NÖRO PSİKİYATRİ ARŞİVİ
ARCHIVES OF NEUROPSYCHIATRY

RESEARCH ARTICLE

Arch Neuropsychiatry 2022;59:290–295
https://doi.org/10.29399/npa.27981

Is Women's Place Beyond the Glass Ceiling? The Gender Gap in Academic Psychiatry Publications in Turkey

İmran Gökçen YILMAZ KARAMAN[1], Tuğçe GÜNDÜZ[1], Cennet YASTIBAŞ KAÇAR[2]

[1]Eskişehir Osmangazi University, Faculty of Medicine, Department of Psychiatry, Eskişehir, Turkey
[2]Dokuz Eylül University, Faculty of Literature, Department of Psychology, İzmir, Turkey

ABSTRACT

Introduction: In terms of academic positions and activities, women seem to be disadvantaged in various aspects all over the world. Our study aims to investigate the representation of male and female genders in academic psychiatry journals in Turkey.

Method: We included the publications in the academic psychiatry journals indexed in The Scientific and Technological Research Council of Turkey, Turkish Academic Network and Information Center, which were published between 2011 and 2020.12 journals were grouped as SCI-E/SSCI (n=4), ESCI (n=4), and other international indexes (n=4). A total of 5179 articles were reviewed.

Results: The ratios of female authors per article, female first author, female correspondence author, and female last author were found to be lower in the SCI-E/SSCI and ESCI groups compared to the other international index groups ($p<0.05$). In all article types, the rate of women as the last author was lower than the rate of women as the first author ($p<0.05$).

Conclusion: The paucity of the female authors in the last authorship position and the editorial articles can be interpreted as the glass ceiling effect. To ensure gender equality in academic publications, universities and the editorial boards of journals should fight against gender-based bias and discrimination.

Keywords: Academic psychiatry, authorship, gender disparity, gender equity, gender gap, publications

Cite this article as: Yılmaz Karaman İG, Gündüz T, Yastıbaş Kaçar C. Is Women's Place Beyond the Glass Ceiling? The Gender Gap in Academic Psychiatry Publications in Turkey. Arch Neuropsychiatry 22022;59:290–295.

INTRODUCTION

Although gender-based prejudice and inequality between the sexes are relatively less common today compared to the previous centuries, they continue to negatively affect women's place in the scientific community, as in many career fields. For example, although the proportions of male and female doctorate degrees in the USA are similar, the majority of faculty members are men (1). Similarly, while 47% of the academics who work in higher education and are not in a professorship position in England are women, women are employed in only 20% of the professorship positions (2). Besides, in the USA, the ratio of men and women who started to work as faculty members was similar, but the ratio of male faculty members increased as the title increased (3). Finally, the gender pay gap is well documented in other industries and also appears to be present in academia (2). The picture is similar in Turkey, although the gap in academic employment between the sexes seems to have decreased over the years. For example, in the 1990–1991 academic year, women worked in 33.5% of the non-professorship academic positions and in only 20% of the professorship positions. In the 2018–2019 academic year, this rate increased to 47.2% for non-professorship academic positions compared to 31.5% for professorship positions (4). On the other hand, when the psychiatry departments in Turkey are examined, it is seen that the rate of female academicians in this department is higher than it is in other fields. However, it is seen that women are not equally represented compared to men in positions such as professorship and associate professorship. According to the current psychiatry departments' data, it is seen that women work in 37% of the professorship positions, 46% of the associate professorship positions, 68% of the assistant professorship positions, and 63% of the lecturer positions (5). This indicates that the visibility of women in academia has increased, but there is still an inequality when it comes to prestigious positions.

Highlights

- **Women are represented adequately in academic psychiatry journal authorship status.**
- **However, the authors observed a glass ceiling effect regarding gender equality.**
- **There is a lack of female authors in editorial articles and the last authorship.**
- **Overcoming gender disparity should be a priority in academic institutions.**

In addition to the inequality in academic employment, it is known that there are gender differences in academic outputs. However, this appears to be more certain in biomedical disciplines. Despite being equally represented in biomedical and social science disciplines in the UK, only women in biomedical disciplines generate less grant income than their male counterparts (2). The gap also appears to widen with seniority

