RESEARCH ARTICLE

Imran G. Yilmaz-Karaman [1]
Cennet Yastibas-Kacar [2]
Ali Ercan Altinoz [1]
Irem Naz Ornekel [3]
Muzaffer Bilgin [4]
Gulcan Gulec [1]

[1] Department of Psychiatry, Faculty of Medicine, Eskişehir Osmangazi University, Eskişehir, Türkiye
[2] Department of Psychology, Faculty of Humanities and Social Sciences, Adana Alparslan Türkeş Science and Technology University, Adana, Türkiye
[3] Faculty of Medicine, Eskişehir Osmangazi University, Eskişehir, Türkiye
[4] Department of Biostatistics, Faculty of Medicine, Eskişehir Osmangazi University, Eskişehir, Türkiye

Corresponding Author:
Imran Gökçen Yılmaz-Karaman
mail: gokcenylmz@yahoo.com

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konuralptipdergi@duzce.edu.tr
konuralptipdergisi@gmail.com
www.konuralptipdergi.duzce.edu.tr

Turkish Adaptation and Psychometric Properties of Nıjmegen Gender Awareness in Medicine Scale: Assessment of Validity and Relıability

ABSTRACT

Objective: Gender affects how we serve and receive medical care. World Health Organization evaluates gender as a social determinant of health. However, a knowledge gap exists among physicians. The present study aims to adapt Nijmegen Gender in Medicine Awareness Scale (N-GAMS) in the Turkish language and define Turkish medical students' gender awareness level and related factors.

Methods: Two hundred seventy-two medical students participated in this cross-sectional study. The Ambivalent Sexism Inventory, Jefferson Scale of Physician Empathy- Student Version, and N-GAMS were utilized to collect data; in addition to sociodemographic form.

Results: Cronbach Alpha value for the gender sensitivity subscale of Turkish N-GAMS was calculated as 0.810, gender role ideology towards patients as 0.919, and gender role ideology towards doctors as 0.896. In the confirmatory factor analysis conducted for the scale's factor structure, the scale had a three-factor structure consisting of gender sensitivity, gender role ideology towards patients, and gender role ideology towards doctors, which are interrelated. In the criterion-related validity analysis, gender sensitivity was associated with empathy ($r=0.206$ $p=0.001$) and benevolent sexism ($r=0.148$ $p=0.015$). Gender role ideology toward patients scores was related to male gender ($t=3.920$ $p<0.001$), low empathy ($r=-0.159$ $p=0.009$), hostile sexism ($r=0.638$ $p<0.001$), and benevolent sexism ($r=0.545$ $p<0.001$). Gender role ideology towards doctors was related to male gender ($t=2.669$ $p=0.008$), low empathy ($r=-0.143$ $p=0.018$), hostile sexism ($r=0.618$ $p<0.001$), and benevolent sexism ($r=0.573$ $p<0.001$).

Conclusions: N-GAMS is valid and reliable among Turkish medical students. Turkish medical students in our sample are less gender-sensitive than their European counterparts. There is a need for education on gender awareness in medical schools.

Keywords: Gender Role, Sexism, Gender Equity, Medical Students, Medical Education.

Nijmegen Tıpta Cinsiyet Farkındalığı Ölçeğinin Türkçe Uyarlaması ve Psikometrik Özellikleri: Geçerlilik ve Güvenilirliğin Değerlendirilmesi

ÖZET

Amaç: Cinsiyet, nasıl hizmet verdiğimizi ve nasıl tıbbi bakım aldığımızı etkiler. Dünya Sağlık Örgütü, cinsiyeti sağlığın sosyal bir belirleyicisi olarak değerlendirilir. Ancak, doktorlar arasında cinsiyet konusunda yeterli farkındalık bulunmayabilir. Bu çalışma, Nijmegen Tıpta Cinsiyet Farkındalığı Ölçeği'nin (N-GAMS) Türkçe'ye uyarlanması ve Türkiye'deki tıp öğrencilerinin toplumsal cinsiyet farkındalık düzeylerinin ve ilgili faktörlerin tanımlanmasını amaçlamıştır.

