Evaluation of gender awareness among medical students in İstanbul

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Abstract

Our study aimed to evaluate the gender awareness in medicine of students in a medical school in Istanbul. The population of this descriptive study consists of 1523 medical students studying at a state university in Istanbul in the 2020-2021 academic year. The study took place between February and March of 2021. The study was conducted with 484 participants. The data were collected using a questionnaire for sociodemographic features and the Nijmegen Gender Awareness in Medicine Scale (N-GAMS) filled out by the participants. Statistically, p<0.05 was considered as the level of significance. Ethics committee approval was obtained from the relevant institution before the study.Most of the participants were female (n=319, 65.9%) and the participants' mean age was 21.8±2.1 years. Multivariate tests showed differences in gender role ideology towards patients and doctors according to the gender of the participants and the working situation of their mothers. Also, significant sex-related differences were found in gender sensitivity. As compared to others, male students or those whose mothers were unemployed held slightly more gender stereotypes towards patients and doctors.As shown in our results, the participants were stereotyped in gender role ideology and suboptimal gender sensitivity. Gender stereotypes can be prevented through gender-sensitive medical education. More studies, particularly qualitative studies, are needed on this subject to examine the students' gender awareness in medicine and perception levels related to their sociodemographic characteristics in more detail and to determine the measures that can be taken to solve the problem.

Keywords: gender awareness, gender sensibility, medical students, gender bias

1. Introduction

Biological sex explains the origin of men and women's different behaviors, with their biological characteristics determined by different chromosomes, reproductive organs, and hormones (1). The concept of gender refers to the socially and culturally constructed differences between women and men. Gender and role behaviors are learned and reinforced according to the cultural norms and values of the society. Thus, different social responsibilities are attributed to men and women in society (2). Gender awareness in medicine means that physicians have the knowledge and skills to recognize gender as a primary determinant of health and disease and to include it in their daily practice (3). Therefore, gender awareness targets better health conditions for men and women. Gender bias is widespread in medicine and healthcare and is one of the main drivers of health-related inequalities. Lack of gender awareness among physicians can lead to two fundamentally different gender biases. The first is the gender stereotype, the difference in the treatment applied without clinical justification by considering the gender difference between the patients (4-9). As an example of a common stereotype, physicians are more likely to interpret the symptoms of male patients organically and the symptoms of female patients psychosocially, and female patients are considered for less referral or further investigation than men with similar symptoms, and this raises questions about unequal care (10-13). The second gender bias, called gender blindness, is doctors' clinical failure to recognize or overlook differences between men and women. Male participants are predominantly represented in the treatment studies of many diseases, especially in the treatment studies of cardiovascular diseases, and the data obtained, and the treatment methods are also applied to women (14). It is necessary to know the approach and point of view of medical students toward this frequently encountered attitude. Studies point to the need for gender perspectives in medical education to determine the most accurate healthcare services for both men and women and to increase gender awareness among future doctors. For this purpose, raising gender awareness among medical students before graduation will not only break gender biases, but will also provide patient care above standards (3,8,15).

Our study aimed to evaluate the gender awareness in medicine among medical students in Istanbul using a valid and reliable scale in Turkish. At the end of our study, we aim to increase gender awareness in medicine in medical students, who are future doctors, and to provide suggestions in order to gain an objective perspective in the process of the development of medical doctor identity.

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2. Materials and Methods

2.1. Study population

This descriptive study was carried out at a public university in Anatolian side in Istanbul province in Turkey. The study took place between January and February of 2021. The total population of our study consisted of 1523 medical students. The sampling calculation was made by accepting alpha error level 5%, sample power 80% and design effect 1.5. It was aimed to reach minimum 461 people. Each class was accepted as a cluster and it was planned to take participants from each cluster according to the number of students (proportional to the population). The sampling was made using the haphazard sampling method (which can be considered as one of the limitations of our study). In total, 71 students from 1st-grade students, 75 students from 2nd-grade students, 96 students from 3rd-grade students, 55 students from 4th-grade students, 100 students from 5th-grade students, and 87 from 6th-grade students were reached. A total of 484 students participated in our study. Inclusion criteria were medical students who study at the concerned public university and individuals who gave informed consent.

