

# Development of a Career Calling Scale for Preadolescents: Validity and Reliability Study\*

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The aim of this study is to develop the Career Calling Scale for Pre-Adolescents (CCS-PA) and to conduct validity and reliability analyses to determine the career calling levels of pre-adolescents. Exploratory factor analysis (EFA) was conducted to determine the construct validity of the scale, and data were collected from 564 middle school students. As a result of the factor analysis, a three-factor structure explaining 53.38% of the variance was identified. For confirmatory factor analysis (CFA), data were collected from 187 students, and the model was found to have a good fit ( $\chi^2/df = 1.59$  ( $p = .000$ ); RMSEA = .05; GFI = .92; AGFI = .89; CFI = .94; IFI = .94). The Career Exploration Scale was used for criterion validity, and a significant positive correlation was found between the two scales. The Cronbach's alpha internal consistency coefficient of the CCS-PA was at a high level, and all findings indicate that the scale is a valid and reliable measurement tool for assessing the career calling of pre-adolescents.

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**Keywords:** Pre-adolescence, career, career calling

## INTRODUCTION

Career calling is a factor that enables individuals to actively pursue their careers by incorporating characteristics such as finding meaning in their careers for both themselves and others, as well as making efforts to help others (Praskova et al., 2014). The concept of career calling has been defined in various ways in the literature. Hall and Chandler (2005) describe it as work that an individual perceives as their life's purpose. Similarly, Cardador et al. (2011) define it as a concept that carries purpose, intrinsic meaning, and value toward one's work. Zhang et al. (2012) explain career calling as the driving force behind an individual's pursuit of professional goals. Xu et al. (2022) describe it as a concept that adds intrinsic passion to a person's self-actualization by assigning meaning to their career development process. Likewise, Bott et al. (2017) define it as an inspiring approach to work that fosters positive social motivation and gives meaning to an individual's career development journey.

In this context, the three components that constitute career calling are defined as possessing talent in the field of career calling, engaging in behavioral participation in the career calling domain, and receiving social support in the career calling field (Dobrow, 2007). A review of the relevant literature suggests that career calling emerges in relation to a specific domain and is not simply present or absent but rather manifests on a continuum from low to high or weak to strong (Dobrow, 2007). Additionally, it is emphasized that experiencing career calling in only one specific field is not necessarily possible. Individuals may not feel a calling toward any field at all, or they may have a strong or weak career calling directed toward one, two, or multiple fields (Dobrow, 2007).

Career calling is a career goal that involves an individual's perception of their career development process as personally meaningful and their effort to help others throughout this journey (Duffy & Sedlacek, 2007). Studies have shown that career calling enhances career commitment (Duffy & Sedlacek, 2007; Steger et al., 2010) and increases individuals' intrinsic motivation and engagement in their work (Duffy et al., 2011).

Career calling is considered one of the many personal variables that contribute to an individual's career adaptability (Savickas, 2005; Dik & Duffy, 2009). From a theoretical perspective, within the framework of Social Cognitive Career Theory (SCCT), career calling is regarded as part of the learning experiences that influence an individual's career-related expectations (Domene, 2012). This approach also suggests that career calling plays a key role in career decision-making (Kara, 2023). Based on this, it can be stated that individuals' experiences rooted in social learning present an opportunity to develop their career calling (Lent et al., 1994).

A high level of career calling has been shown to provide numerous benefits to individuals across various domains, and it is associated with many career-related constructs in the literature. Some of these constructs include career commitment (Duffy & Sedlacek, 2007; Steger et al., 2010), career adaptability (Eryılmaz & Kara, 2018), career self-efficacy beliefs (Dobrow & Tosti-Kharas, 2011; Duffy et al., 2011; Hirschi, 2011), vocational self-efficacy (Shang et al., 2022), intrinsic motivation (Duffy et al., 2011), work engagement (Dobrow, 2007; Duffy et al., 2011), job satisfaction (Bott et al., 2017; Huang et al., 2022; Shang et al., 2022), life satisfaction (Bott et al., 2017; Duffy & Sedlacek, 2010; Torrey & Duffy, 2012), well-being (Bott et al., 2017; Duffy et al., 2011),

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vocational development (Duffy et al., 2011), job performance (Yu et al., 2022), willingness to share responsibilities (Liu & Xu, 2022), and career commitment (Bott et al., 2017; Duffy et al., 2011).

