ORİJİNAL MAKALE / ORIGINAL ARTICLE
Balıkesir Sağlık Bilimleri Dergisi / BAUN Sağ Bil Derg
Balıkesir Health Sciences Journal / BAUN Health Sci J
ISSN: 2146-9601- e ISSN: 2147-2238
Doi: https://doi.org/10.53424/balikesirsbd.1209515

Prejudice Determination of Glass Ceiling Barriers in Academicians

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Geliş Tarihi / Received: *24.11.2022,* ***Kabul Tarihi / Accepted:*** *25.07.2023*

ABSTRACT
Aim: This study was planned to determine the perceptions of academicians working at universities in Turkey about artificial barriers that prevent women from rising to upper levels of management. **Materials and Methods:** This descriptive study was carried out by reaching 394 academicians who are actively working in the Academy and who agreed to participate in the study between February 16 and March 15, 2022, via online survey method. **Results:** While a difference was found between perceived glass ceiling barriers of academicians who participated in the study and their age, gender, marital status, status of having children, educational status and academic title ($p<0.05$); no difference was found between perceived glass ceiling barriers and income status, working years, number of boards academicians were in, the state of choosing the profession willingly and the state of being satisfied with the profession ($p>0.05$). Mean score of Glass Ceiling Barriers Scale for Academicians used in this study was found as 74.30±18.93 and it was found that academicians had moderate level of perceptions about artificial barriers preventing women from rising to upper levels of management.
Conclusion: The research clearly reveals the thoughts of both men and women on gender equality and provides guiding data for academics.
Keywords: Glass Ceiling, Academician, University, Women Executives, Gender Equity

Akademisyenlerde Cam Tavan Engellerinin Belirlenmesi

ÖZ
Amaç: Bu çalışma akademisyenlerin kadınların üst yönetim kademelerine gelmelerini engelleyen yapay engellere ilişkin algılarını belirlemek amacıyla yapılmıştır. **Gereç ve Yöntem:** Tanımlayıcı tipte olan bu çalışma 16 Şubat -15 Mart 2022 tarihleri arasında araştırmaya katılmaya kabul eden aktif olarak akademide çalışan 374 akademisyene çevrimiçi anket uygulama metoduyla ulaşılarak yürütülmüştür. Araştırmada veri toplama aracı olarak "Anket Formu" ve "Akademisyenler İçin Cam Tavan Engelleri Ölçeği" kullanılmıştır. **Bulgular:** Çalışmaya katılan akademisyenlerin yaşı, cinsiyeti, medeni durumu, çocuk varlığı, eğitim durumu ve akademik unvan ile cam tavan engelleri arasında bir fark bulunurken ($p<0.05$); gelir durumu, çalışma yılı, görevli olduğu kurul sayısı, mesleği isteyerek seçmek ve meslekten memnuniyet arasında bir fark bulunmamıştır ($p>0.05$). Bu araştırmada kullanılan Cam Tavan Engelleri ölçeğinin ortalaması 74.30±18.93 olarak saptanmış olup akademisyenlerin kadınların üst yönetim kademelerine gelmelerini engelleyen yapay engellere ilişkin algılarının orta seviyede olduğu belirlenmiştir. **Sonuç:** Araştırma hem erkeklerin hem de kadınların toplumsal cinsiyet eşitliği konusundaki düşüncelerini açıkça ortaya koymakta ve akademisyenler için yol gösterici veriler sunmaktadır.
Anahtar Kelimeler: Cam Tavan, Akademisyen, Üniversite, Kadın Yöneticiler, Cinsiyet Eşitliği

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Bu makaleye atıf yapmak için / Cite this article Aslan, S., & Yeşiltepe, A., & Öztürk, A. (2024). Determination of glass ceiling barriers in Academicians. *BAUN Health Sci J, 13*(1), 151-159. https://doi.org/10.53424/balikesirsbd.1209515

