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Is it real or just for show? Construction and validation of a questionnaire for the assessment of egalitarian masculinities (QAEM-27)

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Abstract

In recent years, there has been significant interest in studying masculinities in relation to the advancements of feminism. However, there are currently no measurement instruments available to assess the extent to which men hold egalitarian attitudes and practices concerning gender equality. Consequently, it is imperative to conduct research on masculinities and gender equality to evaluate the efficacy of interventions designed to cultivate egalitarian attitudes and behaviors among men. Hence, this study aims to develop and authenticate a questionnaire, namely the Questionnaire for Assessing Egalitarian Masculinities (QAEM-27), that can effectively measure such progress. The sample consisted of 195 adult Spanish men with an average age of 40 years. After conducting a sequence of exploratory factor analyses, we suggest a definitive questionnaire consisting of 27 items that are categorized into six distinct dimensions: (1) Awareness of sexism, (2) Co-responsibility, (3) Pro-egalitarian practices, (4) Non-exercise of violence, (5) Male privileges, and (6) Egalitarian relationships. The reliability coefficients of these dimensions were deemed satisfactory, as evidenced by Cronbach's alpha (0.72 to 0.92) and McDonalds' Omega (0.74 to 0.92). Additionally, the Average Extraction Variance analyses conducted support the proposed scale's reliability, convergent validity, and discriminant validity. These findings suggest that this questionnaire is a valuable tool for researching egalitarian masculinities in both academic and practical settings, thereby advancing our understanding of this field of study.

Keywords

Egalitarian masculinities; Questionnaire; Psychometric evaluation; Gender equality

1. Introduction

The feminist movement has brought about a significant revolution in various aspects of private, public and political aspects. Although there remain several areas and facets necessitating consideration, it can be asserted that feminism has illuminated topics such as the disparity in remuneration between genders, violence against women based on gender, and sexual attacks. These are all vital components in the ongoing battle against entrenched gender inequality and injustice that have plagued women throughout history. As the primary demographic affected, a significant number of women are naturally involved in these struggles. The societal shift towards gender equality, largely propelled by feminism, has led to a reevaluation and questioning of traditional gender norms and structures, including the understanding of masculinity. In this regard, the emergence of egalitarian forms of masculinity holds particular significant. These modern manifestations are pivotal in continuing efforts for gender equality. Recognizing their current importance emphasizes the necessity for effective tools to measure them. This study aims to design and validate a scale for measuring these masculinities, contributing to the broader initiatives promoting greater comprehension and support for gender equality within society.

Studies such as those conducted by Connell reveal the existence of various forms of masculinity, which she categorizes into four main categories that are hierarchically ranked based on their access to power and male privileges. The hegemonic model of masculinity, also known as traditional masculinity, represents the top tier in in terms of access to power and privileges. This model is characterized by patriarchal values that are upheld through domination or violence not only towards women but also towards other men. In second place lies the complicit model of masculinity which corresponds to men who do not fully conform to the demands of hegemonic masculinity and hence have limited access to power or reduced ability to exercise domination. However, they still enjoy patriarchal dividends associated with being male without questioning or opposing the patriarchal structure itself. Thirdly there is marginalized masculinity which applies to men who cannot en-

joy most male privileges due to other social characteristics such as religion, social class or ethnicity but still do not challenge the patriarchy system nor fight against violence exercised against women. Lastly, subordinate masculinity occupies a lower position within this hierarchy; it corresponds with men who openly display behaviors or attitudes traditionally considered "feminine" [1].

In essence, Connell's framework elucidates a multifaceted terrain of masculinities that spans from the conventional and hegemonic archetype to those that exhibit less privilege or actively resist the patriarchal structure. Profoundly comprehending these disparities is paramount in propelling gender studies forward and fostering more salubrious and impartial conceptions of masculinity. To attain such knowledge, we necessitate meticulous and all-encompassing approaches.

Undoubtedly, masculinities are subject to various social and cultural influences [2]. Despite potential variations, male hegemony's pervasive nature in terms of power access, resources allocation, and privileges is a transcultural phenomenon. This begs the question as to what motivates men to challenge a system that benefits them. Studies such as those conducted by Benno de Keijzer [3] demonstrate how hegemonic masculinity poses risks for both men themselves and those around them. National health surveys [4], along with international research like the study carried out by Tseole and Vermaak [5], confirm traditional masculinity as a risk factor. Indeed, this is one of the primary reasons why men are increasingly drawn towards more egalitarian forms of masculinities [6].

