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A scale to determine gender attitudes of primary school fourth grade students: a scale development study

Güzin Yasemin TUNÇAY [1 ✉] & Nazan KAYTEZ[1]

While sex refers to the biological characteristics of individuals, gender refers to the roles expected of female and male individuals by society. The child first learns his or her gender within the family. Factors outside the family such as mass media, games and toys, books, peers, school, and teachers also affect the child's gender development. Gender inequality is a major problem, especially in education, health, economy, and social and cultural areas. Thus, determining children's gender role attitudes at an early age is important. Based on this idea, the study was aimed at developing the "Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students". In the development process of the scale, exploratory and confirmatory factor analyses were conducted, fit indices, regression, and *t*-values of the items were analyzed, and reliability coefficients were calculated. After the process, it was determined that the scale consisted of 37 items and a single dimension, and that its KR-20 reliability coefficient was 0.90. In line with these findings, it can be said that the scale is a valid and reliable measurement tool that can measure gender role attitudes of primary school fourth grade students.

[1] Department of Child Development, Faculty of Health Sciences, Çankırı Karatekin University, Çankırı, Turkey. ✉email: yasemintuncay@karatekin.edu.tr; gyasemintuncay@gmail.com

Introduction

Sex refers to the genetic, biological, and physiological dimensions of an individual's being a woman or a man. In other words, it is defined as all of the bodily characteristics that include anatomical and physiological characteristics (San-Bayhan and Artan, 2011). On the other hand, gender is one of the basic social classifications that play an important role both in regulating people's behaviors according to certain norms, and in shaping their attitudes and behaviors towards others (Blakemore, Berenbaum, and Liben, 2009). The concept of gender emphasizes the social roles and responsibilities expected from women and men. Therefore, while sex is innate, gender role is acquired later (Altun and Toker, 2018). The roles assigned to women and men are generally divided into two groups: traditional and egalitarian roles. In the egalitarian role perception, responsibilities assigned to women and men in the family, professional, marriage, social and educational life are equal (Perrone-McGovern et al., (2014)).

On the other hand, in the traditional role perception, while women are mostly expected to take care of household chores and childcare, men are expected to meet the financial needs of the family and to be strong, authoritarian, and brave. In addition, while women are subject to inequality and discrimination in every field, men are given more opportunities by society. The basis of this problem dates back to childhood years. (Yağan-Güder and Güler Yıldız, 2016). Several factors affect an individual's perception of gender roles, but the family's attitudes towards child rearing are at the forefront of these. Children learn gender roles by observing family members. Therefore, gender roles are transmitted and reinforced through institutions such as the family, culture, school, and media. Therefore, children's being raised with an egalitarian understanding in terms of gender roles is of great importance (Goble et al., (2012); Ruble et al., (2006)).

Gender role attitude development in children

In children, the acquisition of gender role attitudes begins at birth and continues as a process. Babies can distinguish between male and female voices when they are approximately 7 months old, between the ninth and twelfth months, they show different reactions to male and female voices, and around the age of one, they can match the image with the female and male voices. At the age of two, children can determine attitudes and behaviors specific to women or men. For example, they can associate tasks such as cleaning and cooking with the mother, and tasks such as repairs and driving with the father (Yağan-Güder and Güler Yıldız, 2016).

At the age of two and a half, children can distinguish both their own gender and the gender of others. At the age of two and a half to three, they begin to form gender stereotypes regarding objects, activities, and toys. They generally prefer to play with toys that are appropriate for their gender. Many children can understand gender identity around the age of three, gender continuity at the age of four, and gender immutability at the age of five or six (Bee and Boyd, 2009; Trawick-Swith, 2013).

During the primary school years, children continue to develop their gender roles. During these years, stereotypes regarding activities, occupations, behaviors, sports, and school responsibilities are quite rigid. Gender differences are clearly observed in participation in sports activities, hobbies, daily tasks, games, and peer selection. During this period, children mostly prefer to play with friends of the same sex (Çetin Gündüz and Tarhan, 2017; Driscoll and Nagel, 2002). Play preferences of children also differ according to their gender. For instance, girls generally prefer calmer games, while boys prefer games that are more active. This situation often continues until adolescence (Ghiglieri 2002).

Many factors affect children's acquisition of gender roles. A child is born with his or her biological sex, but he or she acquires his or her gender primarily within the family. In this process, factors such as family structure, parents' level of education, mother's employment status, child's sex, parents' attitudes, and presence of siblings are very important (Yağan-Güder and Güler Yıldız, 2016). However, with the primary school process, the child's environment expands, and factors such as school, teacher, peer, play, and mass media are involved in the process (Kale and Özgün, 2016). In particular, teachers' attitudes and behaviors towards gender roles can affect children's perception of gender. According to Frawley (2005), teachers' beliefs about sexist stereotypes can affect children's gender role attitudes.

Another important factor that should be emphasized regarding gender is the curriculum and textbooks. The analysis of curricula from the past to the present has revealed that adequate importance is not given to the issue of gender equality in the curriculum. Visuals and texts used in the textbooks mostly attribute certain roles to women or men. For instance, books that depict women constantly doing housework and men working outside the home can lead to the establishment of a certain perception in children (Esen and Bağlı, 2002). In their study in which they reviewed textbooks, Kalaycı and Hayırsever (2014) determined that the texts in the books contained gender stereotypes, that the characters were generally men, that women were mostly shown in the household with the roles of wife and mother, and that men were shown in broader roles.