Correspondence Address: İmran Gökçen Yılmaz Karaman, Eskişehir Osmangazi Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı, Eskişehir, Turkey • **E-mail:** gokcenylmz@yahoo.com
Received: 23.07.2021, **Accepted:** 05.01.2022, **Available Online Date:** 07.11.2022

(2). In addition to grant income, important indicators of academic productivity and prestige is the extent to which one can share findings with the academic community in the form of publications (6). Indeed, publications are one of the criteria stipulated by universities for both initial academic appointments and reappointments. Recent studies show that the rate of women being first authors is increasing in psychiatry and other fields of medicine. However, the lack of women editors and women authoring editorials is noticeable. In a study examining the leading medical journals, the gender gap in article authorship fell over the years but was still prominent in 2004 (6). However, the rate of the articles having female authors may vary according to the topic and the country. Between the years 2015–2019, 22.7% of the first authors of the mental health publications from Oman were women (7). During the same period in Qatar, among the articles which had at least one female author, men were in the senior author/last author position in 79.4% of the articles (8). Among the psychiatry publications from Turkey, a study revealed that 36.5% of the first authors and 34.9% of the last authors were women between 1980–2009 (9).

Women's under-representation in leadership and academic positions has been labelled as the "glass ceiling effect" (10). The metaphor of the "glass ceiling" was first used by Marilyn Loden in 1978 to express that the success of women in business life was interrupted by some unseen difficulties (11). Later, this expression started to be used for all groups who were in a disadvantageous position in business life due to their characteristics such as gender, race and sexual orientation.

Employment is assumed to be merit-based. This view asserts that all employees who put in sufficient effort can be successful and be promoted in business life. However, disadvantaged groups cannot continue their activities in business life or compete on equal terms with their peers for various reasons that are not visible at the first glance. For example, even if women take part in working life as much as men, they cannot receive equal pay for equal work, and unlike men, due to their gender roles, they often have to provide unpaid care within the household. The glass ceiling effect highlights these unequal conditions of competition and points to invisible walls.

To be able to widen the perspective of research and practice, it is important that female researchers are represented equally with men in medical research, including academic publications (12). Hence, gender insighted developments in research and practice will have a positive impact on patients and public health as well as for science itself. The first of Boyle et al.'s recommendations to universities to ensure gender equality is: "Consistently publish gender distributions in key areas such as awards, appointments, and promotions (2). This transparency will enable employees to evaluate the corporate culture." (2). The way to eliminate inequality is to first be aware of inequality.

Our study aims to investigate the representation of male and female genders in the authorship position of the academic psychiatry journals in Turkey. We also aim to investigate the relationship of the representation of male and female genders with article type and international index information and to evaluate changes over the last decade.

METHODS

The present study aims to focus on the publications in the academic psychiatry journals of Turkey.

Selecting and Coding Journals

In accordance with the aim of the present study, we used a national journal index created by the National Academic Network and Information Center (ULAKBIM) of the Scientific and Technological Research Council of Turkey. The index's search engine can be accessed through https://app.trdizin.gov.tr/statistics/listAcceptedJournals.xhtml website. We made four separate searches using the words "psikiyatri" (meaning psychiatry in English) and "psychiatry" by selecting "subject area" and "journal name," respectively, in order to find an adequate number of journals. The journals which were published between January 1, 2011, and December 31, 2020 were included in the research. Among the academic journals published within the specified date range, general medicine journals were excluded from the study, and a total of eleven academic psychiatry journals were included in the study. Subsequently, we searched the Turkish Psychiatry Index (http://psikiyatridizini.net/) and added one psychiatry-focused journal which is indexed by the ULAKBIM and has been published for the last 10 years.

We classified all twelve journals according to their indexing information, which is based on The Web of Science Core Collection. The Web of Science Core Collection list is a database managed independently of publishers. Journals undergo an evaluation consisting of objective criteria and then are added to the database. Journals that meet the necessary criteria are included in the Emerging Sources Citation Index (ESCI) journal list, at first. If a journal which is indexed in ESCI journal list meets additional criteria (such having a higher impact factor), it may become indexed in the Science Citation Index Expanded (SCI-E), Social Sciences Citation Index (SSCI) or Arts & Humanities Citation Index (AHCI) journal lists depending on the subject areas (13). The index of a journal reflects its high scientific impact. In other words, the impact factor of the scientific findings of the published articles vary according to scientific journal indexes (14). Thus here, we collected the index information of the included academic psychiatry journals as SCI-E/SSCI, ESCI, and the other international indexes (Table 1).