Gereç ve Yöntem: İki yüz yetmiş iki tıp öğrencisi bu kesitsel çalışmaya katıldı. Veri toplamak için sosyodemografik forma ek olarak Çelişik Duygulu Cinsiyetçilik Ölçeği, Jefferson Doktor Empati Ölçeği-Öğrenci Versiyonu ve N-GAMS kullanıldı.

Bulgular: Türkçe N-GAMS'in cinsiyet duyarlılığı alt ölçeği için Cronbach Alpha değeri 0.810, hastalara yönelik cinsiyet rolü ideolojisi için 0.919, doktorlara yönelik cinsiyet rolü ideolojisi için ise 0.896 olarak hesaplanmıştır. Ölçeğin faktör yapısı için yapılan doğrulayıcı faktör analizinde ölçeğin birbiri ile ilişkili hastalara ve doktorlara yönelik cinsiyet rolü ideolojisi ve cinsiyet duyarlılığından oluşan üç faktörlü bir yapıya sahip olduğu bulunmuştur. Kriterlere bağlı geçerlilik analizinde cinsiyet duyarlılığı empati ($r=0.206$ $p=0.001$) ve korumacı cinsiyetçilikle ($r=0.148$ $p=0.015$) ilişkiliydi. Hastalara yönelik cinsiyet rolü ideolojisi puanları erkek cinsiyet ($t=3.920$ $p<0.001$), düşük empati ($r=-0.159$ $p=0.009$), düşmanca cinsiyetçilik ($r=0.638$ $p<0.001$) ve korumacı cinsiyetçilik ile ($r=0.545$ $p<0.001$); doktorlara yönelik toplumsal cinsiyet rolü ideolojisi ise erkek cinsiyet ($t=2.669$ $p=0.008$), düşük empati ($r=-0.143$ $p=0.018$), düşmanca cinsiyetçilik ($r=0.618$ $p<0.001$) ve korumacı cinsiyetçilikle ($r=0.573$ $p<0.001$) ilişkiliydi.

Sonuç: N-GAMS Türk tıp öğrencileri arasında geçerli ve güvenilirdir. Örneklemimizdeki Türk tıp öğrencileri, Avrupalı meslektaşlarına göre toplumsal cinsiyete daha az duyarlıdır. Tıp fakültelerinde toplumsal cinsiyet farkındalığı konusunda eğitime ihtiyaç vardır.

Anahtar Kelimeler: Cinsiyet Rolü, Cinsiyetçilik, Cinsiyet Eşitliği, Tıp Öğrencileri, Tıp Eğitimi.

INTRODUCTION

Sex refers to the biological differences between humans regarding reproductive functions. The term sex differences also cover physiological differences between female and male. Despite these differences existing since the beginning of time, until very soon, clinicians' knowledge of health and disease depended on males or male cells or male animals (1). This fact had detrimental effects on women's health. For example, women with heart attacks are less likely to get the proper diagnosis and treatment on time (1). Research and knowledge on sex differences are increasing in medical settings, especially on heart diseases (2), pain disorders (3), and psychiatric disorders (4).

Gender is a social construct that defines how one should behave as a woman and a man. It leads to gender norms and gender roles, which are adopted and reproduced by constituents of society (5). The gender construct is hierarchical and traditionally privileges men over women. This results in unequal power dynamics and inequality (5). In real life, it materializes as women's poverty, the gender pay gap, and violence against women and girls. The term gender differences include social components and structural inequalities of gender.

Sex and gender-based discrimination are defined as sexism. The term "sexism" was used in the 1960s first (6). Traditional sexism refers to hostility towards women. Besides, benevolent sexism is a prejudice that women need protection. These two components constitute ambivalent sexism (7). Similar to the defense mechanism "splitting," ambivalent sexist attitudes evaluate women as good or bad, black or white.

Gender affects how we serve and receive medical care, and if regarding the role in society (caregiver versus workforce), differences in perception of disease and health, healthcare access, and awareness of the rights related to health (8). In many ways, gender interacts with biology (1). Thus, World Health Organization evaluates gender as a social determinant of health (5). A recent study revealed that European internists had limited knowledge of sex and gender awareness regarding disease and health (9). A study from North Italy underlined the need for doctors to training programs on gender awareness (10). Gender-blindness lead to clinical biases, and consequantly poor quality of care (11).