Peers also play a decisive role in children's gender role acquisition in primary school. Peer acceptance is very important during this period. Therefore, while children who exhibit the behavior required by their gender are appreciated and accepted by their peers, children who do not exhibit the behavior appropriate to their gender are generally excluded by their peers. Children's gender stereotypes are also reflected in their games with their peers. Children in primary school usually divide their games into "girls' games" and "boys' games". For example, playing house is considered a girl's game, while playing football is considered a boy's game (Lindsey, 2011; Yağan-Güder and Güler Yıldız, 2016).

Another factor that affects children's gender role attitudes is mass media. During primary school, children can easily access mass media and spend a lot of time with the media. Mass media provide children with role models on how to be a woman and a man, and greatly affect them in the process of internalizing these role models. It is also very difficult for children to avoid the intense influence of these role models (Zeybekoğlu Dündar, 2012).

Role models, their sexist attitudes, and other environmental factors affect children throughout their lives. Childhood years are the years when the foundations of attitudes are laid, and the attitudes adopted by children do not change easily in the following years (Çetin Gündüz and Tarhan, 2017). Therefore, it is important to determine children's gender role attitudes. However, there is no psychometrically strong measurement tool used to measure gender role attitudes of primary school children in Turkey.

Existing scales to measure gender role attitudes

In the literature, several studies conducted on gender are available; however, tools available in the literature are mostly used to measure gender role attitudes of adults (Altınova, Duyan (2013); Çiçek and Erkal, 2023; Islam, Anwar Siraji, Haque and Salim Chowdhury, 2024; Schwartz-Salazar, García-Sánchez, Martínez,

and Rodríguez-Bailón, 2024), university students (Gözütok, Toraman, and Acar-Erdol, 2017; Haskan Avcı et al., 2019; Esen, Öztürk and Siyez, 2018). According to the review of studies conducted with preschool and primary school children, they develop attitudes towards gender roles mostly based on their parents (Yağan-Güder and Güler Yıldız, 2016) and teachers (Osad, 2012) perceptions. In studies, mostly children's pre-ferences for professions (Çetin Gündüz and Tarhan, 2017), friends (Fabes et al., (2003)), and games and toys (Goble et al., (2012)) have been investigated in terms of gender, and effects of books (Esen and Bağlı, 2002), advertisements (Zeybekoğlu Dündar, 2012) and cartoons (Coyne et al., (2014)) on children's attitudes towards gender roles have been determined. In studies conducted directly with children, techniques such as observation and interview have been utilized.

For instance, to collect data in their studies, Yağan Güder and Alabay (2016) used the Interview Form of Toy Preference to investigate toy preferences of children aged 3–6 years in the context of gender, Weisgram et al., (2014) used observation and interview techniques to determine children's toy preferences, and Kılıç et al., (2014) conducted group interviews to investigate the gender perceptions of school-age children. It is important for researchers to be impartial when they use observation and interview techniques. Observations and interviews should be systematic and standard. If the observation or interview is not performed systematically and regularly, the data's reliability may decrease.

Observations and interviews are often performed in small sample groups, which makes it difficult to generalize research results. Because the data obtained are based on the researcher's interpretations, they should be analyzed accurately and carefully. Incorrect interpretations may reduce the data's reliability (Tabachnick and Fidell, 2013). In some studies, conducted on gender, questionnaires have been used. For instance, Ünlü (2012) used a Preschool Activity Inventory in her study in which her collected data by investigating gender role behaviors of preschool children, and Ölmez (2023) used a questionnaire to collect data in her study titled Action Research on the Development of Positive Gender Roles in Primary School Children. In surveys, responses given to the items are not collectable and the results are presented through descriptive methods such as frequency and percentage; however, in scales, collectability is possible, which makes it pos-sible to perform advanced statistical analyses (Büyüköztürk, 2016). Çetin Gündüz and Tarhan (2017) determined primary school students' attitudes towards career choices by using the Attitude Towards Gender-Based Career Choices Scale. However, the scale determines children's career choices only from a per-spective of gender. Therefore, there is a need for a comprehensive, up-to-date, and psychometrically sound measurement tool that can be administered to measure children's gender role attitudes. Scale development is an important process that improves the quality of research and makes a solid contribution to scientific knowledge. Scales enable researchers to obtain accurate results, to collect more effective and reliable data, and to contribute to the literature (Büyüköztürk, 2016; Tabachnick and Fidell, 2013). Therefore, the present study is considered important and expected to contribute to both the literature and studies to be performed within the scope of developmental psychological counseling and guidance.

The present study

Based on this need, in the present study, it was aimed to develop a scale to determine the gender role attitudes of primary school children and to conduct a validity and reliability study of the

Table 1 Demographic characteristics of the participating children (n = 465).

Variables		n	%
Sex	Girls	233	50.1
	Boys	232	49.9
Age (years)	9	218	46.9
	10	225	48.2
	11	23	4.9
Mother' education	Illiterate	30	6.5
	Primary school	74	15.9
	Junior high school	67	14.4
	Senior high school	148	31.8
	University	146	31.4
Father' education	Illiterate	21	4.5
	Primary school	36	7.7
	Junior high school	61	13.1
	Senior high school	151	32.5
	University	196	42.2
The number of siblings	1	33	7.1
	2	225	48.4
	≥3	207	44.5

scale. In order to achieve this general purpose, responses to the following questions were sought:

- Is the "Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students" a valid measurement tool?
- Is the "Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students" a reliable measurement tool?

A society sensitive to gender equality is only possible by raising children who are free of gender stereotypes. Considering the fact that gender role attitudes begin to be learned at an early age, the scale developed in the present study is expected to contribute to the literature. After the present study, it is also expected that studies to be conducted on gender education and awareness will be carried out to meet children's needs and families, and that educators will be informed about children's sexist approaches.

