Design and validation of a Character Friendship Scale for young adults

Diseño y validación de una Escala de Amistad de Carácter para jóvenes

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Abstract:

Friendship is an important bond in the personal and social growth of an individual and plays a prominent role during youth. Most scales to measure it are aimed at children and adolescents but none measure *character friendship*, a type of selfless friendship with ethical traits an d Aristotelian roots. Therefore, the aim of the research is to design and validate the youth Character Friendship Scale (CFS) in a sample of 1587 young Spanish people. The final version of the CFS is composed of 35 items distributed over three dimensions: "Selfless love and intimacy" (21), "Trust" (7) and "Respect and forgiveness" (7) with ordinal reliability coefficients of 0.94, 0.79 and 0.7 respectively and good model fits (CFI = 0.986; TLI = 0.986; RMSEA = 0.043; SRMR = 0.054; GFI = 0.997). It is concluded that the CFS is a scale with good psychometric properties for measuring character friendship in young adults. The results obtained from its application will lead to a better understanding of the importance of character friendship for the socioemotional development or happiness of young adults and will enable the development of intervention programmes that enhance aspects of friendship such as trust, respect, forgiveness or mutual knowledge, which can facilitate collaborative relationships and contribute to social cohesion.

Keywords: friendship, character friendship, ethics, selflessness, young adults, validation, scale, factorial analysis.

Resumen:

La amistad es un vínculo importante en el crecimiento personal y social del individuo y tiene un papel destacado durante la juventud. La mayoría de escalas para medirla se dirigen a niños y ado-

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lescentes, pero ninguna mide la a*mistad de carácter*, un tipo de amistad desinteresada y de rasgos éticos y raíces aristotélicas. Por ello, el objetivo de la investigación es diseñar y validar la Escala de Amistad de Carácter para jóvenes (EAC) en una muestra de 1587 jóvenes universitarios españoles. La versión final de la EAC la componen 35 ítems distribuidos en tres dimensiones: «Amor desinteresado e intimidad» (21), «Confianza» (7) y «Respeto y perdón» (7), con coeficientes de fiabilidad ordinal de 0.94, 0.79 y 0.7 respectivamente y ajustes buenos del modelo (CFI = 0.986; TLI = 0.986; RMSEA = 0.043; SRMR = 0.054; GFI = 0.997). Se concluye que la EAC es una escala con buenas propiedades psicométricas para medir la amistad de carácter en jóvenes. Los resultados obtenidos de su aplicación ayudarán a comprender mejor la importancia de la amistad de carácter para el desarrollo socioemocional o la felicidad de los jóvenes, y permitirán desarrollar programas de intervención que trabajen aspectos de la amistad, como la confianza, el respeto, el perdón o el conocimiento mutuo que pueden facilitar relaciones colaborativas y contribuir a la cohesión social.

Descriptores: amistad, amistad de carácter, ética, desinterés, jóvenes, validación, escala, análisis factorial.

1. Introduction

Both in philosophy and in psychology and education, friendship has traditionally been viewed as a significant bond in people's lives for their flourishing and personal and social development, which clearly shows the importance of having instruments to evaluate it.

Education is taking a fresh look at friendship (Romero-Iribas y Martínez Priego, 2017, 2022; Pérez-Guerrero, 2021) by addressing topical issues, such as its idiosyncrasies in the virtual environment (Healy, 2021; Kristjánsson, 2021; Stevic et al., 2022) or its development among students with special educational needs (Hoffman et al., 2021; O'Connor et al., 2022).

Among the branches of psychology that are directly related to education, social psychology reveals that friendship facilitates prosocial behaviour (Dovidio et al., 2017) and helps to alleviate loneliness and isolation (Cacioppo & Cacioppo, 2018). According to developmental psychology, friends facilitate the transition to university by increasing the sense of belonging (Pittman & Richmond, 2010) and they possess a value and quality that cannot be matched by social chatbots (Croes & Antheunis, 2021). Personality psychology views friendship as important because the development of personality requires other people (Deventer et al., 2019) and friends play a key role in this process (Hoyos-Valdés, 2018).

Another significant line of research from the perspective of educational purposes associates friendship with life satisfaction (Taniguchi, 2015) and with happiness in the sense of eudaemonic well-being (Ryff & Singer, 2002). As described by Martínez-Priego and Romero-Iribas (2021), friendships provide emotional support (Demir et al., 2014) and a context where basic needs are satisfied (Demir & Özdemir, 2010). Additionally, happiness is positively associated

with the authenticity of friends (Peets & Hodges, 2018), frequent interaction with them (Li & Kanazawa, 2016) and making an effort to keep them (Sánchez et al., 2018).

Traditionally, different types of friendship have been defined by philosophy (friendships of utility, pleasure and virtue; Aristotle, ca. 350 B.C.E./1999), psychology (close friends, casual friends, acquaintances; Mendelson & Aboud, 1999) or sociology (social friendship, family friendship, communicative friendship; Little, 2000).

Character friendship (hereinafter CF) is the term used by Cooper (1980) to refer to the Aristotelian friendship of virtue, whilst clarifying that it is also possible among people who are not completely virtuous. As Kristjánsson (2020) summarises, an intrinsically valuable friendship is that which involves sharing joys and sorrows, spending time together and in which the friend is perceived as "another self" (Aristotle, ca. 350 B.C.E./1999). It is based on the friends' mutual appreciation of their good characters, of their moral and intellectual qualities (Hoyos Valdés, 2018) and implies affection, mutual goodwill and wishing good for the friend for their own sake (Aristotle, ca. 350 B.C.E./1999), which requires friends to develop virtues. They wish for and seek the best for each other, not only out of the affection they feel for one other but also because of a character disposition. Therefore, this sort of friendship has a major ethical component that requires time and attention, mutual knowledge and trustworthiness (Aristotle, ca. 350 B.C.E./1999). Rather than highlighting the *function* it holds in the person's individual and social development, it emphasises the selfless nature of the relationship because it has no interest in anything other than the friend themself, nor does it seek any benefits as other types of friendship do; this does not mean there may not be benefits but they are not sought and are secondary to the friendship. CF is currently addressed by philosophy (Kristjánsson, 2019; Romero-Iribas, 2021), social psychology (Anderson & Fowers, 2019; Martínez-Priego & Romero-Iribas, 2021; Walker et al., 2016) and education (Hoyos-Valdés, 2018; Kristjánsson, 2020).