Empathy is an extent that is crucial in medical practice. It includes cognition, understanding, and communication (12). Interventions based on empathy are related to less implicit bias, a mild form of discrimination (13). Morais and colleagues demonstrated that more emphatic medical students were more gender aware (14).

Verdonk and colleagues defined two attitudinal components of gender awareness in medicine as gender sensitivity and gender role ideology, depending on previous studies (15). Gender awareness means being aware of the learned behaviors of individuals, which determine differences between women and men, and the fact that is related to access and control sources (15). Gender role ideology refers to the attitudes toward patients and doctors regarding gender stereotypes (15). The construction of the Nijmegen Gender Awareness in Medicine Scale (N-GAMS) met the need for a valid and reliable scale to measure gender awareness in medical settings (15).

N-GAMS has been utilized in many countries, including Portugal (14), Switzerland (16), Spain (17), Sweden (18), Taiwan (19), and Italy (20). Akşehirli Seyfeli and colleagues studied the validity and reliability of N-GAMS in a Turkish population (21). However, they recruited a small number of participants with a specific educational level in medicine. Besides, criteria-related validity was not analyzed.

The present study aims to validate N-GAMS in a sample of medical students, including criteria-related validity, and evaluate the factors related to gender awareness among medical students.

MATERIAL AND METHODS

This is a cross-sectional study with convenience sampling method.

Participants: The present study recruited medical students of Eskişehir Osmangazi University, who are 18 years old or older, who agreed to participate in. Exclusion criteria were being younger than 18 years old or refusing to participate. Data collection was carried out between 06/01/2022 and 30/03/2022.

The researchers of the present study utilized Google Forms to send out study questionnaires. Online informed consent was obtained from all participants. The present study is approved by Eskişehir Osmangazi University Non-invasive Clinical Research Ethics Committee on 21.09.2021 with decision number 11.

Measurements: Sociodemographic data form: The authors created a form to evaluate the participant's sociodemographic properties such as age, sex, level of education of the participant and their parents, and employment status of the participant's parents.

The Ambivalent Sexism Inventory (ASI): The scale was developed by Glick and Fiske in 1996 (7). ASI aims to measure the attitudes toward gender stereotypes in two subscales. Hostile sexism (HS) and benevolent sexism (BS) subscales are 11 items each. Items use a 6-point Likert-type response scale. Lower numbers mean a more egalitarian attitude. Turkish adaptation study of the scale was conducted by Sakallı-Uğurlu (22). ASI has no reverse items.

Jefferson Scale of Physician Empathy-Student Version (JSPE): JSPE is developed to

evaluate medical students' attitudes towards empathy in a patient-physician relationship (23). The scale consists of 20 items with a 7-point Likert-type scale. Ten items are reverse-coded. Higher scores demonstrate higher empathy. Three subscales are "perspective taking," "compassionate care," and "standing in the patient's shoes." Gönüllü and Öztuna conducted the Turkish adaptation study of JSPE (12).

Nijmegen Gender Awareness in Medicine Scale (N-GAMS): Verdonk and colleagues developed N-GAMS to measure gender awareness in medical students (15). Gender awareness is conceptualized as gender sensitivity and gender role ideology in N-GAMS. Thirty-two items with a 5-point Likert style generate three subscales: "gender sensitivity (GS)," "gender role ideology toward patients (GRI-Patients)," and "gender role ideology toward doctors (GRI-Doctors)."

Adaptation Process: To conduct the present adaptation study, the authors obtained approval from Petra Verdonk, the author of the original N-GAMS study (15). Following, two independent Turkish translators with English Literature backgrounds translated from English to Turkish. The authors consulted the original scale and two translations to the mental health professionals with at least a doctoral degree. The mental health professionals were asked to compare the original items and the translations and choose one translation or make a new one for each item. The authors revised the answers and constructed Turkish N-GAMS by selecting the most voted items. Finally, the authors retranslated the scale to request final approval from Petra Verdonk.

Statistical Analysis: The authors utilized IBM SPSS Statistics 25.0 to perform statistical analysis. Categorical data are presented as frequency and percentage; continuous data are presented as mean and standard deviation. We assessed the normality assumptions of the data. Based on previous researchers the value of the items ranged to an acceptable level (24, 25, 26). The descriptive statistics of the items were presented in Table 1.