2.2. Measures

Research data were collected using a questionnaire created to determine the participants' sociodemographic characteristics and "Nijmegen Gender Awareness in Medicine Scale (N-GAMS)" that assesses the gender awareness of the participants.

N-GAMS has been developed and validated at Radboud University in the Netherlands, by Verdonk et al, 2007 (3). The Turkish validity and reliability study of the scale was conducted by Akşehirli et al. at Erciyes University in 2019 (16). The Turkish version of the "Nijmegen gender awareness in medicine scale" was gathered into three factors, as in the original scale. These three subscales contain statements that students have to assess using a 5-point Likert scale (ranging from 1 "not agree at all" to 5 "totally agree"). Some statements have reverse meaning; therefore, an adjustment of reverse scoring statements was made.

The gender sensitivity (GS) subscale has eight statements, which explore the students' general opinion of gender and sex in healthcare (e.g."Because male and female are not the same, physicians must treat everyone differently"). The gender role ideology, which is assessed towards patients (GRIP) score, includes eight statements that specifically relate to stereotypes about male or female patients and their communication regarding health problems (e.g."Female patients complain more about their health because they need more attention than male patients"). The Gender role ideology toward doctors (GRID) score, has ten statements, which explore students' stereotypes towards doctors and their practice (e.g."Male physicians are more hasty in their examinations than female physicians."). A higher score in the GS statements means a higher gender sensibility. On the GRIP and GRID scales, high score implies more gender-stereotyping opinions.

The variables examined as sociodemographic variables in the research were gender, age, class, family type, perceived income level, , education status of the parents, and working status of the parents. The gender bias of the participants, which is the dependent variable of the study, was evaluated using the N-GAMS scale.

2.3. Statistical analysis

Descriptive data in the study were presented with means, standard deviation values and frequency tables. The percentages and frequency distributions of the answers given to each question were calculated. For the statistical analysis of the data, the Mann-Whitney U test and Kruskal Wallis variance analysis were used to compare continuous variables that did not fit the normal distribution. Visual (histogram) and analytical (Kolmogorov-Smirnov) methods were used to assess the suitability of variables to a normal distribution. The relationship of variables with significant correlation in univariate analyzes with subscales of N-GAMS (GS, GRID, GRIP) was evaluated with multivariate analysis since the outcome variables are interval variables, and a multivariate linear regression model was used for this. In this study, $p < 0.05$ was considered as statistically significant.

3. Results

A total of 484 participants were included in the study. The sociodemographic characteristics of the participants are presented in Table 1. Most of the participants were female (65.9%) and the participants' mean age was 21.8±2.1 years. Also, 90.7% of the participants had an elementary family, and more than half of the participants (59.5%) reported their income level as moderate income. As for their mothers' and fathers' educational status, 52.3% of the participants' mothers and 66.9 % of the participants' fathers were faculty/college graduates or had a Master's degree or Ph.D. While 45.7% of the participants' mothers were unemployed, the proportion of those whose fathers were unemployed was only 4.3%.

In Table 2, the scores of the participants in the GS subscale are compared according to their sociodemographic characteristics. Males (Median: 23.0, IQR: 8.0) compared to females (Median: 21.0, IQR: 9.0); those with high income (Median: 23.0, IQR: 8.0) compared to those with moderate income (Median: 21.0, IQR: 8.0) or low income (Median: 21.0, IQR: 12.0); and also the participants whose fathers were faculty/college graduates (Median: 22.0, IQR: 9.0) or had a Master's degree or Ph.D (Median: 22.0, IQR: 7.0) compared to those whose fathers were primary school graduates or lower (Median: 20.0, IQR: 8.0); were found to have statistically significantly higher gender sensitivities($p < 0.05$). (There was no statistically significant difference between the participants those with moderate income or low income and the participants whose fathers were faculty/college graduates or had a Master's degree or Ph.D)

As far as the scores participants got from the GS subscale were compared no statistically significant differences were

detected within the class, family type, education status of the mother, working status of the mother, and working status of the father (p>0.0.5).