INTRODUCTION

With the industrial revolution, women entered the economic life outside home actively and they also began to work as paid workers in business life (Korkmaz, 2016). Although women have increased in number in business life, efforts have been made to keep women managers outside business life with visible and invisible barriers (Akdemir & Çalış Duman, 2017). For the first time in 1986, in an article published in Wall Street Journal, Hymowitz and Schellhard defined the term glass ceiling as the barriers women who wanted and strived to rise to top positions in state institutions, corporations and educational institutions or non-governmental organizations faced (Hymowitz & Schellhardt, 1986). "Glass ceiling" metaphor is used for the widespread observation that although women have entered almost all areas traditionally occupied mainly by men, they are almost non-existent or in symbolic numbers in prestigious elite leadership positions (Carnes et al., 2008). Glass ceiling is a metaphor of invisible and artificial barriers that prevent women and minorities from rising to management or managerial positions in corporations (Johns, 2013). In another definition, glass ceiling is defined as invisible and unbreakable barriers that prevent women who want to get promoted to higher positions in official workplaces, private sector, educational institutions, or other institutions from rising (Sezen, 2008).

Glass Ceiling Commission established in the United States in 1990s reported that there are various barriers preventing women and minorities from reaching top positions of management such as social, governmental, intercompany and commercial structural obstacles. Social barriers include prejudices and bias towards cultural, gender and colour-based differences (Johns, 2013). Factors that cause glass ceiling in businesses can be caused by individual, organizational and social factors. Examples of individual factors are roles women undertake as wife and mother and the difficulties they experience about time management. The existing organizational culture in the corporation, company policies and the difficulties women experience in participating in informal communication networks are examples of organizational factors (Mızrahi and Aracı, 2010). Some of the social factors are the existing gender inequality and gender-based prejudices in the society. McMahon et al. (2006) tried to document the thoughts of women on their careers over a period of ten years. They classified the barriers affecting women's careers as age, decisions on family-work balance, personality, gender bias, structure of department, organizational policy, and geographical location (McMahon et al.; 2006).

Women who are discriminated throughout all levels of their education and who graduate as eliminated from all levels are also exposed to difficulties and gender-based discrimination in the work force (Gök, 2014). This situation, which is encountered in many professional fields, is also valid for women in the field of Academy. Career development of women is not a simple issue, especially in the largely traditional higher education environment, but a complex process with a social context (Thomas, 2004). When the 2021 statistics of Higher Education Institution are examined, the rate of professors is 32.8% for women and 67.2% for men, the rate of associate professors is 40.2% for women and 59.8% for men, the rate of assistant professors is 45.2% for women and 54.8% for men, the rate of lecturers is 50.5% for women and 49.5% for men, and the rate of research assistants is 51.8% for women and 48.2% for men. This difference in the context of gender can also be seen in the rates of being in management and leadership positions. The number of female members in Higher Education Council (Council of Higher Education) in 2021 is only (4.8%), while the number of female rectors among 200 universities is only 16 (8.0%) (YÖK, 2021). When these statistics are evaluated, it can be seen that the rate of female academicians at most stages of academic staff is lower than the rate of male academicians and male dominance continues in top positions; therefore, women are faced with barriers in both promotions and in reaching top managerial positions. Considering the need for advancing women's leadership in higher education (Thomas 2004), it is thought that finding out the artificial barriers of academician women, who have a high level of education in the society, in reaching top positions by using a valid and reliable scale will contribute as a reference to literature. This study was planned to of academicians working at universities in Turkey about artificial barriers that prevent women from rising to upper levels of management.

Research Questions

- How is the academicians' level of the glass ceiling barriers?
- Is there a relationship between academicians' age, working years, glass ceiling barriers?
- Do academicians' glass ceiling barriers levels differ according to their sociodemographic variables?