The limitations of hegemonic masculinity, in conjunction with the progress made by the feminist movement, have necessitated a shift towards a more equitable model of traditional masculinity. However, this does not necessarily imply that all men have embraced egalitarianism. Duncanson [7] poses the question regarding how hegemonic models have adapted to new circumstances without necessarily aligning with feminist struggles. In essence, although changes may occur in characteristics typically associated with hegemonic masculinity, these modifications may be merely superficial or cosmetic and do not translate into attitudes, behaviors or practices that are more equitable towards women. Similarly, Friedman's study [8] concludes that despite men desiring relationships based on equity and fair division of labor between partners, they still exhibit tendencies that return them to stereotypical masculine gender roles. This paradox underscores an urgent need to define and clarify dimensions truly constituting egalitarian masculinity. Without a clear comprehension of what constitutes an approach rooted in egalitarianism towards masculinity; efforts aimed at measuring and promoting such models remain impeded. Therefore, it is crucial to dissect and articulate these dimensions accurately paving the way for effective tools capable of precisely measuring as well fostering adoption of genuinely equal masculine identities and practices.

Furthermore, the profusion of designations for egalitarian masculinities, such as "new masculinities", "alternative masculinities", "positive masculinities" and "dissident masculinities" may lead to perplexity among men who, despite having no inclination towards sexism, still strive to steer clear of being categorized as "feminine" [9]. In this study, we have adopted the term "egalitarian men" or "egalitarian masculinities", coined by Bonino [10], which emphasizes male activism and dedication towards accomplishing gender parity.

The pressing necessity to elucidate and specify the dimensions that genuinely constitute egalitarian masculinity prompted us to conduct a thorough investigation into preexisting research. Through an all-encompassing literature review, utilizing Scopus and PsycINFO databases, we ascertained numerous studies that hinted at different dimensions that should be taken into account when defining egalitarian masculinities, such as co-responsibility, liberation from gender stereotypes and roles, and exhibiting attitudes conducive to equality [11]. Pertinent dimensions also encompassed emotional authenticity, a critical analysis of masculinity, consciousness of male privileges [12], and repudiation of homophobia [13].

López-Ramos *et al.* [14] conducted a qualitative study using the Delphi technique to explore the concept of egalitarian masculinities. They convened a group of 21 experts in the field to formulate an all-encompassing definition that accurately captured its various dimensions. The final definition posited that:

"Egalitarian masculinities are practiced by men who, after undergone a process of self-reflection regarding sexism and patriarchal norms internalized through male socialization. These individuals possess awareness of these norms and privileges resulting from their gender identity. Men with more egalitarian masculinity make conscious efforts to establish equal relationships with both women and other men by renouncing violence or dominance, speaking out against sexism and privilege within social structures or others, as well as actively engaging in domestic and caregiving activities. By doing so, they contribute to the elimination of gender roles and stereotypes" [14].

Thus, expanding upon López-Ramos *et al.* [14] proposed definition, the following dimensions have been delineated as essential for promoting egalitarian masculinities:

1. Refraining from exercising violence or domination over others, particularly women, by abstaining from aggressive and/or violent behaviors towards them.

2. Acknowledging internalized sexism and patriarchal norms to comprehend how male gender roles are assimilated and their consequences for oneself and one's environment.

3. Sharing responsibility in domestic and caregiving tasks, encompassing not only the performance of these duties but also the mental burden associated with their planning and organization.

4. Demonstrating support for feminist movements through egalitarian practices that advocate gender equality values in various aspects of life.

5. Recognizing one's own male privileges while implementing measures to mitigate any advantages they may confer.

6. Speaking out against sexism within one's immediate surroundings to prevent its perpetuation over time.

7. Establishing egalitarian relationships without resorting to hierarchies or power dynamics.

The research conducted by López-Ramos *et al.* [14] facilitates the integration of dimensions outlined in previous studies, whilst also extending its scope to encompass other key dimen-

sions that were deemed relevant by gender and masculinity experts who partook in the study. The selected dimensions garnered an overwhelming 90% agreement rate among these professionals, thus providing a comprehensive depiction of egalitarian masculinities and identifying fundamental aspects necessary to determine if a man is progressing towards gender equality.

Despite the elucidation of the behavioral facets of egalitarian masculinities, no questionnaire is currently available to facilitate their measurement. This represents a limitation in advancing our understanding the antecedents and consequences of these masculinities and evaluating interventions aimed at achieving gender equality. While existing scales allow for evaluation of certain dimensions, such as the scale developed by Sudkämper, Ryan, Kirby and Morgenroth [15] scale on men's attitudes towards gender equality or Abreu Viana, Rosas-Torres and Álvaro Estramiana's [16] scale assessing stereotypes associated with egalitarian men like co-responsibility, emotionality and morality; a more comprehensive approach to measuring egalitarian masculinities remains necessary.

Expanding upon the definition and dimensions of the egalitarian masculinities construct presented by López-Ramos *et al.* [14], investigation endeavors to fabricate a multifaceted scale for gauging egalitarian masculinities, while simultaneously appraising its reliability and validating its authenticity. The creation of an assessment tool to measure egalitarian masculinities will not only fortify empirical studies but also streamline efforts aimed at promoting gender equality among men. A successful instrument will amplify the analysis of said interventions and engender more efficacious action strategies.