Method

The stages of the development study of the Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students and the characteristics of the sample group are given below.

Population and sample. The population of the study consists of all the 4th grade students studying in primary schools affiliated with the Ministry of National Education in the Çankırı province of Turkey of, 465 attending six primary schools and volunteering to participate in the study comprised the sample. They were selected using the simple random sampling method. The reason for including 4th-grade students in the study is that primary schools in Turkey provide 4 years of education. When children are in the 5th grade, they start junior high school. Fourth grade is a transitional class between primary and junior high schools. Fourth graders are usually in the age group of 9–10 years. Since the scale items require the ability to read, understand, and ana-lyze, children in this age group were included in the study. Demographic characteristics of the children included in the study are presented in Table 1 below.

According to Table 1, of the children included in the study, 50.1% were girls, 46.9% were 9 years old, 48.2% were 10 years old, 4.9% were 11 years old, 7.1% had one sibling, 48.4% had two

Table 2 Content validity index (CVI) values for the item pool.

Item (I)	CVI	Item (I)	CVI	Item (I)	CVI	Item (I)	CVI
I 1	1.0	I 11	1.0	I 21	1.0	I 31	1.0
I 2	1.0	I 12	1.0	I 22	1.0	I 32	1.0
I 3	1.0	I 13	0.75	I 23	1.0	I 33	1.0
I 4	1.0	I 14	1.0	I 24	0.75	I 34	1.0
I 5	1.0	I 15	1.0	I 25	1.0	I 35	1.0
I 6	1.0	I 16	1.0	I 26	1.0	I 36	0.75
I 7	1.0	I 17	1.0	I 27	1.0	I 37	1.0
I 8	1.0	I 18	1.0	I 28	1.0	I 38	1.0
I 9	1.0	I 19	1.0	I 29	1.0	I 39	1.0
I 10	1.0	I 20	1.0	I 30	1.0	I 40	1.0

siblings, and 44.5% had three or more siblings. Of their mothers, 22.4% were primary school graduates, 14.4% were secondary school graduates, 31.8% were high school graduates, and 31.4% were university graduates. Of their fathers, 12.2% were primary school graduates, 13.1% were secondary school graduates, 32.5% were high school graduates, and 42.2% were university graduates.

Development process of the scale. Development process of the Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students consists of the following stages: creating the item pool, determining the measurement format, obtaining expert opinion, pilot application, data collection and statistical analysis.

Creating the item pool. To create the item pool, the literature was reviewed (Altun and Toker, 2018; Sakallı-Uğurlu 2008; San-Bayhan and Artan, 2011; Yağan-Güder and Güler Yıldız, 2016), interviews were held with primary school teachers and field experts working on gender, and their opinions were obtained. Teachers and experts recommended that we should prepare questions for the scale, especially about primary school children's color, toy and game preferences, their perceptions of their parents' tasks and occupations. A 40-item pool was prepared in line with the literature review and feedback from teachers and experts.

Obtaining expert opinion. The scale items were sent to a lecturer working in the Turkish Language and Literature Department, and he was asked to evaluate each item in terms of language and narration. After the expert gave his feedback, necessary revisions were made, and the scale items were made ready to be sent to nine faculty members to obtain expert opinion. Of them, four were specialized in the field of child development, one in the field of primary school teaching, two in the field of gender, and two in the field of measurement and evaluation. The experts rated the 40 items in the item pool as "appropriate", "partially appropriate" or "not appropriate" regarding the extent to which the item measured the desired characteristic. According to the expert opinions, 38 items in the scale were appropriate and 2 items were revised.

Content validity: Expert opinions were analyzed using the Lawshe technique. The Lawshe technique is used to determine content validity. In this technique, the prepared scale items are presented to experts to obtain their opinions, and the content validity index (CVI) of the scale items is calculated in line with their opinions. Experts evaluate each item in the scale as "appropriate", "partially appropriate" or "not appropriate". If the expert evaluates the item as appropriate, "1 point" is given, if the expert evaluates it as partially appropriate or not appropriate, "0 points" are given. In the present study, the opinions of the experts were evaluated and the obtained data were entered into the Excel program and a

content validity ratio (CVR) was calculated for each item. To calculate the content validity ratio, the following formula was used: (Nu-N/2)/(N/2). In the formula, "Nu" represents the number of experts who consider the scale items as appropriate, whereas "N" represents the total number of experts. Then, the content validity index (CVI) value is calculated for the overall scale (Lawshe, 1975; Yeşilyurt and Çapraz, 2018). In the content validity study, the significance level was taken as 0.75 as the lowest limit. The content validity index values for the item pool are given in Table 2.

Pilot study: Pilot study is conducted with a small group whose characteristics are similar to those of the target audience in order to determine the validity of the measurement tool, the clarity of the scale items, the response time, and the distribution of the questions (Büyüköztürk, 2016). After expert opinions were received, the draft scale was pilot tested with 50 children (25 girls-25 boys). Those who took the pilot test stated that all the items were clear enough to understand. The data obtained from the pilot test were also included in the analysis."

Scale scoring. Responses given to the items include three options: "True (1 point)", "Undecided (0 points)", "False (0 points)". The scale consists of a single dimension. In the scale, no items are reverse scored. If the child answers the relevant item correctly, he or she is given "1 point", if the child answers incorrectly or "I don't know" or "I am undecided", he or she is given "0 points". A high score obtained from the scale indicates that the child has a positive attitude.

Ethical issues. Before the study was conducted, ethical approval was obtained from the Çankırı Karatekin University Ethics Committee (Decision date: June 28, 2022, Decision number: 26). Permission was obtained from the principals of the schools where the study was to be conducted, and classroom teachers. Verbal consent was obtained from the participating students after they were informed about the study.

