

# Development of the Perceived Parental Self-Efficacy Scale: Examining its Relationship with Trait Anxiety\*

Research Article

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## ABSTRACT

This study develops the Perceived Parental Self-Efficacy Scale for adolescents, identifies its psychometric properties, and examines the relationship between the scores on the Perceived Parental Self-Efficacy Scale and trait anxiety through regression analysis. This study was performed in two steps. To develop the measurement tool, data were collected from a total of 560 female and male students between the ages of 11-18 in the first step, and then from a total of 616 female and male students in the second steps. The validity and reliability analyses performed to determine the psychometric properties of the scale yielded a 22-item form with 4 sub-dimensions. The second analysis confirmed the construct of the measurement tool; no significant difference was found in the perceived parental self-efficacy scores by gender. Further, this study determined that trait anxiety was predicted by perceived parental self-efficacy. This study discussed its findings with previous findings and concluded with some suggestions.

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### Keywords:

Parenting, Perceived Parental Self-Efficacy, Trait Anxiety, High School Students

## Introduction

As proved by a number of experimental and descriptive studies to the date, cognitive processes shape behaviors related to parenting skills (Johnston and Mash, 1989; Eltanamaly et al., 2002; Mouton et al., 2018; Salo et al., 2022; Bohman et al., 2013; Caprara et al., 2004). Self-efficacy is a concept that pertains to a cognitive process shaping parenting skills and behaviors. According to the concept of self-efficacy, which is defined as the belief of individuals in their capacity to fulfill critical tasks and goals by organizing cognitive and socially based skills (Bandura, 1982), an individual is expected to be competent at their own capacity level, not necessarily the most competent. Certain major tasks in life are easy to fulfill for some, while certain trivial tasks are quite difficult for others. The important thing in perceived self-efficacy is that the individual recognizes their own capacity and believes that they will accomplish the tasks appropriate to their capacity

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(Bandura, 2009). According to Bandura (2009), an integral aspect of the concept of self-efficacy is that in today's changing conditions, an individual needs to develop and organize beliefs for certain areas or certain tasks, rather than all areas or all tasks. In other words, it is not possible to conceptualize self-efficacy in a general sense; instead, self-efficacy should be defined in certain areas. Parenting represents one of the most challenging and critical areas for adults in changing social conditions. Although it comes with its difficulties, a successful management of the parenting process by parents brings satisfaction to them (Russell, 1974). It is prerequisite to develop beliefs related to capacity and to organize cognitive, socially based parental behaviors in order to describe someone successful in parenting tasks; in other words, it is necessary to define parental self-efficacy beliefs.

Parental self-efficacy is defined as the parent's judgments and beliefs about their own capacity to perform certain tasks related to the care and upbringing of their child (Caprara et al., 2004; de Montigny and Lacharite, 2005; Jones and Prinz, 2006). In a similar vein, Coleman and Karraker (1998) describe it as the individual's beliefs about their capacity in a set of tasks involved in child care, showing interest, responding to their emotional needs, discipline and taking responsibility in parenting. Parental self-efficacy has a direct impact on the development of children or adolescents (Ardelt and Eccles, 2001; Coleman and Karraker, 1998). The parental satisfaction of adolescents depends particularly on the dynamics of the parent-child relationship. Satisfaction with family relationships allows family members, particularly adolescents, to make decisions, to look forward to the future with hope, to receive support from the family, and to spend qualified time with them (Belsky et al., 2001). Determining and measuring parental self-efficacy, which has such a pivotal role in family relationships, has been a long-standing objective. Especially given that the developmental needs of individuals during adolescence are significant for personality development, measurement tools for the self-efficacy of parents who have a child in this period are of great significance too.

These being said, it should be noted that there is a limited number of tools that serve to directly measure parental self-efficacy in Turkey and in the rest of the world. In the literature over the past decade, a parental self-efficacy scale developed by Seigny et al. (2016) for fathers with a pre-school child, which consists of 20 items and 3 sub-scales (engagement with familial affairs, direct care and financial responsibility), has appeared. As for the validity and reliability of the scale, the test-retest reliability was found as .81; the criterion scale-related validity was as .59, and the Cronbach's Alpha internal reliability coefficient was as .88. Further, in their study with 359 parents who have children between the ages of 12-15, Nicolas et al. (2020) designed a measurement tool, the initial version of which had 9 items, which then reduced to 8 items following the validity-reliability study (its criterion-related validity was .59, and McDonald's omega reliability coefficient was .91); these 8 items are as follows: care, social skills, ability to set family rules, approach to conflict, healthy habits, problem solving, ability to ask for help. Also, with a sample of 300 parents who had a child aged between 12-15 years, Zulfiqar and Subnan (2022) developed an 18-item 4-point Likert-type parental self-efficacy scale consisting of the dimensions of providing basic needs, educating morality, inculcating discipline and teaching autonomy, specific to Pakistani culture. Remarkably over the last decade, Yıldız et al. (2020) presented an adaptation of "the Berkeley Parenting Self-Efficacy Scale Revised" for parents with preschool children. This two-factor scale was tested for reliability; its Cronbach's Alpha internal consistency coefficient was calculated as 0.91, and the test-retest reliability coefficient was as 0.67.

In the relevant literature, parental self-efficacy has been mostly measured through measurement tools indirectly related to parenting. Witkowski et al. (2017), and Jones and Prinz (2005) examined the measurement tools for parenting and stated that although a measurement tool is available for each developmental period, self-efficacy is usually measured through skill-oriented measurement tools, particularly highlighting that there is no measurement tool for the self-efficacy of parents with an adolescent. Again, according to Witkowski et al. (2017), and Jones and Prinz (2005), most of the existing measurement tools were developed based on

interviews with parents, or adaptations of other scales. The measurement tool developed under this study intends to measure the self-efficacy of parents with an adolescent through the perceptions of adolescents.

Taking care of children's physical health, providing emotional support to them, dealing with schoolwork and health-related issues are considered among the components of parental self-efficacy, and as mentioned above, they support all aspects of children's development (Coleman, 2000, and De Montigny and Lacharite, 2005). Considering these tasks assigned to parents from a social point of view, parental self-efficacy both influence and is influenced by all family-related processes (Caprara et al., 2004). One of these processes is the harmony between parents (Ardelt and Eccles, 2001) and the quality of the relationship between spouses (Ardelt and Eccles, 2001; Caprara et al., 2004). Emphasizing the importance of family in parental self-efficacy, Caprara et al., (2004) argued that both spouses have important roles and responsibilities in domestic relations and that the fulfillment of the shared responsibilities of spouses affects the level of parental self-efficacy and enriches domestic relations. Though parental self-efficacy is typically assessed with a focus on communication with children, there are various different dimensions to look at this.

It is evident that looking at parental self-efficacy only from the aspect of communication with children would be lacking given the basic experiences and physical emotional state, which are the bases of the concept of self-efficacy. An individual's self-motivation to be self-efficacious in a certain field, being consistent and healthy as much as possible, their basic life, and their physical and emotional health are among the emotional and physical state resources (Bandura, 2009). According to Jones and Prinz (2005), parental self-efficacy plays a key role both in the parents' own world and in their harmony with their partner. Similarly, in their study with 106 married mothers with children aged between 12 to 16 years, Bapat and Mardhekar (2021) found out that individuals with high parental self-efficacy felt they belonged to the family and were satisfied with their life. These being said, the existing measurement tools for parental self-efficacy failed to incorporate sub-scales of personal life, life satisfaction as well as spousal harmony. The measurement tool for parental self-efficacy develop under this study, unlike other tools, includes spousal harmony and personal life.