Table 1. Descriptive Statistics and Confirmatory Factor Analysis Results of N-GAMS

NGAMS	Mean	SD	Skewness	Curtosis	Corrected Item-Total Correlation	Factor Loadings 1	2	3
M2	4.27	.97	-1.580	2.367	0.378	0.33		
M3	3.34	1.44	-.405	-1.217	0.626	0.61		
M4	2.72	1.49	.219	-1.417	0.640	0.60		
M5	2.35	1.28	.644	-.677	0.566	0.56		
M6	3.30	1.20	-.252	-.852	0.521	0.47		
M7	2.45	1.41	.526	-1.079	0.561	0.49		
M8	2.86	1.26	-.077	-1.032	0.582	0.53		
M9	4.11	1.06	-.906	-.213	0.397	0.33		
M10	2.66	1.40	.234	-1.330	0.657	0.55		
M11	1.93	1.21	1.122	.083	0.496	0.43		
M12	3.23	1.28	-.283	-.989	0.701	0.64		
M14	3.81	1.12	-.821	-.004	0.559	0.49		
M15	1.40	.80	2.223	4.669	0.665		0.67	
M16	1.53	.91	1.824	2.886	0.728		0.71	
M17	1.82	1.04	.946	-.279	0.804		0.79	
M18	2.11	1.20	.778	-.501	0.798		0.78	
M19	1.95	1.18	.895	-.556	0.784		0.75	
M20	1.95	1.14	.877	-.499	0.774		0.74	
M21	2.51	1.25	.284	-1.293	0.700		0.63	
M22	2.22	1.19	.479	-1.116	0.761		0.69	
M23	1.87	1.09	1.064	.066	0.802		0.77	
M24	1.98	1.16	.871	-.445	0.781		0.77	
M25	1.94	1.00	.838	.087	0.604		0.57	
M26	1.64	1.00	1.590	1.935	0.818			0.80
M27	1.87	1.13	1.087	.091	0.798			0.71
M28	1.43	.87	2.347	5.456	0.749			0.75
M29	2.22	1.26	.521	-1.048	0.750			0.62
M30	1.54	.87	1.782	2.969	0.820			0.82
M31	1.60	1.00	1.743	2.313	0.807			0.81
M32	1.96	1.09	.883	-.222	0.799			0.73

Cronbach's Alpha levels and item-total correlation were calculated to investigate the reliability scores of N-GAMS. Besides, we performed the test-retest reliability. For construct validity, we used confirmatory factor analysis (CFA). To examine whether the factor model is identical to the original scale, we conducted alternative confirmatory factor analyses (e.g., one-factor, three-factor model) using the LISREL Package Program (version 8.80). We considered the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and chi-square/df to examine the adjustments of models. We run alternative models to determine the best validation of the scale. CFI should be equal to 0.90 or above (27), and RMSEA should be 0.08 or below for an acceptable fit index (28). In addition, SRMR should be equal 0.10 or below, and $\chi 2/df$ should be below 3 to get an acceptable model fit (28). Furthermore, the study examines the correlation between N-GAMS and other related measurement tools with Pearson Correlation Analysis. To examine the criteria-related validity, we conducted a t-test for demographic information such as gender.

RESULTS

The present study recruited 272 participants. Eskişehir Osmangazi University Faculty of Medicine had 1625 medical students in the data collection period. The study reached 16.7% of the targeted population.

Since N-GAMS and ASI evaluate attitudes in a gender binary philosophy, we excluded 2 participants' data who defined their sex as "other," following Rrustemi and colleagues (16). Thus statistical analysis was made with 270 participants' data. Table 2 presents the sociodemographic characteristics of the participants.

