Attitudes Towards Gender Equality in Soccer in the School Context in Spain (EAIGFU): design and evaluation of its psychometric properties

Pedro Gil-Madrona[1], Luz Marina Méndez-Hinojosa[2], Magaly Cárdenas-Rodríguez[3], María Delgado[4]

Abstract

Even though the number of women playing soccer in Europe has expanded tremendously, the conception of soccer as an essentially masculine activity is still under investigation. Despite the importance, a study on the development and validation of a scale focusing on gender equality has not yet been reported. This study validates the Attitudes Towards Gender Equality Scale for School Football Soccer (EAIGFU). We utilized a non-experimental, cross-sectional design and a non-probabilistic sampling technique. The scale was applied to a sample of 883 Spanish students majoring in physical education. The average age of the students who participated in the study was 10.68 years (*SD* = .74). The sample was divided randomly into two groups to perform the analysis in two steps: a) exploratory factor analysis in Group 1 and b) confirmatory factor analysis in Group 2. The results showed that the three correlated factors model fitted the data in a good way [χ^2/df = 2.09, *GFI* = .97, *CFI* = .93, *NFI* = .87, *RMSEA* = .05 *CI* 90% (.04, .06), and *SRMR* = .06]. Reliability by Cronbach's alpha was acceptable to good (.70 to .81). On the other hand, the links between the level of competence and egalitarian attitudes in soccer were reviewed and the beliefs and attitudes based on gender. It is concluded that EAIGFU is reliable, shows evidence of validity among Spaniard students of physical education, and the three correlated factors model is adequate to represent the equality between gender in football soccer.

Keywords: gender equality, soccer, physical education, primary education, secondary education.

Introduction

In Spain, the 1978 Constitution paved the way for the overthrow of patriarchy and the evolution toward gender equality, which has not yet been attained but is on the rise thanks to the transversal equality laws enacted in the twenty-first century (Cho et al., 2013). In Spain, sexist attitudes coexist in the social ideology of teachers, which may have direct effects on school practice (Bonilla-Algovia, 2021). Therefore, it is crucial to give kids a voice to ascertain their thoughts and attitudes concerning equality (Bonilla-Algovia, 2021).

The 2030 Agenda has set out an ambitious plan of goals to be achieved during the present decade, among which gender equality and the empowerment of all women and girls stand out. In this challenging task, the family, schools and educational administrations have a special role (Moya Díaz & Juanas, 2022). Gender inequality is still a problem in our society. In the field of physical activity and sport, it is clear that there is still a long way to go to achieve real equality between genders.

The conceptualization of soccer as a male sport has been a constant in history (G. Crawford, 2003; Rodríguez & Gómez, 2018). Currently, the need to improve gender inequalities in the exercise practice in the educational field has been confirmed (Evans, 2017; Spark et al., 2019). The particular case of soccer deserves great interest since it has traditionally been a male sport (Sánchez Álvarez et al., 2020). It is currently one of the most important sports globally, with a high media value and social influence (Pérez et al., 2010).

The practice of women's soccer has increased worldwide (Tscholl et al., 2009). In the case of Europe, this growth has been exponential in the last five years. For instance, in England, France, Germany, Holland, Norway, and Sweden, a hundred thousand female players have already been exceeded. Moreover, Spain has been classified as one of the countries with the highest growth rate, increasing 64%, with more than 46 thousand players (Dincer, 2011). Currently, it is one of the most practiced sports by women at all levels: school, recreational and competitive (Llopis Goig, 2010).

Despite the continued rise of women's soccer, various studies show that the male predominance in proportion to females is glaringly apparent (Caudwell, 2011; Llopis Goig, 2010; Pitti, 2019). The sport of soccer is related to masculine predominance, male pride, and competitive spirit (Jeanes, 2011), and it is still unclear how far this positive trend may be transferred into the development of cultural beliefs. Scandurra et al. (2019) call into question

[1] Facultad de Educación, Universidad de Castilla La Mancha, Albacete, Spain. Pedro.Gil@uclm.es

[2] Facultad de Psicología, Universidad Autonóma de Nuevo León, Monterrey, Mexico. lucymendezhinojosa@hotmail.com

[3] Universidad Autonóma de Nuevo León, Monterrey, Mexico. : subacademica_psicologia_uanl@hotmail.com

[4] Educational Leadership and Policy Studies. University of Texas at Arlington. maria.delgado@uta.edu, maria.delgado@tccd.edu

modifications on an ideological level. In this instance, they utilized focus groups under the theoretical framework of inclusive masculinity, with three soccer teams defined by gender and sexual orientation. Results demonstrated that, at least in Italy, soccer constitutes a context in which men dominate women.

One of the lines of research on women's football soccer has been the barriers that girls have perceived to playing soccer. Gil-Madrona et al. (2014) interviewed girls between 6-8 years old and 11-16 years old to learn their perceptions about soccer and how they were affected by the school environment. The main findings highlighted the family as the main factor in socialization and the opportunities they received within the school. Stirling and Schulz (2011) revealed that mass media and the parent's point of view are the main barriers to socialization. The research above shows how soccer's perceptions are still linked to the traditional ideals of masculinity.

The formation of preconceptions throughout the years is unquestionably one of the most significant obstacles to making soccer an egalitarian activity. In this regard, girls' gender-expected clichés lead them to believe they must be feminine in appearance and personality (i.e., expressive, supportive, with a feminine exterior, and adopt typically affectionate, feminine characteristics). In order to grasp this notion, Clayton and Harris (2004) referred to the term heterosexual. Around this somatotype, the woman was thought to have affective-expressive characteristics, such as coordinated, rhythmic, flexible, allocated care, and passive roles, whereas the man was thought to have instrumental characteristics, such as powerful, resistive, rapid, aggressive, or intimidating (M. Crawford, 2004).