The purpose of this scale is to ascertain the level of conformity that adult males exhibit toward gender equality. It is essential to underscore that the aim of this questionnaire is not to unequivocally determine whether a man is an egalitarian or not. We acknowledge that transitioning towards egalitarian masculinities is a process subject to fluctuations based on individual experiences and circumstances. Nevertheless, although it may not be feasible to establish absolute egalitarianism in men, we can assess the extent to which they adhere to behaviors that promote greater parity between genders.

2. Method

2.1 Proposal of items and validation of test content

After conducting a literature review on egalitarian masculinities and referencing the Delphi study by López-Ramos *et al.* [14], we created an initial questionnaire consisting of 81 items that accurately represented the 7 proposed dimensions. To ensure its appropriateness, five experts with expertise in studying masculinities from a gender perspective—three women and two men—were consulted for qualitative evaluation. While generally approving of the proposed items, these experts did suggest some modifications and improvements which were duly incorporated into our final product.

2.2 Pilot study: psychometric quality of the items

Following the integration of expert feedback, we devised a preliminary questionnaire (also known as a pilot questionnaire) comprising 81 items, with between 9 and 14 items allocated to each dimension (please refer to Table 1). Respondents utilized a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7) in their responses.

2.2.1 Sociodemographic data

The survey encompassed sundry sociodemographic inquiries, such as age, educational attainment, sexual orientation, and the number of children or dependents residing at home. A pilot sample consisting of 26 males selected through convenience sampling was administered with both paper-based and online versions of the questionnaire. In either format, respondents were given the chance to offer feedback regarding the proposed items by responding to open-ended questions.

The vast majority of the pilot sample participants fell within the age range of 18 to 39 years (n = 16), while a smaller portion was aged between 40 and 61 years (n = 8), and only two individuals were over the age of 61 (n = 2). As for educational background, seven had completed undergraduate studies, eight had pursued postgraduate education, five had completed primary school, two secondary school, and four vocational training programs. With regards to sexual orien-

T A B L E 1. Reliability results of the pilot questionnaire versus version 1 with the change based on the deleted items (n = 26).

Dimension	Pilot Questionnaire (81 items)		Version 1 (55 items)	
	N	α Cronbach	N	α Cronbach
1. Awareness of Sexism	12	0.91	9	0.91
2. Co-responsibility	12	0.73	9	0.74
3. Egalitarian practices	9	0.69	6	0.76
4. No violence	11	0.85	7	0.89
5. Awareness Privileges	12	0.85	9	0.85
6. Denouncing sexism	11	0.92	8	0.93
7. Egalitarian relationships	14	0.69	7	0.84
Total	81	0.91	55	0.88

tation, twenty identified as heterosexual while four identified as homosexual and two as bisexual. Most participants did not have children (n = 18) nor any dependents.

2.2.2 Preliminary analysis

The gathered data underwent a preliminary analysis of corrected item-dimension correlations, and reliability was evaluated using Cronbach's Alpha coefficient. Participants provided feedback indicating the questionnaire was extensive, with certain items being confusing, contradictory or repetitive. In response to this feedback, and due to the low item-total correlation (items with values below 0.30 were removed), each dimension's number of items was reduced. The revised proposal resulted in a reduction of the questionnaire to 55 items (7–9 per dimension). The satisfactory reliability for all dimensions was found through Cronbach's α ranging between 0.74 for "co-responsibility" and 0.93 for "denouncing sexism". Additionally, overall scale reliability proved satisfactory as well ($\alpha = 0.88$) (see Table 1).

2.3 Study 2. Validation of the questionnaire

2.3.1 Procedure and participants

The novel iteration of the survey, which comprised 55 items, was distributed digitally to a total of 195 grown-up males deploying the Qualtrics XM platform. A 6-point Likert scale was employed to streamline the response process and alleviate some of the issues associated with using intermediate categories (1. Strongly Disagree; 6. Strongly Agree) [17, 18].

The participants were recruited through a snowball sampling method, which is a type of non-probability sampling where potential subjects are identified from the population and asked to "recruit" others; consequently, it relies on references from the initial subjects to generate additional subjects. Initially, social media platforms such as LinkedIn and Instagram were utilized to initiate the sampling. Concerning demographic variables, most participants fell between ages 31–60 years old (Average = 40, Standard Deviation = 11.81), had post-university or doctoral studies (64.62% of the sample), and identified as heterosexuals (81.03%). Approximately half (55.90%) had no children while those who did have children indicated that their offspring were under twelve years old (39.53%), over twelve years old (44.19%), or both under and over twelve years old but skewed towards being under twelve years old (16.28%). Only 17 men (8.72%) reported having other dependents aside from their children if any at all. With respect to living arrangements, most lived with their partner(s) and descendants (31.79%), only with their partners (21.03%) or with their ascendants (21.03%) (Table 2).

In addition to the sociodemographic data gathered in the pilot study, an additional query pertaining to participants' political leanings was incorporated for validation purposes. The question featured a scale ranging from 1 (left—"liberal ideology") to 10 (right—"conservative ideology"). Political positioning was chosen as a criterion variable due to research indicating that there is indeed a correlation between political beliefs and attitudes towards gender equality. Specifically, studies have demonstrated that more conservative factions are inclined toward negative or even reactionary stances regarding egalitarian policies [19].