Table 1. Sociodemographic characteristics of the participants

Variables		n	%
Gender	Female	319	65.9
	Male	165	34.1
Class	1st-grade	71	14.7
	2nd-grade	75	15.5
	3rd-grade	96	19.8
	4th-grade	55	11.3
	5th-grade	100	20.7
	6th-grade	87	18.0
Family type	Elementary family	439	90.7
	Extended family	45	9.3
Perceived income level	High income	176	36.4
	Moderate income	288	59.5
	Low income	20	4.1
Educational Status of mother	Primary School or below	136	28.1
	High School or Equivalent	95	19.6
	Faculty/College	208	43.0
	Master's/PhD	45	9.3
Educational Status of father	Primary School or below	66	13.6
	High School or Equivalent	94	19.4
	Faculty/College	262	54.2
	Master's/PhD	62	12.8
Working status of mother	Unemployed	221	45.7
	Self employed	33	6.8
	Public sector	118	24.4
	Private sector	36	7.4
	Retired	76	15.7
Working status of father	Unemployed	21	4.3
	Self employed	94	19.4
	Public sector	136	28.1
	Private sector	99	20.5
	Retired	134	27.7
Total		484	100.0

Participants' mean score on the GRIP scale (19.21±7.07) was higher than their score on the GRID scale (17.03±6.25). The gender role ideology, towards patients (GRIP) score of participants were compared according to their sociodemographic characteristics in Table 3. Males (Median: 22.0, IQR: 11.0) compared to females (Median: 18.0, IQR: 11.0); those with low income (Median: 24.0, IQR: 9.0) compared to those with high income (Median: 18.0, IQR: 11.0) or moderate income (Median 19.0, IQR: 12.0); those whose mothers were primary school graduates or less (Median: 22.5, IQR: 10.0) compared to those whose mothers were university graduates (Median: 17.0, IQR: 11.0), and also those whose mothers were unemployed (Median: 21.0, IQR: 11.0) compared to those whose mothers were retired (Median: 16.5, IQR: 12.0) or public sector employees (Median: 17.0, IQR: 10) were found to display statistically significant differences (p<0.0.5). (There was no statistically significant difference between the participants those with high income or moderate income and the participants whose mothers were high school/equivalent or faculty/college graduates or had a

Master's degree or Ph.D and also those whose mothers were retired or private or public sector employees)

Table 2. The gender sensitivity (GS) scores of participants

Variables		Median	IQR	p
Gender	Female	21.0	9.0	**p=0.01***
	Male	23.0	8.0	
Class	Preclinic	22.0	8.0	p=0.81*
	Clinic	22.0	9.0	
Family type	Elementary family	22.0	8.0	p=0.09*
	Extended family	20.0	10.0	
Perceived income level	High income	23.0	8.0	**p=0.04****
	Moderate income	21.0	8.0	
	Low income	21.0	12.0	
Educational Status of mother	Primary School or below	21.0	10.0	p=0.24**
	High School or Equivalent	22.0	8.0	
	Faculty/College	22.0	7.0	
	Master's/PhD	22.0	11.0	
Educational Status of father	Primary School or below	20.0	8.0	**p=0.03****
	High School or Equivalent	21.0	7.0	
	Faculty/College	22.0	9.0	
	Master's/PhD	22.0	7.0	
Working status of mother	Unemployed	21.0	8.0	p=0.35**
	Self employed	22.0	10.0	
	Public sector	22.0	7.0	
	Private sector	20.5	11.0	
	Retired	22.0	8.0	
Working status of father	Unemployed	21.0	9.0	p=0.12**
	Self employed	22.0	9.0	
	Public sector	22.0	9.0	
	Private sector	22.0	9.0	
	Retired	21.5	9.0	

*Mann-Whitney U test **Kruskal-Wallis test

There was no statistically significant difference between the class, family type, the region where they lived for the longest time, education status of the father and working status of the father and the scores they got from the GRIP subscale (p>0.05). (Table 3)