There is a wide field of instruments that exist to measure and evaluate friendship and — as far as we know — they can be classified in two groups. The first, focusing on studies that design and/or validate friendship scales, measures:

a) Friendship quality: scales developed by Mendelson and Aboud, (1999), Bukowski et al. (1994) and the instrument designed by Weiss and Smith (2002) that evaluates the quality of sports friendships.

b) Intimate friendship: Sharabany (1994) and Wilkinson (2008), who understands this type of friendship as a relationship of attachment.

c) Friendship as perceived social support (González & Landero, 2014).

The second group, with a more heterogeneous content and without aiming to be exhaustive, refers to scales that relate friendship to other variables, such as:

d) Social factors such as isolation, loneliness or social dissatisfaction (Hawthorne & Griffith, 2000; Parker & Asher, 1993).

e) Personal factors such as friendship and emotional adjustment (Demir & Urberg, 2004); friendship and psychological adjustment (Simpson & Mc Bride, 1992); friendship, happiness and personality (Demir & Weitekamp, 2007); or individual differences when choosing trust-value friendships (Rotenberg & Morgan, 1995).

f) More specific scales such as those that study the influence of friends on physical activity (Jago et al., 2009).

This research relates to the instruments for friendship evaluation and measurement. Its objective is to design and validate a scale to measure CF and among young adults specifically, as we have not found a scale for both purposes in the literature reviewed. Either because they do not specifically measure CF (none of the scales do) or because, despite measuring a similar type of friendship, they are aimed at children (Bukowski et al., 1994; Sharabany, 1994). Neither have we found original instruments in Spanish to measure friendship (only a certain validation of other scales, such as Rodríguez et al. 2015), so in consequence the transfer and applicability of Spanish-speaking contexts could provide a response to the theoretical and methodological gap identified in the literature reviewed.

Of the scales reviewed, only the one designed by Mendelson and Aboud (1999) is aimed at young adults, but it measures friendship quality by its *function* in the person's development, in the sense that "from a functional perspective, a friend is seen as a source of social, emotional and instrumental resources that the person seeks" (p. 2). Although friends play an important role in the individual's development, in this study we do not wish to focus on the functional character of the relationship but rather its intrinsic gratuity, which is the essence of CF. For this reason, it is not possible to adapt the content of the scale developed by Bukowski et al. (1994) as, even though it measures a similar type of friendship (the quality of friendship that children use as a basis to define a best friend), the dimensions evaluated do not refer to the specific aspects of a selfless friendship.

CF is a selfless love, more than a relationship of attachment (Wilkinson, 2008); of affection (Mendelson & Aboud, 1999); or of perceived social support (González and Landero, 2014). Attachment, affection and social support are aspects of friendship covered by the scale designed and validated in this research, but with the emphasis on the relationship's "selflessness" (dimensions of Selfless love-Knowledge, Respect-Forgiveness), which is less evident in other instruments. The intimate friendship scale designed by Sharabany (1994), or the friendship quality scales developed by Bukowski et al. (1994) or Rodríguez et al. (2015) are conceptually close to CF but they are aimed at children and/or adolescents, not young adults.

As selflessness is a trait of CF at an ethical level, the instrument has been considered from a multidisciplinary — psychological and ethical — perspective, in accordance with the nature of the relationship. Bukowski and Sippola (1996) suggested that "friendship is facilitated (...) by constructs (...) such as generosity, honesty, kindness,

loyalty and authenticity" (p. 242). And according to Walker et al. (2016) the ethical dimensions of friendship can be studied by means of rigorous methodological procedures. According to these same authors, the psychological and philosophical perspectives of friendship balance and involve each other, so that developing an instrument to measure CF is a contribution both to these two disciplines and to the education that feeds on them. Additionally, in view of it being an intimate relationship, we coincide with how it is measured by Sharabany (1994) and Kriesman (1969), who do so using the terms of self-revelation, willingness to ask friends for help, closeness and frequency of interaction, among others.

To design the scale, and based on the above description of CF, the construct was defined as a mutual love based on sharing, which wishes good for the friend for their own sake, and is, therefore, selfless. As the friend is "another self", CF involves trust (voluntarily agreeing to share one's most innermost self) and requires virtues such as respect, sincerity, loyalty and forgiveness.

This definition covers aspects that are psychological such as intimacy, socio-emotional and ethical such as forgiveness, or purely ethical such as respect and selflessness. Scales that explicitly cover ethical traits of friendship are: Sharabany (1994) who includes three moral dimensions (frankness, giving and sharing, loyalty); Weiss and Smith (2002), who include one (loyalty); and other such as Parker and Asher (1993) or Mendelson and Aboud (1999) who include dimensions that are directly related to ethics, although they are not strictly moral (e.g. conflict resolution or reliable alliance).

2. Method

2.1. Sample

1,587 young Spanish adults participated in the research (78.1% women, 21.7% men and 0.2% unspecified), aged between 18 and 29 years old (mean = 20.3, standard deviation = ± 2.5), and studying at 19 public universities (95.9%) and 18 private universities (4.1%)

The majority of these young university students are studying a single degree course (85.9%). Among the predominant degrees are Education (48.7%), Business Studies and Law (22.3%) and, to a lesser extent, Arts and Humanities (4.4%) and Engineering (4.1%), among others. Thus, we tried to cover the greatest possible number of disciplines by means of convenience sampling. The only eligibility criterion was that participants should be Spanish and studying at university.

The sample was randomly divided into two subsamples of equal size, in line with the recommendations by Henson and Roberts (2006), as it would not be logical to study the structure of a data set and try to confirm this structure using the same data source. There were 795 subjects in the first subsample, for which we analysed the characteristics and properties of the items and conducted an exploratory factor analysis (EFA). The second contained 792 subjects for the confirmatory factor analysis (CFA), with no statistically significant differences between the two subsamples (Table 1).