Regarding the gender stereotypes, a socio-cultural dynamic of the dominant position of men toward women was established, which had a clear influence on sports. The so-called hegemonic masculinity considered women physically inferior to men, perceived the woman as sexual objects, or showed homophobic beliefs (English, 2017). However, gender identity is currently interpreted as a self-understanding of oneself (Pielichaty, 2015), influenced by social and cultural variations through which individuals as active persons create their gender (Meân, 2001). In the case of girls, the social construction of body identity is influenced by the dominant discourses of sport, health, and beauty in their society (Walseth et al., 2017).

Motor Competence, Soccer and Gender

The Theory of Achievement Goals is one of the most debated conceptions in the sociocognitive field of motivation. According to this idea, a student's motivation and perception of success in Physical Education (PE) classes result from his or her interaction with the environment, which rationally positions behavior towards the achievement of a goal (Murcia et al., 2008). In this regard, the four motivating variables that have the biggest impact on academic and athletic performance are 1) competence perception, 2) the amount of effort applied, 3) the difficulty level of the activity, and 4) the amount of assistance obtained (Pesce et al., 2018). Granda Vera et al. (2018) interpreted the motivational analysis in educational environments using four principles: diligence in learning, assessment of learning, perceived motor ability, and failure aversion or fear of making mistakes. Among other variables, the impression of motor competence is the most significant predictor of the intention to practice, according to numerous researchers (Walseth et al., 2017), exerting a strong and persistent influence on the actualization of physical activity at any age (Navarro-Patón et al., 2020; Sánchez et al., 2017; Stirling & Schulz, 2011).

Within the theory of the motivation of achievement, we find the denominated theory of the value of the expectation (Eccles & Harold, 1991). This theoretical construct explains gender differences in performance and educational options. This sense recognizes the importance of achievement-oriented motivation when choosing specific educational objectives while considering the students' contribution to gender roles and stereotypes. Following this postulate, many scholarly works correlate with gender stereotypes and motivation for physical activity so that students choose activities that provide a greater perception of competence (Chalabaev et al., 2009; Pesce et al., 2018; Robinson et al., 2015). In the case of soccer, research shows that girls perceive themselves as inferior to boys (Pielichaty, 2015) and at the same time, the male stereotype predicts the belief about the worst physical performance by females, and that males are better at soccer (Chalabaev et al., 2009).

Assessment of Attitudes Towards Gender Equality

Since studies have been undertaken in general but not with the specificity of the present work (Azorín Abellán, 2017), the analysis of the attitudes that students have towards gender equality is useful for the prevention, identification, and attention of possible sexist behaviors among students. Regarding the evaluation of adolescent gender attitudes, Garaigordobil and Durá (2006) developed the Student Attitude Scale towards Coeducation based on gender construction supplied by the theoretical approach of undertaking gender research (M. Crawford, 2004). This theory analyzes gender from three different perspectives: 1) as a system of social organization in which the man occupies a position of power: traditions, customs, values, or laws; 2) as a dynamic process of representing what it means to be a man or a woman: speeches, practices, or

roles; and 3) as an aspect of personal identity and attitudes: beliefs, fantasies, and stereotypes. The questionnaire was administered to 728 pupils aged 9 to 16 from Spain. The final form of the scale includes 30 items separated into three dimensions: socio-cultural (distribution of family and domestic tasks, social demands, and gender stereotypes); relational (interactions between teachers and students, students, and families); and personal (preferences and academic emotions, aspirations, and expectations according to gender). Cronbach's for the full-scale was 91, and the media saturation of the items in the major component was.53, indicating that the scale possessed excellent psychometric features. Sánchez Álvarez et al. (2020) provide the findings of a study on the formation of gender identities in elementary school. -

On the other hand, the Questionnaire about Beliefs and Gender Stereotypes towards Physical Activity and Sport (Granda Vera et al., 2018) was designed in the sports field. In this research, 593 students aged between 9 and 13 years participated. It consists of 24 items grouped into 5 dimensions: 1) differences associated with gender and its relationship with physical activity and sport; (e.g., Item No. 18. "Boys usually participate more than girls in competitive physical and sports activities"); 2) Sport and gender (e.g., item No. 8. "Men get more benefits for their effort in sports"); 3) Stereotypes about physical activity associated with gender (e.g., item 6. "Boys are better than girls at any physical activity that requires strength, aggressiveness"); 4) Beliefs about physical activity and sport (e.g., item No. 11. "Girls can develop their physical abilities as much as boys"); 5) PE classes and gender (e.g., item no. 32. "In PE classes, the teacher usually expects more from boys than girls"). In this case the Cronbach's α value was .90 and the confirmatory factor analysis showed very satisfactory results ($\chi^2/gl = 4.47$, *RMSEA* = .06, *CFI* = .95, *GFI* = .92, and RMR = .06). Hence, the present study is concerned with the attitudes towards gender equality in the case of soccer.

As far as we have been able to revise, currently, we suffer from the lack of instruments of evaluation of gender equality in formative ages when it can be of great use to the teacher for the diagnosis and intervention with their pupils. Therefore, the present study aims to conduct a psychometric study of an instrument to assess Attitudes toward Equality Between Gender scales in School Football Spanish (EAIGFU). Specifically, the aim was to analyze factor structure, internal consistency, concurrency, and predictive validity by measuring the relationships between EAIGFU and motor competence perceived by the student. We hypothesize that the EAIGFU will present an adequate validity and reliability in a sample of Spaniard schoolchildren. On the other hand, in keeping with the literature review, we hypothesized that girls would show greater sensitivity than boys to egalitarian attitudes in soccer.