Additionally, individuals with a high level of career calling are more aware of their professional interests, demonstrate strong passion toward their career goals, perceive their future careers as significant, and possess a greater drive to find meaning in their career development (Dalla-Rosa & Vianello, 2020; Duffy & Sedlacek, 2007).

Career calling is also considered a motivational factor. As career calling increases, individuals' intrinsic motivation rises, and their job-related self-efficacy is positively influenced (Dik et al., 2008; Duffy et al., 2011; Duffy & Sedlacek, 2007).

The level of career calling can fluctuate throughout an individual's professional life, either increasing or decreasing. However, its foundations are laid before entering the workforce (Wrzesniewski, 2012). For this reason, the literature emphasizes the importance of studying this concept among individuals who have not yet entered the job market and who are in the decision-making stage regarding their future and profession (Praskova et al., 2015). Despite this, a review of the literature reveals that career calling has predominantly been studied among university students (Dik et al., 2008; Dobrow & Tosti-Kharas, 2011; Duffy et al., 2011; Duffy et al., 2012; Duffy & Sedlacek, 2007; Hirschi & Hermann, 2013; Woitowicz & Domene, 2013). However, considering the educational context in Türkiye, by the time students reach university, they have largely already chosen their professions, entering a path that is often difficult to change. Therefore, it is crucial to study career calling among middle and high school students before they make career-related decisions during university.

Career calling is not a concept that emerges suddenly; rather, it is a process that requires attention and development from the earliest moments when the notion of a profession is first introduced. The pre-adolescence period is particularly significant, as it is when children begin to recognize the concept of careers and explore their areas of interest. Awareness developed at this stage can influence future educational choices and career decisions in later years.

In Türkiye, immediately following this period, students select the secondary education institutions they will attend. Given this, it is considered important for students to develop awareness of career calling before taking the High School Entrance Exam (LGS) so that they can make more informed choices about their future academic and professional paths.

Pre-adolescence is a critical stage for developing future-oriented interests and career awareness, allowing individuals to articulate their aspirations. Additionally, early career interventions contribute to more informed educational and career choices. Scale development studies are also considered essential for evaluating the effectiveness of these interventions and understanding children's interests and needs. A review of the literature reveals that career calling scales specific to this age group are limited. Although some studies on this topic exist in Türkiye, they do not specifically focus on pre-adolescents. Given the significance of the concept, the need for developing a new measurement tool has emerged to address this gap.

At the same time, the presence of such a measurement tool in the literature is considered a significant need for both educators and parents. Both educators and parents play a crucial role in children's career development processes. In this context, understanding the career calling levels of children is seen as essential data for effectively planning and guiding their career-related decisions. Based on this need, the aim of this study is to develop a valid and reliable measurement tool to assess the career calling of pre-adolescents.

## METHOD

In this section of the study, information about the type of research, item writing and creation of the item pool is given.

### Type Of Research

This study aims to develop a measurement tool to assess career calling in pre-adolescents. According to Erkuş (2014), scale development studies should focus on examining the psychometric properties of the scale and establishing its structural validity. The scale developed in this research was designed in a Likert-type format. In this format, participants' opinions, attitudes, behaviors, and tendencies are presented in an ordered manner.

A review of the literature indicates that most Likert-type scales use four-point, five-point, or seven-point rating systems to effectively dimensionalize the concept being measured (Croasmun & Ostrom, 2011). Accordingly, the Career Calling Scale for Pre-Adolescents was developed using a five-point Likert scale, with response options ranging from "Strongly Disagree", "Disagree", "Neutral", "Agree", to "Strongly Agree".