To put it another way, the most pronounced sub-dimensions of parental self-efficacy are: the ability to assure the child, self-esteem (Hess et al., 2004), beliefs about capacity for tasks such as providing the emotional and physical needs of the child, spending time with the child, and dealing with their academic issues (Caprara et al., 2004; Coleman and Karraker, 1998; Jones and Prinz, 2005). Based on these sub-dimensions, many studies have reported that anxiety is a prominent factor between the mental health of children and adolescents, and the self-efficacy levels of parents. The first of such studies is that of Wolfradt et al. (2003), who examined the relationship between depersonalization and trait anxiety in a sample of adolescents based on the perceived parenting attitudes. The researchers observed that the group with the authoritative and permissive parenting style scored lower on trait anxiety, whilst those who perceived a negative parenting style had higher levels of trait anxiety. Besides, in their study on adolescents through regression method, Bacchini et al. (2011) found a high level of correlation between the depression and trait anxiety levels of adolescents exposed to negative attitudes of their parents, and negative parental attitudes perceived as abuse. In a similar vein, Niditch and Varela (2012) conducted a study with 125 students aged between 12 to 18 years, and indicated that adolescents not accepted by their families had low levels of emotional self-efficacy and high levels of trait anxiety. One of the studies conducted in Turkey, that of Çapulcuoğlu and Gündüz (2013), determined that adolescents who perceive positive attitudes from their parents are successful in coping with stress and experience less social anxiety, which is an element of trait anxiety. Demirsu (2018) found a significant relationship between the perceived parental attitudes as over-protective and authoritative of university students and their trait anxiety levels. All these studies show that the level of anxiety experienced varies by the level of parents' attitudes towards their children.

In the light of these research, it is evident that a measurement tool on parental self-efficacy appropriate for Turkish culture is yet to be developed, and that the adapted or existing tools consist of items only related to interventions for the child. Moreover, the existing measurement tools measure the level of parental self-efficacy based on the perception of parents. This study, on the other hand, attempts to determine parental self-efficacy levels through the perceptions of children. Also, the "Perceived Parental Self-Efficacy Scale" developed under this study for the self-efficacy levels of parents, which is an significant factor in the anxiety level of children, examines the trait-anxiety levels of adolescents.

Therefore, this study seeks to determine the psychometric properties of the perceived parental self-efficacy and to reveal the relationship between the trait-anxiety levels of adolescents and the perceived parental self-efficacy. To achieve these objectives, this study presents two sections. The first section includes the development of perceived the parental self-efficacy; the second section probes into the relationship between the trait-anxiety levels of adolescents and the perceived parental self-efficacy. To achieve this two-fold objective, this study embraces the following sub-objectives:

Section 1:

Sub-objective: To determine the psychometric properties of the parental self-efficacy scale perceived from the perspectives of adolescents that aligns with Turkish culture.

Section 2:

Sub-objective 1: Do the perceived parental self-efficacy levels of the students differ by gender?

Sub-objective 2: To what extent are the trait-anxiety levels of the adolescents predicted by the perceived parental (mother and father) self-efficacy scores?

## **Methodology**

### **Research Model**

As mentioned earlier, this study consists of two sections; the first section seeks to assess the psychometric properties of the measurement tool, which is intended to measure the perceived parental self-efficacy levels, in order to determine the parental self-efficacy levels perceived by adolescents studying in a high school. The second section investigates the relationship between the perceived parental self-efficacy of these individuals in adolescence and their trait anxiety levels through this scale. This study is designed as a descriptive study based on the relational screening model.

### **Study Group**

This study draws on convenience sampling, which is one of the random sampling methods. It is reflected in the literature that different groups should be used for exploratory factor analysis and confirmatory factor analysis in scale development studies. For this reason, this study performs both factor analyses with different groups. Moreover, selection of a sample group and size represents an important aspect of scale development studies. Different opinions exist on how to determine this size in the literature; however, some scholars recommend a sample group above 300 or the collection of data equal to the number obtained by multiplying the number of items by five or ten (Çokluk et al., 2014). The sample of this study consists of adolescents aged between 11 to 18 years. Two different groups were included in this study for the exploratory factor analysis (EFA) during the scale development process and the confirmatory factor analysis (CFA) and other analyses in the second section of this study. A total of 560 individuals aged between 11 to 18 years ( $x = 15.17$ ) were reached for the exploratory factor analysis (EFA) in the scale development process. In this step, 314 (56.1%) female and 246 (43.9%) male students were included in this study. The second section of this study, where the confirmatory factor analysis (CFA) and other analyses were conducted, was based on the

data obtained from 350 (56.8%) female students and 266 (43.2%) male students, totaling 616 students. The age range of this sample ranges from 11 to 18 ( $x = 15.29$ ).

## **Data Collection Tools**

### **The Trait-Anxiety Scale**

The State-Trait Anxiety Scale is a scale developed by Spielberger et al. (1970) and consists of Likert-type questions. The Turkish version of this scale was performed by Öner and Le Compte (1983). This scale measures the state and trait-anxiety levels separately through a total of 20 questions. The scale is a 4-point Likert type measurement tool. Items 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20 are scored in reverse. The highest score that can be obtained from the scale is 80, and the lowest score is 20. High scores indicate high anxiety levels; low scores indicate low anxiety levels. The reliability coefficients of the measurement tool are between 0.83 and 0.87. In this study, the Cronbach Alpha internal reliability coefficient was found to be 0.84. This study draws on the part of this scale that measures trait-anxiety levels only.

### **The Process of Developing the Perceived Parental Self-Efficacy Scale**

The scale development efforts started with the generation of a pool of items. To do so, a literature review on the subject about which this scale development study was performed was conducted, and a pool of items was generated. In line with the consensus in the literature, the initial pool of items generated in this study was four times as large as the number of items actually needed. Then, the pool was submitted to two academics in the field of Guidance and Psychological Counseling, who were asked to examine it for content validity. Following that, the questions in the item pool were shared with the Turkish field expert for the correction of any linguistically incomprehensible expression or any issue with the expressions.

Consequently, the item pool consisted of a total of 63 statements, 57 of which were positive and 16 were negative. The items, scored on a five-point Likert type, were included in a form for the mother and the father to answer separately.

### **Procedures/Data Collection Process**

In the first step of this study, the students were informed of the purpose of this study and the Perceived Self-Efficacy Scale, which was in the form of a pool of items, before the data were collected on a volunteer basis from them through an electronic form. As this study was performed in two steps, the data were collected gradually based on the results of the analyses conducted following the Ethics Committee Approval from the Scientific Research and Publication Ethics Committee of Hatay Mustafa Kemal University in the Field of Social and Human Sciences between the first semester of the 2021-2022 academic year and the first semester of the 2022-2023 (article dated 23.06.2021 and numbered 09).