Table 2. Sociodemographic characteristics of participants (n=270)

Sociodemographic characteristics		Frequency/ Mean	Percentage/ Standard deviation
Sex	Female	154	57
	Male	116	43
Age		21.86	2.14
Grade in medical school	1	27	10
	2	26	9.6
	3	72	26.7
	4	20	7.4
	5	68	25.2
	6	57	21.1
Most stayed inhabitancy	Province center	190	70.4
	County town	66	24.4
	Village	14	5.2
Family type	Nuclear family	233	86.3
	Extended family	37	13.7
Family history of migration in the last three generations	Yes	170	63
	No	100	37
Mother's age		48.80	5.71
Mother's education	Primary	59	21.9
	Secondary	34	12.6
	High school	63	23.3
	Graduate	97	35.9
	Postgraduate	17	6.3
Mother's paid employment	Yes	108	40
	No	162	60
Father's age		53.13	6.09
Father's education	Primary	32	11.9
	Secondary	20	7.4
	High school	64	23.7
	Graduate	121	44.8
	Postgraduate	33	12.2
Father's paid employment	Yes	217	80.4
	No	53	19.6
Number of siblings	0	22	8.1
	1	131	48.5
	2	72	26.7
	3	25	9.3
	4	7	2.6
	5 or more	13	4.8
Monthly income		2896.12	3375.53

Reliability: Firstly, we examined reliability of N-GAMS. Item-total correlation of the items in the scale indicated that item 1 and item 13 were correlated with N-GAMS below 0.30, specifically, item 1: -0.142, item 13: 0.038. Thus, we excluded both items from the scale. Afterwards, the rest of 30 items of item-total correlation was varied between 0.387 and 0.820 (Table 2). The internal consistency of subscales were calculated as 0.810 for Gender sensitivity; 0.919 for Gender role ideology toward patients; and lastly 0.896 for Gender role ideology toward doctors. We have performed test and retest with four weeks interval with a small sample (n=33). Test-retest correlations of subscales were presented in Table 3.

Table 3. Pearson correlation analysis of test-retest scores of the subscales (n=33)

Subscale	Correlation coefficient	p
Gender sensitivity	0.677	<0.001
Gender role ideology-patients	0.879	<0.001
Gender role ideology-doctors	0.764	<0.001

Confirmatory Factor Analysis: Firstly, we tested the one-factor model of N-GAMS. According to the fit indices, the one-factor model showed poor adjustment ($\chi2$= 2637.75, p<0.001; RMSEA=0.143, CFI=0.90, $\chi2$/df= 6.51). As can be seen, the fit indices of the one-factor model indicated that this model was not acceptable.

Secondly, we tested a three-factor model in line with the original structure. The model fit indices revealed that the three-factor model in which all factors are interrelated was acceptable ($\chi2$=1169.26, p<0.001; RMSEA=0.084, CFI=0.95, $\chi2$/df= 2.90). However, item 9 had a lower factor loading (λ=0.29), and the correlation between gender sensitivity and gender role identity was statistically non-significant. The remaining factor loadings were significant; the range was 0.31 and 0.82. This result pointed out that gender sensitivity subscale and the subscales related to gender role ideology were not associated with each other.

Thirdly, we tested gender sensitivity and the correlation of gender role identity toward doctors and gender identity toward patients model. The adjustment of the third model was acceptable ($\chi2$=1164.75, p<0.001; RMSEA=0.084, CFI=0.95, $\chi2$/df= 2.88). Despite acceptable model fit, we examined the modification indices to improve the model. Thus, we found that some changes were statistically meaningful to improve the model's fit. We accepted the suggestions of the modification indices that set the error term freely between the related constructs following the original structure. Following these changes, the final model indicated a better adjustment ($\chi2$=1005.77, p<0.001; RMSEA=0.075, CFI=0.96, $\chi2$/df= 2.51). Factor loadings of items were statistically significant and ranged between 0.33 and 0.82 (Table 4).

Table 4. Comparison of the fit indices of the tested model

Model Fit Indices	Model 1	Model 2	Model 3	Model 4
$\chi2$ /df	6.51	2.90	2.88	2.51
RMSEA	.143	.084	.084	.075
SRMR	.12	.10	.11	.10
NNFI	.89	.94	.94	.95
CFI	.90	.95	.95	.96
GFI	.60	.78	.78	.80
AGFI	.55	.74	.74	.77
AIC	2757.75	1295.26	1286.72	1142.78
CAIC	3033.66	1584.96	1567.25	1450.87
ECVI	10.25	4.82	5.78	4.25

Notes: Model 1: One-factor model, Model 2: Three-factor model; Model 3: Three-factor model correlated Gender Role Identity towards doctor and patients, Model 4: Three-factor model with 4 correlated pairs of residuals

In a nutshell, we performed a total of four alternative models. The comparison of model fit indices of all tested models were presented in Table 4. The examination of the alternative model tests revealed that the final model which is three-factor model with four correlated pairs of residuals had better model fit indices than the remaining models (Figure 1).

