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Development of a Revised Korean Gender Egalitarian Scale

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Development of a Revised Korean Gender Egalitarian Scale

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I. Introduction

1. Research goals

The goal of this research was to develop a revised version of the 1999 Korean Gender Egalitarian Scale (Kim Yang-hee and Jeong Gyeong-a, 1999).¹⁾ In 2016, the first year of the project, a literature review was conducted and tentative items for the scale were selected by constructing survey questions and performing a preliminary survey. For the second year dedicated to the research, 2018, a full-scale survey was carried out based on the results of the preliminary survey in an effort to finalize the items for the scale. Both confirmatory factor analysis and a goodness of fit test for the construct were then performed. Furthermore, an abbreviated version of the scale and assessment criteria were developed. Lastly, we aimed to review the utility of the scale and suggest productive and efficient manners for its application.

1) The need for revising the scale is detailed in *The Development of a Revised Korean Gender Egalitarian Scale (I)*.

2. Research details

A. Confirming the scale

A second preliminary survey was performed using a large nation-wide sample in order to determine the final items for the scale through exploratory factor analysis. An abbreviated scale was also developed.

B. Validating the scale: reliability, construct validity, convergent validity, and discriminant validity

Exploratory factor analysis was conducted to measure the reliability of the test and model goodness of fit and determine whether the scale is an appropriate tool for the theoretical model that was defined in the prior stage. Both convergent validity and discriminant validity are determined for relevant tests. Criterion-related validity is also examined by measuring correlations with other tests or variables.

C. Developing a manual for the scale

In order to enable the measurement of gender egalitarianism through this scale, a manual for its use was developed by creating guidelines on scoring and interpretation. We also suggested potential policy applications of this scale.

II. Development of the scale

1. Item analysis

An item analysis was conducted for a total of 34 questions selected from the preliminary survey.

In the first stage of the analysis, the distribution of the data was examined with an aim to eliminate questions with skewed responses. Elimination was determined based on the following principles (Meir and Gati, 1981: 1014; Ahn Sang-su et al., 2007: 48, 67).

First, questions were eliminated for which the absolute values of skewness and kurtosis were one or higher.

Second, questions for which the data were skewed with a standard deviation of less than 0.66 (converted to a 4-point scale) were eliminated (Meir and Gati, 1981: 1014).

Third, questions with mean values close to both extremes were removed. If the rule for standard deviation described above is applied, the lower limit of the allowed mean value becomes 1.66 ($1+0.66$) and the upper limit 3.34 ($4-0.66$). The mean values that fell either under the lower limit or above the upper limit were considered outliers.

Fourth, questions for which the linear combination was weak, meaning that the correlation with the mean value of all items was under 0.3, were also eliminated.

Fifth, questions with outlier mean values or with correlation coefficients between the item and the total falling under 0.3 were eliminated from the data set respectively for men and for women. While a gap in gender awareness between men and women is natural, the chance of a violation of the principle of equivalence increases as the gap widens. When the two sexes were separated, however, standard deviation was not applied since the level of homogeneity among responses increases compared to when they were not separated.

According to the item analysis, no items were unfit in terms of skewness, kurtosis, standard deviation, mean value, or correlation. The

same result was obtained in the item analysis conducted by sex.

2. Factor analysis and finalizing the items

In order to identify items for the scale, a factor analysis was performed with the 34 items selected in the preliminary survey without determining the number of factors. We chose principle axis factor analysis and used direct oblimin rotation. As a result, four factors demonstrated an eigenvalue of one or greater and represented 47.6% of the total variance. However, these four factors failed to show a theoretically meaningful construct. In other words, only the six items on the demand for women's rights were bound into a single factor, and the remaining factors were blended together and failed to exhibit any factorial characteristics. As in the first-year research, in which six rather than four factors were selected for this same reason, we chose six factors this time as well. With the number of factors determined, the total explained variance increased to 50.63%. When viewed in the order of eigenvalue, Factor 1 explained 39.18%; Factor 2, 4.42%; Factor 3, 2.64%; Factor 4, 1.73%; Factor 5, 1.55%; and Factor 6, 1.11%.²⁾ The six factors obtained in this study were identical to those obtained in the first-year study.

Next, we checked for items with below-standard factor loading.

The basis for eliminating items through exploratory factor analysis is as follows. First, if the coefficient of pattern matrix (factor loading), which means the independent effect of the corresponding factor on the corresponding variable, is less than 0.3 (Kim Gye-su, 2010: 200). Second, if the communality, which indicates how well extracted factors explain

2) Although the initial eigenvalue for two items failed to reach one, it was decided that theoretical fitness should be prioritized. The eigenvalue can be viewed as a reference rather than an absolute standard. (Kim Ju-hwan, Kim Min-gyu and Hong Se-hee, 2009: 77-78).

each variable, is either low or too high. Communality, which is the average of the variance ratios explained by the measurement model among the variances of the measured variables for a given factor, equals the average of the squared standard factor loadings. If this value is small, it indicates that the validity of the pertinent variables as a measurement tool for the corresponding factor is low. While 0.5 or higher is generally desirable, this standard can be lowered if there are more than five extracted factors, communalities are generally low, and the sample consists of 500 cases or more (Lee Hak-sik and Lim Ji-hun, 2015: 19-20). In this research, we determined validity to be low where the communality fell below 0.4.