T A B L E 2. Demographic variables of the validation sample (n = 195).

Variable	Levels	N	%
Age			
	Between 18 and 30 years old	58	29.74%
	Between 31 and 45 years old	69	35.38%
	Between 46 and 60 years old	59	30.26%
	Over 60 years old	9	4.62%
Educational level			
	Primary education	5	2.56%
	Secondary education	19	9.74%
	Professional training	26	13.33%
	University studies	54	27.69%
	Post-graduate studies	63	32.31%
	Doctoral studies	28	32.31%
Sexual orientation			
	Heterosexual	158	81.03%
	Homosexual	17	8.72%
	Bisexual	18	9.23%
	Other	2	1.03%
Children			
	No children	109	55.90%
	With children	86	44.10%
Children under 12 years of age			
	All children under 12 years of age	34	39.53%
	Some children under 12	14	16.28%
	None under 12 years of age	38	44.19%
Other dependents			
	No other dependents	176	90.26%
	With other dependents	17	8.72%
Cohabitation unit			
	Ascendants	41	21.03%
	Alone	30	15.38%
	With flatmates	13	6.67%
	With a partner	41	21.03%
	With a partner and descendants	62	31.79%
	Other situations	8	4.10%

2.3.2 Analysis

To evaluate the fundamental dimensionality of the suggested questionnaire, participant feedback underwent a sequence of exploratory factor analyses. Although factor analysis necessitates continuous data, it is robust enough to utilize ordinal items when there are five or more response categories [20, 21]. As some items did not adhere to a normal distribution, we employed Unweighted Least Square (ULS) estimation methods and oblimin rotation in accordance with recommendations on

factor analysis [22]. ULS is one of the most popular estimation methods [23] due to its effectiveness in small samples with numerous items [20]. The analyses were conducted using both IBM-SPSS (Version 28.0., IBM Corp., Armonk, NY, USA) and FACTOR (version 12.04.01 x64bits, Rovira I Virgili University, Tarragona, Spain) [24], which provided goodness-of-fit indices for comparing alternative models and selecting the theoretically-grounded model that best represents the data.

Reliability indicators pertaining to internal consistency, along with evidence of convergent and discriminant validity, were obtained. Additionally, evidence of validity based on the relationship between the questionnaire and a relevant criterion (specifically political ideology) was also acquired. Our initial hypothesis regarding the criterion variable was that it would have a negative correlation with egalitarian masculinities, meaning that men who hold more liberal ideologies will report higher levels of egalitarian masculinities since higher scores in the criterion variable indicate greater proximity to conservative ideology.

2.3.3 Results

The Kaiser-Meyer-Olkin criterion and Bartlett's test were assessed [25] to determine the adequacy of correlation matrix for factor analysis. The Kaiser-Meyer-Olkin test yielded a satisfactory result (0.88), while Bartlett's sphericity test demonstrated statistical significance ($p < 0.001$), indicating that the data is appropriate for factor analysis. A combined approach using Kaiser's criterion and the scree-plot was utilized to decide on the number of factors to extract from the data set. In this instance, only SPSS results were considered since FACTOR did not display convergence. While Kaiser's criterion recommended retaining twelve factors that accounted for 74.01% of variance (refer to Panel A, with 55 analyzed items), Cattell's criterion from the scree plot stabilized around seven to eight dimensions (refer to Fig. 1A).

The quantity of factors surpassed the theoretical projection under both criteria. Upon examination of the items, it became apparent that certain items within the same theoretical dimension pertained to distinct aspects. Some items focused on general beliefs or attitudes, while others pertained to personal practices or behaviors related to the evaluated dimension. In such cases, more than one factor was empirically derived. For example, in the co-responsibility domain, there were inquiries concerning general beliefs about co-responsibility and separate ones regarding personal co-responsibility practices. Due to an abundance of items, we elected to keep only those pertaining to behavioral aspects as they are deemed superior predictors of behavior [26]. Additionally, some questions did not exhibit sufficiently high factor loadings (0.40). After ensuring that these queries did not compromise adequate representation of their respective theoretical dimensions per their definitions, they were eliminated from consideration resulting in a new questionnaire version with 27 items (Fig. 1B) which underwent identical analyses as previously described along with a fresh round of factor analysis.

The Kaiser-Meyer-Olkin test produced a satisfactory value of 0.81 for the latest iteration, while Bartlett's sphericity test was statistically significant ($p < 0.001$), affirming the adequacy of the correlation matrix for factor analysis. Theoretically, we expected to observe seven factors in our analysis; however, according to the Kaiser rule, retaining six factors would be more appropriate. Meanwhile, based on the scree plot and Velicer's parallel analysis provided by FACTOR software, it is suggested that only five factors should be retained instead. To determine which model best fits our data set and exhibits better results overall, we compared all three factor solutions (7, 6 and 5) using FACTOR software developed by Ferrando & Lorenzo [24].