Method

Design

The design of this study was ex post facto and cross-sectional since no variables were manipulated. This was done after the manifestations of the variable had already occurred, and all the data was collected in a single moment (Hernández Sampieri et al., 2010) and at a single time to describe the variables and analyze their frequency and differences.

Participants

A total of 883 PE students (48.8% girls; M_{age} = 10.68; *SD* = .74) belonging to 21 educational centers and two Spaniard autonomous communities (Castillo et al., 2012) participated in this study. A non-probabilistic sampling technique was used for convenience, using intact classes. The initial sample comprised 933 students, and in the analysis carried out, 20 participants who had at least one lost value were eliminated.

The data were randomly divided into two parts. The first sample of 416 students (50.2% girls) formed the exploratory factor analysis (EFA) and 467 (46.7% girls) the confirmatory factor analysis (CFA) (Table 1).

Table 1.

Demographic characteristics of the sample

Variable	Total (*N* = 883)	Sample 1 (*n* = 416)	Sample 2 (*n* = 467)
Age (*M*/*SD*)	10.68 (.74)	10.79 (.85)	10.41 (.49)
Gender (%)			
Masculine	51.20	49.80	49.60
Femenine	48.80	50.20	50.40
Not Reported			
Anthropometry (*M*/*SD*)			
Weight (cm)	40.72 (9.32)	41.08 (9.45)	40.27 (9.02)
Heright (kg)	148.94 (9.22)	149.29 (9.04)	148.60 (8.56)
Body mass index (kg/m²)	18.61 (.03)	18.69 (.03)	18.51 (.03)
Taste for soccer (%)			
Yes	71.70	73.10	70.30
No	28.30	26.90	29.70
Soccer practice (%)			
Yes	27.90	25	25.60
No	72	75	74.40
Federated soccer (M /SD)			
Years	1.35 (2.33)	1.36 (2.41)	1.31 (2.39)
Level	5.69 (3.08)	5.66 (2.99)	5.68 (3.07)
Family			
Number of siblings	.71 (.86)	.71 (.04)	.70 (.85)
Number of sisters	.61 (.73)	.61 (.70)	.61 (.70)

Measures

Attitudes Towards Equality Between Gender Scale in School Football Spanish (EAIGFU). This scale consists of 20 items and five response options, all written in Spanish for better understanding, as you can see below: 1 = "totally disagree" to 5 = "totally agree." It is subdivided into three dimensions that include 1) egalitarian socio-cultural level, 6 items (e.g., "The performance of girls in soccer could equal or exceed that of boys"), 2) sexist socio-cultural level, 10 items (e.g., "Soccer is a male sport") and 3) relational level, 4 items (e.g., "When we play soccer in PE class, boys usually insult less prepared girls").

Achievement Motivation in Physical Education (AMPET). To measure the perceived competence, the motor competence factor perceived was used to adapt the Spanish version of the Achievement Motivation in Physical Education test (Ruiz-Pérez et al., 2015). This factor is composed of 7 items (e.g., "I think I am better than many male and female colleagues in the PE class"), which are answered by a Likert scale with five response options: 1 = "strongly disagree" to 5 = "strongly agree." A brief explanation precedes the test (i.e., "This questionnaire seeks to know how you think, feel and live the situations presented to you in the PE and Sports classes"). The reliability obtained was acceptable (α = .73).

Procedure

Participation in the study was entirely voluntary. In order to collect data for the research project, informative sessions with the heads of educational centers were arranged. The educational institution was contacted beforehand, and the families were given a project information sheet. They were informed of the experiment's goal, that their personal information would stay fully anonymous, and that the results would not affect the participants' grades.

The parents had to return the form once they had signed it, giving the consent of their son or daughter to participate in the investigation, and the committee approved the research of the coexistence and ethics committee of the school. The consent was given in writing by the parents and the educational center once approved by the educational center's coexistence and ethics commission committee. All data were collected under the ethical guidelines of the Declaration of Helsinki. The research project was reviewed and approved by an external scientific committee of CAR Calar del Mundo, Albacete (Spain). In addition, the project has been approved as Educational Research and Innovation Project number MTC-002/19 of Junta de Andalucía (Spain).

Instrument Design

Following the recommendations of Muñiz and Fonseca-Pedrera (2019), a test was developed. The necessity of building an original instrument was established, and the sample utilized was specified.

The second step was to define the measuring variable. For this purpose, a comprehensive literature review on gender equality, soccer, and school-aged sports was done, including classic and modern examples, an analysis of background research, and instruments created by other writers. Because it is a concept that requires the construction of beliefs to provide a response, in-depth interviews with female soccer specialists, primarily Mexican players, were previously done. The research team decided to adopt the theoretical approach of "doing gender" (M. Crawford, 2011), which offers a model of analysis of gender socialization at three levels, including socio-cultural, relational, and individual. They were conceptually and operationally specified after selecting the construct's dimensions (attitude toward soccer).

Thirdly, the application specifications for the instrument were described. The estimated application time was 15 to 20 minutes, always in the presence of a teacher or PE teacher to address any questions the student may have. Instructions for its proper application and safety-related considerations were written.

Subsequently, Likert-type items were drafted for each indicator based on the predetermined objective and the criteria for developing the items outlined by Dincer (2011); Evans (2017) and illustrated by Muñoz et al. (2018). In general, it was reported that the items of the "socio-cultural and relational" dimensions were written in the third person since they represented an external attitude to the individual, but the items of the "individual" dimension were written in the first person. According to Hernández Sampieri et al. (2010), the number of response alternatives is determined by the subject's discriminative ability to pick between the various categories. The number of response options corresponds to the educational level of the students.