The exploratory factor analysis was repeated until no remaining items showed factor loading of less than 0.3. If the remaining items were not bounded by factors, items were removed based on communalities before repeating factor analysis.

In the first exploratory factor analysis performed on the 34 items selected through the item analysis, five items were found to have factor loading lower than 0.3. According to the exploratory factor analysis conducted after removing these five items, no additional items showed factor loading of less than 0.3, and all items met the communality requirement. Next, another item was removed since it was not bound well, unlike the theoretical factors constructed in the preliminary survey. Subsequently, factor analysis was repeated in order to check the factor loadings of the remaining 27 items. According to this analysis, the requirement for factor loading was completely fulfilled, but there was one factor that had only two measured variables and showed a relatively low level of reliability at 0.495. Next, we restored “(33) You need a son to carry on the family line” from among the eliminated items since it was deemed to be important in the measurement. When the analysis

was repeated with the restored item, the loading of the variable (0.319) exceeded the standard and the factor reliability rose from 0.495 to 0.568.

As a result, a total of 28 items were selected for the revised scale for meeting the requirements for factor loading and communality and topics were well separated by factor. Among the 28 items, half were from the original scale and the other half were newly constructed. (Original items are indicated in boldface in Table 1.)

The factors and the number of items for each factor are as follows.

Factor 1, “Attitude toward gender equality in the public sector,” comprises eight items related to prejudices about gender differences in ability and appropriate roles.

Factor 2, “Attitude toward the demand for women’s rights,” encompasses six items that describe negative attitudes toward the pursuit of women’s rights and toward gender policies.

Factor 3, “Attitude toward norms about women’s gender roles,”³⁾ includes three items related to gender-biased expectations of chaste behavior, use of language, attire, and more on the part of women.

Factor 4, “Attitude toward norms about men’s gender roles,”⁴⁾ consists of four items regarding men’s roles, responsibilities, and masculinity.

Factor 5, “Attitude toward the patriarchal family system,” has three items related to the son-orientation in familial succession and inheritance.

Factor 6, “Attitude toward gender equality in the home,” contains four

3) This was named “Norms about gender roles 2 (women’s virtues) in the 2016 research. In order to increase the acceptability of the term, however, it was renamed “Attitude toward norms about women’s gender roles.”

4) This was named “Norms about gender roles 1 (men’s superiority) in the 2016 research, based on an intention to emphasize the social norms regarding men’s responsibility for being a breadwinner and for strength. In order to make it more approachable by the general public, it has been renamed “Attitude toward norms about men’s gender roles.”

items that describe prejudices about the division of gender roles within the household.

The revised scale was consequently composed of six factors regarding a range of areas including: three factors on attitudes toward gender equality; one factor each on gender roles for men and women; and one factor for the family system. The total explained variance of the 28 items was 52.14%, showing an improved result compared to before the elimination of items. The explained variance was 38.97% for gender equality in the public sector; 4.97% for the demand for women's rights; 3.17% for norms about women's gender roles; 1.97% for men's gender roles; 1.92% for gender equality in the home; and 1.76% for patriarchal orientation. Demonstratively, the explanatory power was particularly great for attitude toward gender equality in the public sector, followed by attitude toward the demand for women's rights, norms about women's gender roles, and about men's gender roles. The explanatory power for attitude toward gender equality in the home and a male orientation in the family were lowest.

The revised scale came to possess six factors by determining the number of factors as such, and it has significant implications compared to spanning only four factors. This indicates that the issue of gender equality has further diversified and complicated compared to the time of the development of the original scale. Although the total factor analysis was not performed for the original scale, when a factor analysis was carried out by each area, it was found to encompass the following factors: attitude toward the abilities and nature of men and women; attitude toward roles of and behavioral norms for men and women; attitude toward the rights of and power relations between men and women; and awareness of existing gender discrimination and attitude toward gender policies

(Kim Yang-hee and Jeong Gyeong-ah, 1999, p.45). In the revised scale, these factors have mainly been integrated into attitude toward gender equality in the public sector, attitude toward gender equality in the home, attitude toward norms for men's gender roles, and attitude toward norms for women's gender roles. In addition to these, the revised version includes attitude toward the demand for women's rights and attitude toward the male-oriented family system. The inclusion of the factor "Attitude toward the demand for women's rights" is particularly meaningful since it suggests that gender equality has become not only an issue in the division of roles, authority, and resources, but also a right that women can claim or that it has become an issue about the hegemony of discourse. Women's voices publicly claiming their rights to equality have become a major driver of gender equality.

The factor "Attitude toward the patriarchal family system" is also noteworthy. Two of the three items included within this factor pertained to the home area in the original scale, but in the revised version a new item was added that resulted in an additional factor. While these were previously designed to measure attitude toward the rights and power of men and women, they now measure the patriarchal nature of the family system. This indicates how the patriarchal orientation is shifting from being a universally accepted value to a value of personal choice. In other words, it may be considered an absolute truth by some, but an obsolete notion by others. Although this male orientation is still a useful element for measuring the level of gender awareness due to the wide range of related beliefs, it is uncertain if it will remain an effective factor 20 years hence. What is important is that, as indicated by the two newly introduced factors, the content of gender consciousness in South Korean society has grown in terms of both breadth and diversity.