In order to evaluate and contrast the adequacy of fit among the three rival models, while acknowledging that χ^2 is highly responsive to sample size, we employed a set of goodness-of-fit metrics comprising Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI). The CFI and TLI are deemed adequate when they surpass 0.90 and exceptional when they exceed 0.95, as evidenced by studies conducted by Hu & Bentler [27] and Lai & Green [28]. In terms of RMSEA, values equal to or less than 0.05 indicate a favorable fit, while those equal to or less than 0.08 suggest an acceptable one, according to Browne & Cudeck's research [29] and Hu & Bentler's findings [27]. In terms of model comparison, changes (Δ) in CFI and TLI lower than 0.01, and changes in RMSEA lower than 0.015 between models suggest retaining the more parsimonious model; this is supported by Cheung & Rensvold's study [30]. However, larger discrepancies would indicate that adding factors-along with parameters—considerably improves practicality regarding fit improvement purposes.

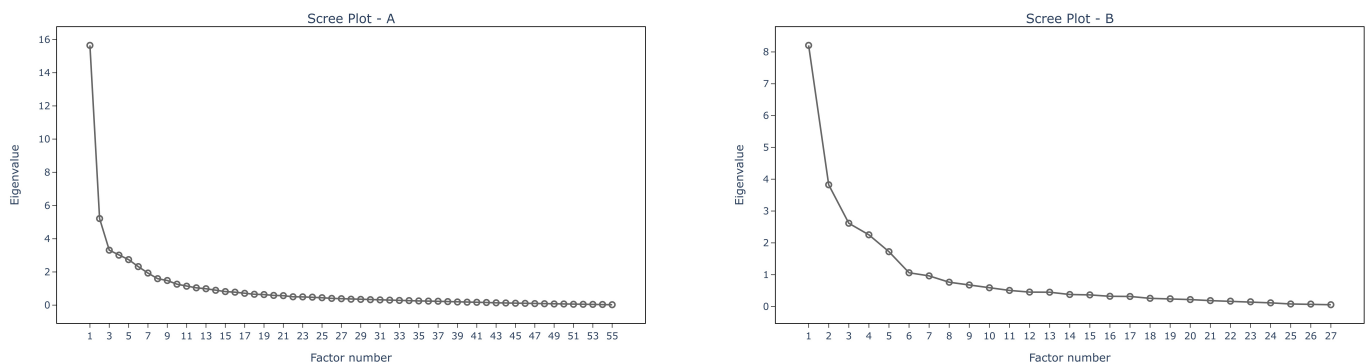Table 3 presents the goodness-of-fit of the models. The

F I G U R E 1. Scree-plot for factor analysis of the questionnaires with 55 (A) and 27 items (B).

model comparison results revealed that, while the 7-factor model exhibited a superior fit to the data, reducing it to 6 factors did not significantly diminish its goodness-of-fit (with differences in TLI and CFI were 0.006, while the difference in RMSEA was 0.004). Furthermore, the 7-factor model yielded an indeterminate solution with standardized factor loadings exceeding one. When compared to the 5-factor model, reducing from six factors substantially weakened its goodness-of-fit (differences in TLI and CFI were greater than 0.01—with differences of 0.019 and 0.016 respectively). Although there was less than a 0.015 difference in RMSEA (precisely speaking, it was only 0.012), this indicator signaled that five factors were inadequate. Thus, we considered the statistically most appropriate model to be six-factors. The factor loadings for this model exceeded 0.40; items grouped together according to theoretical reasoning are presented in Table 3 while Table 4 displays their corresponding factor loadings.

Initially, it was anticipated that the theoretical dimensions of "Egalitarian practices" and "Denouncing sexism" would be separated into two distinct factors. However, upon reviewing these items, it became evident that egalitarian practices are closely linked to pointing out sexism since both involve rejecting sexist behavior and the implementation of pro-egalitarian behaviors. As a result, it was decided to combine these two dimensions (egalitarian practices and denouncing sexism) into a single dimension called "Pro-egalitarian practices", which would encompass both. Regarding the reliability of the questionnaire, the global score's Cronbach's alpha was 0.89, indicating high internal consistency despite item elimination. Moreover, all six dimensions exhibited satisfactory reliability values. Awareness of Sexism scored α Cronbach = 0.92, Co-responsibility scored α Cronbach = 0.89, Pro-egalitarian practices scored α Cronbach = 0.89, Non-exercise of violence scored α Cronbach = 0.72, Male privilege scored α Cronbach = 0.91, and Egalitarian relationships scored α Cronbach = 0.86.