### **Data Analysis**

The analysis of the data in this study was performed in two steps. Based on the data obtained in the scale development process in the first step, the exploratory factor analysis of the scale was conducted via SPSS Statistics 22.0. In the second step, information on the scales and the purpose of this study was provided, and data were collected using an electronic form on a volunteer basis. The collected data were entered into SPSS Statistics 22.0 and AMOS 23.0 to perform the confirmatory factor analysis and other statistical analyses. The items containing negative expressions were reversely coded.

As part of the data analyses in the scale development process, first the exploratory factor analysis was applied. The missing and extreme values were determined and removed from the data set; the remaining 560 data were used for the analyses. Prior to the analyses on the construct validity of the scale, the KMO and Bartlett's analyses were performed to check whether the necessary conditions for the factor analysis were met.

The results of the analyses revealed  $KMO= 0,895$  for the PPSES form for mothers and  $KMO= 0,906$  for the PPSES form for fathers. A KMO value of .80 to .90 indicates that the sample size is sufficient (Çokluk et al., 2014). The Bartlett's Test of Sphericity was used to test the assumption of multivariate normality in the data, and it was found that the assumption was met ( $p<.001$ ). As these imply that the necessary assumptions were met, the exploratory factor analysis was performed.

Exploratory factor analysis is a model intended to reveal the interrelationships between the unknown latent variables and observed variables (Çokluk et al., 2014). The principal component analysis was used in the factor analysis. The principal component analysis is widely applied as a factorization technique, particularly in the social sciences. In the principal component analysis, a factor loading should be more than 0.30 and the difference between the two load values should be at least 0.10. (Büyüköztürk, 2007). During the analyses, the factor loadings were also examined through the Varimax vertical rotation method. The above-mentioned criteria were taken into account before the analyses were conducted. The results of the analyses pointed to a 4-factor and 22-item scale.

In the second section of this study, the confirmatory factor analysis and other analyses were applied on the scale developed. To do so, the data on a total of 637 individuals were examined to remove the missing and extreme values. The analyses were conducted based on the remaining 616 data. The confirmatory factor analysis was applied using the maximum likelihood technique. It is recommended to report more than one compliance value in presenting the findings in the studies conducted with the structural equation model (Kline, 2005). Moreover, the criteria used in the evaluation of the fit indices proposed by different researchers were taken into account in the evaluation of the findings (Kline, 2005; Şimşek, 2007). Lastly, in the analysis of the data, as the measurement tools used showed normal distribution, stepwise regression analysis was used to determine how much of the variance the perceived parental self-efficacy would explain the trait-anxiety levels of the students.

## Findings

### Findings on the Validity of the Perceived Parental Self-Efficacy Scale

The construct validity analyses (EFA and CFA), item-total correlations and item distinctiveness were examined for the validity of the Perceived Parental Self-Efficacy Scale (the PPSES), and the findings are presented below.

#### Construct Validity

The results of the exploratory factor analysis: To test the validity of the construct of the PPSES, first the exploratory factor analysis was applied. Prior to the exploratory factor analysis, the necessary assumptions for the analysis were tested. The KMO and Bartlett's tests were performed:  $KMO= 0,895$ ; Bartlett's test value was  $\chi^2= 13558,133$ ;  $sd=1953$  ( $p=0,000$ ) for the PPSES form for mothers, and  $KMO= 0,906$ ; Bartlett's test value  $\chi^2= 13408,3353$ ;  $sd=1953$  ( $p=0,000$ ) for the PPSES form for fathers. In line with these findings, the factor analyses were initiated on the pool of 63 items.

As part of the exploratory factor analysis, the principal component analysis was performed first. Also, the scree plot indicated that the scale would have a multi-factor structure. As it was understood that the scale would have a multi-factor structure, the Varimax vertical rotation method was conducted. The items with a load below .32 and the difference between the two load values less than .10 were removed sequentially. Accordingly, a total of 41 items in the pool of items in the forms for mothers and for fathers of the scale were removed from the scale; the remaining 22 items were reviewed by the experts who previously examined the pool to evaluate the content validity of these items based on the literature. Once the field experts reported that the content validity of these 22 items was established, other analyses were carried out.

Following that, it was concluded that there were 4 factors related to the form for mothers and fathers in the 22-item scale. The KMO and Bartlett's tests were performed on this version of the scale: KMO= 0,871; Bartlett's test value was  $\chi^2= 3557,816$ ;  $sd=231$  ( $p=0,000$ ) for the PPSES form for mothers, and KMO= 0,865; Bartlett's test value  $\chi^2= 3135,477$ ;  $sd=231$  ( $p=0,000$ ) for the PPSES form for fathers. After the application of the Varimax method on the measurement tool, the factor loads for each form was found between 0,412 and 0,757 (the PPSES form for mothers), 0,466 and 0,724 (the PPSES form for fathers). The total variance explained was 48,649% for the PPSES form for mothers and 47,296% for the PPSES form for fathers. Then, the factors were named as seen in Table 1 below.

Table 3 offers findings on the item loads of the remaining 22 items in the scale as well as the eigenvalues of the factors and the extent to which they explained the variance.

**Table 1.** The item loads and eigenvalues of the factors by the factors of the scale items and the results of the variance

		The PPSES - Form for Mothers					The PPSES - Form for Fathers					
		Common variance	F1	F2	F3	F4	Item	F1	F2	F3	F4	Common variance
F1 - Personal Life		.556	.735				5	.710				.532
		.556	.726				7	.593				.355
		.535	.682				4	.671				.500
		.379	.470				2	.466				.406
		.210	.412				1	.574				.402
F2 - Communication		.470		.644			33		.600			.430
		.433		.630			37		.681			.474
		.424		.619			25		.575			.352
		.462		.617			23		.547			.442
		.411		.563			34		.612			.410
		.478		.525			21		.633			.575
F3 - Academic Support		.636			.757		46			.724		.576
		.589			.745		47			.702		.530
		.475			.655		51			.647		.473
		.474			.609		50			.556		.412
		.459			.586		54			.617		.449
F4 - Emotional		.614				.739	19				.684	.564
		.600				.696	20				.700	.579
		.475				.656	32				.636	.471
		.514				.582	29				.699	.560
		.454				.552	28				.657	.500

	.520			.510	18		.501	.414		
Eigenvalue	2.950	2.748	2.586	2.419		Eigenvalue	3.192	2.756	2.470	1.987
Explained Variance	13.407	12.49	11.755	10.997		Explained Variance	14.507	12.529	11.226	9.034