TABLE 1. Characteristics of the sample and subsamples.

		Total		EFA Sample		CFA Sample		p-value
		n=1587		n=795		n=792		
Age (mean ± deviation)		20.3 ± 2.5		20.4 ± 2.5		20.2 ± 2.4		0.154
Gender	Male	341	21.7%	168	21.3%	173	22.1%	0.768
	Female	1227	78.1%	619	78.6%	608	77.7%	
	Unspecified	3	0.2%	1	0.1%	2	0.3%	
Degree course	Single degree course	1353	85.9%	669	84.9%	684	84.9%	0.281
	Dual Degree	223	14.1%	119	15.1%	104	15.1%	
Degree course (single degree)	Education	768	48.7%	393	58.7%	375	54.8%	0.409
	Arts and Humanities	70	4.4%	39	5.8%	31	4.5%	
	Social Sciences	352	22.3%	164	24.5%	188	27.5%	
	Sciences	24	1.5%	9	1.3%	15	2.2%	
	Engineering	65	4.1%	27	4.0%	38	5.6%	
	Agriculture	4	0.3%	3	0.4%	1	0.1%	
	Health and social services	62	3.9%	30	4.5%	32	4.7%	
	Tourism	8	0.5%	4	0.6%	4	0.6%	
Degree course (dual degree)	Education/Pre-school Education, Primary Education and Pedagogy	64	4.1%	43	36.1%	21	20.2%	0.196
	Education/Arts and Humanities	13	0.8%	6	5.0%	7	6.7%	
	Education/Administration and Business Management	11	0.7%	6	5.0%	5	4.8%	
	Education/Sciences	4	0.3%	3	2.5%	1	1.0%	
	Arts and Humanities/ Administration and Business Management	9	0.6%	4	3.4%	5	4.8%	
	Administration and Business	109	6.9%	52	43.7%	57	54.8%	
	Management/Law	8	0.5%	3	2.5%	5	4.8%	
	Administration and Business Management/ Engineering	4	0.3%	1	0.8%	3	2.9%	
	Administration and Business Management/ Tourism	1	0.1%	1	0.8%	0	0.0%	
Place currently studying	Spanish students currently studying in Spain	1557	99.7%	781	99.9%	776	99.6%	0.374
	Spanish students currently studying abroad	4	0.3%	1	0.1%	3	0.4%	
Type of university	Public universities	1493	95.9%	751	96.2%	742	95.6%	0.591
	Private universities	64	4.1%	30	3.8%	34	4.4%	

The size of the sample follows the standard recommendation of a minimum ratio of 10 respondents per parameter (Byrne, 2009), and 15 in stricter cases (Hair et el., 1999), and also other more recent recommendations: when the coincidence rate is low, around 0.30, and the number of variables per factor is at least 3 items, a minimum sample of 400 cases is required (Conway and Huffcutt, 2003).

This research meets the ethical standards of the Comité de Ética de la Investigación (*Research Ethics Committee*) at the Universidad Rey Juan Carlos (Spain) and also complies with the Declaration of Helsinki in 1964 and its subsequent amendments.

2.2. Instrument

The CFS aims to achieve precise measurement of the indicators related to CF in view of the fact that none of the scales reviewed addresses the specific features of a selfless friendship (González & Landero, 2014; Jago et al., 2009; Mendelson & Aboud, 1999; Parker & Asher, 1993; Rotenberg & Morgan, 1995; Sharabany, 1994; Weiss & Smith, 2002; Wilkinson, 2008). This allows us to focus on dimensions such as sharing, intimacy or loyalty. For this reason, the theoretical benchmark matrix includes 55 items distributed over four dimensions: "Selfless love" (17); "Sharing intimacy and sincerity" (14); "Trust and loyalty" (10) and "Respect and forgiveness" (14). The answer format was an 8-point Likert scale (0=never and 7=always) in line with Mendelson and Aboud (1999).

This first version underwent a double review process consisting of expert judgement and a pilot study, to ensure content validity and the applicability of the instrument.

2.2.1. Expert judgement

Following the guidelines developed by Drost (2011), four experts in evolutionary psychology, emotions and interpersonal relationships, philosophy and statistics, were responsible for evaluating the items and dimensions relating to friendship by focusing on the criteria of clarity, adjustment and relevance (Navarro et al., 2014). The main suggestions were to change the terms associated with the Likert scale of 0 to 7 points, to 0 = completely disagree and 7 = completely agree, and to word some items negatively.

Taking these suggestions into account, the instrument was expanded to 59 items without modifying the dimensions, and the negative items were increased to 33.9% of the total. Authors such as Fabrigar et al. (1999) state that, as a general rule, the greater the number of items that measure a factor accurately, the better that factor will be defined and the more stable the factorial result will be. The recommendation for 3 or 4 items per factor only applies if there are at least 200 cases, a number which this research exceeds.

2.2.2. Pilot study

In the pilot study for this research, 43 students participated (9 from Arts and Humanities, 15 from Education, 11 from Social Sciences, 5 from Engineering

and 3 from Health Sciences), with the objective of representing, as far as possible, the final sample. The evaluation of the scale was conducted in terms of the format, wording and comprehension of the instructions, general specifications and items. The evaluation was positive if the instructions indicated that, to respond to the scale, the student had to choose one of their best friends and answer with this person in mind, a procedure endorsed by Mendelson and Aboud (1999). Although specific items were not eliminated, some suggestions were: (1) clarification of the wording of the item "I dedicate myself to my friend without thinking about who contributes the most", and "I dedicate myself to my friend without thinking about who contributes the most", and (2) the creation of an online version, if necessary, to facilitate its dissemination.

Therefore, after the expert judgement and pilot study, and prior to the EFA, the draft of the friendship scale contained 59 items distributed over four dimensions as defined in the construct: "Selfless love"; "Sharing intimacy and sincerity"; "Trust and loyalty"; and "Respect and forgiveness".