In the fifth step, the content validity of the items was assessed using the DELPHI method, which is a frequently employed questionnaire validation technique (Castillo et al., 2012). It is an efficient and systematic technique that tries to collect expert opinions on a certain topic to incorporate these judgments into the configuration of a questionnaire and reach a consensus through the convergence of the opinions of geographically dispersed experts (Bonilla-Algovia et al., 2021; Landero Hernández & González Ramírez, 2006; Llopis-Goig & Flores, 2018). After a period of deliberation, it was determined to emphasize the study in the socio-cultural and relational domains instead of the personal domains, as these domains

were identified as having the largest deficits (Azorín Abellán, 2017). This removal of the personal scale eliminated unnecessary items and reduced their number; hence, it was advantageous to tailor the extension and understanding to the student's educational level. A second scale with two dimensions, socio-cultural (23 items) and relational, was developed (12 items). Next, the EAIGFU was edited for the first time, in addition to building the database with the corrected keys and carrying out the pilot study. During the application, no comprehension difficulties were found. After examining the psychometric properties of the preliminary version, modifications were made to the test. Based on statistical and substantive criteria, 15 items were eliminated due to their low factorial load ($\lambda \leq .30$). In addition, the socio-cultural dimension was divided into two factors, 1) favorable and 2) contrary to gender equality.

In an eighth phase, the possible connections with the perceived motor competence were analyzed since it has been considered that the associations between the variables are the basis for obtaining evidence of the validity of the relationship with external variables, which allows the construction of a nomological network (Muñoz et al., 2018).

Finally, the application of the test and the analysis of its psychometric properties led us to the edition of the final version of the test.

Data Analysis

Once the scales were applied, they were coded with a range of 1 to 5, and they inverted the values of items with contents contrary to equality to facilitate the interpretation of the results (items: 1, 2, 3, 11, 12, 17, 18, 19, 20, 29, 27, and 35). Regarding the evaluation of the construct validity, an EFA and a CFA was carried out, and in the study of the instrument's reliability and analysis of the inter-item reliability of each subscale with the Cronbach's Alpha test. On the other hand, the measures of central tendency, asymmetry, and kurtosis of the data were assessed after the description of the views of the kids regarding gender equality in school soccer had been accomplished. Similarly, Anova was used to find differences in pupils' views based on their gender, age, number of siblings, type of sports practice, and body mass index (BMI). Since this is a new scale, exploratory factor analysis was first performed. The exploratory factor analysis (EFA) was made through the R-Menu 2.4.2 for SPSS v24, and the parallel analysis of Horn, according to Courtney (2013), is one of the most reliable methods to determine the number of factors of a scale. The EFA was executed by extracting Minimum Residual and Oblimin Quartimin-Q rotation. While Horn's parallel analysis was performed using Pearson's *r* correlation matrix, with several samples equal to 5,000 simulation quantiles of .95, with model components and samples per permutation.

The EQS v6.1 program was used to confirm the structure obtained from the EFA. The confirmatory factor analysis (CFA) was executed using the Pearson's *r* correlation matrix and the Satorra-Bentler Scaled Chi-Square robust estimation method (SB-χ^2; Satorra and Bentler (2001)). The multivariate normality coefficient of (Murcia et al., 2008) was determined, where values of ≤ 70 are indicators of multivariate normality (Rodríguez & Gómez, 2018). The model's goodness of fit was evaluated following the recommendations of (Gil-Madrona et al., 2014; Granda Vera et al., 2018) chi-square (χ^2). Considering that this statistic is sensitive to the sample size (Fujikoshi, 2000), the decision to report the relative chi-square (χ^2/gl; Bonilla-Algovia et al. (2021)), whose values are between two and three, expresses an adequate adjustment. However, one can have a criterion of greater flexibility when presenting values ≤ 5 (Chalabaev et al., 2009). At the same time, the goodness of fit index (*GFI*), the comparative adjustment index (*CFI*), the normative adjustment index (*NFI*), the mean square error of approximation (*RMSEA*) and the standard mean square residual (*SMSR*). The values for an acceptable fit are *GFI*, *CFI*, and *NFI* $\geq .90$, *RMSEA* and *SMSR* $\leq .08$ (Hu & Bentler, 1999).

Standardized factorial loadings (λ's) were considered adequate if they were $\geq .40$ Meân (2001); (Muñoz et al., 2018; Murcia et al., 2008; Pérez et al., 2010; Walseth et al., 2017).

The estimation of the reliability of the scores obtained in the present investigation concerning the EAIGFU was obtained by Cronbach's alpha (Cronbach, 1951) and the ordinal alpha. For the Cronbach alpha coefficient, values $\geq .70$ (Knapp & Brown, 1995) and $\geq .80$ were expected for the ordinal alpha (Yatsunenko et al., 2012).

Composite Reliability and Convergent Validity

In the classic psychometric literature, Cronbach's alpha indicates the reliability of a set of indicators to measure an evaluated construct. In the case of obtaining more than one construct, this index is not adequate in the factor analysis developed since it does not consider the influence that the other constructs may have on the one measured. It is a biased statistic (Dunn et al., 2014). A solution to the above problem is the calculation of the Composite Reliability Index (Fornell & Larcker, 1981), which is interpreted as Cronbach's alpha but takes into account the interrelationships of the extracted constructs. The value of the statistic should be greater than .70 (Prieto & Delgado, 2010).

Together with the previous statistic, the Average Variance Extracted (AVE) is usually presented, which shows the relationship between the variance captured by a factor concerning the total variance due to the measurement error of that factor. The value of the statistic should be .50 (Fornell & Larcker, 1981).