As seen in Table 1, the "Personal Life" factor of the scale includes 5 items, and the factor loads of the PPSES for mothers varied between 0,412 and 0,735, whilst the factor loads of the PPSES for fathers varied between 0,466 and 0,710. The eigenvalue of this factor in the PPSES for mothers within the scale as a whole was 2,95 and its contribution to the overall variance was is 13,407%; The eigenvalue of this factor in the PPSES for fathers within the scale as a whole was 3,192 and its contribution to the overall variance was 14,507%. The "Communication" factor of the scale includes 5 items, and the factor loads of the PPSES for mothers varied between 0,525 and 0,644, whilst the factor loads of the PPSES for fathers varied between 0,547 and 0,681. The eigenvalue of this factor in the PPSES for mothers within the scale as a whole was 2,748 and its contribution to the overall variance was is 12,49%; The eigenvalue of this factor in the PPSES for fathers within the scale as a whole was 2,756 and its contribution to the overall variance was 12,529%. The "Academic Support" factor of the scale includes 5 items, and the factor loads of the PPSES for mothers varied between 0,586 and 0,757, whilst the factor loads of the PPSES for fathers varied between 0,566 and 0,724. The eigenvalue of this factor in the PPSES for mothers within the scale as a whole was 2,586 and its contribution to the overall variance was is 11,755%; The eigenvalue of this factor in the PPSES for fathers within the scale as a whole was 2,470 and its contribution to the overall variance was 11,226%. The "Emotional Support" factor of the scale includes 5 items, and the factor loads of the PPSES for mothers varied between 0,510 and 0,739, whilst the factor loads of the PPSES for fathers varied between 0,501 and 0,700. The eigenvalue of this factor in the PPSES for mothers within the scale as a whole was 2,419 and its contribution to the overall variance was is 10,997%; The eigenvalue of this factor in the PPSES for fathers within the scale as a whole was 1,987 and its contribution to the overall variance was 9,034%.

*The results of the confirmatory factor analysis:* It is reflected in the literature that different groups should be used for exploratory factor analysis and confirmatory factor analysis in scale development studies. For this reason, this study performs the confirmatory factor analyses with a different group. The results of the exploratory factor analysis yielded a 4-factor PPSES form for mothers and fathers. The data collected from 616 individuals in total were used to validate the first-order factor structures of both forms of the scale. The values obtained in the initial analyses of the PPSES for mothers and the PPSES for fathers were not considered sufficient. It was determined that no item in the scale was incompatible with the factor structure; the items in the same sub-dimension and therefore considered to be related to each other were modified considering the recommendations of the software. Accordingly, a four-factor structure for the scale was supported.

The confirmatory factor analysis (CFA) demonstrated that the compliance values for the PPSES for mothers were as follows:  $\chi^2/df= 2,674$ ,  $p<.001$ , RMSEA= 0,052, GFI= 0,93, AGFI= 0,91, CFI= 0,92, NNFI= 0,90 and IFI= 0,92. The compliance values for the PPSES for fathers were as follows:  $\chi^2/df= 2,972$ ,  $p<.001$ , RMSEA= 0,057, GFI= 0,92, AGFI= 0,90, CFI= 0,91, NNFI= 0,90 and IFI= 0,91. These values imply that the compliance values of the PPSES for mothers and fathers were acceptable. Figure 1 presents the model containing the standardized parameter estimates of the factors and items in the PPSES for mothers; Figure 2 shows the model for the PPSES for fathers.



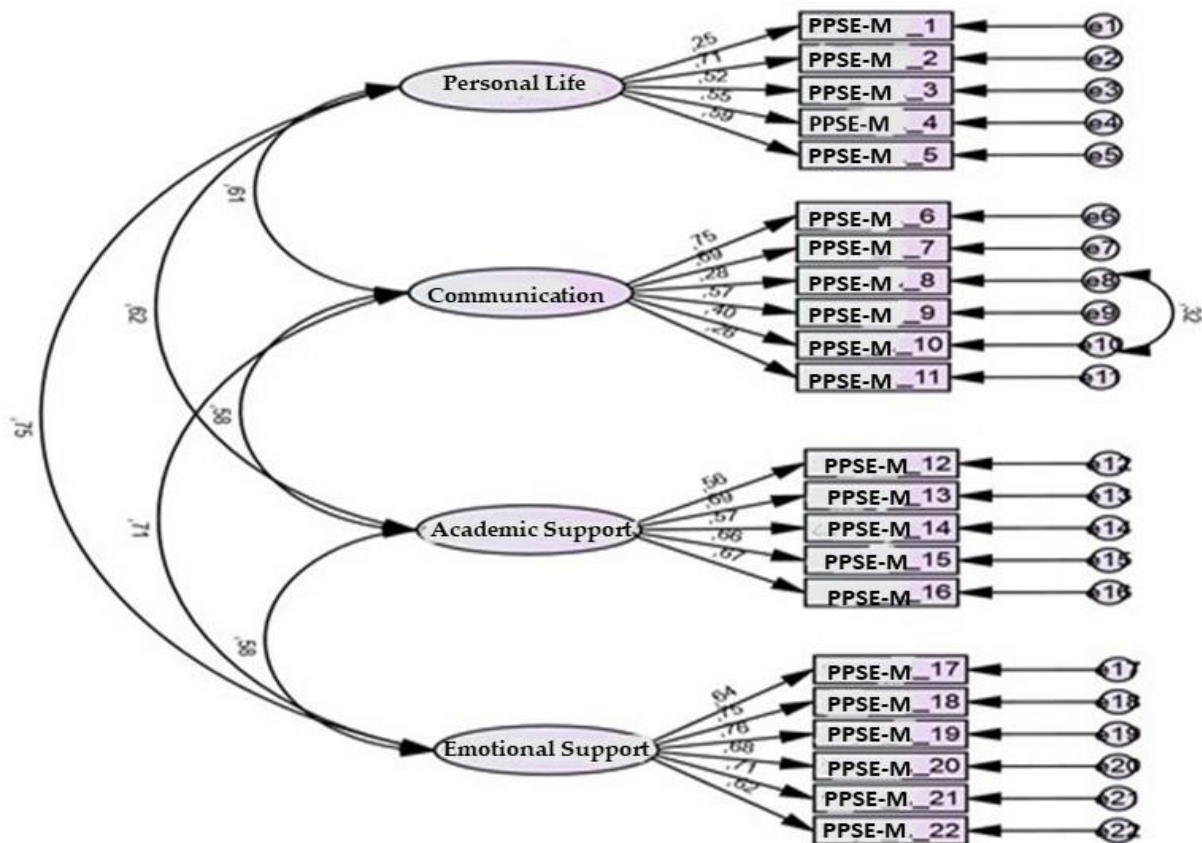


Figure 1. The First-Order Confirmatory Factor Analysis of the PPSES for Mothers - Standardized Path Coefficients