### **Item Writing and Development of the Item Pool**

To develop the scale items and create the item pool, relevant literature on career calling and career calling in pre-adolescents was reviewed. The characteristics that should be present in an individual with a high level of career calling were identified, and items were written based on these characteristics. Additionally, existing scales on career calling were examined, and items that were particularly suitable for the pre-adolescence period were included in the item pool.

During the item pool development phase, a qualitative study was first conducted with 7th-grade students. As part of this study, a form containing open-ended questions related to the concept of career calling was distributed to the students. The questions in the form included: "What do the concepts of career, career development, and career calling mean to you?", "What are the factors that motivate you to have or strive for your dream profession? (List at least three factors)", "Imagine your dream profession. You are working in this profession. What motivates you to go to work and continue in this profession? (List at least three factors)", "What is/are your reason(s) for choosing your dream profession?" This form was distributed to 103 students; however, 24 forms that were not properly completed were excluded from the analysis. Based on the students' responses, additional items were incorporated into the item pool, resulting in a final set of 73 items.

The 73-item trial form was sent to three field experts specializing in career studies and two experts specializing in measurement and evaluation to obtain expert opinions. Based on the feedback received from these experts, some items were removed from the item pool, some new items were added, and modifications were made to certain items. After these revisions, the final item pool was reduced to 31 items.

In scale development studies, it is assumed that individuals answering the scale can comprehend the statements and concepts presented (Jobe, 2003). To confirm this assumption and assess the clarity of the items, interviews were conducted with six students from 6th, 7th, and 8th grades (one male and one female student from each grade level).

After responding to the items in the item pool, students were asked the following questions for each item: "Was this item clear to you?", "Did you have difficulty answering this item? If so, what was the reason?", "What does this item mean to you?", and "What factors did you consider while answering this item?" Additionally, to evaluate the overall comprehensibility of the scale, they were asked: "Was the instruction clear to you?", "Do you think there is anything that should be added?", and "Was there any unnecessary detail in the scale?"

Each interview lasted approximately 30 minutes. Based on the students' responses, no modifications were made to the item pool, and the final version of the scale was prepared for implementation.

For the implementation of the 31-item trial form, three different middle schools in a district of Istanbul were selected based on their academic achievement levels (one school from each low, medium, and high achievement category). The trial form was administered to a total of 564 middle school students from 6th, 7th, and 8th grades across these three schools. Only students who submitted parental consent forms and volunteered to participate were included in the study. Inclusive education (special education) students were excluded from the research.

### **Research Group**

The study was conducted with two different groups. The research participants consisted of 6th, 7th, and 8th-grade students enrolled in public schools in a district of Istanbul. For the first research group, Exploratory Factor Analysis (EFA) and reliability analyses were conducted to test the construct validity of the Career Calling Scale for Pre-Adolescents.

The research group consisted of 364 students from 6th, 7th, and 8th grades who had submitted parental consent forms. However, 17 students were excluded from the study due to incomplete responses on their forms. As a result, data from 347 students were included in the analyses. The average age of the participating

students was 12.31 years. Additionally, the criterion validity study of the scale was conducted with 256 students from 6th and 7th grades within this group.

For the second research group, Confirmatory Factor Analysis (CFA) was conducted to test the construct validity of the Career Calling Scale for Pre-Adolescents. This research group consisted of 200 students from 6th, 7th, and 8th grades who had submitted parental consent forms. However, 13 students were excluded from the study due to incomplete responses on their forms. As a result, data from 187 students were included in the analyses.

The demographic information of the study groups is presented in Table 1.

**Table 1. Demographic Information of Students Participating in the Study**

	Study Group 1		Study Group 2	
	N	%	N	%
<b>Gender</b>				
Female	173	49,9	83	44,7
Male	174	50,1	104	55,3
Total	347	100	187	100
<b>Level of School Enjoyment</b>	N	%	N	%
Low	59	17	35	18,8
Medium	192	55,3	108	56,9
High	96	27,7	44	24,4
Total	347	100	187	100

## Data Collection Tool

### *Personal Information Form*

The form was developed by the researcher to obtain information about the demographic characteristics of the students. It includes questions aimed at determining gender, age, and attitude toward school satisfaction.