Selecting and Coding Articles

The articles from the selected journals were examined in six categories: (i) research, (ii) case report, (iii) review, (iv) letter to the editor, (v) editorial/cover letter/preface, and (vi) others. The articles such as book introduction,interview, and curriculum vitae (category: others) were excluded from the study.

For each article, the number of female authors and male authors, the gender of the corresponding author, the gender of the first author and the last author were examined. Assessing the gender of the authors, we directly coded the commonly used female and male names (for example Emily or John). For the unisex names which are used for both genders (for example Alex), we searched the websites of the institutions where the authors work, and the photos of the authors on social media accounts such as ResearchGate or LinkedIn were examined. For some authors, gender information could not be obtained using such methods. Thus, the website https://genderize.io/was used to ascertain which gender uses the name more.

Some of the journals which are included in the present study are published jointly in the fields of psychiatry and neurology. While assessing the articles, we classified the articles in terms of having at least one mental healthcare worker (psychiatrist, psychiatric nurse, psychologist, or social worker), or not.

For this study, an ethical board approval numbered 35 and dated 24.11.2020 was obtained from the Non-Invasive Clinical Research Ethics Committee of Osmangazi University Faculty of Medicine.

Statistical Analysis

The collected data were analyzed with the IBM SPSS 22.0 program (15). While categorical variables are shown as frequency and percentage, continuous variables are indicated as mean and standard deviation.

Chi-square test and post hoc Bonferroni correction were applied for the comparison of the categorical variables between groups. One-Way Analysis of Variance and post hoc Bonferroni correction were applied for the intergroup comparison of the continuous variables. Statistically significant p-value was accepted as 0.05.

RESULTS

Table 1 shows the journals that were included in the present study. We divided the twelve journals into three groups according to their index information: (i) SCI-E or SSCI (n=4), (ii) ESCI (n=4) and (iii) other international indexes/non-Web of Science indexes (n=4). There were no academic psychiatry journals in the national database that are not indexed in any international indexes. A total of 5179 articles (2856 from the first group, 1456 from the second group, and 867 from the third group) were included in the study. Table 2 demonstrates the ratio of female authorship per article and various female authorship positions such as first author, corresponding author and last author according to years. Table 3 shows the comparison of the total female author percentage and the variety of the female authorship positions according to the types of the articles such as research article, review, and case reports in the journal groups.

Female Authorship According to Periods

The change of data by year is presented in Table 2. Considering that gender trends in academic authorship are not rapidly changing data, we analyzed the whole period by dividing it into two: the years 2011–2015 and the years 2016–2020. Higher percentages of female authors per article were found in the 2016–2020 period (47.10% vs 54.31%, t=-7.322 p<0.001).

In addition, we compared two periods according to the article types. In terms of the female author percentage per article, we observed statistically significant increases in research articles (48.64% vs 54.70%, t=4.946 p<0.001), reviews (49.33% vs 66.95%, t=-6.097 p<0.001), and letters to the editor (33.46% vs 44.82%, t=-2.727 p=0.007) in the 2016–2020 period compared to the previous five years. In case reports (49.70% vs 51.57%) and editorial articles (31.31% vs 31.18%), there was no difference in the percentage of the female authors per article between two periods (p>0.05 each).

Female Authorship Positions According to Index Group and Article Type

In the whole period, the gender distribution of the first authorship and last authorship positions in all article types was compared: the female first author ratio was higher than the female last author ratio in all three index groups (χ^2=174.565 p<0.001, χ^2=86.739 p<0.001, χ^2=124.133 p<0.001, respectively).

We also compared the gender distributions in the first and last authorship positions according to article types, regardless of the index groups: Research articles (χ^2=118.685 p<0.001), review articles (χ^2=157.314 p<0.001), case reports (χ^2=55.610 p<0.001), letters to the editor articles (χ^2=21.715 p<0.001), and editorial articles (χ^2=102.352 p<0.001) had lower rates of female last authors compared to the rates of the female first author, in all time periods.