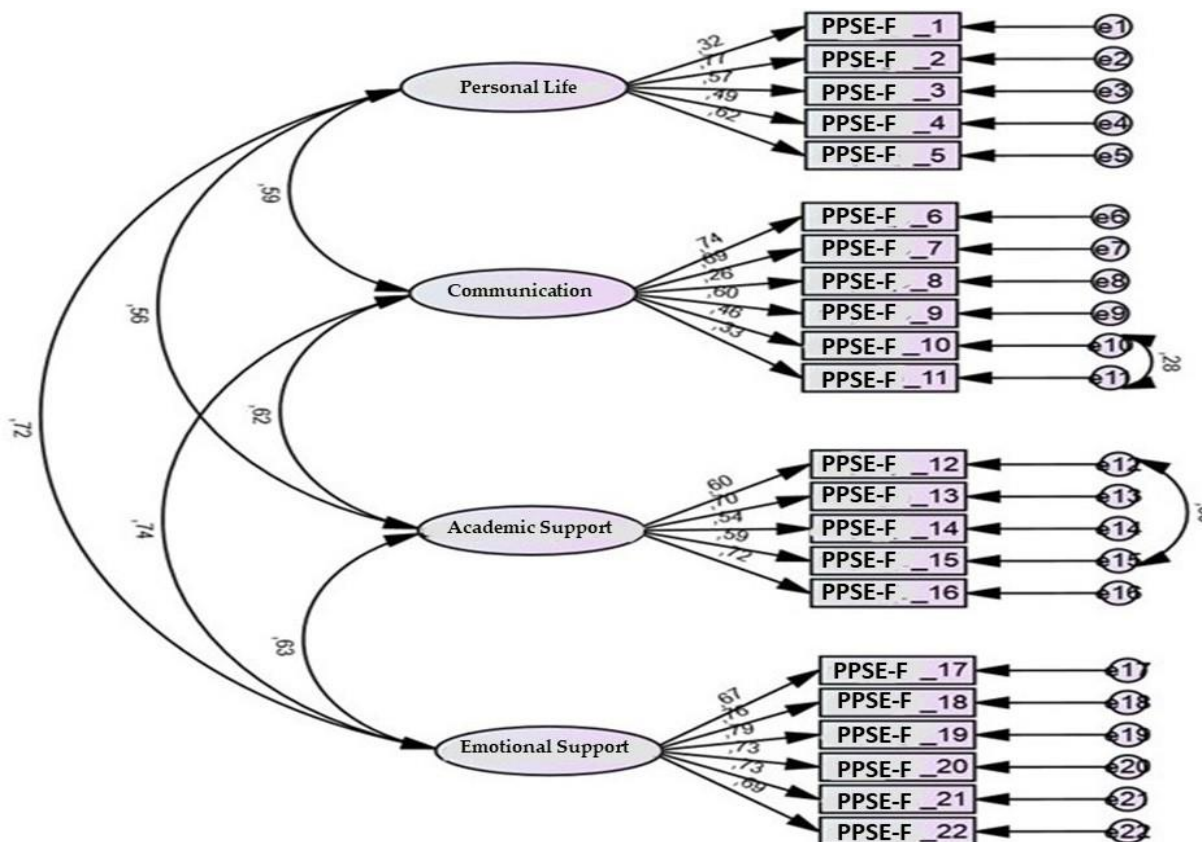


Figure 2. The First-Order Confirmatory Factor Analysis of the PPSES for Fathers- Standardized Path Coefficients

The second-order confirmatory factor analysis was applied to prove that the four factors of both forms of the scale, obtained by the first-order confirmatory factor analysis, together expressed the parental self-efficacy perceived as a meta-concept. For the second-order confirmatory factor analysis, the relations between

the latent variables at the first level were taken into consideration. Thus, the variances explained by the high-order perceived parental self-efficacy variable at the first order were also considered.

The second-order confirmatory factor analysis found:  $\chi^2/df= 2,693$ ,  $p<.001$ ,  $RMSEA= 0,052$ ,  $GFI= 0,93$ ,  $AGFI= 0,91$ ,  $CFI= 0,91$ ,  $NNFI= 0,90$  and  $IFI= 0,91$  for the PPSES for mothers, and  $\chi^2/df= 3,150$ ,  $p<.001$ ,  $RMSEA= 0,059$ ,  $GFI= 0,91$ ,  $AGFI= 0,89$ ,  $CFI= 0,90$ ,  $NNFI= 0,90$  and  $IFI= 0,91$  for the PPSES for fathers. These fit values for both forms were within the acceptable range. Figure 3 presents the model containing the standardized parameter estimates of the factors and items in the PPSES for mothers; Figure 4 shows the model for the PPSES for fathers.

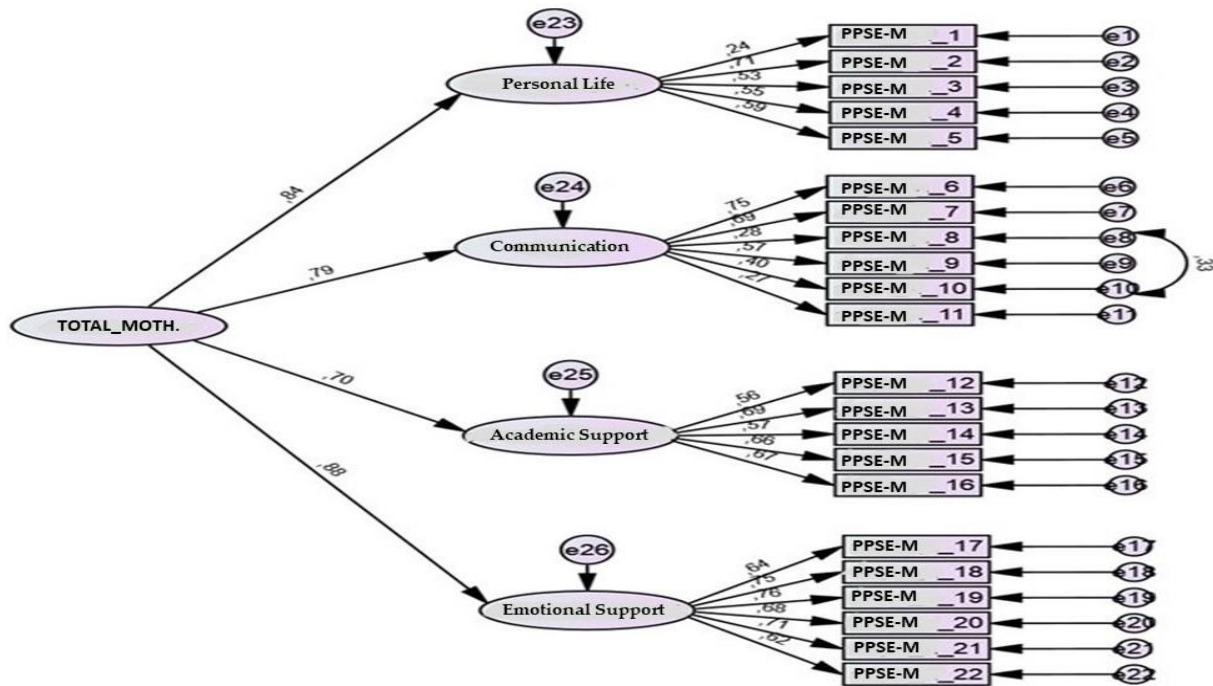


Figure 3. The Second-Order Confirmatory Factor Analysis of the PPSES for Mothers - Standardized Path Coefficients