MATERIALS AND METHODS

Design and sample

The data of this descriptive and cross-sectional study were collected between February 16 and March 15 by using online survey method. Random sampling selection was carried out in the study. In this study, using the OpenEpi program, the power of the work with a margin of error of 0.05 was calculated after data collection. According to OpenEpi programme; Sample for the study was determined as 383 with a 0.95 representative power of the population, at 95% confidence interval at 0.05 error level. 394 individuals participated in the study.

Data collection tools

Descriptive Information Form and Glass Ceiling Barriers Scale for Academicians were used in the study as data collection tools. These forms were turned into electronic survey form through Google forms.

Descriptive information form

The form created by the researchers as a result of reviewing literature consists of 11 questions. This form consists of descriptive questions (age, gender, marital status, monthly income level etc.) about academicians.

Glass ceiling barriers scale for academicians

The scale was developed, and its validity-reliability study was conducted by Yavuzer and Özkan (2020). The scale consists of 30 items and 6 factors. Possible scores that can be obtained from the overall scale are between 30 and 150, while the possible score from the factors is between 5 and 25 for multiple roles factor, between 7 and 35 for personal preference factor, between 3 and 15 for informal communication factor, between 4 and 20 for professional discrimination factor, between 3 and 15 for mentoring factor and between 8 and 40 for stereotyped prejudices factor. High scores from the overall scale and each factor show that perceptions regarding the artificial barriers preventing women from rising to top management positions are intense (Yavuzer & Özkan, 2020).

Data collection process

The data was collected online using by Google forms. The Academicians gave consent to participate in the study, they filled in the data collection tools online via Google forms.

Data analysis

Statistical analyses of the results obtained in the study were performed with SPSS for IBM 25 package program. Statistical methods (number, percentage, min-max values, mean and standard deviation) were used in the analysis of the data in survey form. Normality distribution of the data used was tested with Kolmogorov-Smirnov. Since the data were normally distributed, parametric tests t-test and One-Way ANOVA analysis were conducted. Bonferroni analysis was used to find out the difference in multiple comparisons. 95% confidence interval and $p<0.05$ error level was considered to assess the results obtained.

Ethical considerations

Required legal permissions were taken from Batman University Ethics Committee (2022/02-12). The participants were informed about the study in line with the Declaration of Helsinki and the participants approved the Volunteer Information Form. Permission was also taken to use the Glass Ceiling Barriers Scale for Academicians in the study.

RESULTS

Mean age of the academicians who participated in the study was 37.18±2.04, 48.3% were between the ages of 36 and 47, 63.1% were female, 36.9% were male, 66.7% were married and 56.8% had children. 52.0% of the participants in the study stated that their income was equal to their expense. When the educational status of the participants was examined, it was found that 74% had doctoral degree. It was found that 33.3% of the academicians were assistant professor doctors, they had a mean working years of 11.90±7.46, 27% had worked for 1–15 years on average, the mean number of boards the participants were assigned to was 2.23±2.15 while 21.5% of the participants were not assigned to any boards. The rate of academicians who chose their profession willingly was 89.6%, while the rate of those who were satisfied with their profession was 93.7% (Table 1).

Table 1. Demographic characteristics of the academicians.

Variables		n	(%)
Age (37.18±7.01)	24–35 years (a)	174	43.9
	36–47 years (b)	191	48.3
	≥48 years (c)	31	7.8
Gender	Female	250	63.1
	Male	146	36.9
Marital status	Married	264	66.7
	Single	132	33.3
The state of having children	Yes	225	56.8
	No	171	43.2
Educational status	Undergraduate (a)	6	1.5
	Master's (b)	97	24.5
	Doctorate (c)	293	74.0
Income status	Income<Expense	43	10.9
	Income=Expense	206	52.0
	Income>Expense	147	37.1