Data collection. Before data were collected, relevant schools were visited, and the purpose of the research was explained to the school principals and classroom teachers. Data were collected face to face from students during the hours when classroom teachers were available.

Data analysis. To determine the construct validity of the Scale to Determine Gender Role Attitudes of Primary School Students, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) were performed, and to determine its reliability, KR-20 reliability coefficients were calculated Fig. 1.

Exploratory factor analysis (EFA). The exploratory factor analysis technique was used to determine the construct validity of the scale statistically. First, Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of Sphericity were performed to determine whether the scale was suitable for factor analysis. In this context, the result of the KMO test measurement should be ≥0.50, and the result of the Bartlett's test of Sphericity should be statistically significant (Jeong, 2004). The result of the KMO test measurement was 0.90. The result of the Bartlett's test of Sphericity was considered significant ($p < 0.01$). Accordingly, there were high correlations between the variables, in other words, the data set was suitable for factor analysis (Kalaycı, 2009). It was concluded that factor analysis could be performed on the scale. In the analysis, it was determined that there were 12 factors with eigenvalues greater than 1. However, it was observed that two factors (13.21) whose
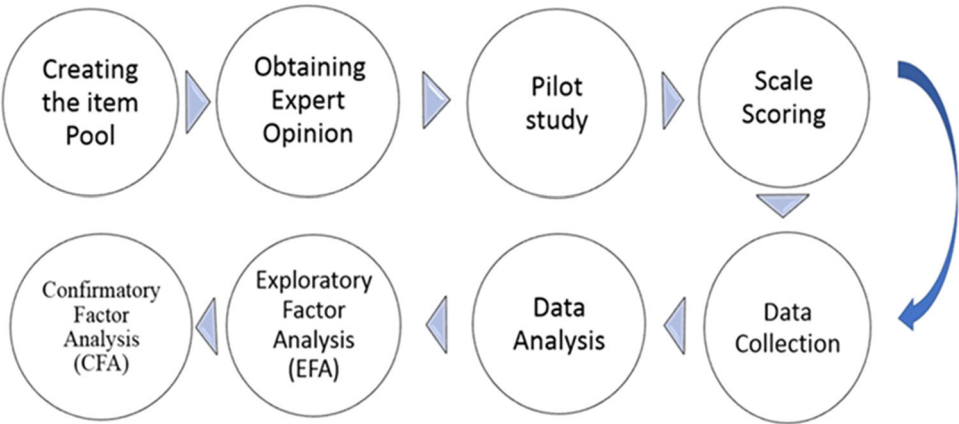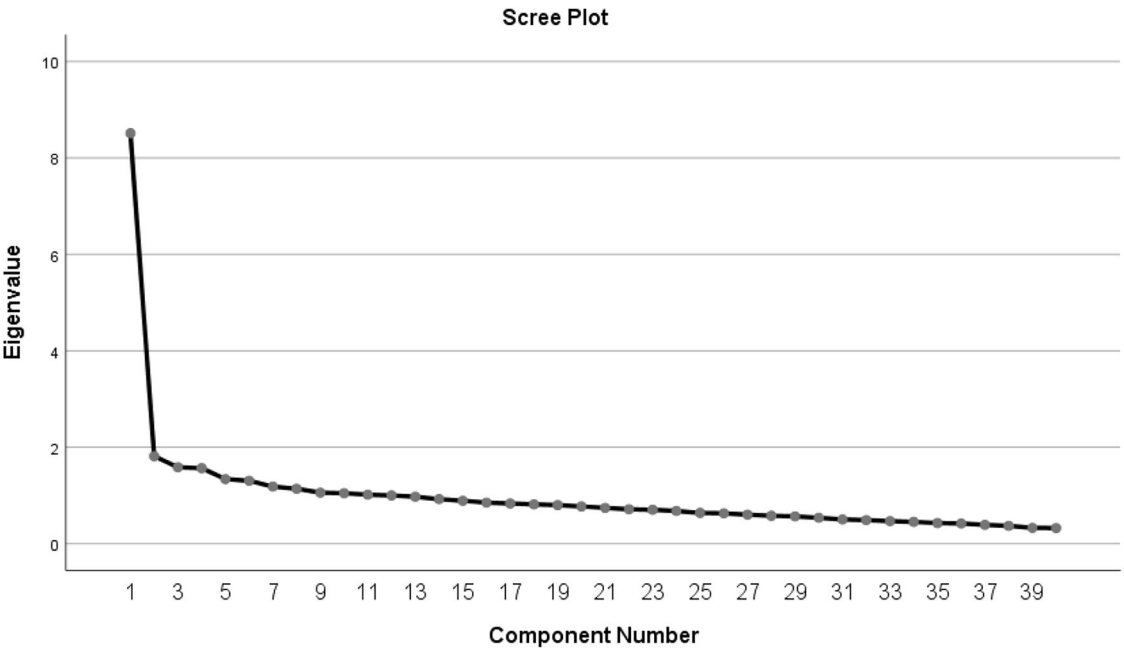
Fig. 1 Development process of the scale.

Fig. 2 Scree plot.

Table 3 Factor loading values after the factor analysis.