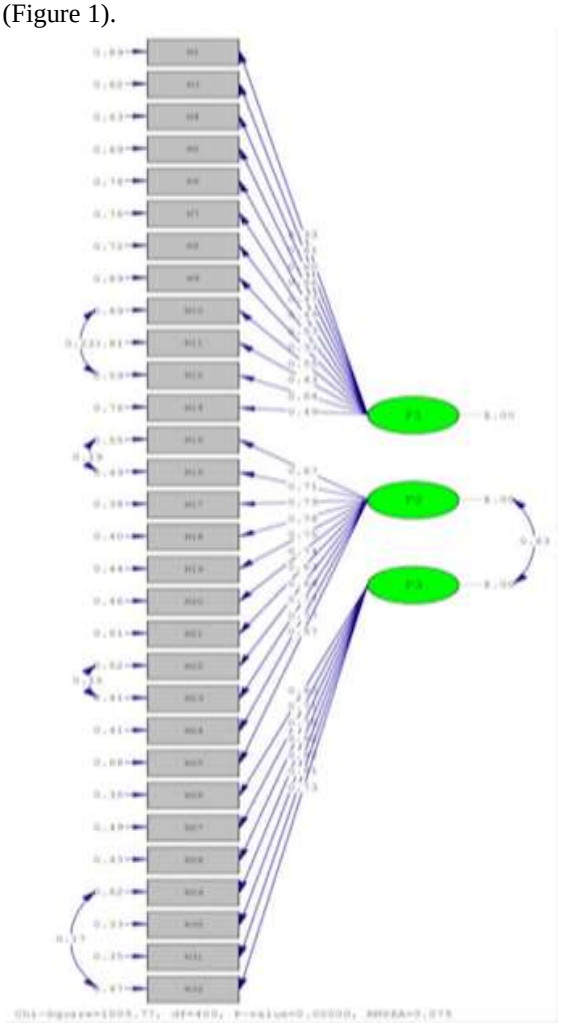

Figure 1. N-GAMS model

Criteria Related Validity: Correlation analyses were performed to assess criteria-related validity. Gender sensitivity was positively correlated with perspective taking subscale (r=0.124 p=0.042), compassionate care subscale (r=0.270 p<0.001), and the total score of the JSPE (r=0.206 p=0.001); in addition to the benevolent sexism subscale (r=0.148 p=0.015). Gender role ideology toward patients subscale scores were related to compassionate care (r=-0.277 p<0.001) and the total score of the JSPE (r=-0.159 p=0.009), together with hostile sexism (r=0.638 p<0.001) and benevolent sexism scores (r=0.545 p<0.001). Gender role ideology toward doctors subscale was correlated with the compassionate care subscale (r=-0.287 p<0.001), the standing in the patient's shoes subscale (r=-0.168 p=0.006), and the total score of the JSPE (r=-0.143 p=0.018). In addition, Gender role ideology toward doctors subscale was related to hostile sexism (r=0.618 p<0.001) and benevolent sexism (r=0.573 p<0.001). See Table 5 for an overview.

Table 5. Correlation analysis of scale scores (*:p<0.05, **:p<0.001)

	Gender sensitivity	Gender role ideology- patients	Gender role ideology-doctors
JSPE- Perspective taking	0.124*	-0.034	0.033
JSPE- Compassionate care	0.270**	-0.277**	-0.287**
JSPE- Standing in the patient's shoes	0.003	-0.071	-0.168**
JSPE- Total score	0.206**	-0.159**	-0.143**
Hostile sexism	0.097	0.638**	0.618**
Benevolent sexism	0.148*	0.545**	0.573**

Female and male medical students were compared regarding the N-GAMS subscale scores. Gender sensitivity scores did not differ between females and males (36.29 vs. 38.05, t=1.656, p=0.099). Females had lower gender role ideology toward patients subscale scores (19.41 vs. 23.75, t=3.920, p<0.001) and lower gender role ideology toward doctors subscale scores than males (11.44 vs. 13.36, t=2.669, p=0.008).