The Gender role ideology toward doctors (GRID) score of participants were compared according to their sociodemographic characteristics are examined in Table 4. Males (Median: 17.0, IQR: 12.0) compared to females (Median: 15.0, IQR: 9.0); those whose mothers had primary education or less (Median: 17.0, IQR: 11.0) compared to

others; those whose mothers were unemployed (Median: 17.0, IQR: 11.0) compared to those whose mothers were public sector employees (Median: 15.0, IQR: 8.0) or retired (Median: 13.5, IQR: 8.0) revealed that they had statistically significantly more stereotypic perspective towards doctors and their practices in the gender role ideology evaluated for doctors (p<0.0.5). (There was no statistically significant difference between the participants whose mothers were high school/equivalent or faculty/college graduates or had a Master's/ Ph.D degree and also those whose mothers were retired or private or public sector employees)

Table 3. The gender role ideology, which is assessed towards patients (GRIP) score of participants

Variables		Median	IQR	p
Gender	Female	18.0	11.0	**p<0.001***
	Male	22.0	11.0	
Class	Preclinic	18.0	11.0	p=0.20*
	Clinic	20.0	12.0	
Family type	Elementary family	19.0	11.0	p=0.28*
	Extended family	21.0	9.0	
Perceived income level	High income	18.0	11.0	**p=0.01****
	Moderate income	19.0	12.0	
	Low income	24.0	9.0	
Educational Status of mother	Primary School or below	22.5	10.0	**p<0.001****
	High School or Equivalent	18.0	11.0	
	Faculty/College	17.0	11.0	
	Master's/PhD	19.0	11.0	
Educational status of father	Primary School or below	20.0	12.0	p=0.47**
	High School or Equivalent	20.0	12.0	
	Faculty/College	18.5	11.0	
	Master's/PhD	18.5	10.0	
Working status of mother	Unemployed	21.0	11.0	**p<0.001****
	Self employed	20.0	10.0	
	Public sector	17.0	10.0	
	Private sector	18.5	13.0	
	Retired	16.5	12.0	
Working status of father	Unemployed	23.0	13.0	p=0.26**
	Self employed	18.0	12.0	
	Public sector	18.5	11.0	
	Private sector	20.0	12.0	
	Retired	19.0	11.0	

*Mann-Whitney U test **Kruskal-Wallis test

There was no statistically significant difference detected between the class, family type, perceived income level, , education status of the father, and working status of the father as far as scores they got from the GRID subscale were compared in Table 4 (p>0.05).

Table 4. The Gender role ideology toward doctors (GRID) score of participants

Variables		Median	IQR	p
Gender	Female	15.0	9.0	**p=0.007***
	Male	17.0	12.0	
Class	Preclinic	16.0	9.0	p=0.35*
	Clinic	15.5	10.0	
Family type	Elementary family	16.0	10.0	p=0.23*
	Extended family	17.0	10.0	
Perceived income level	High income	16.0	9.0	p=0.15**
	Moderate income	16.0	10.0	
	Low income	20.0	8.0	
Educational Status of mother	Primary School or below	17.0	11.0	**p=0.02****
	High School or Equivalent	15.0	10.0	
	Faculty/College	15.5	9.0	
	Master's/PhD	15.0	10.0	
Educational status of father	Primary School or below	16.0	11.0	p=0.34**
	High School or Equivalent	17.0	11.0	
	Faculty/College	16.0	9.0	
	Master's/PhD	15.0	9.0	
Working status of mother	Unemployed	17.0	11.0	**p=0.006****
	Self employed	16.0	7.0	
	Public sector	15.0	8.0	
	Private sector	14.5	9.0	
	Retired	13.5	8.0	
Working status of father	Unemployed	18.0	9.0	p=0.62**
	Self employed	15.5	10.0	
	Public sector	16.0	10.0	
	Private sector	16.0	7.0	
	Retired	15.0	10.0	

*Mann-Whitney U test **Kruskal-Wallis test

Multivariate tests showed differences in gender role ideology towards patients and doctors according to the gender of the participants and the working status of their mothers. Also, significant sex-related differences were found in gender sensitivity as well (B=1.540; p= 0.007). As compared to others, male students (B=2.252; p=0.001) or those whose mothers were unemployed (B= -1.439; p=0.034) held slightly more

gender stereotypes towards patients. As compared to others, male students (B=1.918; p=0.001) or those whose mothers were unemployed (B=1.975; p=0.002) held slightly more gender stereotypes towards doctors (Table 5).