Item (I)	Factor -1	Item (I)	Factor -1	Item (I)	Factor -1	Item (I)	Factor -1
I 1	0.366	I 11	0.705	I 21	0.403	I 32	0.640
I 2	0.379	I 13	0.385	I 22	0.747	I 33	0.519
I 3	0.542	I 14	0.632	I 23	0.519	I 34	0.704
I 4	0.418	I 15	0.559	I 24	0.507	I 35	0.651
I 5	0.442	I 16	0.747	I 25	0.617	I 36	0.664
I 6	0.470	I 17	0.792	I 26	0.534	I 37	0.567
I 7	0.655	I 18	0.729	I 27	0.644	I 38	0.649
I 8	0.649	I 19	0.753	I 29	0.489	I 39	0.623
I 9	0.495	I 20	0.667	I 30	0.417	I 40	0.378
I 10	0.447						

eigenvalue was higher and one factor which explained the variance at a higher level were dominant compared to the other factors. As seen in the Scree Plot in Fig. 2, the eigenvalue of the first factor was approximately 9 times higher than was the eigenvalue of the second factor. This is considered a very clear indicator of unidimensionality (Büyüköztürk, 2016).

In the exploratory factor analysis, the limit value for the loading values of the items on the factor they belonged to was 0.30. In addition, items with negative factor loadings were also removed from the scale. Items 12, 28 and 31 whose factor loadings were below 0.30 or which had negative factor loadings were removed from the scale. The findings of the exploratory
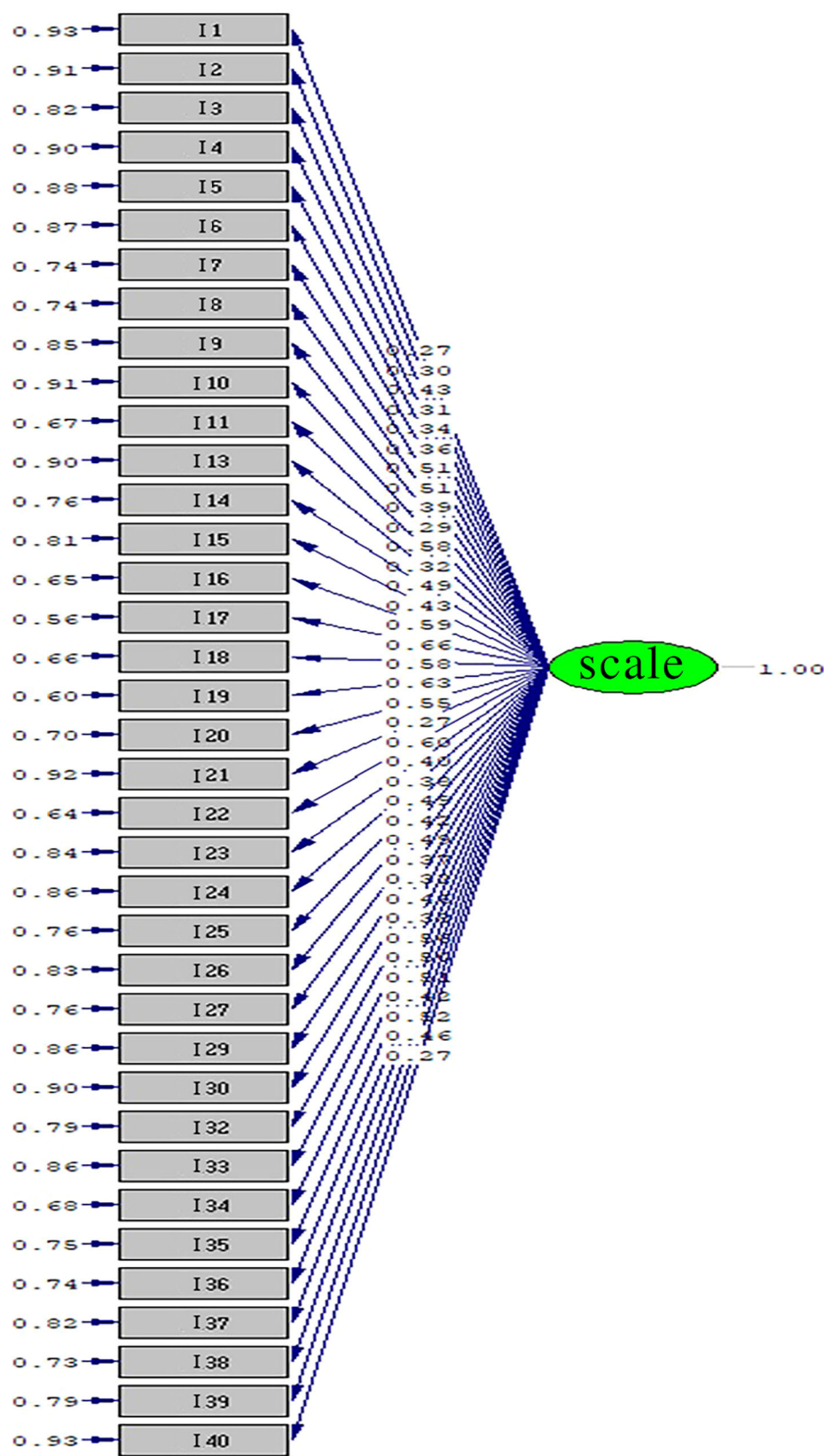
Fig. 3 Path diagram of the scale.

factor analysis of the scale at the end of the final analysis are presented in Table 3.

After the exploratory factor analysis of the scale, it was concluded that the scale had a single factor which explained 35.67% of the total variance of the scale. The data obtained with

the factor analysis indicated that the validity of the scale was sufficient.

Confirmatory factor analysis (CFA). The scale was planned to include 37 items and a single factor after the CFA. Whether the

Table 4 Regression and *t*-values of the scale.