Results

Exploratory Factor Analysis (EFA)

Initially, the theoretical sample structure obtained a *KMO* value equal to .83, which is indicative of the existence of the relationship between the items of the scale. Bartlett's sphericity test was significant [$\chi^2_{(190)} = 1992.31$, $p < .001$], which rejects the hypothesis of independent elements. Likewise, in Table 2, the saturation of each item of the final scale of EAIGFU is presented after carrying out the EFA with the criteria. The structure detected by Horn's parallel analysis was one-dimensional, meaning that only one eigenvalue (1.22) was above the point of intersection. With the above, a structure of three factors is determined that explains 33.315% of the variance.

It is important to mention that the items IG16, IG4, R24, IG7, IG14, IG23, R34, R30, R26, IG22, R28, IG13, R31, and R32 were eliminated when presenting factor loads less than .40. After subtracting the mentioned items, the EFA was executed again to find the detailed structure in Table 2.

Table 2.

The factorial structure obtained in EAIGFU

Code	Questionnaire Item	Factor1	Factor2	Factor3
	Egalitarian Beliefs			
IG21	Boys are better than girls in terms of the speed needed to make decisions in soccer	.70		
IG20	The boys were born with a better aptitude for soccer than the girls	.58		
IG2	The time that girls invest in soccer training is time wasted because they will not be professional soccer players	.55		
IG18	Girls are too delicate to play soccer	.53		
IG19	When playing soccer, girls get injured more frequently than boys	.59		
IG12	Girls should be cheerleaders and show off their bodies instead of playing soccer	.58		
IG17	Investing in women's soccer is wasting time and money	.55		
IG1	Soccer is a male sport	.48		
IG11	Women should avoid contact sports, such as soccer, because they can be dangerous to their health	.46		
IG3	Training soccer makes girls less feminine	.45		
	Sexist Beliefs			
R29	When we play soccer with mixed teams in Physical Education class, boys prefer to pass the ball to other boys rather than girls		.66	
R27	When we play soccer with mixed teams in Physical Education class, boys usually insult the less prepared girls		.67	
R33	In Physical Education class, we usually play football without getting angry between boys and girls		.56	
R35	When forming mixed teams to play soccer in Physical Education class, the girls are the last ones to be chosen		.55	
	Perception of Sexist Relationships			
IG10	With constant training and willpower, a woman can become as skilled (or more skilled) than a man in soccer			.67
IG6	The participation of women in soccer helps the growth of society			.60
IG9	Girls have the physical skills that are necessary to play soccer			.60
IG5	Sports sponsors and media (press and television) should support women's soccer teams more to boost their development			.49
IG8	The performance (ability to play well) of girls in soccer could equal (or exceed) that of boys			.55
IG15	Girls who play soccer are as feminine as those who do not play soccer			.54

Note: Group 1 ($n = 416$). EAIGFU = Attitudes Towards Gender Equality in Soccer in the School Context in Spain.

Confirmatory Factor Analysis (CFA)

A model of three correlated latent variables was created, in each variable the items obtained in the EFA were placed. Since the model described presented a Mardia coefficient of 158.16, it is concluded that there is no multivariate normality and therefore the CFA was made from the robust method. The goodness of the fit indices showed that the three-factor model fitted the data correctly, except for the *NFI* that was close to the desired [χ^2 = 349.09, *df* = 167, $p < .000$, χ^2/df = 2.09, *GFI* = .97, *CFI* = .93, *NFI* = .87, *RMSEA* = .05 (*CI* 90% .04, .06), and *SRMR* = .06]. The standardized factorial loadings were significant and positive: Factor 1 (IG21 = 70, IG20 = .48, IG2 = .49, IG18 = .55, IG19 = .50, IG12 = .51, IG17 = .54, IG1 = .47, IG11 = .433, and IG3 = .52), Factor 2 (R29 = .67, R27 = .56, R33 = .48, and R35 = .62) and Factor 3 (IG10 = .63, IG6 = .45, IG9 = .57, IG5 = .36, IG8 = .43, and IG15 = .58) (Figure 1).

