

Longitudinal Analysis of Female Authorship of Psychiatry Articles in Turkey

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ABSTRACT

Introduction: The number of women with careers in medicine and with academic positions at medical schools has increased substantially since the 1980s; however, women remain underrepresented in medical academia, which may be because of the fewer research publications authored by women. This study aimed to determine the gender distribution among Turkish authors of psychiatry articles published in international scientific journals during a 30-year period.

Methods: The ISI Web of Science database was searched for all psychiatry publications between 1980 and 2009 using the search term Turkey. All articles were classified according to publication period (1980-1989, 1990-1999, 2000-2004, and 2005-2009), gender of the first and last authors, first author title, total number of authors, and type of article.

Results: In all, 1961 articles meet the study criteria. The first author of 36.5% of the articles and 34.9% of last authors were women. The percentage of female first and last authors did not differ according to publication period ($p=0.57$).

Conclusion: To the best of our knowledge this is the first study to examine gender and authorship of psychiatric research in Turkey. In total, 33% of academic positions in Turkish university psychiatry departments were occupied by women, which is comparable to the percentage of female first authors of psychiatric research papers from Turkey. It could be concluded that women academics in psychiatry departments from state universities are as reproductive as their male counterparts, but there is still a "gender gap" in psychiatry field in our country.

Keywords: Women, gender gap, publication, psychiatry

INTRODUCTION

Since the 1960s, the number of women participating in medicine has been increasing; Jagsi et al. (1) reported that in the US women accounted for 49% of all medical students in 2005, compared with only 6% in 1960. During this time period, the participation of women in academic medicine has also increased; however, evidence suggests that women remain underrepresented in academic medicine and administrative positions (1). A similar increase in female participation in medicine is occurring in Turkey. According to Ozkanli the annual number of admissions to medical schools is around 4500, and proportion of female students has risen from 4% to approximately 35%-40% in 50 years (2). Turkey's premier school of medicine (Hacettepe University) also reported that 54% of medical school graduates in 2012 were women, compared with 30% in 1992 (personal communication with Hacettepe University, Student Council Statistics Department). Women constitute 36.9% of academic staff in medical faculties in Turkey (2).

Publication in scientific journals is an important measure of academic productivity and is required for academic promotion and subsequent administrative positions. Some studies have reported the existence of a gender gap in scientific publication for numerous medical specialties (3), whereas others have reported no such gap (4); however, there is a scarcity of data regarding the psychiatric literature (5). In Turkey, as in many other countries, publication in international journals is a criterion for academic promotion; however, in 2000 the Turkish Council of Higher Education instituted changes to the requirements for academic promotion, placing a greater emphasis on publication in international journals (6). As such, studies related to psychiatry, as well as other medical disciplines published by Turkish authors in international scientific journals have been increasing (7). To the best of our knowledge, no study has examined the academic productivity of women in psychiatry or any other medical specialty in Turkey. As such, the present study aimed to investigate gender distribution of Turkish authors of published psychiatric research in international scientific journals during a 30-year period. We sought to investigate the proportion of women authors in different time frames and to identify any trend towards increasing of this proportion with time. We did not include national journals in our survey for the following reasons. First, publication in international scientific journals is the main criteria required for academic promotions. Second, there were difficulties of accessibility of national journals. Third, there is a relatively recent increase in psychiatric publications. Fourth, publications and journals in Turkish were scarce until a few years ago.



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METHODS

A search of the ISI Web of Science database for psychiatry articles published between 1980 and 2009 was conducted using "Turkey" as the search term. All articles were classified according to period of publication (1980-1989, 1990-1999, 2000-2004, 2005-2009), gender of the first and last authors, title (MD, PhD, nurse) of first author, number of authors (single author, 2-3 authors, and ≥ 4 authors), and type of article (original research, review, case report, and other). As there were relatively few publications prior to 2000, the publication period classification intervals prior to that date were 10 years, compared with 5 years after 2000. The study focused on first authorship, as it indicates primary responsibility and is likely to denote the primary investigator, as well as the fact that in Turkey first authorship of ≥ 1 articles is a requirement for promotion in academic medicine. For the articles with 1 author the author was considered as the first author. The study also analyzed last authorship, as the last author is usually the highest level academic among the authors; hence, we hypothesized that the number of female last authors would be indicative of the level of female participation in the upper tier of academic psychiatry in Turkey.

The gender of each author was determined based on first name. If first names did not clearly indicate gender or if only initials were provided, we attempted to find other publications by the same author, searched personal and/or institutional websites via Google, or consulted with colleagues. There were a few authors for whom gender could not be confirmed, and they were excluded from all analyses.

We also investigated the proportion of women academics in psychiatry departments of state universities. For this purpose, we searched websites of all the state universities and found the numbers of male and female academic staff in psychiatry departments.