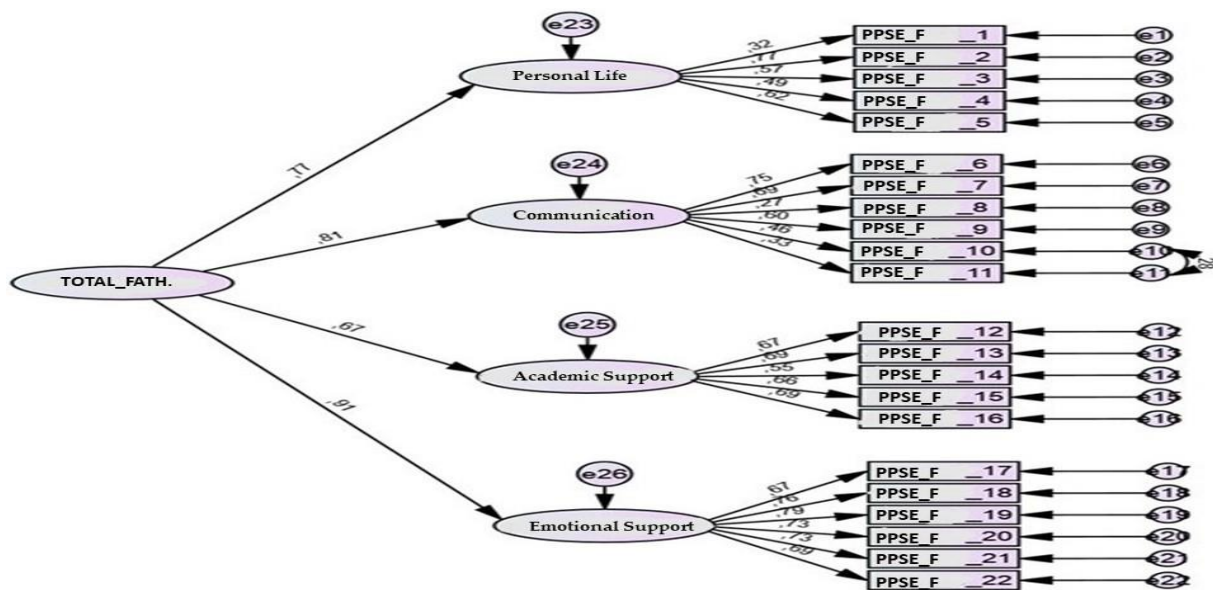


Figure 4. The Second-Order Confirmatory Factor Analysis of the PPSES for Fathers - Standardized Path Coefficients

Table 2 indicates the calculations related to the discrimination power of the items in the measurement tool. The raw scores obtained from each item were ranked, and then the lower 27% and upper 27% segments that each consisted of 166 people were determined. Table 2 also offers findings on the discrimination power.

**Table 2.** Distinctiveness levels of the items (sub-dimensions for mothers and fathers)

Factor	PPSES_Mother t	PPSES_Father t	
F1- Personal Life	1	-4,857***	-4,266***
	2	-14,239***	-19,240***
	3	-9,557***	-10,809***
	4	-8,919***	-9,095***
	5	-10,659***	-15,722***
F2 - Communication	6	-15,429***	-22,476***
	7	-13,716***	-17,703***
	8	-7,204***	-7,289***
	9	-11,456***	-14,314***
	10	-7,364***	-11,051***
	11	-6,205***	-9,662***
F3 - Academic Support	12	-10,337***	-13,599***
	13	-15,635***	-18,170***
	14	-11,984***	-14,144***
	15	-11,590***	-14,022***
	16	-14,389***	-19,230***
F4 - Emotional support	17	-14,021***	-20,195***
	18	-15,029***	-21,671***
	19	-13,589***	-18,578***
	20	-13,672***	-17,253***
	21	-14,992***	-17,856***
	22	-13,926***	-18,913***
<b>Total</b>	<b>-66,521***</b>	<b>-48,185***</b>	

Table 2 shows that the t values of the PPSES for mothers varied between -4,857 and -15,635, and the t values of the PPSES for fathers ranged between -4,266 and -21,671. The t value for the scale as a whole was calculated as -66,521 and -48,185, respectively. The level of each identified difference was found to be significant ( $p < 0,001$ ). Thus, it seems that both the scale as a whole and each of the items of the scale met the threshold of distinctiveness.

#### *Item Total Correlations*

Table 3 offers the item-total correlations obtained for each item.

**Table 3.** Results of the Item-Total Correlation Analysis

	F1 Personal Life		F2 Communication		F3 Academic Support		F4 Emotional Support	
	M	r	M	r	M	r	M	r
PPSES_Mother	1	.211***	6	.582***	12	.398***	17	.573***
	2	.557***	7	.564***	13	.535***	18	.605***
	3	.382***	8	.252***	14	.464***	19	.573***
	4	.421***	9	.436***	15	.450***	20	.576***
	5	.463***	10	.329***	16	.509***	21	.586***
			11	.230***			22	.537***
PPSES_Father	1	.248***	6	.612***	12	.419***	17	.630***
	2	.579***	7	.554***	13	.535***	18	.647***
	3	.371***	8	.202***	14	.452***	19	.631***
	4	.323***	9	.462***	15	.426***	20	.627***
	5	.548***	10	.369***	16	.591***	21	.610***
			11	.300***			22	.603***

\*\*\* p&lt;.001

As shown in Table 3, the item test correlation coefficients for the PPSES\_Mother form varied between .211 and .557 for the first factor, .230 and .582 for the second factor, .398 and .535 for the third factor, and .537 and .605 for the fourth factor. Each item had a significant and positive relationship with the overall factor ( $p < 0,001$ ). As for the PPSES\_Father form, these coefficients ranged between .248 and .579 for the first factor, .202 and .612 for the second factor, .419 and .535 for the third factor, and .603 and .647 for the fourth factor. Each item had a significant and positive relationship with the overall factor ( $p < 0,001$ ). Büyüköztürk (2007) reported that items with an item-total correlation of .30 and above distinguish individuals well; items with a value between .20 and .30 can be used if deemed necessary. Table 4 demonstrates that 1st, 8th and 10th items in the scale form for mothers as well as 1st and 8th items in the scale form for fathers had a correlation value between .20 and .30. However, as the analyses revealed that these items supported the factor structure, they were not excluded from the scale. Considering all these, it seems that the item-total correlations of the scale were satisfactory.

### Findings on the Reliability of the Scale

To test the reliability of the scale, internal consistency analyses were performed on the data. The procedures followed and the findings are presented below:

#### *Internal Consistency Levels*

The reliability of the items of the scale and the scale itself was tested using the Cronbach's Alpha reliability coefficient, the split-half correlation value, the Spearman-Brown formula and the Guttman split-half reliability formula. Table 4 presents the values of the reliability analysis for each factor and the scale as a whole.

**Table 4.** Internal Consistency Levels

	Factors	Number of Items	Split-Half Correlation	Spearman Brown	Guttman Split-Half	Cronbach's Alpha
<b>PPSES_Mother</b>	F1 Personal Life	5	.474	.643	.650	.640
	F2 Communication	6	.559	.717	.717	.690
	F3 Academic Support	5	.670	.802	.776	.764
	F4 Emotional Support	6	.692	.818	.818	.841
	Total	22	.650	.788	.780	.871
<b>PPSES_Father</b>	F1 Personal Life	5	.528	.691	.682	.692
	F2 Communication	6	.565	.722	.722	.705
	F3 Academic Support	5	.703	.825	.799	.787
	F4 Emotional Support	6	.760	.864	.864	.870
	Total	22	.651	.789	.771	.884

Table 4 shows that the Cronbach's Alpha values of the PPSES for mothers were, respectively, .64 for the factor personal life, .69 for communication, .76 for academic support, and .84 for emotional support. The total value of the scale was .87. The Cronbach's Alpha values of the PPSES for fathers were, respectively, .69 for the factor personal life, .71 for communication, .79 for academic support, and .81 for emotional support. The value of the scale as a whole was calculated as .88. Büyüköztürk (2007) argued that a Cronbach's Alpha coefficient of .70 and above is acceptable. According to Kayış (2010), a Cronbach's Alpha coefficient between .60 and .80 indicates a very reliable scale. In conclusion, given that the internal consistency coefficient of the factor "Personal Life" in the PPSES form for mothers was low, still acceptable and that the internal consistency coefficients of the other two factors and the scale as a whole were high enough, confidence in the ability of the scale to make consistent measurements can be established.