〈Table 1〉 Factors and factor loadings for the 28 items on the revised Gender Egalitarian Scale

	Factors					
	1	2	3	4	5	6
(1) In a mixed-gender team, a man should be in charge.	0.840					
(2) Women cannot lead their subordinates as well as men do.	0.764					
(3) If only one person can be promoted between an equally qualified male and female employee, the man should be promoted.	0.666					
(4) Female students are not as logical as male students.	0.609					
(5) The reason that there are few female ministers and high government officials is that women are not as capable as men.	0.543					
(6) Female students should be restricted from military and police academies.	0.365					
(7) As the number of female workers goes up, productivity goes down.	0.462					
(8) College or higher education is more important for men than for women.	0.534					
(10) It is natural for men to do tasks such as replacing light bulbs, fixing computer problems, and carrying heavy items and for women to do cooking, laundry, and cleaning.						-0.587
(11) On the day of ancestral rituals, it is fair for men to do the long-distance driving and tend the graves and for women to prepare the food for the rituals.						-0.794
(12) In the home, there are things that men should do and women should do.						-0.583
(13) Daughters should be raised to learn to perform housework and childcare well, even if they eventually become professionals.						-0.303
(18) Even though there are already many policies and institutions dedicated to women, women just keep demanding more.		-0.672				
(19) Women who demand equality want special treatment without living up to their responsibilities.		-0.839				
(20) Women don't live up to their responsibilities, but just insist on their rights.		-0.773				
(21) Since discrimination and inequality against women have disappeared, we don't need any more policies or		-0.571				

	Factors					
	1	2	3	4	5	6
institutions for gender equality.						
(22) Even though women are not physically suited, they want jobs that really only men can do.		-0.445				
(23) It is true that women have too much say in almost every area, including at home and work.		-0.335				
(24) The husband should be the one responsible for the family's livelihood.				0.615		
(26) Men have a greater financial responsibility for the family than do women.				0.633		
(27) If they can, men should not show weakness.				0.430		
(28) Male students should be trained to take on more responsible roles than female students.				0.426		
(31) I will bequeath my estate evenly among my children without discriminating between sons and daughters.					0.477	
(32) An inheritance system that forces you to divide your estate evenly among sons and daughters is wrong.					0.514	
(33) You need a son to carry on the family line.					0.319	
(35) The way a woman dresses or behaves can be a cause for sexual violence.			0.455			
(36) A drunk woman looks uglier than does a drunk man.			0.947			
(37) When a woman swears or tells a dirty joke, it seems more inappropriate than when a man does.			0.767			
Initial eigenvalue	11.372	1.826	1.283	1.109	0.961	0.812
Explained variance (%)	38.97	4.97	3.17	1.97	1.76	1.92
Explained variance (accumulated, %)	38.97	43.94	47.11	49.09	50.85	52.14

Note) Factors: 1. Attitude toward gender equality in the public sector
 2. Attitude toward the demand for women's rights
 3. Attitude toward norms for women's gender roles
 4. Attitude toward norms for men's gender roles
 5. Attitude toward the patriarchal family system
 6. Attitude toward gender equality in the home

The Cronbach's α for the full version is 0.945. The reliability coefficient was lowest for the "male-orientation" factor with 0.568 and highest for the "gender equality in the public sector" factor with 0.890.

〈Table 2〉 Reliability of the 28 items on the revised scale

Factors	Cronbach's α	Factors	Cronbach's α
Attitude toward gender equality in the public sector	0.890	Attitude toward the demand for women's rights	0.860
Attitude toward norms for women's gender roles	0.804	Attitude toward norms for men's gender roles	0.798
Attitude toward the patriarchal family system	0.568	Attitude toward gender equality in the home	0.815
Total items (28 items)			0.945

3. Test-retest reliability

Test-retest reliability is ascertained in order to measure the reliability of responses by administering the same test to the same people at a specific interval (Ahn Sang-su et al., 2007, p. 94). Ninety-four people were subjected to a retest, or 4% of those who took the original test. One week after the original test was conducted on January 10, a retest was performed by phone. Reliability was checked using the total scores of the responses to the 28 items in the test and the re-test. The test-retest reliability was 0.745 ($p < 0.001$).

4. Differences between groups and comparison with the original test

Gender consciousness, which can be significantly different by group, was measured by gender, age, education, and place of residence.

A. Gender

Unsurprisingly, women showed a greater awareness of gender equality: the average score was 2.93 for women and 2.57 for men ($p < .001$). The difference was similar in the original test, with 2.96 for women and 2.60 for men (Kim Yang-hee et al., 1999, p. 94).

B. Age

Scores rose as age went down ($p < .001$). The result was the same in the original test, in which the subjects were grouped into the young, middle-aged, and elderly (Kim Yang-hee et al., 1999, pp. 96-97). Unlike in the original test, however, no interactions were observed between gender and age.