Items (I)	Regression values	*t*-values	Items (I)	Regression values	*t*-values
I 1	0.27	50.70	I 21	0.27	50.77
I 2	0.30	60.30	I 22	0.60	130.62
I 3	0.43	90.25	I 23	0.40	80.68
I 4	0.31	60.52	I 24	0.39	80.11
I 5	0.34	70.23	I 25	0.49	100.29
I 6	0.36	70.70	I 26	0.42	90.00
I 7	0.51	110.18	I 27	0.49	100.30
I 8	0.51	110.33	I 29	0.37	70.98
I 9	0.39	80.26	I 30	0.32	60.81
I 10	0.29	60.21	I 32	0.46	100.13
I 11	0.58	130.10	I 33	0.38	80.05
I 13	0.32	60.71	I 34	0.56	120.85
I 14	0.49	100.76	I 35	0.50	110.11
I 15	0.43	90.38	I 36	0.52	110.81
I 16	0.59	130.57	I 37	0.42	90.18
I 17	0.66	150.60	I 38	0.52	110.44
I 18	0.58	130.20	I 39	0.46	100.14
I 19	0.63	140.69	I 40	0.27	50.58
I 20	0.55	120.33			

factor structure of the scale was confirmed or not was checked with the firs-level confirmatory factor analysis (CFA). The CFA is aimed evaluating the degree to which a factorial model consisting of latent variables formed by many observable variables fits the actual data. With the model to be examined, a structure determined using the data of an empirical study or constructed based on a specific theory can be defined (Sümer, 2000). A large number of fit indices are used to evaluate the validity of the model in CFA. Of them, the most commonly used ones are as follows (Cole, 1987; Sümer, 2000): Chi-Square Goodness of Fit Test (χ^2), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI). While the values such as χ^2/d < 3, 0 < RMSEA < 0.05, $0.97 \leq NNFI \leq 1$, $0.97 \leq CFI \leq 1$, $0.95 \leq GFI \leq 1$ and $0.95 \leq NFI \leq 1$ indicate perfect fit., the values such as $4 < \chi^2/d < 5$; 0.05 < RMSEA < 0.08, $0.95 \leq NNFI \leq 0.97$, $0.95 \leq CFI \leq 0.97$, $0.90 \leq GFI \leq 0.95$ and $0.90 \leq NFI \leq 0.95$ indicate acceptable fit (Kline, 2005; Sümer, 2000).

The fit indices of the scale in the present study were as follows: $\chi^2 = 1672.27$, $\chi^2/SD = 2.66$, RMSEA = 0.060, CFI = 0.95, IFI = 0.94, NNFI = 0.93 and NFI = 0.90. The analysis of the coefficients indicating the relationship between the observed variables and the factors of the model showing the factorial structure of the scale demonstrated that all the coefficients were at a sufficient level. Given the fit statistics calculated with CFA, it was decided that the previously determined structure of the scale provided a high level of fit with the collected data. In the applied CFA, whether the items had statistically insignificant *t*-values was examined, which indicated that all *t*-values of the scale were significant. Therefore, four items (1, 10, 21, 40) whose values were below 0.03 in the CFA analysis remained in the scale. The path diagram is given in Fig. 3.

Regression values and *t*-values of the items are given in Table 4.

The values given in Table 4 indicate that the regression coefficients and t values obtained were significant ($t > 1.92$), and that the model was confirmed.

KR-20 reliability coefficient in terms of internal consistency. The KR-20 reliability coefficient was calculated in order to determine the reliability of the scale. The KR-20 reliability coefficient was 0.90. Tezbaşaran (1997) states that a reliability coefficient that can be considered sufficient in a Likert-type scale should be as close to

1 as possible. According to these results, it can be said that the reliability of the entire scale is at a high level.

Conclusion and recommendations
In the present study, in which the Scale to Determine Gender Role Attitudes of Primary School Fourth Grade Students was developed, and its validity and reliability were examined, it was determined that the scale was a valid and reliable tool to measure the attitudes of primary school 4th grade students.

Expert opinion was received for the content validity of the scale, and its construct validity was ensured with the exploratory and confirmatory factor analysis. The results of the exploratory factor analysis demonstrated that factor loadings of the items 12, 28, and 31 were below 0.30 or negative; thus, these items were removed from the scale. The results of the principal components analysis demonstrated that the 37-item single-factor structure explained 35.67% of the total variance. The goodness-of-fit values of the scale confirm its single-factor structure. The scale consists of 37 items (Appendix 1) and a single dimension. The KR-20 reliability coefficient was calculated as 0.90. The scale is scored as "True (1 point)", "Undecided (0 points)" and "Wrong (0 points)". High scores obtained from the scale indicate that children have positive gender role attitudes.

All the data obtained from the present study indicate that the scale developed in the study is valid and reliable tool in determining the attitudes of fourth grade students towards gender. However, the fact that the study was conducted only with fourth grade students is considered as a limitation. It is recommended that subsequent studies should be conducted with different samples and age groups.

Determining children's gender role attitudes at an early age is very important for social development. Gender stereotypes can limit the social, academic, and professional orientations of children, especially in primary school. For instance, because of gender stereotypes, while boys think that preschool teaching is a female profession, girls do not prefer to become police officers in the future although that is their heart's desire. While boys are more directed to football as a sport, girls are directed to sports such as volleyball. Girls are more interested in an important art form such as ballet (Çetin Gündüz and Tarhan, 2017). In this case, it negatively affects the development of a country in areas such as education, sports, and art. Therefore, the development of a country is only possible with the existence of a society that is sensitive to gender equality. For a society that is sensitive to gender equality, children should be raised without gender stereotypes. Determining the gender role attitudes of primary school children will raise awareness of gender, will guide children correctly in areas such as education, sports, and art, and will contribute to the preparation of intervention programs.