## Section 2

In the second section of this study, the perceived parental self-efficacy of the students was examined by gender through the t-test based on the forms for mothers and fathers. Table 5 presents the results of this analysis.

**Table 5.** The t test results of the scores of the students on the perceived parental self-efficacy scale by gender

	Gender	N	x	S	sd	t	p
<b>1. The PPSES - Form for Fathers</b>	Female	350	81.05	16.41	614	1.135	.257
	Male	266	79.64	13.64			
<b>2. The PPSES - Form for Mothers</b>	Female	350	83.99	14.80	614	1.164	.245
	Male	266	82.66	13.14			

\*The PPSES Perceived Parental Self-Efficacy Scale

Table 5 demonstrates that the scores of the students on the perceived parental self-efficacy scale on the form for fathers [ $t(614) = 1.135, p > .05$ ] and on the form for mothers [ $t(614) = 1.164, p > .05$ ] did not show a significant difference by gender.



**Table 6.** Results of the relationships between the variables, Cronbach's Alpha values and descriptive statistics

Variables	1	2	3
1. The Trait-Anxiety Scale	1		
2. The PPSES - Form for Fathers	-.38*	1	
3. The PPSES - Form for Mothers	-.41*	.66*	1
Average	46.68	80.45	83.42
Standard Deviation	9.54	15.29	14.11
Cronbach's Alpha	.83	.87	.88

\*p&lt;.001

The relationship between the scales in Table 6 implies a significant negative correlation between the trait-anxiety scale, and the PPSES form for fathers ( $r = -.38$ ) and the PPSES form for mothers ( $r = -.41$ ) ( $p < .001$ ). In addition, a significant positive correlation was found between the PPSES form for fathers and the PPSES form for mothers ( $r = .66$ ) ( $p < .001$ ).

This study carried out multiple regression analysis to find the factors that predicted the trait-anxiety levels of the students in the form for mothers and the form for fathers in the perceived parental self-efficacy scale. Table 7 presents the results of the multiple regression analysis.

**Table 7.** Results of the stepwise regression analysis on the predictors of the trait-anxiety levels

Variables	B	SE <sub>B</sub>	$\beta$	t	p	R	R <sup>2</sup>	F
Regression coefficient								
The PPSES - Form for Fathers	-.120	.030	-.192	-3.947	.000	.44	.19	71.361*
The PPSES - Form for Mothers	-.191	.033	-.283	-5.820	.000			

\*p&lt;.001

As shown in Table, the results of the multiple regression analysis performed to ascertain the exploratory effect of the PPSES form for mothers and fathers on the trait-anxiety levels, indicated that the PPSES form for mothers and fathers together significantly explained about 19% of the total variance in the trait-anxiety scores of the students ( $p < .001$ ). Based on the standardized regression coefficients ( $\beta$ ), the order of importance of the predictor variables on the trait-anxiety levels was the PPSES form for mothers and the PPSES form for fathers. The results of the t-test on regression coefficients indicated that the PPSES form for mothers ( $t = -5.820$ ,  $p < .001$ ) and the PPSES form for fathers ( $t = -3.947$ ,  $p < .001$ ) were identified as significant predictors on the trait-anxiety levels ( $p < .001$ ).

### Conclusion and Discussion

This study was performed in two steps. The first step included the development of the Perceived Parental Self-Efficacy Scale to measure the parental self-efficacy levels through the perception of adolescents or their children. The psychometric properties of the measurement tool were determined, and the 22-item tool consists of 4 sub-dimensions of Personal Life (5 items), Communication (6 items), Academic Support (5 items) and Emotional Support (6 items). The finalized version of the scale has been established as an instrument for

measuring the parental self-efficacy perceived by the individuals aged between 11-18 in the Turkish culture. In the second step of this study, the parental self-efficacy perceived by the adolescents aged between 11-18 from their mothers and fathers in the Perceived Parental Self-Efficacy Scale, which was developed in the first step, was found to significantly differ for the female participants. Also, the regression analysis found out that the trait-anxiety level was significantly predicted by perceived parental self-efficacy.

The psychometric properties of the parental self-efficacy scale perceived from the perspectives of adolescents that aligns with Turkish culture were established as valid and reliable, which is the first objective of this study. It is remarkable that there are only few measurement tools in the literature to measure parental self-efficacy; attempts have been made to fill such gap with measurement tools designed for parenting skills, perceptions and attitudes. What's more, it is reported that no measurement tool to measure parental self-efficacy specific to the adolescent period is available in the literature (Witkowski et al., 2017; Jones and Prinz, 2005). Given the personality development in adolescence, the support adolescents receive or perceive from their families shape all their developmental areas (Ardelt and Eccles, 2001). Besides, according to Belsky et al. (2001), the level of satisfaction that adolescents receive from their families can allow them to be able to solve problems in the future, fulfill their responsibilities, and even more, they can carry the satisfaction they receive from their families to future generations. Considering the abstract thinking styles of adolescents and their desire to have a say in family relations, their perceptions of their parents are also considered as an issue that needs to be addressed. From this standpoint, a measurement tool for the perceived parental self-efficacy for adolescents, especially one that aligns with our own culture, will perhaps help adolescent-centered family life.

The measurement tool developed in this study differs from other measurement tools in that the self-efficacy levels of the parents are determined not by the statements answered by the parents, but by the adolescents. Allowing the children to be involved in family decisions and preventing the parents from being the only ones who have a say in the family would greatly strengthen family relationships, and consequently boost the self-efficacy levels of parents. It is acknowledged that adolescents who are satisfied with their family life and the approach of their parents are more adaptable and have higher self-esteem in their post-family social life (Gilman, 2001; Gilman and Huebner, 2000). For this reason, due to the nature of this measurement tool, adolescents or children are asked about the self-efficacy levels of their parents, which may enable them to become more involved in family relationships and aware of these relationships. Furthermore, the availability of a measurement tool that can provide insights into the parental self-efficacy levels through the perception of the child or the adolescent, will hopefully contribute to the field.

Another peculiarity of the Perceived Parental Self-Efficacy Scale developed in this study is that it features a sub-dimension related to the perceived personal life of the parents, unlike other measurement tools. Bandura (2009) argued that the basic experiences associated with being able to act independently, making plans, and being motivated, which are the resources of self-efficacy influence the physical emotional state linked to emotional self-sufficiency and taking care of one's health. From this point of view, it is not surprising that an individual with parental self-efficacy has a harmonious and satisfying life. In addition, Caprara et al., (2004) and Ardelt and Eccles (2001) stated that spousal harmony and the consistency of the parents both internally and in their relationships have an effect on self-efficacy levels. These being said, it is reasonable to argue that parenting is not only about taking care of the child, but also about being self-sufficient in personal life. The inclusion of a dimension related to the personal life of parents in the measurement tool in this study will hopefully fill the scholarly gap in research on parents and add to the existing literature.