C. Marital status

The average score was greatest among unmarried people, followed by married, and then by other ($p < .001$). In the original test, the score was 2.91 for the unmarried and 2.76 for the married. “Other” was not provided as an option in the original test.

D. Education

As shown in the table, there was a significant difference in the average score between those with a high-school education or below and those with a college education or higher. Gender consciousness was greater among the latter compared to the former ($p < .001$).

E. Place of residence

The gender consciousness score was lowest among those living in large

cities and significantly high among those living in small towns (*eup* and *myeon*) and small/mid-sized cities ($p < .001$).

5. Development of an abbreviated version

An abbreviated version was developed in an effort to increase accessibility and the convenience of users. Toward this goal, the following approach was used. First, a simplified version was created using twelve items, with two drawn from each from the six factors. Those with the greatest factor loading were selected. Balance was sought in the proportions of existing and new items in the full and abbreviated versions. Excessively similarity in the content of the two selected items was avoided. Two items were selected from each factor based on the results of the previous exploratory factor analysis.

The items for the abbreviated version are presented in Table 3. The reliability coefficient was acceptable with 0.875.

〈Table 3〉 Items selected for the abbreviated version

Factors	Items
Attitude toward gender equality in the public sector	In a mixed-gender team, a man should be in charge.
	If only one person can be promoted between an equally qualified male and female employee, the man should be promoted.
Attitude toward gender equality in the home	It is natural for men to do tasks such as replacing light bulbs, fixing computer problems, and carrying heavy items and for women to do cooking, laundry, and cleaning.
	On the day of ancestral rituals, it is fair for men to do the long-distance driving and tend the graves and for women to prepare the food for the rituals.
Attitude toward the demand for women's rights	Women who demand equality want special treatment without living up to their responsibilities.
	Women don't live up to their responsibilities, but just insist on their rights.

Factors	Items
Attitude toward masculinity	Men have a greater financial responsibility for the family than do women.
	If they can, men should not show weakness.
Patriarchal nature of the family	I will bequeath my estate evenly among my children without discriminating between sons and daughters.
	An inheritance system that forces you to divide your estate evenly among sons and daughters is wrong.
Attitude toward femininity	A drunk woman looks uglier than does a drunk man.
	When a woman swears or tells a dirty joke, it seems more inappropriate than when a man does.

*Boldface indicates existing items.

III. Validity of the scale

1. Construct validity

Construct validity is applied to determine if a test measures the intended construct. For this, we checked convergent validity and goodness of fit through structural equation modeling.

A. Convergent and discriminant validity

When a new scale is developed, its convergence and discriminability need to be confirmed in comparison with other similar scales in order to locate the new scale in the overall landscape of scales and verify its effectiveness. As a revised version of the Korean Gender Egalitarian Scale that was originally developed in 1999, it is important for this scale to maintain consistency with the original scale, which necessitates the verification of the convergence between the two versions. For convergent validity, the correlations between the overall averages and correlations

by factor needed to be checked. However, the latter could not be determined in this case since factors were not measured for the original version. We examined only the correlations between the 1999 scale and the abbreviated version and found significant correlations, with $r=.905$ ($p<.05$), that satisfied convergent validity. This confirms that the revised version can replace the original scale. Furthermore, results from the use of the revised version can indeed be compared with results from the original scale, allowing changes in gender consciousness among South Koreans between 1999 and the time of the testing to be inferred. There is also discriminability between the two versions because the revised scale has six new factors compared to four on the original scale.

Next, the convergent and discriminant validity with the Ambivalent Sexism Inventory (ASI), which was developed in 1996, were examined. The ASI is distinctive in that while previous tools only measured hostile sexist attitudes, the AVI measures more benevolent sexism as well. The ASI consists of three factors: power, gender differentiation, and heterosexuality (Glick & Fiske, 1996, quoted in McHugh & Frieze, 1997, 10). With theoretical influence from the ASI, the original gender egalitarian scale aimed to cover “various aspects that emerge in the context of gender relations in reality” (Kim Yang-hee and Jeong Gyeong-ah, 1999, iii). When using the six items from the hostile scale and the six items from the benevolent scale from Ahn Sang-su et al. (2007), the correlation was $r=.698$ with the hostile scale and $r=.792$ ($p<0.05$) with the benevolent scale. This suggests that the two scales measure consciousness similarly. Despite the significantly high correlation between these two scales, however, the correlations by factor are very different. For example, all of the factors in the revised scale showed high correlation coefficients with dominant paternalism (from

hostile sexism), but the correlation coefficient with heterosexual intimacy was below .351. Patrilineality exhibited correlations of .466 or lower with all factors except dominant paternalism. Both attitude toward norms about men's gender roles and attitude toward norms about women's gender roles had correlations with hostile heterosexuality of .480 or below. Therefore, the discriminability of the two scales was proved.

B. Goodness of fit in structural equation modeling

Next, model goodness of fit was investigated in order to determine if a construct composed of six factors through exploratory factor analysis could be measured without discrepancies.

For indexes to assess model goodness of fit, it is recommended to evenly reflect absolute fit indexes including χ^2 and degrees of freedom (*df*), incremental fit indexes, goodness-of-fit indexes, and badness-of-fit indexes (Hair et al., 2009: 659). RMSEA and TLI are recommended since they meet these conditions in that they are not affected by sample size and reflect more abbreviated models, and also because CFI, which is strong in more realistic statistical assumptions, can be examined complementarily (Hong She-hee, 2000). SRMR, which is useful for comparison between models, was also checked (Hair et al., 2009: 649).