Table 1. Demographic characteristics of the academicians. (Continues)			
Variables		**n**	**(%)**
Academic title	Research assistant (a)	86	21.7
	Lecturer (b)	102	25.8
	Specialist (c)	4	1.0
	Assist. Prof. Dr. (d)	132	33.3
	Assoc. Prof. Dr. (e)	48	12.1
	Professor (f)	24	6.1
Working years (11.90±7.46)	0-5 years	84	21.2
	6-10	97	24.5
	11-15	107	27.0
	16-20	59	14.9
	21-25	25	6.3
	≥26	24	6.1
Number of boards (2.23±2.15)	None	85	21.5
	1	82	20.7
	2	78	19.7
	3	73	18.4
	4	30	7.6
	5	28	7.1
	6	8	2.0
	≥7	12	3.0
Choosing the profession willingly	Yes	355	89.6
	No	41	10.4
Satisfaction with the profession	Yes	371	93.7
	No	25	6.3
Total		396	100

Mean score of Glass Ceiling Barriers Scale used in this study was found as 74.30±18.93 and the mean score was found to be moderate. In terms of factors, mean scores were found as 13.55±5.04 for MR, as 14.99±5.45 for PP, as 9.57±3.03 IC, as 12.29±4.31 for PD, as 7.69±3.08 for M and as 16.19±6.70 for SP. Total Cronbach alpha value for Glass Ceiling Barriers Scale used in this study was found as 0.91 (Table 2).

Table 2. Descriptive statistics and mean scores of glass ceiling barriers scale and factors.

Scale/Factor	Number of items	Items	Min–Max.	X±SD	Cronbach Alpha
Glass Ceiling Barriers	**30 items**	**Items 1–30**	**30–150**	**74.30±18.93**	**0.91**
Multiple roles (MR)	5 items	Items 1–5	5–25	13.55±5.04	0.85
Personal preference (PP)	7 items	Item 6–12	7–35	14.99±5.45	0.88
Informal communication (IC)	3 items	Items 13–15	3–15	9.57±3.03	0.70
Professional discrimination (PD)	4 items	Items 16–19	4–20	12.29±4.31	0.87
Mentoring (M)	3 items	Items 20–22	3–15	7.69±3.08	0.85
Stereotyped prejudices (SP)	8 items	Items 23–30	8–40	16.19±6.70	0.89

According to Pearson correlation analysis results, a low positive correlation was found between glass ceiling barriers and age (r=0.163, p=0.001) and between glass ceiling barriers and working years (r=0.102, p=0.042) (Table 3). Distribution graph of the scores obtained from Glass Ceiling Barriers and the variable of age is shown in Graph 1 (women and men).

Table 3. Correlation results of glass ceiling barriers and age and working years

Correlation results of Glass Ceiling Barriers			
	1	**2**	**3**
1. Glass Ceiling Barriers	**1.000**	0.163*	0.102**
2. Age		**1.000**	0.822*
3. Working years			**1.000**