In accordance with the definition of CF, selfless love includes affection (Sharabany, 1994), reciprocal goodwill and wishing good for the friend for their own sake. Sharing (Sharabany, 1994; Weiss and Smith, 2002) intimacy (Mendelson & Aboud, 1999; Parker & Asher, 1993; Weiss & Smith, 2002) shows that an intimate or close friendship is involved. Additionally, as a selfless relationship, it requires the friends to possess virtues such as sincerity ("frankness" in Sharabany, 1994), Loyalty (Sharabany, 1994; Weiss & Smith, 2002), forgiveness (Parker & Asher, 1993; Weiss & Smith, 2002) and respect.

Table 2 shows the number of items in each dimension, as well as the items with positive and negative wording.

TABLE 2. Version of the scale before the EFA (theoretical model).

Dimension	Total n. items	N. positive items	Nº negative items
1. Selfless love	16	11, 14, 16, 18, 24, 30, 41, 49, 53, 55, 59	3, 6, 9, 39, 43
2. Sharing intimacy and sincerity	7	2, 12, 25, 42, 44	33, 56
	6	5, 26, 40, 51	19, 34
	3	29, 45	13
3. Trust and loyalty	6	8, 17, 28, 46	35, 52
	6	4, 21, 36, 48	27, 31
4. Respect and forgiveness	7	1, 10, 20, 23	37, 47, 58
	8	15, 32, 38, 50, 57	7, 22, 54

2.3. Statistical analysis

The data were analysed using the statistical software package SPSS version 22.0 (IBM, Chicago, IL), the EFA was conducted with the FACTOR programme (Lorenzo-Seva and Ferrando, 2006) and the CFA was performed with the R package 'lavaan' (Rosseel, 2012).

2.4. Description of the sample and homogeneity

We used the mean and standard deviation to describe the quantitative data, and the absolute and relative frequencies for the qualitative data. Univariate analysis was used to study the homogeneity between the samples for the EFA and the CFA. The differences between the qualitative variables were checked using the Chi-square test or Fisher's exact test, and the differences between the quantitative variables were checked by means of Student's t-test for independent samples.

2.5. Characteristics and properties of items

To analyse the characteristics and properties of the items, we calculated the percentage of valid responses, the percentage of responses at the lower limit (floor effect), the percentage of responses at the upper limit (ceiling effect), the mean, the standard deviation and the indices of asymmetry and kurtosis, as well as the corrected item-total correlation (item-total correlation excluding the item under analysis) using polychoric correlation. The items with values lower than 0.3 were rejected.

2.6. Exploratory factor analysis and confirmatory factor analysis

In order to extract the factors in the EFA and the CFA, we used the weighted least squares method (Jöreskog, 1977) and the matrix of polychoric correlations (Bandalos & Finney, 2010) owing to the ordinal nature of the items (Likert scale of 0 to 7, polytomous items) and in the non-normality of many of them (high indices of asymmetry and kurtosis). Several EFA analyses were conducted by fixing the number of extracted factors between 2 and 4. The direct Oblimin rotation method was used (Clarkson & Jennrich, 1988) because it accepts correlated factors and rejects items with low loadings (<0.3).

In order to evaluate the adequacy of the data for the factor analysis, we calculated the Kaiser-Meyer-Olkin (KMO) measure (Kaiser, 1970) in which an index is considered inadequate if it is below .50 and satisfactory if it is over .80. To establish the model fit, we consulted the RMSA (*Root Mean Square Error of Approximation*), SRMR (*Standardized Root Mean Square Residual*), CFI (*Goodness of Fit Index*), TLI (*Tucker-Lewis Index*) and GFI (*Goodness of Fit Index*). The indices that represent a good fit between the model and the data are as follows: RMSEA < .06, SRMR < .08, CFI > .95 and TLI > .95 (Xia & Yang, 2018, 2019). GFI values of over 0.95 are indicators of a good model fit (Ruiz et al., 2010).

As measures of reliability, the ordinal alpha reliability coefficient (Zumbo et al., 2007) was calculated to estimate reliability in ordinal items and the omega reliability coefficient (Green & Yang, 2009).

3. Results

3.1. Exploratory analysis of the properties of the items

A descriptive analysis was conducted on the 59 items (Table 3). The non-response rate for all the items was below 5% and half of the items presented significant deviations from normality (high indices of asymmetry and kurtosis, greater than 2). Four redundant items were rejected. 15 (=7), 19 (=26), 33 (=25) and 36 (=27).

Authors such as Ferrando and Anguiano-Carrasco (2010) state that redundant items degrade the resulting factorial structure, although they are used to evaluate the consistency of the subjects and also to increase the internal consistency of the scales. We also excluded items with a corrected item-total correlation of <0.3. This led to the elimination of 11 items (6, 9, 10, 16, 20, 22, 27, 31, 37, 43, 58).

TABLE 3. Characteristics and properties of the items.

	No response		Floor effect (answers at lower limit)		Ceiling effect (answers at upper limit)		Descriptive statistics				Corrected item-total correlation
ITEM	N	%	N	%	N	%	Mean	Standard deviation	Asymmetry	Kurtosis	
1	0	0.0%		0%	611	75%	6.63	0.77	-2.80	10.35	.550
2	0	0.0%	21	2.6%	375	46%	5.63	1.75	-1.34	1.15	.310
3	3	0.4%	36	4.4%	223	27.5%	4.54	2.24	-0.50	-1.04	.340
4	0	0.0%	35	4.3%	618	75.8%	6.31	1.67	-2.85	7.24	.510
5	0	0.0%		0%	618	75.8%	6.62	0.82	-2.77	8.96	.610
6	2	0.3%	474	58.4%	7	0.9%	0.81	1.32	2.29	5.93	-.500
7	3	0.4%	16	2%	246	30.3%	5.03	1.99	-0.82	-0.48	.370
8	0	0.0%	3	0.4%	411	50.4%	6.16	1.14	-1.85	4.38	.420
9	4	0.5%	58	7.2%	286	35.3%	4.87	2.30	-0.84	-0.60	.230
10	1	0.1%	32	3.9%	113	13.9%	4.45	1.88	-0.59	-0.37	.280
11	38	4.8%	26	3.4%	331	42.7%	5.56	1.80	-1.45	1.59	.440
12	5	0.6%	16	2%	427	52.8%	5.82	1.75	-1.67	2.05	.390
13	5	0.6%	20	2.5%	467	57.7%	5.93	1.70	-1.87	2.95	.450
14	4	0.5%	1	0.1%	481	59.3%	6.35	1.01	-2.08	5.56	.660
15	1	0.1%	1	0.1%	237	29.1%	5.47	1.41	-0.80	0.07	.350
16	3	0.4%	44	5.4%	74	9.1%	4.14	1.83	-0.48	-0.32	.220
17	4	0.5%	1	0.1%	622	76.7%	6.63	0.87	-3.49	15.35	.560
18	4	0.5%	17	2.1%	293	36.1%	5.44	1.72	-1.23	1.10	.490
19	3	0.4%	4	0.5%	556	68.5%	6.23	1.49	-2.30	4.66	.600
20	6	0.8%	188	23.2%	58	7.2%	2.90	2.28	0.19	-1.20	-.160
21	9	1.1%	4	0.5%	559	69.4%	6.43	1.13	-2.69	8.39	.570