Statistical Analysis

SPSS v.16.0 for Windows was used to analyze all the data. Each article was characterized using descriptive statistics. Comparison of female/male author results between different publication periods and article types was performed using the chi-square or nonparametric tests, as appropriate.

RESULTS

Of 2047 articles published between 1980 and 2009, 1961 met the inclusion criteria (Turkish first author); 86 of those articles had either a foreign first author, or a first author whose gender could not be identified. Among the remaining articles, 36.5% of first authors and 34.9% of last authors were women. Among the 33 articles from Turkey published between 1980 and 1989, 42.4% had women as their first author. Among the 114 article from Turkey published between 1990 and 1999, 35.1% had women as their first author. Beginning in 2000 the number of articles increased sharply; there were 1814 articles published between 2000 and 2009. Women were first authors in 34.4% and 37.3% articles published in the period 2000-2004 and 2005-2009, respectively; the difference was not statistically significant ($p=0.57$) (Table 1).

Regarding last authorship, among the articles published between 1980 and 1999, 30% of the last authors were women, which is significantly lower than the rate of first authorship ($p<0.05$). However, between 2000 and 2004, last authorship among women increased to 41%, and then decreased to 33% between 2005 and 2009 (Table 1). The percentage of female authors also differed according to the number of authors. Women accounted for 31.5% of single authors, whereas they accounted for 40.5% of first authors of articles with 2-3 authors and 34.9% of first authors of articles with ≥ 4 authors ($p<0.05$). In addition, women accounted for

41% of last authors of articles with 2-3 authors, compared with 31.5% of articles with ≥ 4 authors.

In all, 42.3% of the first authors of case reports (42.3%) were women, compared with 36% and 39.2% of original research articles and reviews, respectively ($p<0.05$). There wasn't a similar difference in the percentage of female last authors according to article type ($p=0.26$). In terms of first author title, 3.9% of all first authors were psychologists, of which 61% were women, whereas 34.5% of first author MDs were women ($p<0.001$). Last authorship differed similarly; 56.9% of last author psychologists were women and 33.2% of last author MDs were women.

DISCUSSION

To the best of our knowledge, the present study is the first to examine gender and authorship of psychiatry articles in Turkey. Comparison between decades is not very informative because of the small number of articles published by Turkish researchers between 1980 and 1999. Following changes to the criteria for academic promotion instituted by the Turkish Council of Higher Education in 2000, which placed a greater emphasis on publication in international journals, the number of articles related to psychiatry published by Turkish researchers increased markedly (6,7). Nonetheless, because of a lack of published data, we were unable to perform analysis of the relationship between female first/last authorship and academic position. The present findings show that 34.4% and 37.3% of the first authors of psychiatry articles published between 2000 and 2004, and between 2005 and 2009, respectively, were women. In addition, 33% of all academic positions in the psychiatry departments of Turkish state universities in 2011 were occupied by women, showing that the proportion of female first authors of psychiatry articles and the proportion of women in academic psychiatry remained equal after 2000.

According to the Turkish Ministry of Health, in 2011 women constituted 41% of psychiatrists in state hospitals (personal communication) and occupied 33% of academic positions in the psychiatry departments of Turkish state universities, which clearly indicates a gender gap. Nonetheless, among European countries, Turkey has a very high percentage of female university professors, which was 27% in the 2000s, compared with a mean percentage of female professors in the European Union of 15% in 2004 and 15% in Australia in 2003 (2,8,9). Promoting gender equality and empowering women was defined as one of the 8 goals of the United Nations (UN) Millennium Campaign, which is also a goal of the Projects in the European Research Area (ERA) for academia. Data that explain the gender gap in academia are limited.

In 1993, there were no female rectors of Turkish universities, whereas 8% of rectors in 2010 were women (9). Özel reported that 39.6% of all academic positions in Turkey were occupied by women, 27% of all professors in Turkey were women, and that only 14.4% of Turkish university rectors, vice-rectors, and deans were women (10). Women constitute only 17% of state university department of psychiatry chairs in Turkey, compared with holding 33% of all academic psychiatry positions. The low number of female psychiatry department chairs might also be related to other factors, such as differences in productivity other than publishing, differences in female preferences regarding career and other responsibilities, and lack of institutional support and promotion. While the higher occupation of academic positions by women in Turkey compared to European Union is encouraging, the scarcity of women in executive positions show that there is still inequality for women in academia.