2.3.4 Convergent validity and discriminant validity

We used the EFA (Exploratory Factor Analysis) results to ensure that our study had both convergent and discriminant validity. To assess convergent validity, we used the criterion suggested by Fornell and Larcker [31]. Convergent validity means that the indicators of a construct are consistent in measuring a common factor. To evaluate convergent validity, we used two measures: the Average Variance Extracted (AVE) and Composite Reliability (CR), also known as McDonald's omega. According to Fornell and Larcker's AVE criterion, convergent validity is established when the construct accounts for at least half of the variance in its associated indicators. To calculate the variance, we average the square of the completely standardized factor loadings shown in Table 3. Additionally, CR should be above 0.7 to ensure the accuracy of the results. Our findings show that the Average Variance Extracted (AVE) for all the latent constructs ranged between 0.49 (for the combined factor of egalitarian practices and denouncing sexism, which was renamed "pro-egalitarian practices") and 0.71 (for awareness of male privilege). All remaining values were equal or larger than 0.50. The composite reliabilities were all above 0.70 (for non-exercise of violence) and 0.92 (for awareness of

sexism). These results provide initial evidence for convergent validity, although the evidence for pro-egalitarian practices was weaker.

We used the Fornell and Larcker method to check the discriminant validity of our study. This method assesses whether the amount of variance captured by the construct is larger than the shared variance with other constructs. To achieve this, we checked whether the square root of the Average Variance Extracted (AVE) for each construct was greater than the correlation between the construct and any other construct in the model. We found that our six dimensions showed discriminant validity, as none of the correlations were larger than the square root of the AVEs. You can find a summary of our results in Table 5.

2.4 Study 3. Criterion validity

The study found that the questionnaire correlates negatively with political positioning ($r = -0.56$) which means that the greater the proximity to conservative ideology, the lower the reported egalitarian masculinity. This pattern holds for three out of the six dimensions maintained from the factor analysis, with significant correlations ($p < 0.01$), as shown in Table 6. This indicates that the questionnaire has criterion validity.

The results demonstrate that men who hold more liberal or progressive political views (with lower values in the political positioning question) tend to exhibit more egalitarian masculinities across the board, particularly in terms of their awareness of sexism, support for pro-equality practices, and recognition of their privileges. Given the correlations established by this questionnaire about the measured variable, we can confirm the questionnaire's criterion validity concerning political positioning, which greatly enhances its reliability.

After analyzing the results, it is recommended to view Egalitarian Masculinities as a multidimensional construct instead of relying on an overall score. The reason is, that there are low to moderate correlations among the six dimensions and different relationships between these dimensions and the validation criterion used, which is "political positioning". Therefore, the pattern of subscores may be more meaningful than an overall score. Additionally, an EFA was carried out on the first-order factor scores, which supported this recommendation since they did not group in a single factor with high enough factor loadings (*i.e.*, 0.40 or larger).

3. Discussion

This study aimed to validate a questionnaire that can measure the degree of support or approximation of adult men towards gender equality. The development and validation of this tool was carried out using a rigorous methodology that involved several steps. Firstly, the content of the initial 81 items was qualitatively validated by experts in the field. Secondly, a pilot study was conducted to evaluate the psychometric quality of the initial items. Thirdly, the questionnaire was applied to a sample of adult men, and initial factor analysis results led to a further reduction of the questionnaire, resulting in the final 27-item questionnaire (QEAM-27) (**Supplementary material**). The final instrument to measure egalitarian mas-

TABLE 3. Goodness-of-fit of the 7, 6 and 5-factor models.

Nº factors	% variance explained	χ^2	d.f.	RMSEA	TLI	CFI	Comments
7	76.46%	312.09*	183	0.069	0.952	0.975	Ill-defined solution (factor loadings larger than 1)
6	72.90%	365.62*	204	0.073	0.946	0.969	---
5	58.70%	470.26*	226	0.085	0.927	0.953	---

Note: χ^2 refers to LOSEFER empirically corrected Chi-square; d.f.: degrees of freedom; *p < 0.001.
RMSEA: Root Mean Square Error of Approximation; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index.

TABLE 4. Results of the 27-item questionnaire (QAEM-27)—Factor Loading Matrix of the 6-factor model.

	1	2	3	4	5	6
1. Awareness of sexism	0.63					
2. Awareness of sexism	0.74					
3. Awareness of sexism	0.83					
4. Awareness of sexism	0.91					
5. Awareness of sexism	0.76					
6. Co-responsibility						0.80
7. Co-responsibility						0.81
8. Co-responsibility						0.85
9. Co-responsibility						0.89
10. Egalitarian practices					0.48	
11. Egalitarian practices					0.44	
12. Egalitarian practices					0.44	
13. Non-exercise of violence		0.72				
14. Non-exercise of violence		0.76				
15. Non-exercise of violence		0.63				
16. Awareness of men privileges			0.60			
17. Awareness of men privileges			0.98			
18. Awareness of men privileges			0.98			
19. Awareness of men privileges			0.74			
20. Egalitarian relationships				0.84		
21. Egalitarian relationships				0.83		
22. Egalitarian relationships				0.86		
23. Egalitarian relationships				0.64		
24. Denouncing sexism					0.85	
25. Denouncing sexism					0.91	
26. Denouncing sexism					0.80	
27. Denouncing sexism					0.79	

*Note: See final questionnaire in **Supplementary material**.*

TABLE 5. Correlation among factors.