Age and grade in medical school were not correlated with any subscale scores of N-GAMS (p>0.05 each). The number of siblings was associated with gender role ideology toward patients subscale scores (r=0.196, p=0.001) and gender role ideology toward doctors subscale scores (r=0.182, p=0.003). Monthly income was not correlated with N-GAMS subscale scores (each p>0.05).

One-way ANOVA demonstrated that inhabitancy in city centers, county towns, or villages, the educational degree of the mother, and the educational degree of the father were not associated with N-GAMS subscale scores (each p>0.05). The independent sample's t-test showed that family type (nuclear family or extended family) was not related to N-GAMS subscale scores (p>0.05). N-GAMS scores did not differ if the student's family had a migration history (p>0.05). Those with employed mothers had lower scores in gender role ideology toward patients subscale (19.89 vs. 22.19, t=-2.063, p=0.040). Students whose fathers were employed had lower gender role ideology toward patients subscale scores than those with unemployed fathers (20.59 vs. 24.07, t=-2.349, p=0.022).

DISCUSSION

The present study adapted the N-GAMS scale in Turkish and assessed criteria-related validity. According to the results, the Turkish version of N-GAMS is valid and reliable.

Reliability: According to reliability findings, we excluded two items from the scale since the two had low item-total correlations. Thus, the Turkish form of N-GAMS consisted of 30 items. The subscales of Turkish form exhibited good internal consistency. In other words, the Turkish form of N-GAMS is a reliable tool for assessing gender awareness of medical students.

Confirmatory Factor Analysis: To investigate the underlying factorial structure of the scale, we performed a confirmatory factor analysis. As Verdonk and colleagues examined the construct validity with an exploratory factor analysis, we addressed this limitation and carried out an alternative underlying factorial structural model with CFA (15). Moreover, the Turkish version of this scale conducted by Akşehirli Seyfeli and colleagues' study also has some methodological limitations, including using a small sample size, carrying out EFA and CFA with the same sample, and limited adjustment of the model fit index (21). Verdonk and colleagues found that gender sensitivity and gender role ideology subscales were not correlated, whereas gender role ideology toward patients and doctors were positively associated with each other (15). Thus, we thought there might be a possible underlying factorial structure, and these two have been separate constructs. According to these findings, we performed a set of CFA models; 1) the scale has a unique factor structure, 2) the scale has a three-factor structure with each factor being correlated with the other, and 3) the scale has a three-factor structure with a separate factor for gender sensitivity, as well as two factors for gender role ideology towards doctors and patients, which are correlated with each other. Lastly, we have performed a final model with 4 correlated pairs of residuals. As a result of alternative model tests, the forth (final) model exhibited the best adjustment

following the model fit index. This is in line with the Portuguese adaptation of N-GAMS (14).

Criteria-Related Validity Analysis: Physician Empathy: Criteria-related validity analysis showed some dimensions of empathy were related to gender awareness. Compassionate care subscale scores were related to all three N-GAMS subscales. Gender sensitivity was associated with higher compassionate care subscale scores. Gender role ideology toward patients and doctors subscale scores were negatively associated with compassionate care scores. These results align with previous research (14, 29). The compassionate care dimension of empathy may be a protective factor against sexist attitudes. Thus, it may be an intervention target in healthcare education.

Perspective Taking was the other subscale of the empathy scale related to gender sensitivity. In the present study, gender sensitivity was related to higher scores in Perspective Taking. Correspondingly, in several studies, the perspective taking dimension of physician empathy was correlated positively with gender sensitivity (14, 29). We found no relation between perspective taking and gender role ideology toward patients and doctors. However, perspective taking was negatively correlated with gender role ideology subscales in the study of Morais and colleagues (14). Gattino and colleagues showed a negative correlation between perspective taking and gender role ideology toward patients (29). The difference between our study and others may be related to cultural discrepancies between countries. According to Global Gender Gap Report, Turkey ranks 124th out of 146 countries, while Portugal is 29th and Italy is 63rd (30). More common gender stereotypes may overcome the effects of perspective-taking.