Female Authorship Positions According to Article Type and Journal Index Groups

We found that the number of the female authors per article was higher in research, review, and case reports in the other international index group compared to the SCI-E/SSCI and ESCI groups. The proportion of the female authors between each index groups did not differ in letter-to-editor type articles with average values between 37%–43%. In editorial articles, the lowest rate of the female authors per article were found in the ESCI group, the second-highest rate was in the SCI-E/SSCI group, and the highest rate was in the other international index group (Table 3).

The number of the female first authors in research articles was statistically significantly lower in the SCI-E/SSCI group compared to other international indexes. Among the article types of reviews and case

Table 1. The academic psychiatry journals which are included in the study and groups regarding index information

Group	Journal name	Index information
i	Alpha Psychiatry (Formerly known as: Anatolian Journal of Psychiatry)	Science Citation Index Expanded
	Archives of Neuropsychiatry	Science Citation Index Expanded
	Psychiatry and Clinical Psychopharmacology (Formerly known as: Bulletin of Clinical Psychopharmacology)	Science Citation Index Expanded
	Turkish Journal of Psychiatry	Social Sciences Citation Index
ii	ADDICTA: The Turkish Journal on Addictions	Emerging Sources Citation Index
	Düşünen Adam –The Journal of Psychiatry and Neurological Sciences	Emerging Sources Citation Index
	Turkish Journal of Clinical Psychiatry	Emerging Sources Citation Index
	Psychiatry and Behavioral Sciences (Formerly known as: Journal of Mood Disorders)	Emerging Sources Citation Index
iii	Journal of Dependence	Other international indexes
	Journal of Cognitive Behavioral Psychotherapy and Research	Other international indexes
	Turkish Journal of Child and Adolescent Mental Health	Other international indexes
	Current Approaches in Psychiatry	Other international indexes

Table 2. Female authorship positions according to years

	Publication year										Total
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Total number of articles (n)	394	419	441	451	471	566	565	578	718	576	5179
Female author percentage per article (mean)	46.2	44.9	46.3	48.1	49.7	51.6	52.8	56.7	57.2	52.4	51.3
The articles with female first author (%)	47.0	45.1	48.6	50.1	53.1	55.5	55.3	55.8	57.2	55.9	53.0
The articles with female corresponding author (%)	47.2	46.1	48.9	50.1	52.0	52.8	54.3	55.6	56.7	52.8	52.2
The articles with female last author (%)	42.9	37.5	40.0	44.8	42.5	46.8	45.8	53.6	52.1	46.6	45.9

Table 3. Variables according to the article type and index groups

Article type	Index group	Number of articles (n)	Female author percentage per article (mean ± SD) and intergroup comparison		Female first author percentage and intergroup comparison		Female corresponding author percentage and intergroup comparison		Female last author percentage and intergroup comparison	
Research	SCI-E/SSCI[1]	1843	51.86±31.02	F=6.127 p=0.002 1–3:0.002 2–3:0.004	52.6	χ^2=7.299 p=0.026 1–3: <0.05	52.8	χ^2=2.440 p=0.295	45.5	χ^2=11.103 p=0.004 1–3: <0.05 2–3: <0.05
	ESCI[2]	837	51.58±33.37		53.9		52.4		45.4	
	Other international indexes[3]	314	58.52±37.03		60.8		57.3		55.4	
Review	SCI-E/SSCI[1]	179	50.18±39.90	F=9.276 p<0.001 1–3:0.001 2–3:0.006	51.4	χ^2=15.088 p=0.001 1–3: <0.05 2–3: <0.05	53.6	χ^2=10.352 p=0.006 1–3: <0.05 2–3: <0.05	48.6	χ^2=7.608 p=0.022*
	ESCI[2]	122	50.41±41.40		51.6		50.8		49.2	
	Other international indexes[3]	454	63.15±40.02		65.6		64.1		59.0	
Case report	SCI-E/SSCI[1]	497	48.15±34.17	F=8.160 p<0.001 1–3: <0.001 2–3:0.004	51.5	χ^2=8.804 p=0.012 1–3: <0.05 2–3: <0.05	50.0	v²=10.271 p=0.006 1–3: <0.05 2–3: <0.05	39.9	χ^2=5.729 p=0.057
	ESCI[2]	341	51.31±33.20		54.5		51.3		44.3	
	Other international indexes[3]	68	65.66±33.21		70.6		70.6		54.4	
Letter to editor	SCI-E/SSCI[1]	200	37.54±36.60	F=0.741 p=0.478	37.5	χ^2=6.511 p=0.039 1–2: <0.05	36.5	χ^2=4.153 p=0.125	35.0	χ^2=1.879 p=0.391
	ESCI[2]	85	43.17±35.31		52.9		49.4		36.5	
	Other international indexes[3]	13	41.66±40.82		30.8		38.5		53.8	
Editorial/cover letter/preface	SCI-E/SSCI[1]	137	32.56±42.56	F=22.576 p<0.001 1–2:0.008 1–3: <0.001 2–3: <0.001	32.8	χ^2=36.711 p<0.001 1–2: <0.05 1–3: <0.05 2–3: <0.05	34.3	χ^2=34.621 p<0.001 1–2: <0.05 1–3: <0.05 2–3: <0.05	32.8	χ^2=26.389 p<0.001 1–3: <0.05 2–3: <0.05
	ESCI[2]	71	15.49±28.77		11.3		12.7		19.7	
	Other international indexes[3]	18	83.33±38.34		83.3		83.3		83.3	
All articles	SCI-E/SSCI[1]	2856	49.18±33.62	F=47.104 p<0.001 1–3: <0.001 2–3: <0.001	50.3	χ^2=52.220 p<0.001 1–3: <0.05 2–3: <0.05	50.4	χ^2=41.445 p<0.001 1–3: <0.05 2–3: <0.05	43.4	χ^2=59.319 p<0.001 1–3: <0.05 2–3: <0.05
	ESCI[2]	1456	49.17±34.84		51.7		49.9		43.7	
	Other international indexes[3]	867	61.77±38.63		64.1		62.2		57.8	