Table 5. Multivariate linear regression results of N-GAMS subscales

GS	B	Sd.	Beta	t	p
Constant	19.262	0.939		20.521	<0.001
Gender(reference category: male)	.0	4	23	3	7
Perceived income level (reference category: high income)	1.048	0.568	0.085	1.844	0.066
Educational status of father (reference category: primary school or below)	1.077	0.593	0.085	1.818	0.070
Family type (reference category: elementary family)	1.026	0.940	0.059	1.283	0.200

R²=0.027, F=4.414, p=0.002

GRIP	B	Sd.	Beta	t	p
Constant	17.547	0.531		33.073	<0.001
Gender (reference category: male)	2.252	0.654	0.151	3.444	**0.001**
Perceived income(reference category: low income)	2.521	1.598	0.071	1.578	0.115
Educational status of mother (reference category: primary school or below)	1.409	0.796	0.090	1.770	0.077
Working status of mother (reference category: unemployed)	1.820	0.711	0.128	2.559	**0.011**

R²=0.074, F=8.666, p<0.001

GRID	B	Sd.	Beta	t	p
Constant	15.176	0.426		35.664	<0.001
Gender (reference category: male)	1.918	0.583	0.145	3.291	**0.001**
Educational status of mother (reference category: primary school or below)	0.855	0.709	0.061	1.206	0.228
Working status of mother (reference category: unemployed)	1.975	0.633	0.157	3.120	**0.002**
Perceived income (reference category: low income)	1.383	1.424	0.044	0.971	0.332

R²=0.058, F=8.419, p<0.001

4. Discussion

A total of 484 participants were included in the study. Most of the participants were female (65.9%) and the participants' mean age was 21.8±2.1 years. According to results of our research; male students, those with high income and also the participants whose fathers were faculty/college graduates or had a Master's degree or Ph.D. were found to have statistically significantly higher gender sensitivities. As compared to others, males, those with low income, those whose mothers were primary school graduates or less, and also those whose mothers were unemployed held slightly more gender stereotypes towards patients or doctors.

As in other similar studies on this subject, in our research, the difference between female and male participation rates is striking. We think that this difference is due to female participants having more interest and curiosity in the research subject than male participants. We estimate that the females participated at a higher rate because they are more exposed to the adverse effects of low gender awareness in society.

Our study found statistically significant differences that males have a more gender-stereotypical perspective than females in the N-GAMS GRIP and GRID subscales. Similarly, in the studies conducted by Rrustemi et al. (17) and Andersson et al. (18), it was observed that male had a more stereotypical perspective in the GRIP subscale. Similar results have been found in other studies comparing stereotyped attitudes based on gender in male and female (19, 20). Previous research has shown that male students are less knowledgeable about gender issues and, at the same time, more skeptical than female students about applying gender issues in education (21, 22). The reason why male are more accepting of gender stereotypes may be that such stereotypes are generally more positive towards male (20).

In the studies conducted by Rrustemi et al. (17) and Andersson et al. (18), it was found that gender sensitivity increases with age, and gender stereotypes perspectives in the GRIP and GRID subscales decrease with age. Similarly, in the study conducted by Morais et al.(23), it was found that there was a negative correlation between the class and gender sensitivity, and a positive correlation between the class and gender role ideology towards patients and towards doctors. However, in our study, no significant difference was found between the gender sensitivity and stereotypes with students' grade level.

In the study conducted by Andersson et al., it was observed that the participants whose mothers had a medium-high education level were more opposed to the stereotypical perspective (18). Similarly, in a study Aylaz et al. conducted to determine university students' views on gender role, it was determined that high education level of the mother decreased students' gender role discrimination (24). However, in this study, no significant relationship was found between father education and attitude towards gender roles. Also, Pınar et al.

reported that in the group with the most stereotypical perspective, there were those with a low maternal education level (25). In our study, in line with the literature, it was found that the education levels of the mothers are essential in terms of gender attitudes and that the participants whose mothers have a lower education level have a more gender-stereotypical perspective in the GRIP and GRID subscales. In addition, contrary to the study of Ayaz et al., in our study, it was found that the participants whose fathers had a university or higher education level are more gender sensitive (24).