	1. Awareness of Sexism	2. Non-exercise of violence	3. Awareness of male privilege	4. Egalitarian Relationships	5. Pro-egalitarian practices	6. Co-responsibility
1	0.78					
2	0.02	0.71				
3	0.63	0.00	0.84			
4	0.07	0.04	0.08	0.80		
5	0.37	0.25	0.58	0.18	0.70	
6	0.01	0.09	0.19	0.16	0.24	0.84

Note: Diagonals show the root square of AVE.

TABLE 6. Correlations between the dimensions and the political positioning variable.

	Awareness of sexism	Co-responsibilitys	Pro-egalitarian practices	Non-exercise of violence	Awareness of men privileges	Egalitarian relationships
Political positioning (Pearson's correlation (r))	−0.48**	−0.09	−0.50**	−0.00	−0.49**	−0.04

*Note: **$p < 0.01$.*

culinities showed high reliability and preliminary validity. This questionnaire can be used as a useful tool for assessing the extent to which men are moving towards gender equality.

Based on a qualitative study conducted by López, Cifre and Hernández [6], we expected to find seven factors related to dimensions. However, during the exploratory factor analysis, we discovered six factors that grouped the dimensions of "Egalitarian Practices" and "Denouncing Sexism" together. Upon analyzing the items of each dimension, we noticed that the dimension of egalitarian practices referred to participating in actions that promote gender equality, such as collective action (like demonstrations or awareness-raising groups) and discussing feminism. On the other hand, the items corresponding to denouncing sexism emphasized the need to correct the sexist behavior of people in their immediate circle. Despite the different types of behavior, the goal of both dimensions is the same: promoting gender equality and eliminating sexist behavior in the environment. These results of this study are in line with previous research, which is explained below. For instance, a study conducted with children discovered that children who were exposed to a pro-equality intervention were more likely to refute and/or discuss sexist remarks made by their peers [32]. Another study conducted on adult men found that those who identified as feminists and displayed more egalitarian practices were more likely to challenge sexism in others for the sake of gender equality [33]. As demonstrated in the factor analysis carried out, previous research suggests that these variables may be closely interrelated and could be categorized within the same dimension for our questionnaire.

The questionnaire on egalitarian masculinities has revealed a significant correlation with political beliefs, with men who are more aligned with liberal ideologies scoring higher. This finding is consistent with established scientific literature. For instance, a study conducted by Verbal [34] explains how conservative groups try to discredit public policies on gender equality by denying the importance of addressing the issue or questioning its legitimacy. As a result, it can be observed that the most conservative groups show less interest and sometimes clear animosity towards proposals that would bring about more egalitarian relations or the achievement of rights for women. In another study, conducted in the Spanish political context, it can be seen how the new Spanish conservative groups are characterized by anti-feminist discourses and misogynistic reactions against the advances made in recent years [35]. It cannot be assumed that men who adopt more liberal ideologies will automatically become egalitarian. Studies such as Lamont's [36] show how men who construct egalitarian narratives may be masking gender inequalities in their everyday practices. However, it is consistent to indicate that a more liberal and/or progressive ideology may generate the necessary openness to revise masculinities and generate attitudes and/or practices that bring these men closer to gender equality and feminism. Different dimensions of gender equality are associated with different political ideologies; for example, awareness of sexism, pro-egalitarian practices, and recognition of male privilege are most strongly linked to liberal political views. This may be because these dimensions are more publicly visible, whereas co-responsibility, egalitarian relationships and non-violence are more private practices. Men with liberal ideologies are more likely to display their support for gender equality in public, whereas conservative men, who are less likely to support gender equality, may hold such views privately but not express them publicly. Nonetheless, a liberal or progressive ideology can still facilitate a shift towards more egalitarian attitudes and behaviors in men.

It is important to note that the correlations obtained between the various dimensions and the criterion variable, political positioning, were discussed in section 2.1.3 of study 2. Validation of the Questionnaire. Egalitarian masculinities should be viewed as a multidimensional concept, and instead

of calculating the overall score of the questionnaire, it would be more meaningful to calculate the score for each dimension of the questionnaire.

Although it was not the focus of this study, other socio-demographic variables showed interesting correlations with egalitarian masculinities. For instance, the "sexual orientation" variable had a significant relationship with egalitarian masculinities, and the t-test comparing heterosexuals with non-heterosexuals (homosexuals, bisexuals, and others) showed a significant difference ($t_{147} = 2.75$; $p < 0.01$), with heterosexuals reporting lower egalitarian masculinities. This finding is consistent with Harnois [37] study, which showed how sexuality and other social characteristics are related to a greater male awareness of gender inequalities and greater support for the struggle for gender equality. Another socio-demographic variable that showed a positive and significant relationship with egalitarian masculinities is "level of studies" (Spearman rank-order $r = 0.19$; $p < 0.05$), which was also found by García, Cala and Trigo [38]. They discovered that further education significantly predicted favorable attitudes toward gender equality. The effects of both sexual orientation and level of studies are driven by the dimensions of Awareness of sexism, pro-egalitarian practices, and awareness of men's privileges.