*There was no difference after Bonferroni correction was applied (p>0.05). ESCI: Emerging Sources Citation Index; Ort.: Ortalama; SS: Standart sapma; SCI-E: Science Citation Index Expanded / SSCI: Social Sciences Citation Index

Table 4. Female author percentage per article according to journal indexes

Index group	Article type	n	Female author percentage per article (Mean ± Standard deviation)	Statistics
SCI-E/SSCI	Research[1]	1842	51.87±31.02	F=17.855 p<0.001 1–4: <0.001 1–5: <0.001 2–4:0.002 2–5: <0.001 3–4:0.001 3–5: <0.001
	Review[2]	179	50.19±39.91	
	Case report[3]	497	48.15±34.18	
	Letter to editor[4]	200	37.55±36.61	
	Editorial[5]	137	32.56±42.57	
	Total	2855	49.18±33.62	-
ESCI	Research[1]	837	51.58±33.37	F=19.526 p<0.001 1–5: <0.001 2–5: <0.001 3–5: <0.001 4–5: <0.001
	Review[2]	121	50.83±41.32	
	Case report[3]	341	51.32±33.21	
	Letter to editor[4]	86	42.67±35.42	
	Editorial[5]	71	15.49±28.77	
	Total	1456	49.17±34.84	-
Other international indexes	Research[1]	314	58.52±37.03	F=3.187 p=0.013 4–5:0.030
	Review[2]	454	63.15±40.02	
	Case report[3]	68	65.67±33.22	
	Letter to editor[4]	13	41.67±40.82	
	Editorial[5]	18	83.33±38.35	
	Total	867	61.77±38.63	-

ESCI: Emerging Sources Citation Index; Ort.: Ortalama; SS: Standart sapma; SCI-E: Science Citation Index Expanded / SSCI: Social Sciences Citation Index

reports, ratios of the female first authors in the other international index groups were higher than the ratios in the first and second index groups. There were more female first authors in letters-to-the-editor articles in the ESCI group than in the SCI-E/SSCI group. The ratio of the female first authors of editorial articles was also examined: The lowest female first author ratio was in the ESCI group, the second-lowest ratio was in the SCI-E/SSCI group, and the highest female first author ratio was in the other international index group (Table 3).

Evaluating the gender of the corresponding author, there was no difference in research articles between the indexes. In review articles and case reports, the rate of the female corresponding author was statistically significantly higher in the other international index group. In letter-to-editor articles, the gender of the corresponding author did not differ significantly between the groups. In editorial articles, the gender ratios of the corresponding author were highest in other international indexes group (Table 3).