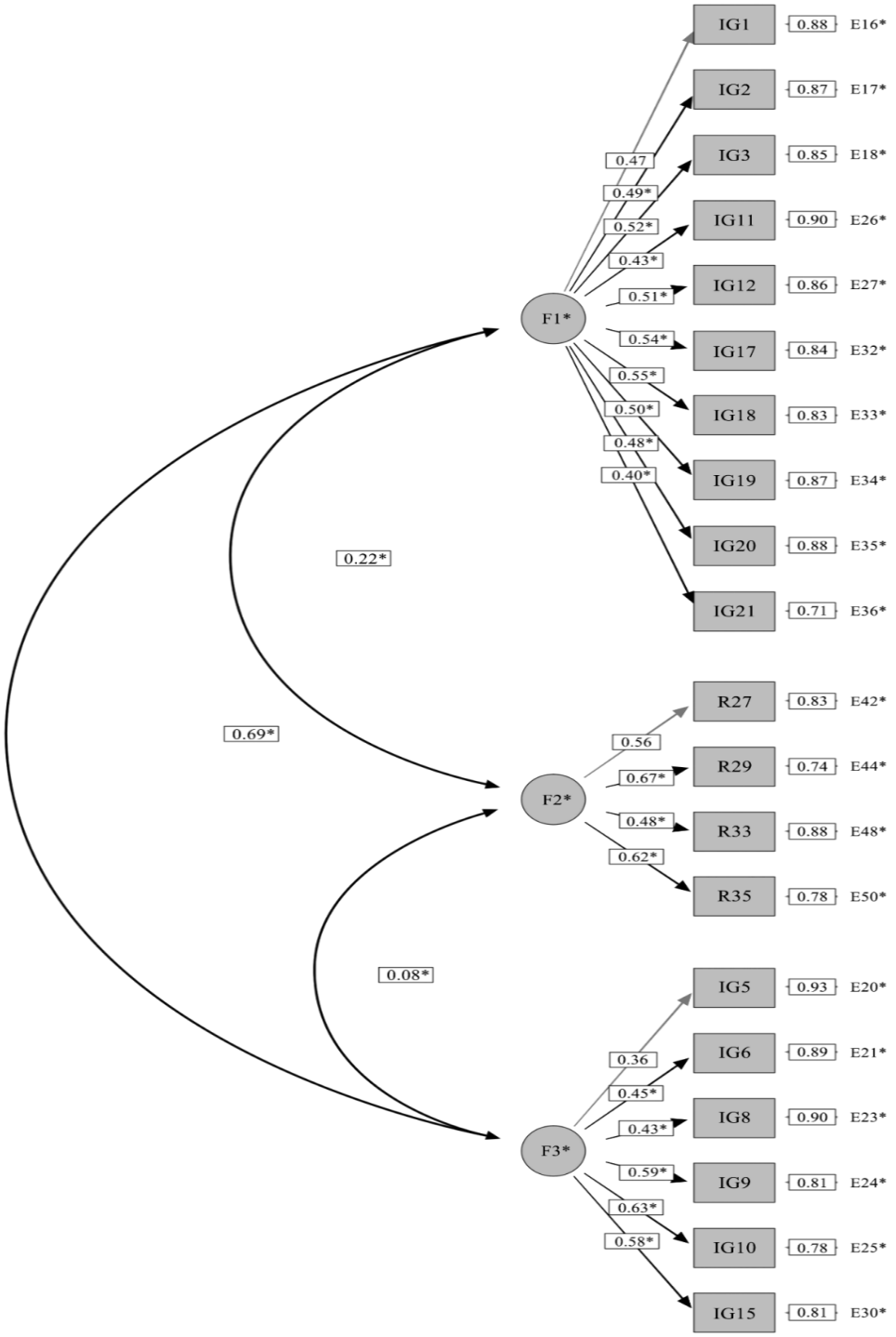

Figure 1. Confirmatory factor analysis of a 3-factor model (20-item (EAIGFU). F1 = Egalitarian Beliefs, F2 = Sexist Beliefs, and F3 = Perception of Sexist Relationships.

Reliability

Reliability in the observed scores (items) were reported Cronbach alpha for F1 (α = .81), F2 (α = .70), and F3 (α = .75). Ordinal alpha F1 (α = .90), F2 (α = .77), and F3 (α = .83). The results obtained in both indicators of internal validity, show that the EAIGFU is a reliable measure of attitudes towards soccer.

Concurrent Validity

Table 3 shows the Pearson correlation coefficients of the relationships between EAIGFU and three external measures (interest in practicing soccer and perceived motor competence in PE and soccer).

The relationships were statistically significant for the first two factors in the analyzed variables, even though they did not show any relationship with F3. In the interest in playing soccer, the correlation was positive for F1 and negative for F2. Regarding the perception of competence in PE, the correlation was negative in both factors; and regarding the perception of competition in football, the correlation was negative for the first factor and positive for the second.

Table 3.

Pearson correlations between EAIGFU and tree external measures

	F1	F2	F3
1. Interest in soccer	.08*	-.12**	.05
2. Perceived motor compence in PA	-.29**	-.10**	-.06
3. Perceived motor compence in football	-.19**	.10**	-.04

Notes. n = 883, $p > .05$. *$p < .05$. **$p < .01$. F1 = Egalitarian Beliefs, F2 = Sexiest Beliefs, and F3 = Perception of Sexist Relationships

Percentages of Students with a Favorable Attitude Towards Sexist-Adaptive Gender Equality

It is important to highlight that, as has been used in previous studies on gender issues, we addressed the analysis by looking at percentages of students with a favorable attitude towards sexist-adaptive gender equality (scores 1-3) and egalitarian (scores 4-5) (Azorín Abellán, 2017). This analysis shows that the best-valued factor was the F1 and the least, the F2. Regarding the first factor, 84.40% of girls and 69.23% of boys expressed their attitude of rejection towards sexist stances. Regarding the second factor, the data was somewhat lower than the first dimension but favorable to egalitarian attitudes: 75.20% girls and 63.60% boys. However, for the third factor, 27.30% of the girls and 40.76% of the boys considered that the relations were good when playing soccer (Figure 2).

Among the items with values lower than 4 points, which denotes an attitude contrary to gender equality, it is worth noting: first, for both groups (male and female) in all items on the relational scale, they obtained sexist or adaptive scores. Secondly, the girls in the rest of the items that made up scales 1 and 3 did not show average scores that revealed a sexist profile. Third, the boys showed sexist tendencies when they considered that they were better and that girls could hardly match them (items 8, 20 and 21) or thought that women were weaker than men (item 19). Finally, contradictory data was found on the girl's femininity who plays soccer. Although they scored somewhat below 4 on the Likert scale to understand that the girl who played football was as feminine as those who did not play (M = 3.94), they showed their disagreement, scoring above 4 points, thinking that soccer made girls less feminine (M = 4.29).