Amering et al. (5) reported a substantial increase in female first authorship in 2007 in high-impact psychiatry journals compared with that in 1994

Table 1. Female first and last authorship of psychiatry articles from Turkey published in international scientific journals according to type of articles, number of authors, titles of authors, and publication period

	Female, n (%)	Male, n (%)	Total	p
Gender distribution of psychiatrists in 2009	547 (41)	783 (59)	1330	0.033
Gender distribution of academic psychiatrists at state universities in 2009	73 (33)	145 (67)	218	
First author	715 (36.5)	1246 (63.5)	1961	
Last author	635 (34.9)	1187 (65.1)	1822	
First author				0.023
Article type				
Original research	408 (36.0)	725 (64.0)	1133	
Review	49 (39.2)	76 (60.8)	125	
Letter	25 (22.9)	84 (77.1)	109	
Case report	30 (42.3)	41 (57.7)	71	
Other	205 (38.8)	320 (61.2)	523	
Last author				0.264
Article type				
Original research	374 (34.8)	702 (65.2)	1076	
Review	45 (41.7)	63 (58.3)	108	
Letter	26 (26.5)	72 (73.5)	98	
Case report	25 (35.7)	45 (64.3)	70	
Other	165 (35.1)	305 (64.9)	470	
First author according to				0.037
Number of authors				
1	34 (31.5)	74 (68.5)	108	
2-3	246 (40.5)	362 (59.5)	608	
>3	435 (34.9)	810 (65.1)	1245	
Last author according to				<0.0001
Number of authors				
2-3	247 (41.1)	354 (58.9)	601	
>3	388 (31.8)	833 (68.2)	1221	
First author title				<0.0001
MD	633 (34.3)	1200 (65.5)	1833	
PhD	47 (61.0)	30 (39.0)	77	
Nurse	26 (96.3)	1 (3.7)	27	
Social worker	0 (0)	1 (100)	1	
Other	9 (45.0)	11 (55.0)	20	
Last author title				<0.0001
MD	564 (33.2)	1137 (66.8)	1701	
PhD	41 (56.9)	31 (43.1)	72	
Nurse	21 (95.5)	1 (4.5)	22	
Social worker	0	0	0	
Other	9 (36.0)	16 (64.0)	25	
First author according to publication period				0.569
1980-1989	14 (40.6)	19 (57.6)	33	
1990-1999	40 (35.1)	74 (64.9)	114	
2000-2004	172 (34.3)	330 (65.7)	502	
2005-2009	489 (37.3)	823 (62.7)	1312	
Last author according to publication period				0.019
1980-1989	7 (30.4)	16 (69.6)	23	
1990-1999	30 (30.3)	69 (69.7)	99	
2000-2004	185 (40.8)	268 (59.2)	453	
2005-2009	413 (33.1)	834 (66.9)	1247	

(35.3% and 17.1%, respectively; $p < 0.01$). In 2007, 42.7% of research articles were written by female first authors, compared with only 18.4% in 1994 ($p < 0.01$) (5). Other researchers have reported similar findings (11). Freidl et al (12) reported that almost 50% of first authors of German-language psychiatric articles in 2008-2009 were women, indicating the absence of a gender gap. While an equal or an increasing share of authorship is inspected in areas such as psychiatry, dermatology and pediatrics, there is still a gender gap on this issue in areas such as surgery and emergency medicine, which are more competitive and demanding (3,4,13).

The present study findings indicate that there wasn't a huge gender gap among last authors, which is encouraging, as equal representation of women in the upper tier of academia has a positive effect on the development of younger female academicians. However in Turkey last authorship does not always implicate representation of senior positions in academia, therefore comments based on this finding should be exercised with caution. An analysis of the academic titles of last authors might help in making more accurate conclusions on this issue. In the present study, 42.3% of first authors of case reports were women, compared with 36.0% of first authors of original research articles. This is encouraging because publication of original research is an important criteria for academic promotion in Turkey. The present findings also show that the percentage of women with positions in academic psychiatry and the percentage of female first authors of psychiatry articles was equal, which may indicate that academic psychiatry in Turkey offers females a good opportunity for advancement. However in our study these conclusions are made based on the percentage of female psychiatrists in state universities, which is an important limitation. The data on the occupation of academic psychiatry positions by women in state research hospitals and private universities and the trend in time cannot be reached. Based on these limited data, conclusions should be confined to a certain area, i.e. state universities.

The present study has some other limitations, including the lack of qualitative analysis of the articles, including the number of times an article was cited and journal impact factor, which should be examined in future studies. As stated in the introduction, the present study does not include article data from Turkish journals due to limited access, however an analysis of authorship in Turkish journals in the future might offer additional insights. Academic promotion rates for women also might offer additional information on the gender inequality in academia. Although the present study determined that there is a gender gap in academic psychiatry in Turkey, additional research is required to determine if such a gap exists in

other disciplines, including pediatrics, dermatology, and more demanding and competitive fields such as surgery and emergency medicine.

In conclusion, although female academicians in psychiatry departments are as academically productive as their male colleagues in Turkey, there remains a gender gap in academic and administrative positions that must be examined and corrected.

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