Considering the gender ratios in the last authorship position, the highest female author rates were seen in research articles and review articles in the other international index group. In case reports and letters-to-editor articles, gender ratios in the last authorship position did not differ between the index groups. The rate of female last author in editorial articles was highest in the other international index group and lowest in the ESCI group (Table 3).

Regardless of the article type, the journal groups were compared. The ratio of the female authors per article, female first author ratio, female corresponding author ratio, and female last author ratio were lower in the SCI-E/SSCI and ESCI group compared to the other international index group. The difference was statistically significant (Table 3).

The Ratio of Female Authors According to Article Types and Journal Index Groups

In each index group, the percentages of the female authors per article were compared according to article types. Mean values and standard deviations of each variable are demonstrated in Table 4. There were statistically significant differences of the percentages of the female authors among the article types in all index groups (Table 4). We applied post hoc analysis and Bonferronicorrection to determine the sources of the differences.

In the SCI-E/SSCI group, letters to editor and editorial articles had lesser percentage of female authors per article, comparing to research articles, reviews and case reports. Among the ESCI group, editorial articles had the lowest mean value across all types of articles. On the contrary, in the other international index group, editorial articles had the highest mean value of the female author percentage per article (Table 4).

Presence of Mental Health Worker Authors

In 15.7% (n=447) of the articles in the journals in the SCI-E/SSCI, in 10.2% (n=148) of the articles in the ESCI index, and in 9.1% (n=79) of the articles published in other international indexes, none of the authors were a mental health worker.

Among the articles published in the SCI-E/SSCI, the ones with at least one mental health worker author, had lower female author percentages (47.92% vs. 55.95%, t=-4.652 df=2853 p<0.001). On the other hand, in the ESCI, there was no difference in the percentage of the female authors between the author groups of non mental health workers and mental health workers (49.09% vs. 49.18% p>0.05, respectively). In the articles published in other international indexes, the percentage of the female authors was higher in the author group which had no mental health workers (100% (50–100) vs. 66.66% (33.33–100), U=35349.50, p=0.038).

DISCUSSION

Main Findings and Comparison with Previous Studies

The present study shows that the female authors' contribution to the psychiatric articles of Turkey-based journals varies between 42.9%–47.2% in 2011 and between 46.6%–55.9% in 2020. According to the 2021 year's data from the Turkish Council of Higher Education, 44.9% of the academic staff in all one hundred ten adult psychiatry departments are women: 35.7% of professors, 45.8% of associate professors, 54.8% of assistant professors, and 61.9% of lecturers (5). On the other hand, women were 58.6% of the academic personnel in all seventy-four child and adolescent psychiatry departments: 55% of professors, 58.9% of associate professors, 58.1% of assistant professors, and 71.4% of lecturers (5). Women academics seem to be presented adequately in articles, in general. Comparing the publications between the years 2016–2020 and the years 2011–2015, statistically significant increases were observed in the ratio of female authors in line with the literature in which the previous studies have reported a decline in gender inequality measured by article authorship (10,16,17).

The current situation is promising in terms of gender equality, gender bias-free information production, and clinical practices free from gender bias. Even though the focus of the present study is psychiatry publications, it is well known that women's participation in academic publications is lower in the higher paid medical branches with harder work-life balance and strong competition such as surgeries (9,18,19). Thus, our results may take its source from female physicians' shift to psychiatry specialization.

Importantly, the rate of the female first authors in the research articles of the journals in the SCI-E/SSCI and ESCI group, which are considered to be the most prestigious journals, is lower than the one in other indexes. The first authorship position is associated with leadership and taking an active role in research. Indeed, in Turkey, the Inter-University Council stipulates that at least one research article should be as a first author in the criteria for associate professorship (20). Thus, it is a requirement for academic progression. It is noteworthy that there is a lower rate of the female first authors in these groups with the highest impact factor. However, among reviews and case reports, a lower rate of the female first author was found in such articles of those journals in the first and second groups.

The final authorship represents a senior position in academia. It is striking that the rate of women in the last position of the author is lower than the ratio of women in the position of the first author in research, review, and case reports in all journal groups.