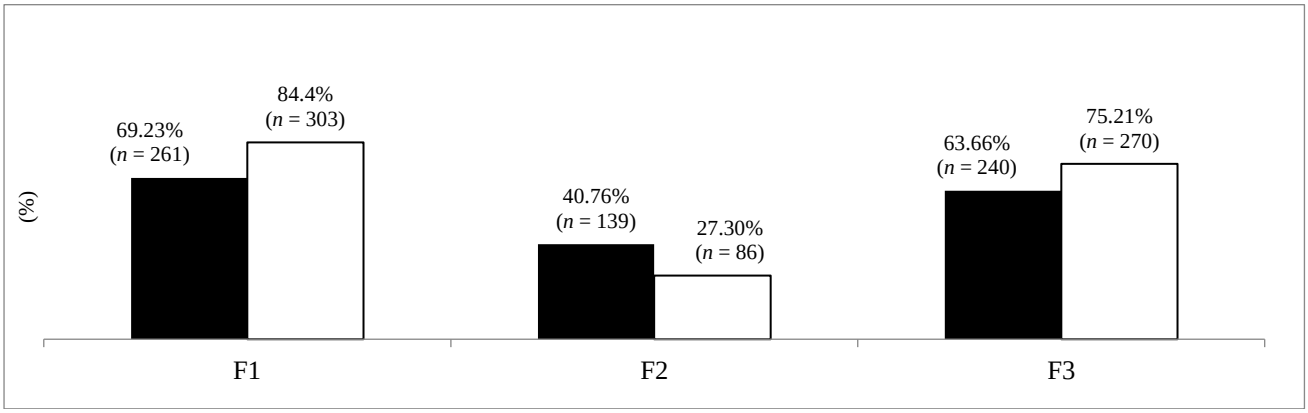

Figure 2. Positive attitudes toward equality between gender: male (black) - female (white)

The percentage of frequencies and frequencies (in parentheses) of positive attitudes are expressed on the three scales (scores ≥ 4). F1 = Egalitarian Beliefs, F2 = Sexist Beliefs, and F3= Perception of Sexist Relationships

Regarding the three components of the EAIGFU scale that comprise the composite reliability, a value of 0.90 was determined. Regarding the average variance extracted (AVE), Table 6 displays the acquired results for each factor and the full scale.

Table 6

Extracted Mean-Variance Values

Factor	AVE
EAIGFU	.30
F1	.30
F2	.35
F3	.30

Notes. AVE = average variance extracted. EAIGFU = Attitudes towards Gender Equality in Soccer in School Context Scale, F1 = Sexist sociocultural level, F2 = Relational level and F3 = Egalitarian sociocultural level.

Discussion

The primary objective of the present study was to verify the EAIGFU in Spanish for school-aged children. According to the first hypothesis, the findings of the psychometric and factorial analyses indicate that the EAIGFU possesses a high level of psychometric validity and reliability. Therefore, it can be concluded that this instrument can be utilized to evaluate attitudes regarding gender equality in the school setting in Spain.

As far as we have been able to investigate, there are no tools that assess attitudes toward gender equality in youth soccer. Reviewing instruments created in Spanish, gender equality had been centered on the educational or athletic fields (Granda Vera et al., 2018). In this way, one of the most important contributions of this work is that it enables the analysis of attitudes toward gender equality in a sport with such high media value in Europe as soccer (Pérez et al., 2010) and, at the same time, with so many historically masculine connotations (Rodríguez & Gómez, 2018). Alvariñas-Villaverde and Pazos-González (2018) and Eccles and Harold (1991) found that gender differences in attitudes toward physical and sports activity begin to emerge in early childhood (Alvariñas-Villaverde & Pazos-González, 2018; Eccles & Harold, 1991). This instrument is of great value for its application by physical education (PE) teachers to alleviate these gender differences. In this regard, it can be quite valuable to diagnose profiles of sexist pupils and the relationships developed in the educational center and address treatments with a tool that permits progress evaluation.

Following the primary purpose of this study, items for the EAIGFU were generated based on the definition of the measuring variable (Muñiz & Fonseca-Pedrera, 2019). The gender theoretical model was changed for this procedure, and expert interviews were undertaken (soccer players). The present analysis validates the theoretical framework of reference. Prior to the EFA, they had chosen a model with a structure of three factors: socio-cultural, relational, and personal (Garaigordobil & Durá, 2006). However, following the EFA, the first dimension (socio-cultural) items revealed a saturation in two factors: sexist and egalitarian. On the other hand, the DELPHI technique prioritized the investigation of the socio-cultural and relational as opposed to the personal spheres, as these were identified as the dimensions with the biggest inadequacies (Azorín Abellán, 2017). The final structure yielded appropriate Cronbach alpha indices, demonstrating the cohesiveness of each factor's items for evaluating the three components of the scale.

A Barrabes et al. (2010) found that the structure of the scale for the study of EAIGFU provides a proactive viewpoint on measuring attitudes, as do previous instruments that have explored the making gender approach. Additionally, it adds a new socio-cultural layer to the paradigm, such as the contrast between positive and negative attitudes. This factor makes it easy to investigate sexist attitudes monographically. On the other hand, for the proper interpretation of the data, the valences of the items with anti-equality content were inverted, and frequency grouping was used with scores that denote sexist orientations - adaptive (1-3) and egalitarian (4-5), a method used in previous research on gender equality (Azorín Abellán, 2017).

It merits special consideration to emphasize the study of the relational field (F2). This was the lowest-scoring category for both genders and the only one in which the boys scored higher than the girls: just 27.3% of girls and 40.7% of boys reported that social ties were equitable. These results complement the findings obtained by applied works in the school context in general (Azorín Abellán, 2017; Gil-Madrona et al., 2014; Granda Vera et al., 2018) and in PE in particular (Granda Vera et al., 2018), in which sexist behaviors were more prevalent in the relationship dimension. In contrast, the finding that boys scored higher on the relationship dimension suggests that males see fewer social problems than females. These findings align with the findings of Gil-Madrona et al. (2014), in which youngsters acknowledged "allowing" girls to play with them, but girls reported being rejected while creating teams, an incident that the boys did not notice.