### *Career Calling Scale for Pre-Adolescents (CCS-PA)*

The Career Calling Scale for Pre-Adolescents (CCS-PA) is a 14-item, 5-point Likert-type scale. It consists of three dimensions, named "initial motivation," "behavioral engagement," and "social support." The highest possible score on the scale is 70, while the lowest is 14. Higher scores indicate a higher level of career calling in the respondent. The findings section of the study includes validity and reliability analyses of the scale.

### *Career Exploration Scale*

The Career Exploration Scale was developed by Tracey et al. (2006) and adapted into Turkish by Özeydin & Siyez (2022). It was designed to measure the extent to which 4th to 7th-grade students engage in career exploration behaviors. The scale consists of 9 items and follows a five-point rating system: (1) Never, (2) Once or Twice, (3) A Few Times, (4) Many Times, (5) Very Frequently. The highest possible score on the scale is 45, while the lowest is 9. Higher scores indicate a higher level of career exploration. The Cronbach's alpha reliability coefficient for the scale was found to be .83, with item-total correlation values ranging between .44 and .64 (Özeydin & Siyez, 2022).

## Data Collection and Analysis

The data collection process in the study was carried out in two phases. In this context, validity and reliability analyses were conducted with two different research groups. For the Exploratory Factor Analysis (EFA) and reliability analyses of the 31 items, data were collected from 364 middle school students. In the second phase of the study, data were collected from 200 students for the Confirmatory Factor Analysis (CFA). All data were collected in person through direct interactions with the students. During the data collection process, both parents and students were informed about the purpose of the study, the confidentiality of the data, and the fact that the data would be used exclusively for research purposes. Completing the item pool took approximately 15 minutes for the participating students.

SPSS 22 and AMOS 26 programs were used for data analysis. Initially, the suitability of the data for factor analysis was examined. Outliers were removed from the dataset using missing value analysis and Mahalanobis distance calculations. As a result, 17 cases were excluded from the first research group, leaving 347 participants for Exploratory Factor Analysis (EFA) and 187 participants for Confirmatory Factor Analysis (CFA). A sample size of at least 300 is considered appropriate for factor analysis (Tabachnick & Fidell, 2015). The 347 cases used for EFA meet this requirement. Additionally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated to determine the suitability of the data for factor analysis. KMO compares the magnitude of observed correlation coefficients with partial correlation coefficients. A KMO value above 0.5 is required for data suitability (Leech et al., 2005). The KMO coefficient was found to be .87, confirming the adequacy of the dataset for factor analysis. The ratio of 347 participants to the 31 items in the item pool was 11.19. A minimum item-to-participant ratio of 5:1 is recommended for EFA (Büyüköztürk, 2011), indicating that this criterion was met. Additionally, Bartlett's test of sphericity was conducted for the 347 cases, yielding a result of  $p < .001$ . This finding suggests that the data follow a multivariate normal distribution, differ from an identity matrix, and allow for factor extraction (Çokluk et al., 2016). Overall, these analyses confirmed that the dataset was suitable for EFA. In EFA, the principal component analysis technique was employed for factor extraction. To further validate the resulting structure, Confirmatory Factor Analysis (CFA) was conducted. The ratio of 187 participants to the 14 items in the scale was 13.35, which meets Büyüköztürk's (2011) recommendation for adequacy. The KMO coefficient for CFA was .85, and Bartlett's test yielded a p-value of  $< .001$ , confirming that the data were ready for analysis. For criterion validity analysis, Pearson product-moment correlation coefficients were calculated between the scales. For reliability analysis, Cronbach's alpha internal consistency coefficient, Pearson product-moment correlation coefficient, item-total correlation coefficients, and test-retest reliability were calculated.

## FINDINGS

### Findings Related to Validity

#### *Exploratory Factor Analysis (EFA)*

The Exploratory Factor Analysis (EFA) of the Career Calling Scale for Pre-Adolescents (CCS-PA) was conducted to determine its construct validity and the factor loadings of the items. Items were removed from the scale based on insufficient factor loadings, items loading on multiple factors above .40, and items loading on two factors with a difference of .20 or less (DeVellis, 2003). Additionally, items that showed high correlations with each other were removed to prevent multicollinearity issues (Tabachnick & Fidell, 2015).