Within the specified article types, editorial articles differ from others. Unlike a research article, it does not undergo a double-blind review and is written by people elected to the editorial board. In a study examining high-impact factor academic psychiatry journals in 1994 and 2007, the rate of the female writers increased over time, but there were fewer women especially in editorial writings and editorial positions, which can be explained by the glass ceiling effect (10). In our study, when the gender ratios in the editorial articles were examined, significant differences were observed between those in the Web of Science Core Collection journal list and those in other international indexes. Under-representation of the female first authors in the editorial articles of more prestigious journals also suggests a possible glass ceiling effect.

Possible Mechanisms Driving the Gender Gap in Academia

Dutta et al. emphasized that more and more women are involved in medical education and clinical psychiatry in England, but women are less involved in academic medicine and academic psychiatry than men (21). They also stated that women are less accepted to academic positions in universities than men, leave their academic duties earlier than men,

benefit less from research funds, and are less involved in editorial positions of academic journals (21). Moreover, domestic responsibilities and activities differ between men and women, with women bearing much of the burden of unpaid domestic labor. Differences in how time is spent in the academic workplace have also been the subject of discussion. It has been suggested that women spend more time as clinicians and educators rather than for research and publication and that this is a kind of "corporate housework" (22,23). Specific factors thought to hinder women's academic success are: spending more time outside of academic duties than men due to having children, not feeling self-sufficient, having to show more effort to balance work and family life than men, being exposed to gender-based discrimination and sexual harassment, not being able to work part-time, lack of role models and mentors, and inadequacy of networking and connection opportunities for non-professional purposes (21).

Gender-based prejudices among the academic community may be quite entrenched. In a case-control study comparing male and female academics with a similar scientific background and professional experience, two groups had similar index information and citation values, although the probability of publishing articles as invited authors was higher for men than for women (24).

Strengths and Limitations

To our knowledge, the present study is the first to examine gender trends in the psychiatry literature in Turkey using both nationally and internationally indexed journals. The representation of men and women in various authorship positions was evaluated in our study. Erden Aki et al. analyzed the academic psychiatry publications of authors from Turkey in the Web of Science database covering the period between 1980 and 2009 (9). However, our study differs somewhat in its methodology because it includes national databases in addition to the Web of Science database. Its findings have the potential to influence the psychiatric community to focus on gender inequality among academics.

However, our study has some limitations. While assessing the genders of the authors, it is possible that some authors were misclassified. Also, we recognise the fluid nature of the concept of gender. Last but not least, including journals from Turkey is another limitation since the authors may publish in the journals from different countries.

CONCLUSION

The contribution of the female authors to the academic psychiatry literature in Turkey has increased in last ten years. Female authors are well presented in Turkey-based academic psychiatry journals. However, there is a gender gap in prestigious academic positions, which we explained with glass ceiling effect. Academic institutions, universities, the editorial boards of academic journals, and professional organizations should fight against gender bias and gender-based discrimination to eliminate the glass ceiling effect and ensure the equal representation of genders in leadership positions.

Acknowledgment: *The authors appreciate Mehmet Kaçar's support on data collection.*

Ethics Committee Approval: For this study, an ethical board approval no. 35 dated 24.11.2020 was obtained from the Non-Invasive Clinical Research Ethics Committee of Osmangazi University Faculty of Medicine.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept- İGYK; Design- İGYK, TG; Supervision- İGYK; Resource- İGYK, TG, CYK; Materials- (-); Data Collection and/or Processing- TG, CYK; Analysis and/or Interpretation- İGYK, TG; Literature Search- İGYK; Writing- İGYK, TG, CYK; Critical Reviews- TG, CYK.

Conflict of Interest: The authors declared that there is no conflict of interest.

Financial Disclosure: The authors did not receive any funding for the present study.