The association between perceived motor competence and football interest was examined concerning external proof of validity. In this instance, the results are distinct and do not permit determining the instrument's normative validity; yet, they are of interest for future educational initiatives. The results revealed statistically significant connections between motor skills and interest in playing soccer for the first two components (socio-cultural sexism and relational) but no link for the third element

(egalitarian socio-cultural). This study indicated that the desire to play soccer was positively connected with eradicating sexist socio-cultural attitudes and a more positive perception of social relationships. Nonetheless, perceptions of motor competence were associated with socioculturally sexist actions. The relational plane revealed disparities in motor skill assessment in PE and soccer. Participants at the highest level of soccer acknowledged that the interactions were not positive; yet, those who regarded themselves as extremely proficient in soccer viewed the relationships as equal.

On the other hand, the study of attitudes toward gender equality is a complex problem that has been handled in this work through the survey method of data collecting. The retrieved data has allowed us to explore a restricted area of the student. Therefore they must be evaluated with caution and compared to the results of another form of analysis.

Conclusion

This research has proven the psychometric features of the EAIGFU, demonstrating good validity and reliability in the Spanish environment. Similarly, the instrument has verified gender variations in attitudes toward equality in soccer, particularly in the relationship dimension, which should be addressed during the initial phases of development. Finally, we have reviewed the relationships between the impression of motor skills and future educational interventions that are interesting to consider. One of the most important findings of this study indicates that there were no variations in views among students with a high degree of perceived motor competence.

As one of the study's limitations, it is important to note that a scale has only been validated in the Spanish environment. In future investigations, the research team intends to validate the scale in a worldwide setting, both in Spanish and other languages, and make the necessary changes. As a result, it is envisioned in the future to conduct cross-cultural adaptation and validation, to conduct a prediction model of gender equality in the school environment, implement programs and evaluate their outcomes. This instrument is added to the research conclusion so that other researchers can utilize it.

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Study on Attitudes in School Football

We invite you to help us by answering a series of questions that will take no more than 10 minutes. This work is part of the research led by high school teachers and university professors with experience promoting physical activity and health. It aims to analyze the attitudes toward soccer in the school context. Before you begin the survey, you must voluntarily authorize participation in the investigation, knowing that all data will be completely anonymous.

Thank you very much for your collaboration

Section 1. Authorization

Authorize that your child can participate in the research (parent/guardian) Yes	Yes	No

Signature of father/mother/ guardian

Section 2. Personal Data

School /Education Center			**Class**	
Weight (kg)			**Height (cm)**	
Extracurricular Activities				
Gender	Male	Female	**Date of Birth**	

Do you play soccer on a team?	Yes	No	**How many years do you have been playing federated soccer?**	
Do you like to play soccer?	Yes	No	**Do you play soccer well?** (1, very bad 10, very good)	
Number of male siblings			**Number of female siblings**	

Section 3. Scale of Attitudes in School Soccer

We want to know what you really think, so it is very imporant that you do not talk to your classmates while answerig questions. It is not an exam and there are no true or false answers, everyone has to choose the answer that best matches your opinion.

Now, please read carefully the statements in the following questionarie and tells us to what degree you agree with what is said. To do this, mark next to each statment with an "X" the answer that comes closest to your opinión. Th escale goes from Totally Disagree to Totally Agree according to what is said.

1	2	3	4	5
Totally Disagree	Disagree	Neutral	Agree	Totally Agree

Please answer all statements.

	Socio-cultural Level	**1**	**2**	**3**	**4**	**5**
1	Soccer is a men's sport.					
2	The time that girls spend on soccer training is wasted time because they won't be professionally engaged in it.					
3	Soccer training makes girsl less fememine.					
4	Sports and media sponsors (press and televisión) should support women's soccer teams more to boost their development.					
5	Women's participation in soccer helps the growth of society.					
6	Girl's performance in soccer could match (or outperform) boy's performace.					
7	Girl's have the physical skills needed to practice soccer.					
8	With constant training and willpower a woman can become as skilled (or more skilled) as a man in soccer.					
9	Women should avoid contact sports, such as soccer because they can be dangerous for their health.					
10	Girls instead of playing soccer should be cheerleaders or play sports where their bodies can be seen.					
11	Girls who play soccer are just as femenine as girls who don't play soccer.					
12	Investing in women's soccer is a waste of time and money.					
13	Girls are too delicate to practice soccer.					
14	In soccer girls get hurt more often than man.					
15	Boys were born with more soccer attitude than girls.					
16	Boys are better than girls in terms of how quickly they need to make decisions in soccer.					
	Relational Level	**1**	**2**	**3**	**4**	**5**
17	When we play soccer in physical education class, boys often insult less-prepared girls.					
18	When we play soccer with mixed teams in physical education class, boys prefer to pass the ball to boys than girls.					
19	In physical education classs we usually play soccer without being angry between boys and girls.					
20	When forming mixed teams to play soccer in physical education class girls are selected at the last option.					
Perceived Motor Skills		**1**	**2**	**3**	**4**	**5**
21	I think I am better than a lot of classmates in physical education class.					
22	I have often recived congratulations on being better than other classmates in physical education classes.					
23	I think I have better skills than other peers for physical education class.					
24	So far, I am good at physical eduction and sports without really trying to be.					
25	Others tell me that I am a complete athlete capable of performing any exercise well in physical eduation class.					
26	In physical education and sports, I always feel superior, of being better, than other peers.					
27	I think I have the qualities to be good at physical education and sports.					