The present study and its associated questionnaire are believed to make a significant contribution to research and intervention with men in different ways. Firstly, the questionnaire provides a tool for those who develop gender equality actions to identify the starting point for each man. This facilitates the design of more specifically focused actions. For example, if we want to develop an intervention for men who already have a high score in "Awareness of Sexism", we can understand that they are already sensitized in some way and can start directly from more advanced learning that touches on more critical aspects of gender relations. Secondly, the availability of an evaluation questionnaire helps to determine the degree of effectiveness of the actions. For example, if a higher score is achieved in any of the dimensions of the questionnaire, or all dimensions, it can be more solidly affirmed that the intervention has shown positive effects in these areas. Longitudinal studies can also be carried out to demonstrate the effects of the intervention in the medium and long term. The questionnaire also helps to identify areas that generate the greatest resistance to the intervention, which allows us to restructure or reformulate the proposed actions in response to the group's evolution. This allows subsequent interventions to be designed in a more targeted and efficient way while reducing the cost and resources involved. In terms of research, the availability of a quantitative measurement instrument allows for the development of studies linking egalitarian masculinities with other variables that have not yet been studied due to the lack of an evaluation tool.

Although the questionnaire has some benefits, it also has certain limitations that need to be taken into account. While constructing the questionnaire, we took great care, but due to the high number of initial items, some potential respondents did not complete the questionnaire. This led to a small sample size. Therefore, future studies should use larger samples to cross-validate the results obtained in this study. This can be achieved by using confirmatory factor analysis and other methods that consider the ordinal nature of the items, such as Multidimensional Item Response Theory and Rasch models, specifically the between-item multidimensional extension of the Partial Credit Model [39]. Moreover, score validation is an ongoing process that involves multiple sources of evidence [40]. Therefore, new studies should not only cross-validate our results but also provide additional evidence of validity, such as predictive validity or evidence based on the response process, as well as reliability, such as test-retest. It should also be noted that a non-probabilistic (snowball) sampling system was used, which means that some sociodemographic characteristics are underrepresented in the sample compared to others. Therefore, probabilistic sampling methods should be used in future studies, and minimum "quotas" of participants should be established for each of the sociodemographic categories, given that the current length of the questionnaire allows it.

It is important to note that the study's validation was conducted with Spanish adult males. While the results can be generalized to other samples, some modifications may be necessary. Different cultures and societies have varying gender norms and expectations, which may affect the questionnaire's applicability [41]. Therefore, adaptations may be required if the questionnaire is administered to men from other socio-cultural contexts or to minors. For example, it would be beneficial to adapt the questionnaire for childhood and school contexts, to develop educational interventions that promote the elimination of gender biases and stereotyped roles in earlier stages of development. It would be interesting to create a modified version of the questionnaire that can be used when working with men who have been convicted of domestic violence. This could help professionals to carry out their interventions more effectively. For example, if we want to adapt the questionnaire for minors, we should ask questions about how their families manage household chores and responsibilities, instead of asking the child directly about co-responsibility. In the case of adapting a tool for men who have committed violence against women, the items in the "Non-exercise of violence" dimension can be modified to evaluate whether their attitudes and behaviors have been positively transformed as a result of interventions carried out. This will help to determine if they are aligning their attitudes and behaviors with those of men who do not engage in violent behavior towards women.

4. Conclusions

The study developed an instrument that holds significant value and potential for gender studies, specifically in the examination of masculinities. It addresses a critical gap in current knowledge on the subject and equips professionals working with men with a valuable tool to streamline the development and execution of their projects while fostering advancements in research and understanding within this domain. This tool for assessing change in masculinities enables the assessment of real change, beyond cosmetic adaptations to fit into an increasingly feminist society. Therefore, this instrument can contribute to the construction of more egalitarian societies where men play an active role in the fight against gender inequality.

AVAILABILITY OF DATA AND MATERIALS

The data presented in this study are available on reasonable request from the corresponding author.

AUTHOR CONTRIBUTIONS

ALR, EC, AH and JS—designed the research study; drafted the manuscript. ALR—conducted the research. ALR and AH—analyzed the data. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The whole process was approved by the Ethical Committee of the university where the study was conducted, with file number "CD/85/2021". All participants signed the informed consent form prior to the start of the questionnaire. This informed consent communicated the type of information that would be collected, the purpose of the data, and the system for storing and accessing the data. At no time were personal data collected that could identify the individual.

CONFLICT OF INTEREST

The authors declare no conflict of interest. Eva Cifre is serving as one of the Editorial Board members of this journal. We declare that Eva Cifre had no involvement in the peer review of this article and has no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to JRM.

SUPPLEMENTARY MATERIAL

Supplementary material associated with this article can be found, in the online version, at https://oss.jomh.org/files/article/1818164936517271552/attachment/Supplementary%20material.docx.

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