If TLI and CFI are 0.9 or higher, it is believed that there is a good fit (Hong She-hee, 2000: 165-167). In the case of RMSEA, it is considered a good fit if the result is 0.05 or lower; reasonably good if it is 0.08 or lower; and problematic if it is 0.1 or higher (Browne and Cudeck, 1992: 239; Arbuckle, 2016: 644). With SRMR, it is more suitable if it is lower in relative terms (Hair et al., 2009: 649). χ^2 is also reported because it provides a basis for other goodness of fit

indexes. However, it includes unrealistic assumptions for a hypothesis test and is affected by sample size. In this case, it is recommended to refer to other goodness of fit indexes such as RMSEA and TLI (Marsh and Grayson, 1990: 206-207; Steenkamp and Baumgartner, 1998: 84; Hong, Malik and Lee, 2003: 645).

As shown in Table 4, the model goodness of fit is 0.052 for RMSEA, which is reasonably good, and the confidence interval is narrow at between 0.050 and 0.054. TLI is 0.925 and CFI 0.934, both of which indicate good fits. All in all, this research model shows a good fit.

〈Table 4〉 Model goodness of fit of the scale

CFA for 28 items	χ^2	df	TLI	CFI	RMSEA (90% CI)
	2372.517	335	0.925	0.934	0.052 (0.050 - 0.054)

Table 5 presents the model goodness of fit for the 12 items in the abbreviated version. Both TLI and CFI are over 0.9 and RMSEA is 0.042, indicating better goodness of fit compared to the full version. Hence, we determined that no issues exist with using the abbreviated version.

〈Table 5〉 The goodness of fit of the abbreviated version

CFA for the 12 items	χ^2	df	TLI	CFI	RMSEA (90% CI)
	191.756	39	0.976	0.986	0.042 (0.036 - 0.048)

2. Criterion-related validity

We also measured criterion-related validity with an aim to better understand the correlation between gender consciousness and social phenomenon. The measures we used are attitude toward violence against women and attitude toward current gender issues.

A. Attitude toward violence against women

We measured correlations between this scale and attitude toward violence against women, including sexual violence, sexual harassment, prostitution, domestic violence, and date rape. As presented in Table 6, this scale has significant correlations with all of the criterion variables at $p < 0.001$.

〈Table 6〉 Correlations between the gender egalitarian scale and attitudes toward violence against women and between the scale and individual factors

	Attitude toward gender equality in the public sector	Attitude toward the demand for women's rights	Attitude toward norms for women's gender roles	Attitude toward norms for men's gender roles	Patrilineality	Attitude toward gender equality in the home	Total gender equality consciousness
Sexual violence	.422***	.403***	.289***	.268***	.316***	.342***	.437***
Sexual harassment	.501***	.525***	.442***	.406***	.426***	.494***	.583***
Prostitution	.331***	.356***	.366***	.282***	.266***	.394***	.412***
Domestic violence	.197***	.284***	.290***	.278***	.199***	.287***	.308***
Date rape	.406***	.401***	.280***	.282***	.340***	.345***	.436***

* $p < 0.05$; ** $p < 0.01$; and *** $p < 0.001$

For all types of violence, the correlation with total gender equality consciousness was greater than with each individual factor. In particular, the correlation between sexual harassment and total gender equality consciousness was greatest with $r=.583$. For sexual violence, its correlation with attitude toward gender equality in the public sector was second greatest with .422, following its correlation with total gender equality consciousness. The correlation of sexual harassment with attitude toward the demand for women's rights was also second greatest for this area, behind total gender equality consciousness (with .525). Date rape was highly correlated with attitude toward gender equality in the public sector ($r=.406$), following only its correlation with total gender equality consciousness. For domestic violence, it was highly correlated with attitude toward gender equality in the home ($r=.394$), attitude toward prostitution ($r=.394$), and attitude toward norms for women's gender roles ($r=.290$). In sum, the attitude toward sexual harassment can be best predicted with this scale, followed by attitudes toward sexual violence and date rape.

As demonstrated here, characteristics of violence can be inferred based on correlations with the scale. In this study, attitude toward sexual harassment showed a strong correlation ($r=.05$ or higher) with our scale, indicating that it is highly associated with gender consciousness. In other words, sexual harassment, such as sexual jokes, unsolicited physical contact, or sexual advances at work, is not a matter of sexual attraction or desire, but an indication of a lack of gender awareness and a reflection of attitude toward power relations between men and women. This is well explained by the fact that the two factors with the greatest correlation with sexual harassment are attitude toward gender equality in the public sector and attitude toward the demand for women's rights. In addition,

the fact that sexual violence, which has the second-highest correlation with gender consciousness, is most highly correlated with attitude toward gender equality in the public sector suggests that attitude toward sexual violence is more relevant to a discriminatory attitude toward gender roles and gender relations in the public sector than norms for femaleness and maleness (e.g. men's sexual impulses) or norms about gender relations in the private sector.