22	12	1.5%	90	11.2%	114	14.2%	3.67	2.27	-0.08	-1.18	.230
23	9	1.1%	13	1.6%	280	34.7%	5.51	1.63	-1.31	1.40	.450
24	10	1.3%		0%	261	32.4%	5.58	1.38	-0.89	0.21	.440
25	12	1.5%	1	0.1%	339	42.2%	5.94	1.23	-1.37	1.98	.450
26	11	1.4%	1	0.1%	523	65%	6.33	1.19	-2.31	5.77	.660
27	10	1.3%	39	4.8%	111	13.8%	3.82	2.00	0.01	-0.88	.270
28	12	1.5%	10	1.2%	442	55%	6.07	1.43	-2.06	4.57	.630
29	9	1.1%	4	0.5%	390	48.4%	6.08	1.22	-1.79	4.08	.590
30	9	1.1%	1	0.1%	642	79.7%	6.68	0.81	-3.83	18.84	.690
31	25	3.1%	141	17.8%	56	7.1%	2.86	2.10	0.29	-0.85	-.110
32	26	3.3%	1	0.1%	332	42.1%	5.87	1.33	-1.33	1.57	.580
33	36	4.5%	4	0.5%	307	39.4%	5.64	1.60	-1.27	0.95	.350
34	33	4.2%	33	4.2%	542	69.3%	6.15	1.76	-2.47	5.28	.550
35	27	3.4%	17	2.2%	506	64.2%	6.05	1.74	-2.04	3.25	.450
36	28	3.5%	102	13%	373	47.4%	4.95	2.62	-0.92	-0.79	.210
37	32	4.0%	52	6.6%	175	22.3%	4.14	2.26	-0.23	-1.17	.240
38	26	3.3%	2	0.3%	306	38.8%	5.89	1.23	-1.39	2.30	.620
39	25	3.1%	82	10.4%	366	46.3%	5.20	2.40	-1.18	-0.06	.380
40	25	3.1%	1	0.1%	540	68.4%	6.44	1.04	-2.49	7.33	.680
41	29	3.6%	1	0.1%	443	56.4%	6.19	1.18	-1.80	3.71	.670
42	34	4.3%	1	0.1%	648	83%	6.75	0.68	-4.35	26.55	.730
43	27	3.4%	31	3.9%	143	18.1%	4.50	1.93	-0.52	-0.49	.220
44	28	3.5%		0%	675	85.8%	6.80	0.59	-4.27	24.32	.740
45	28	3.5%		0%	475	60.4%	6.34	1.05	-1.98	4.25	.690
46	27	3.4%	5	0.6%	481	61%	6.32	1.19	-2.65	8.46	.510
47	29	3.6%	28	3.6%	152	19.3%	4.51	2.05	-0.50	-0.88	.340
48	31	3.9%	5	0.6%	426	54.3%	6.18	1.23	-2.14	5.50	.560
49	27	3.4%	1	0.1%	496	62.9%	6.44	0.92	-2.28	7.31	.610
50	31	3.9%	13	1.7%	168	21.4%	5.00	1.71	-0.87	0.25	.320
51	30	3.8%	4	0.5%	573	73%	6.53	1.04	-3.34	13.67	.720
52	35	4.4%	17	2.2%	391	50.1%	5.62	1.81	-1.28	0.88	.370
53	31	3.9%	2	0.3%	524	66.8%	6.51	0.89	-2.75	11.04	.730
54	28	3.5%	17	2.2%	363	46.1%	5.67	1.73	-1.47	1.64	.530
55	29	3.6%	8	1%	424	53.9%	6.00	1.50	-1.87	3.28	.480
56	28	3.5%	28	3.6%	485	61.6%	5.97	1.82	-2.03	3.30	.370
57	29	3.6%		0%	459	58.4%	6.29	1.09	-1.95	4.14	.660
58	29	3.6%	36	4.6%	128	16.3%	4.02	2.07	-0.11	-1.02	.250
59	28	3.5%	11	1.4%	490	62.3%	6.20	1.39	-2.30	5.63	.580

3.2. Exploratory factor analysis

The EFA was conducted on 44 items. All of the models extracted in the EFA present good fit indices, with a KMO index of 0.9144, which indicates that the data are suitable for the factor analysis (Table 4).

TABLE 4. Fit of model indices in the EFA analysis according to the number of factors extracted.

Number of factors extracted	**4**	**3**	**2**
KMO: Kaiser-Meyer-Olkin test	0.914	0.914	0.914
GFI: Goodness of Fit Index	0.987	0.984	0.979
CFI: Comparative Fit Index	0.995	0.993	0.99
RMSR: Root Mean Squared Residual	0.0408	0.0453	0.0517
RMSEA: Root Mean Squared Error of Approximation	0.026	0.029	0.034
NNFI: Non-normed Fit Index (Tucker-Lewis Index)	0.994	0.992	0.989

The model with 3 factors presented the best fit with the initial theoretical dimensions and showed factors with more than 2 items with loadings. For the result of the direct Oblimin rotation, we obtained three correlated factors of 26, 6 and 5 items with loadings, 3 non-loading items (12, 13, 47) and 4 wrongly-identified items (14, 38, 46, 54) (Table 5).