As a result of the items filtered based on the necessary criteria, a three-factor structure consisting of 14 items was obtained. Suitability analyses were conducted again for the exploratory factor analysis (EFA) performed on these 14 items. In this context, the suitability of the data for exploratory factor analysis was examined using the KMO coefficient and Bartlett's test (Pallant, 2001). As a result of the analysis, the KMO value was calculated as 0.87, and Bartlett's test was found to be significant ( $\chi^2 = 1340.327$ ;  $p < 0.00$ ). The obtained values indicate that conducting EFA on the scale items is appropriate.

The values obtained as a result of the exploratory factor analysis are presented in Table 2.

**Table 2. Factor Loadings of the Career Calling Scale for Early Adolescents**

Item No	Initial Motivation	Behavioral Engagement	Social Support
Item 1	.468		
Item 2	.686		
Item 3	.664		
Item 4	.818		
Item 5	.739		
Item 6	.603		
Item 7		.442	
Item 8		.571	
Item 9		.833	
Item 10		.709	
Item 11		.497	
Item 12			.640
Item 13			.842
Item 14			.829
			<i>Self-Worth : 8,437</i>
			<i>Total Explained Variance : %53,38</i>

As seen in Table 2, the exploratory factor analysis (EFA) results indicate that the scale is grouped under three factors with eigenvalues greater than 1. The naming of these factors was based on the definition of the concept of career calling. In this context, the first factor was named Initial Motivation, the second factor Behavioral Engagement, and the third factor Social Support. The total variance explained by this three-factor structure for the scale was found to be 53.381%.

### ***Criterion Validity***

To assess the criterion validity of the Career Calling Scale for Early Adolescents, the Career Exploration Scale, adapted into Turkish by Özeydın and Siyez (2022), was used. In the criterion validity study, the correlation coefficients calculated between the total scores obtained from the scales are presented in Table 3.

**Table 3. Findings on the Criterion Validity of the Career Calling Scale for Early Adolescents**

	CCS-PA - Total	Initial Motivation	Behavioral Engagement	Social Support	PA - Total
CCS-PA -Total	1.00				
Initial Motivation	.86**	1.00			
Behavioral Engagement	.85**	.61**	1.00		
Social Support	.64**	.35**	.34**	1.00	
PA -Total	.46**	.31**	.49**	.30**	1.00