Attitudes toward date rape, prostitution, and domestic violence, all of which have roughly mid-level correlations with the scale ($r=.02-.05$), also present interesting implications. As with sexual harassment, attitude toward date rape had the greatest correlations with attitude toward gender equality in the public sector and the demand for women's rights, signifying its high association with the issue of power relations between men and women. Surprisingly, attitude toward prostitution was more correlated with attitude toward gender equality in the home than with other factors, such as with attitude toward norms for men's gender roles. This indicates that the belief in traditional gender roles is related to the belief that men's sexual desires must be fulfilled even if through prostitution. This is a belief that, like separation of the roles of men and women in the home, it is natural for men (unlike women) to fulfil their sexual needs by purchasing sex outside the home. Meanwhile, domestic violence has greater correlations with attitude toward norms for women's gender roles, the demand for women's rights, and gender equality in the home than with attitude toward gender equality in the public sector or patrilineality. This is interpreted as domestic violence being associated with a range of aspects, including attitude toward norms for men's gender roles and gender equality in the home.

As explained above, the revised gender egalitarian scale can help

predict attitudes toward various types of violence against women and illuminate the characteristics of such violence.

B. Predicting attitude toward gender issues

We also looked into the correlations between this scale and gender equality issues, including misogyny and the #MeToo movement. In the case of misogyny, the reliability of the three items used in the survey was so low that Item 2 was eliminated and the following two items were used instead: 1. I frequently encounter misogynistic speech either online or offline; 2. The aggressiveness of the women's movement has produced misogyny. (Item 2 was reverse-coded.) The items for the #MeToo movement were as follows: 1. Most women who speak out through the #MeToo movement have bad intentions; 2. The #MeToo movement is a form of resistance against men's sexual behaviors based on power relations; and 3. The #MeToo movement has exposed the problem of sexual violence that women suffer in our society. (Item 1 was reverse-coded.) The higher the score, the more positive was the attitude toward gender equality.

1) Misogyny

Attitude toward misogyny had the greatest level of correlation with attitude toward the demand for women's rights with $r=.319$ ($p < 0.01$). The correlation with the full scale was $r=.302$.

2) #MeToo movement

The #MeToo movement was most correlated with attitude toward the demand for women's rights with $r=.447$ ($p < 0.01$). Its correlation with

the full scale was $r=.434$. The correlation coefficients with other factors were all higher than $r=.3$, except with patrilineality, which was $r=.299$ ($p < 0.01$). In sum, the revised scale exhibited a medium level of significance in its correlation with attitude toward current gender issues. Its correlation with attitude toward the #MeToo movement was greater compared to with attitude toward misogyny. The correlation with the full scale was not low. Given that the factor “Attitude toward the demand for women’s rights” had the greatest correlations with both misogyny and the #MeToo movement, in particular, it is assumed that this factor is relatively better for predicting attitude toward gender issues. While the correlation coefficient was about mid-level, it is significant considering the small number of items in the scale. This scale can be further sophisticated through future research in order to improve its associations with these issues.

〈Table 7〉 Correlations between attitudes toward misogyny/the #MeToo movement and the gender egalitarian scale and between those attitudes and individual factors

	Attitude toward misogyny (two items)	Attitude toward the #MeToo movement
Attitude toward gender equality in the public sector	.245 **	.376 **
Attitude toward the demand for women’s rights	.319 **	.447 **
Attitude toward norms for women’s gender roles	.236 **	.206 **
Attitude toward the demand for women’s rights	.223 **	.305 **
Attitude toward the patriarchal family system	.219 **	.399 **
Attitude toward gender equality in the home	.208 **	.346 **
Overall gender equality consciousness	.302 **	.434 **

*: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

IV. How to use the scale

The following is an explanation of the theoretical background of this scale, the implications of the factors used in the scale, and its utility.

1. Theoretical background

A. Background for the development of the original and revised scales

The revised Korean Gender Egalitarian Scale, which is the product of this research, has been developed with the intention of reflecting the changes in the social context since the development of the original scale. The original scale was developed in 1999 as the first gender egalitarian scale in South Korea and with a goal to “measure gender equality consciousness in various aspects manifest in the relations between men and women in the real world” (Kim Yang-hee and Jeong Gyeong-ah, 1999, iii). Over the course of time, the focus of gender scales has shifted from attitudes toward women and women’s roles to gender roles and gender relations in general, and then to ambivalent sexism that includes explicit/hostile sexism and implicit/benevolent sexism. In an attempt to develop a more comprehensive and objective scale, we have worked to reflect the strengths of various gender egalitarian scales and consider the direction of change in gender roles. In addition, we have attempted to develop a scale that specifically reflects the South Korean cultural context. To this end, the original scale consisted of four areas of life (home, education, job, society/culture) and four dimensions (attitude toward the abilities and nature of men and women; attitude toward the roles and behavioral norms for men and women; attitude toward the rights of and power relations between men and women; and attitude

toward awareness of existing gender discrimination and gender policies (ibid., 45).

