individual's ability to maintain emotional balance in stressful situations, their self-confidence, their capacity to persist in the face of obstacles, and their sense of control (Clough et al., 2002). According to schema therapy model, early maladaptive schemas formed in early experiences can shape an individual's self-perception and basic assumptions about the world, especially by impairing their ability to cope with stressful situations (Young et al., 2003). People with a failure schema, which is primarily influenced by parental attitudes such as frequent criticism of their performance by their parents, usually feel unsuccessful compared to other people, and therefore their self-confidence levels are relatively low. They are likely to avoid making an effort because they think they will fail no matter what they do. Procrastination or doing things in an irregular manner is common (Young & Klosko, 2015). When all of these are considered within the framework of the three dimensions of mental toughness used in the study (Confidence, control, and continuity), it is clear that people with failure schema will have problems in terms of these three dimensions. The vulnerability schema is a schema characterized by the person perceiving themselves as fragile, unprotected, and vulnerable to danger. People with this schema anxiously expect something bad to happen and think that they are not resilient enough to cope with it. The bad thing they expect here can be about various issues such as health and illness, danger, and losing control. They take various precautions to avoid these, and these can be avoiding taking initiative in necessary situations or some obsessive-compulsive symptoms that are dysfunctional. Parental attitudes such as being overprotected or neglected by parents might be the origins of this schema (Young & Klosko, 2015). When considered with these features, it is clear that this schema may bring some disadvantages to the person in terms of confidence and control dimensions of mental toughness.

When approval-seeking schema is examined, it is seen that the person with this schema places excessive value on being recognized, receiving attention, being liked and receiving approval from other people to develop a secure and real self-perception. The person's self-esteem and self-confidence depend on the reaction from others. Therefore, an externally motivated self-structure is seen and people are almost dependent on the appreciation of the people around them. Its origin is based on conditional acceptance in the family (Young et al., 2003). Again, when looking at this schema from the perspective of mental toughness, it can be thought that the person can experience some problems in terms of especially natural and strong self-confidence.

According to other findings, the partial mediation of failure and vulnerability schemas in the relationship between perceived parental rejection and mental toughness reveals how the perception of parental rejection weakens mental toughness through the failure and vulnerability schemas formed on the individual. Over time, the rejected child begins to feel worthless and her/his belief that s/he can be successful in life is shaken. In this regard, it can be thought that athletes who internalize rejection may develop deeply beliefs such as "I am inadequate," "I will inevitably fail," or "Something bad is about to happen, but I am vulnerable and can't cope." According to Parental Acceptance-Rejection Theory, it is thought that these individuals will experience damaged self-esteem and self-efficacy. Individuals' self-esteem is related to their sense of self-worth, while their sense of self-efficacy is related to their confidence in meeting daily responsibilities and tasks sufficiently well (Rohner et al., 2005). When considered in this respect, the findings of the research also find a response in the literature and the schemas which includes these maladaptive beliefs may manifest in sports through some emotions, behaviors and attitudes such as fear of making mistakes, fear of failing in competitive environments, increased emotional distress and difficulty coping with setbacks, and resorting to maladaptive coping strategies such as avoidance (Sagar & Stoeber, 2009; Gallagher & Gardner, 2007). Similarly, another finding consistent with the literature is that the vulnerability schema is a fully mediator in the relationship between perceived parental overprotection and mental toughness. In this respect, it can be thought that over-protective parenting actually gives the child the message that "you cannot protect yourself" which causes the individual to construct a "weak and fragile" identity perception in their inner world (Spada et al., 2012; Young & Klosko, 2015). Considering that there is a relationship between parental overprotection and increased dysfunctional attitudes in the achievement and dependency areas (Otani et al., 2013), it can be thought that athletes may exhibit behaviors that avoid difficult situations, be more susceptible to fear of being injured, not take the necessary steps to take initiative because they see themselves as vulnerable, and this may lead to dysfunctional behaviors and attitudes in sports. In these respects, this finding of the study is important. Another finding of this study also reveals that failure schema is a partially mediator between parental emotional warmth and mental toughness. It can be thought that individuals who grow up in an environment which is emotionally warmth tend to relatively seldom form failure schema, and this parental attitude has a supportive effect on mental toughness. This finding is parallel to the literature emphasizing that a secure attachment with parents supports the individual's self-confidence and perception of competence (Zonash & Iqbal, 2017; Reza & Fatimah, 2024). In this respect, it can be thought that athletes who grow up with emotional warmth from their parents will have higher self-confidence in the face of difficulties, will look for a way to cope with difficulties rather than

avoiding them, will see difficulties as an opportunity to challenge, and will exhibit more consistent behaviors in order to achieve success and goals in sports.

There are various limitations to this study. First, the study was conducted with a cross-sectional design, and it is not possible to make definitive judgments about the cause-effect relationships between the variables. To gain more insight, longitudinal studies should be conducted to examine how the relationships between variables evolves over time. Secondly, participants' retrospective evaluations of parental attitudes might have been shaped by recall bias and social desirability. Idealization tendencies in positively connoted concepts such as parental emotional warmth might affect the accuracy of the measurements. Data collection processes supported by qualitative methods might provide more in-depth information. Thirdly, since the sample group mainly consisted of university students, the generalizability of the results to different age groups or individuals with different socio-cultural backgrounds is limited. Fourth, although the Young Schema Questionnaire-Short Form (YSQ-S3) used in the study is a scale consisting of 90 items in total, some subscales considered theoretically related to study's aims were selected to protect data quality from the factors such as participant fatigue and distraction. More comprehensive contributions can be made if future studies address this issue in terms of 18 early maladaptive schemas. Finally, in this study, no intervention process was planned. However, schema therapy contains powerful techniques aimed at strengthening the mental toughness of individuals. In this context, examining the effects of intervention techniques such as imagery re-scripting and chair work on the level of mental toughness through experimental studies can provide important contributions to both therapy practices and the field of sports psychology.

When looking at the literature, it is seen that parental attitudes and early maladaptive schemas affect some psychological characteristics such as self-esteem, anxiety and coping mechanisms in athletes (Turner et al., 2019; Poorabed & Bahrami, 2022; Reyhan et al., 2020). However, the number of studies focusing on the direct relationship of these two variables with mental toughness is very few. Overall, findings of this study provide important clues about how early experiences shape an individual's mental toughness. Mental toughness appears to be related not only to genetics or personality structure but also to early maladaptive schemas that are formed in childhood in a way of parental attitudes. The mediating roles that schemas play in this process suggest that schema-based studies in clinical interventions might be useful in strengthening mental toughness in athletes and performance-oriented individuals.

**Data Availability Statement:** The data that support the findings of this study are available on request from the corresponding author.

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**Informed Consent:** Written informed consent was obtained from participants who participated in this study.

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