TABLE 5. EFA with three factors (omitting loadings of <0.3).

ITEM	**F 1**	**F 2**	**F 3**
1. I feel that my friend acts like themself with me.	0.517		
2. Although we have just left each other, we are still in touch on social media.	0.499		
3n. Although I know my friend well, when it is their birthday, I cannot think of presents that they would like.	0.322		
4. I would not do anything to harm my friend even if somebody suggested it.	0.311		
5. In conversations with my friend, I also talk about my ideas, my values or experiences that have been important for me.	0.595		
8. If I agree with my friend that I will take care of something (a task, a present, etc.) they know I will do it.	0.33		
11. I dedicate myself to my friend without thinking about who contributes the most.		0.305	
12. I do not mind being silent with my friend.			
13n. If something is not right in our friendship, I prefer to tell my friend on social media.			
14. My friend brings out the best in me.	0.568	0.303	

15. If my friend does something that hurts me, I forgive them.		0.5	
17. I keep my friend's secrets, even if things are not good between us.			0.462
18. If I lose focus in my studies or I am notworking, my friend makes sure I get back on track.	0.432		
21. If I were included in a Whatsapp group where my friend was criticised or excluded from a plan, I would express my disagreement.	0.49		
23. When I do not agree with my friend's ideas, I express my opinion calmly and do not raise my voice.		0.344	
24. When we go out and we do not want to follow the same plan, I know how to give in.		0.456	
25. My friend and I share values or we have similar ideas.	0.386		
26. I tell my friend my most personal things.	0.805		
28. I trust my friend enough to tell them things about myself that I am ashamed of.	0.663		
29. If at any time my friend has done something which was not right, I have told them frankly.	0.577		
30. My friend is special for me even if they are not for others.	0.624		
32. If we argue, I do not let the annoyance last and I try to make up.		0.497	
34n. When something good happens, I do not like sharing it with my friend.	0.542		
35n. If my friend asks me not to tell people something, I only tell my group of closest friends.			0.705
38. When I am mistaken about my friend, I recognise it and demonstrate this in some way so that they know.	0.353	0.317	
39n. When my friend does well in something (studies, popularity, flirting...) and I do not, it is hard for me to be happy that things are going well for them.			0.44
40. I talk to my friend about my plans for the future, for work, etc.	0.657		
41. If I am asked for my friend's 5 most important qualities, I know what to say.	0.666		
42. I like spending time with my friend.	0.925		
44. I have fun with my friend.	0.905		
45. If something is wrong with my friend, I talk about it sincerely.	0.614		
46. I am discrete about my friend's personal issues and I do not tell anybody, even if they ask me directly.	0.371		0.38
47n. I put up with my friend's defects or the things that annoy me about them.			
48. I defend my friend when other people speak badly of them, even when they do so on social media.	0.595		

49. If my friend is annoyed, worried, happy, etc., I notice it even if they do not tell me.	0.603		
50. I quickly forget my friend's mistakes.		0.395	
51. I know I can tell my friend anything.	0.704		
52n. If my friend tells me that we like the same boy/girl, I try to win.			0.428
53. I help my friend to solve their problems, if it is within my power, even if it is difficult to do so.	0.59		
54n. If my friend betrays my trust, I feel free to do the same back to them, even if it is only in a chat or on social media.		0.314	0.566
55. I can say 5 things that my friend does not like.	0.596		
56n. They are my friend because we go out partying and we have fun, although we do not see each other apart from this and we do not have much in common.			0.319
57. I ask my friend for forgiveness when I have hurt their feelings and/or I have behaved badly.	0.399		
59. If I have not spoken to my friend for 2 weeks, I miss them.	0.672		

The wrongly-identified items were assigned a factor in accordance with the initial theoretical dimensions and 6 items of the higher-order factor were rejected as this improved the ordinal reliability index. Finally, we obtained a scale of 35 items divided into 3 dimensions with 21, 7 and 7 items, and an ordinal reliability coefficient with values of 0.95, 0.74 and 0.75 respectively (Table 6).

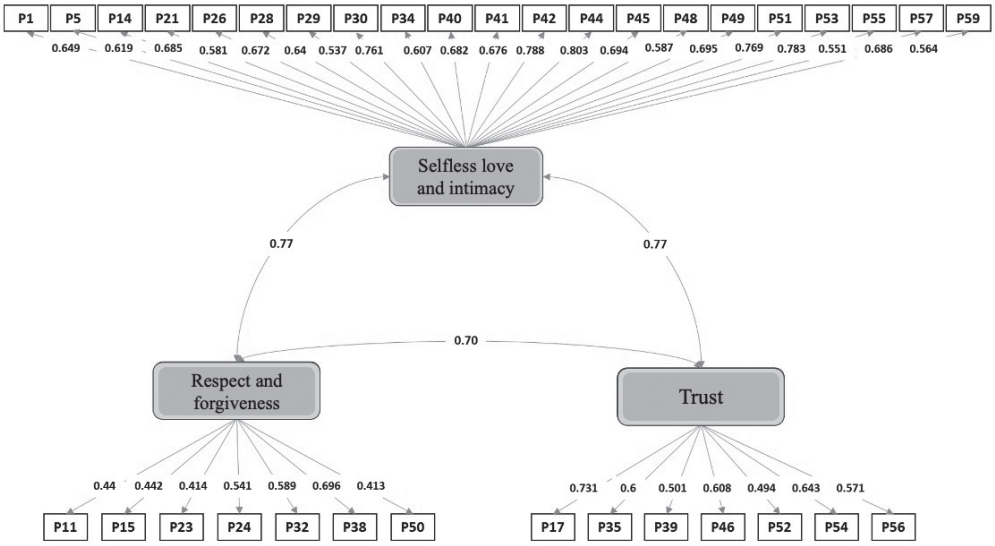
TABLE 6. Final version of the scale after EFA.