This scale is designed to be used both as a full scale and as a sub-scale for each area. While it is advantageous for sub-scales to exist independently, this also means that the construct of the full scale is not clearly seen. The construct of a gender equality scale can provide insight into the level of gender discrimination in society at the time of the development of the scale. If the factors in the original scale are known, they can be compared with those of the revised scale in order to understand how gender discrimination has changed over the course of time. Since the four areas or four dimensions of the original scale here were designed to establish the direction for the development of the scale but were not verified through statistical methods, a direct comparison between the two versions in this regard is not plausible. Despite such limitations, we attempted to identify key factors through the factors for each area. A comparison of those inferred factors and the factors in the revised version created in 2018 will show differences in the perceptions of gender discrimination between the two different periods.

B. Factors in the original scale

The important factors regarding the home area were attitude toward power relations in the home and institutions, gender roles in the home, and patriarchal familism, in the order of factor loading. Factor 1 includes the items “Assets obtained during marriage should be jointly owned by the couple” and “The husband and wife should have equal decision-making power over all household matters.” Factor 2 involves “A woman’s job is to raise children and take care of housework” and “The husband should be responsible for the family’s livelihood.” Factor

3 is composed of “Women don’t feel honorable in front of their husband and in-laws if they haven’t given birth to a son” and “You need a son to carry on the family line.”

In the area of education, the following four factors were derived: attitude toward gender roles and power relations in the education field; attitude toward equality in education policies; gender-segregated career coaching; and essentialism regarding gender differences in aptitude and ability. Factor 1 includes “Leadership training is more important for male students than female students” and “Male teachers are more appropriate for administrative positions than are female teachers.” Factor 2 is composed of “Teacher-training curriculums should include content designed to raise gender awareness” and “I agree to teaching female students mechanics and technology, such as how to repair electronic products.” “Female students should be restricted from military and police academies” makes up Factor 3. Factor 4 is “Women have less aptitude for science and math compared to men.”

Factors in the area of employment were as follows: perception of the ability, talents, and roles of men and women; attitude toward equal-employment policies; attitude toward atypical jobs; and male orientation. Factor 1 includes “Men are better than women in planning and execution” and “It’s better for female employees to serve tea and do photocopying rather than male employees,” Factor 2 has “It is unfair that in a job interview they value women’s appearance, unlike with men.” Factor 3 is covered by “I support women holding traditional men’s jobs, such as operating heavy machinery.” Factor 4 features “If only one person can be promoted between an equally qualified male and female employee, the man should be promoted” and “If I were the boss, I would hire a man rather than a woman if they were equally qualified.”

Lastly, the factors for the society/culture area were “roles and ability” and “gender equality culture and policies.” Factor 1 includes the items “Confident women discourage men” and “Women lack the ability to form broad social connections compared to men.” Factor 2 is comprised of “TV programs should show equal relations between men and women more frequently” and “Women need groups to protect their rights.”

〈Table 8〉 Comparison of factors between the original and revised scales

Area	Factors of the original scale	Factors of the revised scale (Factor number)
Home	Attitude toward power relations in the home and institutions	
	Gender roles in the home	Attitude toward gender equality in the home (V)
	Patriarchal familism	Attitude toward the patriarchal family system (VI)
Education	Attitude toward gender roles and power relations in the education field	
	Attitude toward equality in education policies	
	Gender-segregated career coaching	Attitude toward gender equality in the public sector (I)
	Essentialism about gender differences in aptitude and ability	
Employment	Perceptions of the ability, talents, and roles of men and women	Attitude toward gender equality in the public sector (I)
	Attitude toward equal employment policies	
	Attitude toward atypical jobs	
	Male orientation	Attitude toward gender equality in the public sector (I)
Society	Roles and ability	Attitude toward norms for men's gender roles / Attitude toward norms for women's gender roles (IV/III)
	Gender equality culture and policies	
		Attitude toward the demand for women's rights (II)

2. Utility of the revised scale

When it comes to scales designed to gauge social consciousness, it is important to accurately measure the target areas, but they must also be able to predict related attitudes and behaviors. If this revised scale is able to predict various attitudes and behaviors related to gender equality, its utility will increase. Attitudes toward violence against women, including sexual violence, sexual harassment, prostitution, and domestic violence, are assumed to be highly correlated with the attitude toward gender equality or gender discrimination. Gender consciousness is also related to attitudes toward current social issues, such as sexist speech and the #MeToo movement. Under these assumptions, we included related items in this scale and discovered significant correlations between scores and attitudes toward violence against women and gender issues. Consequently, we conclude that this scale is indeed capable of predicting these attitudes.

The correlation of the full scale with all forms of violence against women, particularly with sexual harassment ($r=.583$), was greater than those of individual factors. The factors that had the next-highest correlation with attitude toward violence against women following the full scale were attitude toward gender equality in the public sector and attitude toward the demand for women's rights. The correlation of the former factor with attitude toward sexual violence was .422 (second-highest following the full scale) and that of the latter with sexual harassment was .525, also the second-highest after the full scale. The former also showed the second-highest correlation with attitude toward date rape ($r=.406$) following the full scale. Attitude toward gender equality in the home with attitude toward prostitution and attitude toward femininity with attitude toward domestic violence exhibited the second-highest correlations following the full scale. The correlation

coefficient was .394 for the former and .290 for the latter. This means that attitude toward sexual harassment can be best predicted with the overall scale, followed by the attitudes toward sexual violence, date rape, and domestic violence.