Our study found that the students whose mothers are unemployed have a more stereotypical perspective than the others. Similarly, in the study that Ongen conducted with university students using the "Gender Roles Attitude Scale", it was determined that students whose mothers were working adopted egalitarian roles regarding gender roles (26). Pınar et al.(25), in a study they conducted to determine gender attitudes in a university student dormitory, found that the mother's working status had a positive effect on students' gender awareness. We see mainly that the mothers' working status affects students' attitude towards gender roles. The reason for this may be the difference in the roles of the mother and father in the child's upbringing process in our society. We can say that the mothers have a more significant share in the child's upbringing and the establishment of social values and norms. In our study, we see that the fathers' educational status and working status are less effective than the education and employment status of the mothers.

According to our findings, those with a high income are more gender sensitive and have a more stereotypical perspective on the gender role ideology assessed toward patients than those with a middle or low income. Similarly, in the study of Varol et al., it was found that students with moderate or low income have a more stereotypical perspective (15). In the study of Pınar et al., it was stated that the group with low-income level was the group with the most stereotypical perspective (25).

Although social concepts about males and females were the basis of attitudes towards both patients and doctors, we found that students' gender stereotypes towards patients were more pronounced than stereotypes towards doctors, similar to the study of Andersson et al. (18).

Gender awareness in medicine is a concept that can be improved by training and increasing general awareness, especially with the training given to future medical students and healthcare professionals on this subject. It is necessary to increase gender awareness in medicine among future doctors and ensure equal opportunities for each individual. The inclusion of gender roles and gender equality training in the medical school curriculum is necessary to enable the mechanisms for inequality to be examined in detail, train more sensitive doctors, and give students a more egalitarian perspective. Eliminating the differences in students' gender

equality perception level and raising students' gender equality perception can increase the number of gender-sensitive physicians and make a significant contribution to improving the quality of healthcare services received by individuals. We suggest that gender issues should be included in medical education to focus on gender attitudes. The goal of education about gender is to make students interested and aware of the significance of gender in medical work. Previous studies suggests that students become more positive and engaged as they learn more and become accustomed to gender debates (21, 22).

Events such as symposiums and conferences can also be organized to raise gender awareness. If such stereotypical thoughts are not shared and discussed, students will not be able to see their own attitudes and have less chance to discuss them, and consequently, the impact of education will be less.

If we look at the limitations of our study, first of all, the N-GAMS questionnaire has some difficulties. The scale is based on formulated negative stereotypes to which participants are asked to react. The use of negative stereotypes may have induced a social desirability response bias. Furthermore, having done it in a limited medical school student population may not reflect all medical school students. Also, females participated in our study at a higher rate than males and male students were underrepresented. We think that this difference can be due to the female participants being more interested in and curious about the research subject than the male participants. This situation may have caused the average scores of the scales to be more biased. Thus, we cannot exclude a selection bias. While the N-GAMS scale can be used to compare many students, qualitative researches can give greater depth and further explain the social discourse and reasoning underlying students' results.

As shown in our results, the participants were stereotyped in gender role ideology and had suboptimal gender sensitivity. Gender stereotypes can be prevented through gender-sensitive medical education. More studies particularly qualitative studies are needed on this subject to examine the students' gender awareness, and perception levels related to their sociodemographic characteristics in more detail and to determine the measures that can be taken to solve the problem.

Authors' contributions
Concept: M.K.A., S.D., S.H., M.K. Design: M.K.A., S.D., S.H., M.K. Data Collection or Processing: M.K.A., C.D., I.C.,

D.E., I.K. Analysis or Interpretation: M.K.A., S.D., C.D., I.C., D.E., I.K. Literature Search: M.K.A., C.D., I.C., D.E., I.K. Writing: M.K.A., S.D., C.D., I.C., D.E., I.K.

Ethical Statement

Approval was obtained from Marmara University Ethics Committee, the study started. The ethics committee decision date is 05/02/2021 and the number of ethical committee decisions is 09.2021.160.

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