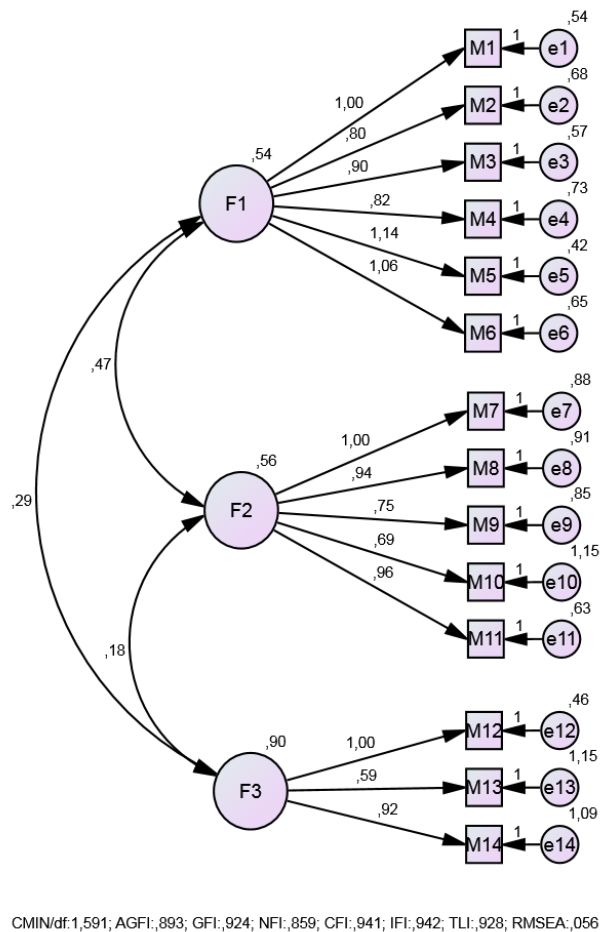
\*\* $p < .01$

When Table 2 is examined, it is seen that the total score of the Career Exploration Scale has a moderate positive and significant relationship with the total score of the Career Calling Scale for Early Adolescents ( $r = .46$ ;  $p < .01$ ). When looking at the sub-dimensions, Initial Motivation ( $r = .31$ ;  $p < .01$ ) and Behavioral Engagement show a moderate relationship, while Social Support ( $r = .49$ ;  $p < .01$ ) has a low but significant relationship.

### Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was conducted to examine whether the factor structure identified through exploratory factor analysis (EFA) demonstrated a good fit. The results of the analysis are presented in Figure 1.

**Figure 1. Confirmatory Factor Analysis (CFA) Results**



As seen in Figure 1, the goodness-of-fit indices obtained from the Confirmatory Factor Analysis (CFA) conducted for the three-factor structure were as follows: [ $\chi^2/df = 1.59$  ( $p = .000$ ); RMSEA = .05; GFI = .92; AGFI = .89; CFI = .94; IFI = .94]. The resulting goodness-of-fit indices are presented in Table 4.

**Table 4. Goodness-of-Fit Indices for the Confirmatory Factor Analysis of the Career Calling Scale for Early Adolescents**

Fit Index	Structural Equation Model (SEM)	Perfect Fit Criteria	Acceptable Fit Criteria	Evaluation
$\chi^2/(\text{df})$	117,70/74=1,59	$0 \leq \chi^2 \leq 3$	$3 < \chi^2 \leq 5$	Perfect Fit
RMSEA	0,056	$0 \leq \text{RMSEA} \leq 0,05$	$0,05 < \text{RMSEA} \leq 0,08$	Acceptable Fit
SRMR	0,076	$0 \leq \text{SRMR} \leq 0,05$	$0,05 < \text{SRMR} \leq 0,08$	Acceptable Fit
CFI	0,94	$0,97 \leq \text{CFI} \leq 1,00$	$0,94 \leq \text{CFI} < 0,97$	Acceptable Fit
IFI	0,94	$0,95 \leq \text{IFI} \leq 1,00$	$0,90 \leq \text{IFI} < 0,95$	Acceptable Fit
AGFI	0,89	$0,90 \leq \text{AGFI} \leq 1,00$	$0,85 \leq \text{AGFI} < 0,90$	Acceptable Fit
GFI	0,92	$0,90 \leq \text{GFI} \leq 1,00$	$0,85 \leq \text{GFI} < 0,90$	Perfect Fit

When examining the goodness-of-fit indices of the model, it is observed that the  $\chi^2/\text{df}$  value is 1.59. A value of 3 or below indicates that the model is a good fit (Byrne, 2013). Regarding the other fit indices of the Confirmatory Factor Analysis (CFA) conducted on the Career Calling Scale for Early Adolescents, each index falls within the perfect or acceptable fit range in terms of cutoff values (Schermelleh-Engel et al., 2003). This finding demonstrates that the three-factor structure of career calling in early adolescents is well-supported by the model.

### Findings on Reliability

#### *Cronbach's Alpha Internal Consistency Coefficient*

The Cronbach's alpha internal consistency coefficient of the Career Calling Scale for Early Adolescents was found to be .84 for the total scale in the first research group. For the sub-dimensions, the values were .80 for Initial Motivation, .74 for Behavioral Engagement, and .67 for Social Support. In the second research group, the Cronbach's alpha values were .84 for the total scale, .83 for Initial Motivation, .70 for Behavioral Engagement, and .67 for Social Support. A Cronbach's alpha value between .60 and .80 indicates that the scale is quite reliable, while a value of .80 and above signifies high reliability (Büyükoztürk, 2011). These findings demonstrate that the Career Calling Scale for Early Adolescents is a reliable measurement tool for assessing career calling.