Dimensions	Total n. items	Former items	New items	Ordinal alpha reliability coefficient
Selfless love and intimacy	21	5, 14, 26, 29, 30, 34, 40, 41, 42, 44, 45, 49, 51, 53, 55, 59	1, 21, 28, 48, 57	0.95
Trust and loyalty	7	17, 35, 46, 52	39, 54, 56	0.74
Respect and forgiveness	7	15, 23, 32, 38, 50	11, 24	0.75

3.3. Confirmatory factor analysis

On the basis of the structure obtained by the analysis described above, we considered three correlated latent variables that corresponded to the dimensions "Selfless love and intimacy", "Trust" and "Respect and forgiveness", with the 35 variables observed (items) (Figure 1). All the estimated standard loadings are higher than 0.4 and the estimated correlations between the latent variables are between 0.7 and 0.8.

FIGURE 1. Confirmatory factor analysis.



The alpha values of the ordinal reliability coefficient are higher than 0.7 but the omega coefficients are approximately 0.6 in two variables. The values of the fit indices indicate a good fit (Table 7).

TABLE 7. CFA: standard loadings, standard error, critical value and reliability coefficients.

		Factor loading	Standardised loading	Standard error	Critical value	Percentage of variability explained by the latent factor	Ordinal reliability Cronbach's alpha	Composite reliability Omega coefficient
Selfless love and intimacy	P1	1	0.649			42.1%	0.94	0.891
	P5	0.954	0.619	0.025	38.831	38.3%		
	P14	1.056	0.685	0.026	40.692	46.9%		
	P21	0.895	0.581	0.024	37.61	33.8%		
	P26	1.037	0.672	0.026	40.365	45.2%		
	P28	0.987	0.64	0.025	39.466	41.0%		
	P29	0.827	0.537	0.023	36.044	28.8%		
	P30	1.174	0.761	0.028	42.493	57.9%		
	P34n	0.935	0.607	0.024	38.459	36.8%		
	P40	1.052	0.682	0.026	40.629	46.5%		
	P41	1.042	0.676	0.026	40.464	45.7%		
	P42	1.215	0.788	0.028	43.039	62.1%		

	P44	1.238	0.803	0.029	43.34	64.5%		
	P45	1.069	0.694	0.026	40.914	48.2%		
	P48	0.906	0.587	0.024	37.837	34.5%		
	P49	1.071	0.695	0.026	40.949	48.3%		
	P51	1.185	0.769	0.028	42.644	59.1%		
	P53	1.207	0.783	0.028	42.946	61.3%		
	P55	0.849	0.551	0.023	36.567	30.4%		
	P57	1.058	0.686	0.026	40.722	47.1%		
	P59	0.87	0.564	0.023	37.051	31.8%		
Respect and forgiveness	P11	1	0.44			19.4%	0.709	0.638
	P15	1.004	0.442	0.043	23.229	19.5%		
	P23	0.942	0.414	0.042	22.513	17.1%		
	P24	1.23	0.541	0.049	25.326	29.3%		
	P32	1.339	0.589	0.051	26.096	34.7%		
	P38	1.582	0.696	0.058	27.42	48.4%		
	P50	0.938	0.413	0.042	22.475	17.1%		
Trust	P17	1	0.731			53.4%	0.791	0.666
	P35n	0.821	0.6	0.024	34.27	36.0%		
	P39n	0.686	0.501	0.022	30.858	25.1%		
	P46	0.831	0.608	0.024	34.498	37.0%		
	P52n	0.676	0.494	0.022	30.593	24.4%		
	P54n	0.88	0.643	0.025	35.527	41.3%		
	P56n	0.781	0.571	0.023	33.342	32.6%		

Comparative Fit Index (CFI): 0.986

Tucker-Lewis Index (TLI): 0.986

Root Mean Square Error of Approximation (RMSEA): 0.043

Standardized Root Mean Square Residual (SRMR): 0.054

Goodness of Fit Index (GFI): 0.997

4. Discussion and conclusions

This study on CF in young adults is part of a currently active debate in education, which considers it to be a type of friendship that can exist from childhood (Walker et al., 2016), a means of moral education (Kristjánsson, 2020), an alternative relationship to role modelling that enables the cultivation of virtue (Hoyos-Valdés, 2018) and an area of self-knowledge that facilitates character building (Romero-Iribas, 2021). Psychology addresses CF through its characteristic emotions (Author, 2021a) and its relationship to happiness (Anderson & Fowers, 2019), which are significant aspects in education.

The research objective was to design and validate the CFS in a sample of Spanish university students. After the expert judgement and pilot study, the initial the-

oretical model contained four dimensions and 59 items. As a result of the EFA and CFA, the validated scale consisted of 35 items in three dimensions: "Selfless love and intimacy" (21), "Trust" (7) and "Respect and forgiveness" (7) with ordinal reliability coefficients of 0.94, 0.79 and 0.7 respectively, which indicates satisfactory values of internal consistency. These results coincide with other scales, such as that developed by Bukowski et al. (1994) with ratios of between .68 and .77, or the study of the psychometric properties of the same scale (version 4.1) in Spanish, with alpha values of between .63 and .83 (Rodríguez et al., 2015). The model fit indices for the CFA are good, with values higher than the recommended cut-off points (CFI = 0.986; TLI = 0.986; RMSEA = 0.043; SRMR = 0.054; GFI = 0.997).

In comparison to the initial theoretical model, the final version of the scale has a reduced number of dimensions and items. The dimension "Selfless love" combines with "Sharing intimacy and sincerity" to form the dimension "Selfless love and intimacy". The explanation for this regrouping is that CF is a close and intimate friendship where friends behave loyally and speak with sincerity.

The dimension "Trust and loyalty" has been renamed "Trust" because it focuses on confidence in the friend and the degree to which they can be trusted to keep secrets. This may be due to the fact that the items corresponding to loyalty are included in a friendship that wishes good for the friend for their own sake (selfless love). In this respect, DeSousa et al. (2014) establish that the subscales that measure positive aspect of friendship are closely linked to each other, so that individuals who score highly in one dimension of friendship tend to have a similar score in the other dimensions.