The Perceived Parental Self-Efficacy Scale developed in this study has both a form for mothers and a form for fathers. It is remarkable that the existing measurement tools on parental self-efficacy are intended to be answered by the mother only (Coleman and Karraker, 2000), or by the father only (Sevigny et al., 2016) or by both of them. The measurement tool in this study provides insights into the perceived self-efficacy of the

parents together and the self-efficacy of the mother and the father separately. This makes it a versatile instrument.

This study concluded that the parental self-efficacy by the adolescents did not differ by gender. In other words, the boys and the girls in this study perceived the self-efficacy of their parents at the same level. Similarly, Sansom (2010) highlighted that parenting dynamics incorporate gender-specific roles, and these do not change later by gender. Pruett and Pruett (2009) reported that children adopt roles related to each of their parents, and then view their parents as equal partners when these roles are fulfilled. For that reason, the reason why there was not a significant difference in the perceived parental self-efficacy by gender may be because the socially-assigned roles of parents are fulfilled by them.

The final findings of this study emphasized that the trait-anxiety of the adolescents was predicted by the scores on the Perceived Parental Self-Efficacy Form for Mothers and the Perceived Parental Self-Efficacy Form for Fathers in order of importance. According to Jackson (1998), young people who are encouraged to communicate well with their parents feel better emotionally. It is further known that establishing open and close relationships with adolescents as their parents are effective in strengthening their social and emotional skills, helping them cope with life problems, increasing the quality of their adulthood in the future and being psychologically healthy (Ben-Zur, 2003; Best et al., 1997). Besides, confidence given by parents to their children supports their belief in family dynamics and allows them to be more transparent (Hess et al., 2004). Spending active time with children strengthens family belonging (Albenese et al., 2008), and providing academic support to children boosts their academic success, and ensures that the mother and the child experience less anxiety (Çapulcuoğlu and Gündüz, 2013; Hess et al., 2004; Wolfradt et al., 2003). Similar to this, Erkan (2002) determined that adolescents with high levels of social anxiety, which is a part of trait-anxiety, are exposed to negative parental attitudes. In short, also in consideration of other studies, it is clear that the perceived self-efficacy levels of parents are affected by the trait-anxiety levels of their children.

Based on the results of this study, more measurement tools that align with the Turkish culture can be designed for age groups other than adolescents. Also, taking into account that the parental self-efficacy perceived by girls and boys may differ by gender, further studies may focus on determining the psychometric properties of the measurement tools specific to this difference. As with any quantitative research, the characteristics to be measured in this study are limited to the scale. Also, research drawing on qualitative methods can be conducted to support the findings of this study. Building on the finding that the trait-anxiety predicts the perceived parental self-efficacy, future research may develop measurement tools to control anxiety both for the parents themselves and their children or investigate it. In this measurement tool, the discipline sub-dimension did not adapt. Discipline sub-dimension can be created by developing appropriate items in other parental self-efficacy measurement tools.

#### **Statement of the Author(s)**

**Ethics Committee Decision:** The Ethics Committee Approval from the Scientific Research and Publication Ethics Committee of Hatay Mustafa Kemal University in the Field of Social and Human Sciences (article dated 23.06.2021 and numbered 09)

**Declaration of conflict:** There is no conflict of interest.

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## EK.1: ALGILANAN EBEVEYN YETKİNLİK ÖLÇEĞİ

ANNEM İÇİN					ALGILANAN EBEVEYN YETKİNLİK ÖLÇEĞİ					BABAM İÇİN				
HİÇ KATILMIYORUM	KISMEN KATILMIYORUM	KARARSIZIM	KISMEN KATILYORUM	TAMAMEN KATILYORUM	Sevgili Öğrenciler; aşağıdaki maddeler ebeveynlerinizin (anne/babanızın) size karşı tutumlarını ifade etmektedir. Ebeveyninizin (anne / babanızın) aşağıdaki maddelere göre ne kadar yetkin olduğunu düşünerek; (1) hiç katılmıyorum, (5) tamamen katılıyorum arasındaki rakamlara denk gelecek şekilde cevaplarınızı işaretleyiniz. Maddeleri, lütfen anneniz ve babanız için ayrı düşünerek cevaplayınız. Anne baba birlikte yaşamıyor ise kimle yaşıyorsanız sadece ona göre cevaplayınız.					HİÇ KATILMIYORUM	KISMEN KATILMIYORUM	KARARSIZIM	KISMEN KATILYORUM	TAMAMEN KATILYORUM
1	2	3	4	5	MADDELER					1	2	3	4	5
					1	Ebeveynimin (anne/babamın) ev dışında görüştüğü arkadaşları vardır.								
					2	Ebeveynimi mutlu birisi olarak bilirim.								
					3	Ebeveynim insanlarla kolay iletişime geçer.								
					4	Ebeveynim ev dışında rahatsız olduğu durumlarda hakkını savunur.								
					5	Ebeveynlerim ailemizle ilgili bir sorunla karşılaştıklarında birlikte çözerler								
					6	Ebeveynim benimle ilgili hoşlanmadığı durumları beni kırmadan yansıtır.								
					7	Ebeveynime sorunlarımı anlatırken yargılandığımı hissetmem.								
					8	*Ebeveynim beni başkalarıyla kıyaslar.								
					9	Evde benimle ilgili bir sorun olduğunda ebeveynim sesini yükseltmeden konuşur.								
					10	*Ebeveynimle iletişim kurduğumda bana karşı baskıcı olduğunu hissedirim.								
					11	*Bir sorun yaşadığımda ebeveynim olaya tek taraflı bakar.								
					12	Ebeveynimin öğretmenimle iş birliği yaptığını / görüştüğünü bilirim.								
					13	Ebeveynim okulum ile ilgili faaliyetlere katılmada isteklidir.								
					14	Ebeveynim evde yemek saati, misafir davet etme gibi durumlarda ders çalışma programımı göz önüne alır.								
					15	Ebeveynim okul rehberlik servisiyle iletişim halindedir.								
					16	Ebeveynim okuldaki sosyal etkinliklere katılmam konusunda beni teşvik eder.								
					17	Zor zamanlarımda ebeveynim yanımda olma konusunda yeterlidir.								
					18	Ebeveynim beni sevdiğini ifade eder.								
					19	Ebeveynimin beni sevdiğini davranışlarından anlarım.								
					20	Ebeveynim bana güvendiğini hissettirir.								
					21	Ebeveynimi üzen bir davranış yapsam bile onun tarafından sevildiğimi hissedirim.								
					22	Ebeveynim benimle ilgili olumlu düşüncelerini yüzüme karşı ifade eder.								

\* Tersten puanlanan maddeler

BOYUT	MADDELER
KİŞİSEL YAŞAM	1,2,3,4,5,
İLETİŞİM	6,7,8,9,10,11
AKADEMİK DESTEK	12,13,14,15,16,
DUYGUSAL DESTEK	16,17,18,19,20,21,22

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