As seen above, while the utility was the greatest for the full scale in the prediction of attitude toward violence against women, it was attitude toward the demand for women's rights that was most useful for predicting attitude toward social issues: two items in misogyny and another two items in the #MeToo movement had greater correlations with attitude toward the demand for women's rights compared to their correlations with the full scale. In other words, people who are negative about the demand for women's rights tend to find the cause of combatting misogyny or the #MeToo movement to involve unreasonable demands. To the contrary, those who support the demand for women's rights believe that misogyny and the #MeToo movement are legitimate feminist issues. Due to such correlations, the factor "Attitude toward the demand for women's rights" seems most useful in predicting attitudes toward gender issues.

3. Use of the scale for policy purposes

As described above, the gender egalitarian scale can accurately measure people's gender equality consciousness and predict attitudes toward violence against women or other gender-related social issues. The following are ways to apply this scale for policy purposes.

A. Surveying public gender consciousness

It is essential to understand people's gender consciousness when

establishing gender equality policies. Public gender consciousness can be surveyed in a number of ways. First, public consciousness can be surveyed on a regular basis, as with the Gender Equality Survey conducted every five years in accordance with Article 10 The Gender Equality Survey of the 2015 Framework Act on Gender Equality. As part of this survey, public awareness of gender equality can be examined using the revised gender egalitarian scale. In addition, a public gender consciousness survey can be conducted on a regular basis. For example, an annual online survey could be performed through the website of the Ministry of Gender Equality and Family using the abbreviated version. A regular gender consciousness survey would be of critical help in understanding the public's gender awareness and determining how to respond to gender issues.

B. Use as an independent variable in social surveys

Social surveys are conducted with an aim to identify shifts in public consciousness within a society. Examples of such surveys include the World Value Survey and the Korean General Social Survey. Items within these surveys designed to examine gender consciousness tend to be limited to specific areas such as work or the family rather than covering broader gender issues. Using the abbreviated version of the revised Gender Egalitarian Scale, gender consciousness could be measured in these surveys in a more systematic and comprehensive way based on the six factors, particularly in social surveys, with the following purposes.

1) Predicting gender conflicts in society

This scale can be used as an independent variable in surveys designed to investigate the status of gender conflicts and predict their future

directions. Since conflict is likely to arise between those with a higher gender consciousness and those with lower consciousness, it could be helpful to measure attitudes toward related issues for predicting the content and direction of potential conflicts.

2) Predicting violence against women

Gender equality consciousness can also be used as an independent variable for investigating the status and trends of forms of violence against women, such as sexual violence, sexual harassment, prostitution, domestic violence, and date rape. As described above, the revised gender egalitarian scale is highly correlated with attitude toward violence against women and enables the prediction of related attitudes and behaviors. Given that people may be likely to provide dishonest answers regarding violence since violent dispositions are considered socially undesirable, survey errors can be prevented by instead applying correlations through this gender egalitarian scale. In particular, sexual harassment, date rape, and sexual violence are the types of violence that can be best predicted by this scale. In terms of factors, the factor “attitude toward gender equality in the public sector” predicts sexual violence and sexual harassment well, the factor “attitude toward gender equality in the home” does so for domestic violence, the factor “attitude toward norms about women’s gender roles” predicts attitude toward prostitution, and the factor “attitude toward the demand for women’s rights” addresses sexual harassment.

C. Use in gender equality education

1) Education methods

With gender equality increasingly considered an important aspect of human rights, the need for gender equality education is being widely acknowledged. However, there is still a great amount of research to be done regarding how to best conduct such gender equality education. While it seems particularly important to pay attention to educational content and methods based on individual differences between students, existing education programs are mainly indiscriminatory, blindly presuming that all students share a similar level of gender consciousness. This could reduce the effectiveness of such education.

Therefore, grouping students based on their measured consciousness level would make a significant difference in the impact of education. To this end, the abbreviated version can be used to determine students' degree of consciousness. The contents of education should be prepared separately in accordance with the projected level of gender consciousness. Since it is easier to use the scale online than off, an online education program could be designed that operates from consciousness assessment through to customized materials and curricula.

2) Measuring the effects of education

While measuring the effects of education is not always possible, it is important for improving the quality of education in the long term and particularly for the training of teachers and public servants. Hence, it is recommended that the gender egalitarian scale be used to measure the impact of education, especially if a program has a relatively adaptable schedule. The abbreviated version can be used to segment students based

on their level of consciousness, and the full 28-item scale can be applied to measure the effects of the education upon its completion.

3) Developing educational materials on gender equality

The six factors that comprise the revised scale show the content of gender discrimination in contemporary South Korean society. Since gender discrimination or gender equality can manifest differently depending on the time and place, these factors could provide important clues for understanding gender consciousness in contemporary society. The factor “attitude toward the demand for women’s rights,” in particular, was not included in 1999 but is essential for understanding misogyny and gender conflicts in today’s society. Attitude toward gender equality in the public sector has continued to be considered an important factor since 1999 and remains a key element among today’s gender issues. Educational materials on gender equality will need to highlight these factors.

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