#### *Item-Total Correlation Coefficient*

To determine the extent to which each item in the Career Calling Scale for Early Adolescents differentiates individuals, the item-total score correlation coefficients of the scale were examined. Table 5 presents the results of the Pearson product-moment correlation coefficient for the item-total score correlation.

**Table 5. Item-Total Correlation Results of the Career Calling Scale for Early Adolescents**

Items	Item-Total Correlation Coefficients
Item 1	.61
Item 2	.45
Item 3	.56
Item 4	.48
Item 5	.57
Item 6	.54
Item 7	.57
Item 8	.52
Item 9	.43
Item 10	.42
Item 11	.56
Item 12	.42
Item 13	.39
Item 14	.34



In Table 5, it is observed that the item-total correlation coefficients of the Career Calling Scale for Early Adolescents range between .34 and .61. An item-total correlation coefficient of .30 or higher indicates that the items in the scale effectively differentiate individuals, represent similar behaviors, and demonstrate high internal consistency (Büyüköztürk, 2011). Based on this, it can be stated that the scale has high internal consistency.

## RESULT and DISCUSSION

In this study, a valid and reliable scale was developed to measure the career calling of individuals in early adolescence. The findings indicate that the scale has a three-factor structure, suggesting that the concept of career calling can be examined through three fundamental dimensions: "Initial Motivation," "Behavioral Engagement," and "Social Support." These results are consistent with Dobrow's (2007) study, which explored the components of career calling. Additionally, considering that the career calling concept in the literature has been associated with factors such as intrinsic motivation (Duffy et al., 2011), career commitment (Bott et al., 2017), and professional development (Duffy et al., 2012), it is evident that the developed scale aligns with these variables in terms of structure.

The scale is a 14-item, 5-point Likert-type measurement tool, with response options ranging from "Strongly Disagree" to "Strongly Agree." The highest possible score on the scale is 70, while the lowest possible score is 14. Higher scores indicate that early adolescents have higher career calling levels. It was determined that the three factors explain 53.38% of the total variance. Additionally, the scale demonstrates an acceptable level of model fit, as indicated by the following fit indices:  $\chi^2/df = 1.59$  ( $p = .000$ ); RMSEA = .05; GFI = .92; AGFI = .89; CFI = .94; IFI = .94.

The goodness-of-fit indices obtained from the Confirmatory Factor Analysis (CFA) indicate that the proposed model is at an acceptable level (Byrne, 2013; Schermelleh-Engel et al., 2003). A significant correlation was found between the Career Calling Scale for Early Adolescents and the Career Exploration Scale, demonstrating the strong criterion validity of the scale. In particular, the positive and significant relationship between career calling and career exploration suggests that individuals' career calling plays a determining role in their career exploration processes. This finding aligns with previous studies (Özaydın & Siyez, 2022; Tracey et al., 2006), which emphasize the relationship between career exploration and motivation.

Career calling is an important factor that contributes to an individual's career development and self-actualization (Duffy & Sedlacek, 2007; Wrzesniewski, 2012). Considering that early adolescence is a period in which career awareness begins to develop (Praskova et al., 2015), developing a measurement tool specifically for this age group fills a significant gap in the literature. The findings of this study indicate that the scale can validly and reliably measure early adolescents' career calling. In this context, the scale can serve as a tool that helps early adolescents make informed career decisions and contributes to shaping vocational guidance programs in educational policies.

### Declarations

#### Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

#### Ethics Approval

The ethics committee approval of this research was obtained from "Yıldız Technical University Social and Human Sciences Research Ethics Committee" with the approval numbered '2023/06' dated '01.06.2023'.

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#### Research and Publication Ethics Statement

Hereby, we as the authors consciously assure that for the manuscript "Development of a Career Calling Scale for Preadolescents: Validity and Reliability Study" the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

## Contribution Rates of Authors to the Article

The authors provide equal contribution to this work.

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