REFERENCES

1. Shen H. Inequality quantified: Mind the gender gap. Nature. 2013;495(7439):22–24. [CrossRef]
2. Boyle PJ, Smith LK, Cooper NJ, Williams KS, O'Connor H. Gender balance: Women are funded more fairly in social science. Nature. 2015;525(7568):181–183. [CrossRef]
3. Sheikh MH, Chaudhary AM, Khan AS, Tahir MA, Yahya HA, Naveed S, et al. Influences for gender disparity in academic psychiatry in the United States. Cureus. 2018;10(4):e2514. [CrossRef]
4. Turkish Statistical Institute. Gender Indicators, Selected Occupation, Number of Teaching Staff in Higher Education by Academic Title, 2019. https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=2
5. Yüksek Öğretim Bilgi Yönetim Sistemi. Bölüm/ABD Bazında Öğretim Elemanı Sayıları Raporu, 2021. https://istatistik.yok.gov.tr/
6. Jagsi R, Guancial EA, Worobey CC, Henault LE, Chang Y, Starr R, et al. The "gender gap" in authorship of academic medical literature--a 35-year perspective. N Engl J Med. 2006;355:281–287. [CrossRef]
7. Albahari D, Bashir M. Women's productivity in mental health research in the Gulf Cooperation Council (GCC). Asian J Psychiatr. 2020;54:102311. [CrossRef]
8. Albahari D, Bashir M. Gender gap in mental health research productivity: Results from Qatar. Asian J Psychiatr. 2020;54:102347. [CrossRef]
9. Erden Aki Ö, Özçelik Eroğlu E, Uslu E. Longitudinal analysis of female authorship of psychiatry articles in Turkey. Noro Psikiyatr Ars. 2015;52(1):95–98. https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC5353010/
10. Amering M, Schrank B, Sibitz I. The gender gap in high-impact psychiatry journals. Acad Med. 2011;86(8):946–952. [CrossRef]
11. BBC, 2017. "100 Women:'Why I invented the glass ceiling phrase'". BBC News. https://www.bbc.com/news/world-42026266
12. Rexrode KM. The gender gap in first authorship of research papers. BMJ. 2016;352:i1130. [CrossRef]
13. Clarivate Analytics. Web of Science journal evaluation process and selection criteria. (No date) https://clarivate.com/webofsciencegroup/journal-evaluation-process-and-selection-criteria/
14. Asan A. International Journal Indexes, Importance and Status of Turkey Journals: Part 1: Scientific Journal Indexes. Turk Acta Med Alanya. 2017;1(1):33–42. [CrossRef]
15. IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY. IBM Corp. https://www.ibm.com/support/pages/how-cite-ibm-spss-statistics-or-earlier-versions-spss
16. González-Álvarez J, Cervera-Crespo T. Research production in high-impact journals of contemporary neuroscience: A gender analysis. J Informetr. 2017;11(1):232–243. [CrossRef]
17. Hart KL, Frangou S, Perlis RH. Gender trends in authorship in psychiatry journals from 2008 to 2018. Biol Psychiatry. 2019;86(8):639–646. [CrossRef]
18. Kane L. Medscape Physician Compensation Report 2020. 2020. https://www.medscape.com/slideshow/2020-compensation-overview-6012684#1
19. Okike K, Liu B, Lin YB, Torpey JL, Kocher MS, Mehlman CT, et al. The orthopedic gender gap: trends in authorship and editorial board representation over the past 4 decades. Am J Orthop (Belle Mead NJ). 2012;41(7):304–310. https://pubmed.ncbi.nlm.nih.gov/22893880/
20. The Inter-University Council of Turkey (T. C. Üniversitelerarası Kurul Başkanlığı). 2021 May term associate professorship application requirements (2021 Mayıs dönemi doçentlik başvuru şartları). https://www.uak.gov.tr/Documents/docentlik/2021-mayis-donemi/basvuru-sartlari/TA_Tablo10_2021M_08052021.pdf
21. Dutta R, Hawkes SL, Iversen AC, Howard L. Women in academic psychiatry. Psychiatrist. 2010;34(8):313–317. [CrossRef]
22. Grinnell M, Higgins S, Yost K, Ochuba O, Lobl M, Grimes P, et al. The proportion of male and female editors in women's health journals: A critical analysis and review of the sex gap. Int J Womens Dermatol. 2019;6(1):7–12. [CrossRef]
23. Carnes M, Morrissey C, Geller SE. Women's health and women's leadership in academic medicine: hitting the same glass ceiling? J Womens Health (Larchmt). 2008;17(9):1453–1462. [CrossRef]
24. Thomas EG, Jayabalasingham B, Collins T, Geertzen J, Bui C, Dominici F. Gender disparities in invited commentary authorship in 2459 medical journals. JAMA Netw Open. 2019;2(10):e1913682. [CrossRef]