References
Altınova HH, Duyan V (2013) Toplumsal cinsiyet algısı ölçeğinin geçerlik ve güvenirlik çalışması. [The Validity and Reliability of Perception of Gender Scale]. Toplum Ve Sos Hizmet 24(2):9–22

Altun H, Toker D (2018) Toplumsal Cinsiyet Rollerinin Sosyal Medyada Yansı-ması: Sokağa Çıkma Yasağı Örneği. [Gender and Approaches from Different Disciplines]. Akdeniz Üniversitesi İletişim Fakültesi Dergisi (37):80–95

Bee H, Boyd D (2009) Çocuk Gelişim Psikolojisi [Child Development Psychology] (Çev. O. Gündüz). Kaknüs Yayınları

Blakemore JEO, Berenbaum SA, Liben LS (2009) Gender development. In Psychology Press

Büyüköztürk Ş (2016) Sosyal Bilimler İçin Veri Analizi El Kitabı. İstatistik, Araştırma Deseni SPSS Uygulamaları ve Yorum. [Manual of data analysis for social sciences. Statistics, Research Design SPSS Applications and Interpretation] Pegem A yayıncılık

Çetin Gündüz H, Tarhan S (2017) İlkokul öğrencilerinin meslek seçimlerine yönelik tutumlarında cinsiyetin etkisi. [The effect of gender on primary school students' attitudes towards career choices]. İlköğOnline 16(3):1287–1300. https://doi.org/10.17051/ilkonline.2017.330258

Çiçek B, Erkal S (2023) 0-6 Yaş Çocuğu Olan Ebeveynlerin Toplumsal Cinsiyet Rollerine İlişkin Tutum Ölçeği'nin Geliştirilmesi: Geçerlik ve Güvenirlik Çalışması. [Developing of Attitude Scale on Gender Roles of Parents with 0-6 Year Old Children: Validity and Reliability Study]. Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi 20(1):131–142. https://doi.org/10.35375/sayod.1018381

Cole DA (1987) Utility of confirmatory factor analysis in test validation research. J Consult Clin Psychol 55:584–594

Coyne S, Linder J, Rasmussen E, Nelson D, Collier K (2014) It's a bird! It's a plane! It's a gender stereotype!: Longitudinal associations between superhero viewing and gender stereotyped play. Sex Roles 70:416–430

Driscoll A, Nagel NG (2002) Early childhood education, birth-8: the world of children, families, and educators. Allyn and Bacon, Boston

Esen Y, Bağlı MT (2002) İlköğretim ders kitaplarındaki kadın ve erkek resimlerine ilişkin bir inceleme. [A Research on Male and Female Figures in the Elementary School Textbooks]. Ank Üniv Eğit Bilim Fak Derg 35(1-2):143–154

Esen E, Öztürk B, Siyez DM (2018) Toplumsal Cinsiyet Algısı Ölçeği Ergen Formu'nun geçerlik ve güvenirlik çalışması. [The Validity and Reliability of Gender Perception Scale Adolescent Form] Nesne-Psikoloji Dergisi 6(12):144–173

Fabes RA, Martin CL, Hanish LD (2003) Young children's play qualities in same-, other-, and mixed-sex peer groups. Child Dev 74:921–932. https://doi.org/10.1111/1467-8624.00576

Frawley T (2005) Gender Bias in the classroom: current controversies and implications for teachers. Child Educ 81(4):221–227

Ghiglieri MP (2002) Erkeğin karanlık yüzü [Dark Side of Man] Phoenix Yayınevi

Goble P, Martin CL, Hanish LD, Fabes RA (2012) Children's gender-typed activity choices across preschool social contexts. Sex Roles A J Res 67(7–8):435–451. https://doi.org/10.1007/s11199-012-0176-9

Gözütok FD, Toraman Ç, Acar-Erdol T (2017) Toplumsal cinsiyet eşitliği ölçeğinin (TCEÖ) geliştirilmes. İlköğr Online 16(3):1036–1048. https://doi.org/10.17051/ilkonline.2017.330240

Haskan Avcı Ö, Tozar M, Hasret Y, Yiğit S, Özdemir E (2019) Toplumsal cinsiyete dayalı meslek seçimi ölçeğinin geliştirilmesi-Kız öğrenci formu. [Development of the "Attitude Towards Gender Based Choice of ProfessionScale-Female Form]. Pamukkale Üniv Eğit Fak Derg 45(45):253–266

Islam A, Anwar Siraji M, Haque M, Salim Chowdhury M (2024) Development of a multidomain gender norm attitude scale for youth in Bangladesh. Prev Med Rep 45:102848. https://doi.org/10.1016/j.pmedr.2024.102848

Jeong J (2004) Analysis of the factors and the roles of HRD in organizational learning styles as identified by key informants at selected corporations in the Republic of Korea. Doktora Tezi. Amerika, Texas AandM University, Major Subject, Educational Human Resource Development

Kalaycı N, Hayırsever F (2014) Toplumsal cinsiyet eşitliği bağlamında vatandaşlık ve demokrasi eğitimi ders kitabına yönelik bir inceleme ve bu konuya ilişkin öğrenci algılarının belirlenmesi. [An analysis of citizenship and democracy education text book in the context of gender equality and determining students perceptions on gender equality]. Kuram Ve Uygulamada Eğit Bilim 14(3):1049–1074

Kalaycı Ş (2009) SPSS Uygulamalı Çok Değişkenli İstatistik Teknikleri, [SPSS Applied Multivariate Statistics Techniques] Ankara

Kale M, Özgün Ö (2016) Cinsiyet rolü gelişimi ve bu gelişimi etkileyen faktörler. [Gender role development and factors affecting this development] S. Yağan-Güder (ed.) Cinsel Eğitim ve Toplumsal Cinsiyet, Ankara, Eğiten, Kitap Yayıncılık pp 79–97

Kılıç AZ, Beyazova A, Akbaş HM, Zara A, Serhatlı İ (2014) Okul çağı çocuklarının toplumsal cinsiyet algıları: gündelik yaşam örnekleriyle cinsiyetçiliğin benimsenme durumuna ve esneyebilme olasılığına dair bir araştırma. Sosyol Araştırmaları Derg 17(2):121–151

Kline RB (2005) Principles and practice of structural equation modeling. The Guilford Press, New York, (2nd Edition ed.)