**p<0.05, *p<0.01

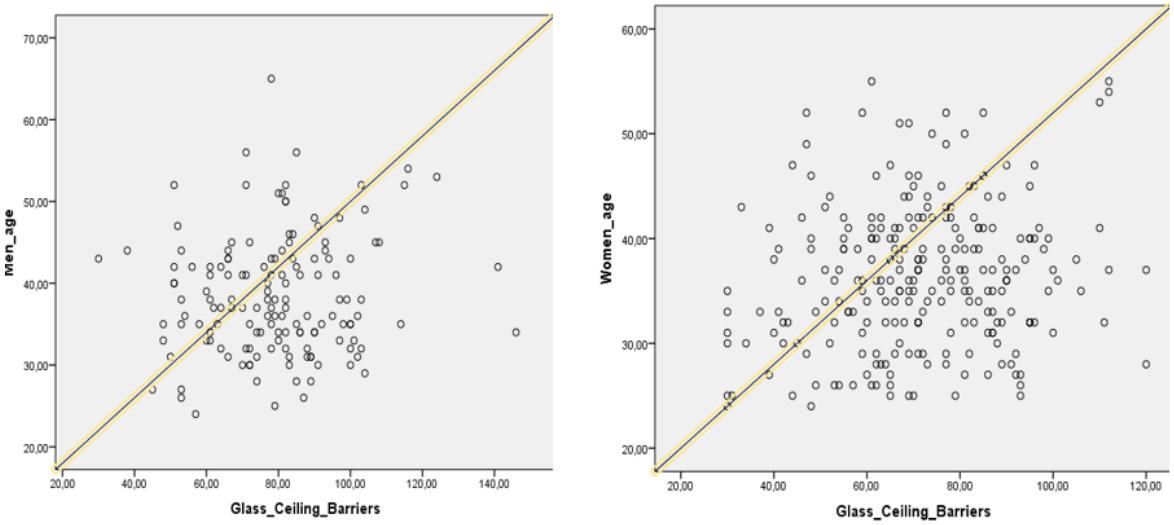

Figure 1. Distribution graph of the scores obtained from glass ceiling barriers and the variable of age (men and women).

While difference was found between academicians' glass ceiling barriers and age, gender, marital status, the state of having children, educational status and academic title (p<0.05); no difference was found between income status, working years, number of boards assigned to, the state of choosing the profession willingly and being satisfied with the profession (p>0.05) (Table 4).

Table 4. Comparison of glass ceiling barriers mean scores of academicians in the study according to their socio-demographic characteristics (n=396).

Variables		**n**	**(%)**	**X±SD**	**t/F**	**p**	**Bonferroni**
Age * (37.18±7.01)**	24-35 years (a)	174	43.9	72.47±20.04	4.594	***0.011**	3>1 3>2
	36-47 years (b)	191	48.3	74.47±17.16			
	≥48 years (c)	31	7.8	83.54±20.73			
Gender**	Female	250	63.1	71.36±18.48	0.122	***0.000**	–
	Male	146	36.9	79.34±18.70			
Marital status**	Married	264	66.7	76.12±19.29	0.758	***0.007**	–
	Single	132	33.3	70.67±17.71			
The state of having children**	Yes	225	56.8	76.62±18.78	0.000	***0.003**	–
	No	171	43.2	71.21±18.74			
Educational status***	Undergraduate (a)	6	1.5	79.66±22.05	4.758	**0.009**	c>b
	Master's (b)	97	24.5	69.26±16.80			
	Doctorate (c)	293	74.0	75.86±19.29			

Table 4. Comparison of glass ceiling barriers mean scores of academicians in the study according to their socio-demographic characteristics (n=396). (Continues)

Variables	n	(%)	X±SD	t/F	p	Bonferroni	
Income status* **	Income<Expense	43	10.9	76.93±19.71	0.517	0.597	–
	Income=Expense	206	52.0	73.70±18.58			
	Income>Expense	147	37.1	74.38±19.25			
Academic title* **	Research assistant (a)	86	21.7	69.41±19.34	2.756	***0.018**	f>a
	Lecturer (b)	102	25.8	73.68±18.42			
	Specialist (c)	4	1.0	85.50±14.05			
	Assist. Prof. Dr. (d)	132	33.3	74.83±18.35			
	Assoc. Prof. Dr. (e)	48	12.1	78.00±18.77			
	Professor (f)	24	6.1	82.33±20.21			
Working years* (11.90±7.46)**	0-5 years	84	21.2	70.52±20.45	2.104	0.064	–
	6-10	97	24.5	75.08±19.63			
	11-15	107	27.0	76.02±17.53			
	16-20	59	14.9	71.06±16.12			
	21-25	25	6.3	77.20±17.41			
	≥26	24	6.1	81.70±22.08			
Number of boards* (2.23±2.15)**	None	85	21.5	75.21±21.65	1.121	0.349	–
	1	82	20.7	73.19±19.63			
	2	78	19.7	71.58±17.17			
	3	73	18.4	77.98±15.98			
	4	30	7.6	74.43±18.08			
	5	28	7.1	71.21±18.17			
	6	8	2.0	69.00±31.20			
	≥7	12	3.0	81.25±12.97			
Choosing the profession willingly**	Yes	355	89.6	73.98±19.12	0.680	0.324	–
	No	41	10.4	77.07±17.14			
Satisfaction with the profession**	Yes	371	93.7	74.14±19.00	0.409	0.504	–
	No	25	6.3	77.76±17.98			
*p<0.05 **t test, ***F=One Way ANOVA							