Standing in the patient's shoes subscale of empathy was related to a less stereotypical approach to doctors in our study. Morais and colleagues did not calculate this subscale (14). In the study of Gattino and colleagues, standing in the patient's shoes scores were negatively related to gender role ideology toward patients and doctors scores; following the present research (29).

Ambivalent Sexism: Another result from criteria-related validity was that ambivalent sexism subscale scores correlated with gender awareness scores. Benevolent sexism was positively related to gender sensitivity and negatively associated with gender role ideology toward patients and doctors subscales. Previous studies found that benevolent sexism was correlated with gender role ideology toward patients and doctors; however, there was no relationship between gender sensitivity and benevolent sexism (14, 29).

Hostile sexism was related to higher scores of gender role ideology toward patients and doctors subscales. Morais and colleagues found similar results (14). On the other hand, Gattino and colleagues had an additional outcome; they discovered that hostile sexism correlated with gender sensitivity (29). In addition, Bert and colleagues found that increasing knowledge of gender medicine and having a sex-gender-sensitive supervisor are related to higher endorsement of gender stereotypes regarding patients and doctors (20). We know that gender sensitivity and gender role ideology are diverse dimensions of gender awareness. Gender sensitivity and hostile sexism may have an inverse parabolic relationship. High hostile sexism may result in both low and high gender sensitivity. One with a sexist attitude may value gender differences more than they should. An egalitarian healthcare worker may underestimate the differences between genders.

Medical Education Level: Grade in medical faculty did not correlate with any subscale of the N-GAMS. Diversely, Morais and colleagues found a weak but significant correlation between years of medical education and gender awareness, showing gender awareness rises after medical education (14). A study from Turkey reflected the need for gender awareness in medical faculties: 77.8% of the 6th-grade medical students found internal medicine as the most suitable specialty for female doctors (31). Altınöz and colleagues indicated that there are no differences in terms of attitudes toward gender roles between 1st-grade and 6th-grade medical students in the same faculty (32). A similar need of medical students for training on gender was identified in the study of Andersson and colleagues (33). Gender, hence gender bias, is embedded in culture and tradition. While growing up, the members of society absorb the gender stereotypes they observe. Gender stereotypes are presented in television, cinema, song lyrics, showcases, and everywhere. Medical students come to the medical faculty with this luggage. Thus medical faculties should include training against gender bias. Being a physician comes with great responsibility. Treating patients differently without a scientific reason is not acceptable. Gender bias harms healthcare, it should be extinguished.

Sex Differences: In the present study, female and male students were not different regarding gender sensitivity. But females had lower scores of gender role ideology toward patients and doctors. Particular research demonstrated similar results (14, 15). On the contrary, a study with Italian medical students found that females had higher gender sensitivity, and gender role ideology toward doctors scores were not different between sexes (20). But still, male medical students had higher scores of gender role ideology toward doctors (20). In a Swiss sample, female and male medical students were not different regarding gender sensitivity and gender role ideology toward doctors; however, males had higher scores of gender role ideology toward patients (16). A comparative study of Dutch and Swedish first-year medical students revealed that male medical

students endorsed a more stereotypical attitude toward patients than their female counterparts (18). Eventually, one may conclude that female medical students have an advantage regarding gender awareness, and sometimes they are equalized with males. Female medical students may face difficulties being young women; thus, they may be more aware of gender in general. Male medical students should be a prioritized target for gender-focused training.

Number of Siblings: The number of siblings of the medical student was associated with gender role ideology toward patients and doctors subscale scores. Patriarchal culture is known to incite having children. This relationship may depend on being raised in a sexist environment and internalizing sexist attitudes.

Comparision of N-GAMS Scores of Medical Students Between Countries: Comparing gender awanereness scores of Turkish medical students and medical students from other countries; we observed some discrepancies: the medical students in our sample had lesser gender sensitivity than other studies (14-16, 18, 20). Gender role ideology scores of Turkish medical students were similar to their counterparts from other countries. We may conclude that Turkish medical students need training on gender sensitivity.

Limitations and Strengths: The present study had several limitations. First, the study suffered from significant attrition. It could reach 16.7% of the targeted population. Second, the present study is cross-sectional, thus unable to present causality.

The strengths of the present study are performing criteria-related validity and examining the underlying factor structure of the N-GAMS.

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