Lawshe CH (1975) A quantitative approach to content validity. Pers Psychol 28(4):563–575

Lindsey LL (2011) Gender roles—a sociological perspective. Prentice Hall, Boston

Ölmez H (2023) İlkokul dördüncü sınıf öğrencilerinin olumlu toplumsal cinsiyet rollerinin geliştirilmesine yönelik bir eylem araştırması [An action research on the development of positive gender roles of fourth grade primary school students]. (Yüksek lisans tezi), Necmettin Erbakan Üniversitesi

Osad R (2012) Gender stereotypes and elementary school teachers. Acta Technol Dubnicae 2(2):25–29

Perrone-McGovern KM, Wright SL, Howell DS, Barnum EL (2014) Contextual influences on work and family roles: gender, culture, and socioeconomic factors. Career Dev Q 62:21–28. https://doi.org/10.1002/j.2161-0045.2014.00067.x

Ruble DN, Martin CL, Berenbaum SA (2006) Gender development. In: Eisenberg N, Damon W, Lerner RM (eds) Social, Emotional Handbook of child psychology and personality development, vol 3. Hoboken, NJ, Wiley, pp 858–931

Sakallı-Uğurlu N (2008) Erkeklere ilişkin çelişik duygular ölçeğinin Türkçe'ye Uyarlanması [Turkish Adaptation of the Ambivalence Toward Men Inventory]. Türk Psikol Yazıları 11(21):1–11

San-Bayhan P, Artan İ (2011) Çocuk gelişimi ve eğitimi. [Child development and education] Morpa Kültür Yayınları

Schwartz-Salazar S, García-Sánchez E, Martínez R, Rodríguez-Bailón R (2024) Development and validation of the Multidimensional Gender Inequality Perception Scale (MuGIPS). PLoS ONE 19(4):1–19.e0301755. https://doi.org/10.1371/journal.pone.0301755

Sümer N (2000) Yapısal eşitlik modelleri: temel kavramlar ve örnek uygulamalar. [Structural equation modeling: basic concepts and applications]. Türk Psikol Yazıları 3(6):49–74

Tabachnick BG, Fidell LS (2013) Using multivariate statistics. Pearson, Boston

Tezbaşaran A (1997) Likert Tipi Ölçek Geliştirme Kılavuzu. [Likert Type Scale Development Guide] Türk Psikologlar Derneği Yayını, Ankara

Trawick-Swith J (2013) Erken Çocukluk Döneminde Gelişim [Development in Early Childhood] (Çev. Ed. B. Akman). Nobel Yayıncılık

Ünlü A (2012) Bazı değişkenlere göre okulöncesi çocuklarının cinsiyet rolü davranışlarının incelenmesi. [Investigation of gender role behaviors of preschool children according to some variables]. (Yüksek lisans tezi). Selçuk Üniversitesi

Weisgram ES, Fulcher M, Dinella LM (2014) Pink gives girls permission: exploring the roles of explicit gender labels and gender-typed colors on preschool children's toy preferences. J Appl Dev Psychol 35(5):401–409. https://doi.org/10.1016/j.appdev.2014.06.004

Yağan Güder S, Alabay E (2016) 3-6 yaş arasındaki çocukların oyuncak tercihlerinin toplumsal cinsiyet bağlamında incelenmesi. [Examination of the Toys Preferences in Children Aged 3-6 in the Context of Gender]. Ahi Evran Üniv Kırşehir Eğit Fak Derg 17(2):91–111

Yağan-Güder S, Güler Yıldız T(2016) Okul öncesi dönemdeki çocukların toplumsal cinsiyet algılarında ailenin rolü.[Role of the family in preschool children's perception of gender] Hacet Üniv Eğit Fak Derg 31(2):424–446

Yeşilyurt S, Çapraz C (2018) Ölçek geliştirme çalışmalarında kullanılan kapsam geçerliği için bir yol haritası. Erzincan Üniv Eğit Fak Derg 20(1):251–264

Zeybekoğlu Dündar Ö (2012) Toplumsal cinsiyet rollerinin televizyon reklamlarına yansıması. [Reflection of gender roles in television commercials]. Ethos Felsefe Ve Toplum Bilim Diyaloglar 5(1):121–136

Author contributions

Güzin Yasemin TUNÇAY and Nazan KAYTEZ contributed to the conception and design of the study. Two authors undertook material preparation, data collection, and analysis. The first draft of the manuscript was authored by Güzin Yasemin TUNÇAY. All authors reviewed and approved the final manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

Ethical approval was obtained from the Çankırı Karatekin University Ethics Committee (Decision date: June 28, 2022, Decision number: 26).

Informed consent

Permission was obtained from the principals of the schools where the study was to be conducted, and classroom teachers. Verbal consent was obtained from the participating students after they were informed about the study. Additionally, the children's parents were informed and their consent was obtained.

Additional information