According to Bonferroni analysis results, it can be seen that the group causing the difference between age categories is the group aged 48 years and older. According to the results, mean glass ceiling barriers scores of the participants aged 48 and older (83.54±20.73) are higher than those of the participants aged between 24 and 35 years (72.47±20.04) and those aged between 36 and 47 years (74.47±17.16). In terms of gender, mean glass ceiling barriers scores of male participants (79.34±18.70) were found to be higher than those of female participants (71.36±18.48); therefore, it was found that male participants had higher perceptions regarding the artificial barriers preventing women from rising to top managerial positions. It was also found that married participants (76.12±19.29) when compared with single participants (70.67±17.71) and participants who had children (76.62±18.78) when compared with those who did not (71.21±18.74) had higher mean glass ceiling barriers scores. In terms of educational status, higher mean glass ceiling barriers scores were found in doctorate graduates (75.86±19.29) when compared with master's graduates (69.26±16.80) and in professors (82.33±20.21) when compared with research assistants (69.41±19.34) (Table 4).

DISCUSSION

Due to inequalities in the workplace, women working as academicians are faced with many barriers that can result in "leakage" from the pipe line. Leaky pipeline results in loss of women before reaching top positions in STEM (science, technology, engineering and mathematics) and probably other areas (Goulden et al., 2011; Resmini, 2016; Howes et al., 2018).

Mean glass ceiling barriers scale score was found as 74.30±18.93 in the study and this result shows that academicians have moderate level of perception about artificial barriers preventing women to rise to top positions (Table 1). In their study, Kiaye and Singh (2013) found that the participants had glass ceiling barriers and these barriers were social role and situational barriers. In a study conducted by Tlaiss and Kauser (2010) to find out the perceptions of women in Lebanon about their career progression in organizations, it was found that organizational culture, practices, communication network and mentoring affected the progression in their career. In

a study by Çizel and Çizel, it was found that 45.7% of the teachers had glass ceiling perceptions (Çizel & Çizel, 2014).

Significant difference was found between academicians' glass ceiling barriers and age, gender, marital status, state of having children, educational status and academic title ($p<0.05$) (Table 3). According to the results, mean glass ceiling barriers of the participants aged 48 and older was 83.54±20.73 and it was found to be higher than those of the other age groups. In a study conducted by Örücü et al. (2017), it was found that the perceptions of women regarding the artificial barriers preventing them from rising to top positions got higher as age increased and it was thought that familial responsibilities of women prevented them from rising to top positions. In a study by Mızrahı & Aracı (2010), no statistically significant difference was found in terms of the variable of age. In Karaca's study (2007), no significant difference was found between the variables when managers' total attitude scores were compared in terms of the variable of age. In a study by Bingöl et al. (2011), it was found that attitudes towards female workers did not differ in terms of managers' age.