We conclude that the CFS possesses good psychometric properties, making it a valid, reliable instrument in Spanish to measure CF in young adults. The CFA demonstrates the validity of the factorial structure previously obtained by the EFA and, therefore, the validity of the theoretical deductions resulting from this structure (Pérez-Gil et al., 2000).

The main limitation of this work is the representativeness of the sample, as it was not possible to make a random selection of the universities. However, different samples were used for the EFA and the CFA, which is not common practice but is deemed necessary (Henson & Roberts, 2006).

The results obtained by applying the scale will lead to a better understanding of the importance of character friendship for the socio-emotional development, ethical growth or happiness of young adults. Furthermore, it will enable the development of educational intervention programmes that enhance aspects of friendship such as trust, respect, forgiveness or mutual knowledge, which can facilitate collaborative relationships and contribute to social cohesion.

In future research, it would be interesting to replicate this scale in other cultures,

contexts and languages, as this is a continuous exercise in quality (Cohen, 1960), with the aim of consolidating it theoretically and methodologically.

It would be advisable to pay greater attention to the aspects related to measurement, as recent meta-analysis indicates that there is a prevalence of inventories, interviews and observation in the measurement of CF, whereas there is a lack of other instruments, such as self-reports, which are necessary for the advancement of knowledge (Chung et al., 2018; Kochendorfer & Kerns, 2019).

In this respect, although some contemporary neo-Aristotelians are sceptical since it is difficult to be objective about oneself (Kristjánsson, 2020), self-reporting is as important as peer reporting as it offers a unique and individual perspective (internal and external) of CF, although it may be insufficient. A complete evaluation of CF would include the application of this scale as a self-reporting measure, along with a peer report conducted by a friend using the same instrument, where A completes the scale as a self-report and then B evaluates A, as A's friend. This is, therefore, another potential line of research.

ANNEX 1. Validated Character Friendship Scale for young adults (CFS).

This is the initial theoretical model composed of 59 items subjected to the EFA. The final 35 items that constitute the CFS are shown in bold.

1. I feel that my friend acts like themself with me.

2. Although we have just left each other, we are still in touch on social media.

3. Although I know my friend well, when it is their birthday, I cannot think of presents that they would like.

4. I would not do anything to harm my friend even if somebody suggested it.

5. In conversations with my friend, I also talk about my ideas, my values or experiences that have been important for me.

6. I arrange to meet my friend and help them when I have time.

7. If my friend has behaved badly towards me, I do not trust them like I did before, even if they apologise.

8. If I agree with my friend that I will take care of something (a task, a present, etc.) they know I will do it.

9. When my friend is telling me something important for them, I listen to them carefully, although I look at my mobile phone when they are speaking to me.

10. Even if I am annoyed with my friend, I am nice to them.

11. I dedicate myself to my friend without thinking about who contributes the most.

12. I do not mind being silent with my friend.

13. If something is not right in our friendship, I prefer to tell my friend on social media.

14. My friend brings out the best in me.

15. If my friend does something that hurts me, I forgive them.

16. If we argue about something, I give in without always wanting to be right.

17. I keep my friend's secrets, even if things are not good between us

18. If I lose focus in my studies or I am not working, my friend makes sure I get back on track.

19. I avoid talking about personal issues with my friend.

20. I am too direct with my friend and that makes them get annoyed with me.

21. If I were included in a Whatsapp group where my friend was criticised or excluded from a plan, I would express my disagreement.

22. If my friend does something that hurts me, I forgive them but I do not forget it.

23. When I do not agree with my friend's ideas, I express my opinion calmly and do not raise my voice.

24. When we go out and we do not want to follow the same plan, I know how to give in.

25. My friend and I share values or we have similar ideas.

26. I tell my friend my most personal issues.

27. If I found myself involved in a conversation where they were saying something bad about my friend, but they were right, I would support what they were saying too.

28. I trust my friend enough to tell them things about myself that I am ashamed of.

29. If at any time my friend has done something which was not right, I have told them frankly.

30. My friend is special for me even if they are not for others.

31. If my friend did something that was against the law, I would cover up for them.

32. If we argue, I do not let the annoyance last and I try to make up.

33. My friend and I do not agree on almost anything.

34. When something good happens, I do not like sharing it with my friend.

35. If my friend asks me not to tell people something, I only tell my group of closest friends.

36. I do not criticise my friend, not even on social media, even if it is just this group of trusted friends.

37. To avoid conflict with my friend, I avoid talking about issues that we do not agree on.

38. When I am mistaken about my friend, I recognise it and demonstrate this in some way so that they know.

39. When my friend does well in something (studies, popularity, flirting...) and I do not, it is hard for me to be happy that things are going well for them.

40. I talk to my friend about my plans for the future, for work, etc.

41. If I am asked for my friend's 5 most important qualities, I know what to say.

42. I like spending time with my friend.

43. When my friend suggests doing something that is not good (it is not right), I do it despite everything because they are my friend.

44. I have fun with my friend.

45. If something is not right with my friend, I talk about it sincerely

46. I am discrete about my friend's personal issues and I do not tell anybody, even if they ask me directly

47. I put up with my friend's defects or the things that annoy me about them.

48. I defend my friend when other people speak badly of them, even when they do so on social media.

49. If my friend is annoyed, worried, happy, etc., I notice it even if they do not tell me.

50. I quickly forget my friend's mistakes.

51. I know I can tell my friend anything.

52. If my friend tells me that we like the same boy/girl, I try to win.

53. I help my friend to solve their problems, if it is within my power, even if it is difficult to do so.

54. If my friend betrays my trust, I feel free to do the same back to them even if it is only in a chat or on social media.

55. I can say 5 things that my friend does not like.

56. They are my friend because we go out partying and we have fun, although we do not see each other apart from this and we do not have much in common.

57. I ask my friend for forgiveness when I have hurt their feelings and/or I have behaved badly.

58. When my friend and I think differently about issues that I think are important, I try to change their mind.

59. If I have not spoken to my friend for 2 weeks, I miss them.

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