When glass ceiling barriers perception was detailed in terms of gender, glass ceiling barriers mean scores of female participants (71.36±18.48) were found to be higher than those of male participants (79.34±18.70) and this result shows that women's perceptions about artificial barriers preventing them to rise to top management positions were high. In their study, Örücü et al. (2007) found that men had higher glass ceiling barrier perceptions than women women. In their study, Mızrahı and Aracı (2010) found that women had higher glass ceiling perceptions than men. Karaca (2007) found that women had higher "Glass Ceiling Barriers Scale" scores than men. In their study, Bingöl et al. (2011) found that attitudes of female managers towards women were more negative than those of male managers. In their study on the relationship between glass ceiling syndrome and power distance, Can et al. (2018) found that glass ceiling barriers scores did not differ in terms of gender. In their study, Anafarta et al (2008) found that female managers working in accommodation enterprises had the perception that they were more exposed to discrimination in terms of opportunities for payment, education and promotion. In a methodological study İmadoğlu et al. (2020) conducted on 33 women, it was found that glass ceiling barriers were caused by gender bias, child care and male dominance. One of the participants in this study stated that although women had sufficient abilities, training and experience, women were prevented from reaching the position they deserved. Another participant stated a patriarchal society had the perception that women cannot "do" (İmadoğlu et al., 2020)

When glass ceiling perception was examined in terms of marital status and the state of having children, it was found that married participants (76.12±19.29) when compared with single participants (70.67±17.71) and participants who had children (76.62±18.78) when compared with those who did not had higher glass ceiling barriers mean scores. In their study, Çizel and Çizel (2014) found that one of the factors affecting the glass ceiling perception of the participants was the state of having children. In a study conducted by Bulut (2014), it was concluded that the reason why very few women had high positions was due to the fact that they focused on different fields such as child care and housework. In their study, Örücü et al. (2007) stated that the reason why women could not rise to top positions was the fact that they had too many familial responsibilities. When total attitude scores of managers were compared in terms of the variables of marital status in Karaca's study (2007), no significant difference was found between the variables. In their study, Bingöl et al. (2011) found that attitudes towards female employees did not differ in terms of marital status. In a study McLay (2008) conducted on head teacher career paths of women and men in schools in England, it was found that female teachers gave career breaks to have children and having children was described as a disadvantage for women.

In terms of educational status, higher mean glass ceiling barriers scores were found in doctorate graduates (75.86±19.29) when compared with master's graduates (69.26±16.80) and in professors (82.33±20.21) when compared with research assistants (69.41±19.34). In a study conducted on academicians working in Finland and Turkey, no significant difference was found between glass ceiling scale mean scores and age, marital status, academic title and years in the profession (Karahan, 2018). In our study, it was found that when compared with research assistants, professors had higher perceptions about artificial barriers preventing them from rising to top managerial positions. While it is expected that the perception of glass ceiling barriers perceptions will decrease with the increase in educational status, the fact that the opposite result found in our study shows that the fight against this situation has started. It has been found that no matter what their level of education is, individuals raised with traditional gender roles can maintain this mentality throughout their lives. On the other hand, the continuation of exploitation by relying on patriarchy will reinforce the rise of men over women's labour and therefore women's staying in the background. In Karaca's study (2007), it was stated that attitudes towards female employees and female managers did not differ statistically significantly in terms of educational status.

Limitations

It would be more appropriate to use the probability sampling method to obtain a more comprehensive

overall assessment. Research on glass ceiling is limited in our country and in the world.

CONCLUSIONS

The present study discussed the concept of glass ceiling to show the existing situation in individuals with higher education level. The fact that academicians working in universities where an atmosphere based on woman-man equality should dominate in the light of science had moderate level of glass ceiling barriers perceptions shows that the traditional sexist atmosphere created against women in all fields of life is also present in the Academy. This result will also cause consequences such as low rate of female managers when compared with male managers. The results obtained also show that social expectations and assumptions regarding the role of women will continue to have a negative effect on women's career opportunities and development. It is thought that in order to advance women's leadership in higher education, a curriculum including gender equality should be applied to individuals at all levels of education starting from primary education.

Acknowledgments

The authors thank the participants in this study.

Author Contributions

Plan, design: AY, SA, AT; **Material, methods and data collection:** AY, SA, AT; **Data analysis and comments:** AY; **Writing and corrections:** AY, SA, AT.

Conflict of Interests

This research does not contain any conflict of interest.

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