

S. M. Yasir Arafat^{1,2*}, Sujita Kumar Kar³, Priyanshi Chaudhary³, M. Marthoenis⁴

The Trend and Proportion of Female Authors in Mental Health Journals in the Last Two Decades (2003-2023)

¹Department of Psychiatry, Bangladesh Specialized Hospital, Dhaka, Bangladesh.

²Senior Research Fellow, Biomedical Research Foundation, Dhaka, Bangladesh.

³Department of Psychiatry, King George's Medical University, Uttar Pradesh, India.

⁴Department of Psychiatry and Mental Health Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia.

*email: arafatdmc62@gmail.com

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Abstract

Background: It has been noted that females lag behind their male counterparts in scientific contributions in various aspects, such as research outputs, editorial positions, and grant achievement. However, the proportion and trend of female authors in mental health journals have not yet been studied.

Objectives: We aimed to see the proportions and trends of female authorships in mental health journals during the last two decades (2003-2023).

Methods: Data was extracted from Scimago Journal & Country Rank. Journal titles, their SJR ranking, their different ranking quartiles (Q1, Q2, Q3, and Q4), and the percentage of female authors at five year intervals i.e. 2003, 2008, 2013, 2018, 2023 were collected. In addition, our aim was to compile data from the top 100 psychiatric journals for each ranking quartile totalling 400 journals.

Results: The proportion of female authors was 54.6% (95% confidence interval 49.7-59.8) in 2023, 51.9% (95% confidence interval 46.8-57.1) in 2018, and 48.8% (95% confidence interval 43.1-55.4) in 2013 in all journals. There was an increasing trend in the proportion of female authors from 2003 (42.5%) to 2023 (54.6%). The regression analysis demonstrates a statistically significant positive trend in the percentage of female authors in mental health journals over the years across all quartiles.

Conclusions: This analysis noted female authorship dominance in mental health journals has steadily increased in the last two decades. However, a cautious consideration is warranted as the analysis only includes Scimago-listed journals which may exclude a good proportion of journals from low and middle-income countries.

Keywords

Female Authors, Female Gender, Gender Distribution, Publication Trend, Mental Health Journal

INTRODUCTION

Interest in psychiatry as a career choice is growing worldwide. Several school environment-related factors, personality traits of the students, and perceived prospects in psychiatry impact students' choice of psychiatry as a career (Seow et al., 2018). Exposure to psychiatry teaching during medical training or clerkship as well as a personal interest in psychiatry or a suggestion by a family member to opt for this, or experience of psychiatric illness in the family or oneself can also influence students' choice of psychiatry as a career (Seow et al., 2018; AlOsaimi et al., 2019;

Kerebih et al., 2019; Zhang et al., 2021). According to a survey involving a large number of medical students in China, being female is another important factor in choosing psychiatry as a career (OR= 1.50, 95% CI= 1.30 – 1.68) (Zhang et al., 2021). An earlier Canadian study also found that females choose psychiatry as a career more frequently than their male counterparts (Gowans et al., 2011). There is also an increase in female doctors opting for psychiatry as a career in India (Sood et al., 2009). Despite this increase, there is a significant gender gap in psychiatrists across the world with females lagging behind in comparison to males (Rajkumar and Reed, 2021).

Consider research in psychiatry which has increased exponentially over the past several decades: there is a significant under-representation of women observed in this area as a study that evaluated the representation of females on editorial boards of journals, and authors of scientific research in psychiatry showed (White, 1985). This research was done nearly four decades ago, but more recent research evaluated the representation of women at French psychiatric conferences from 2009 to 2018. This showed that about 25% of all the speakers at these conferences in 2009 were women, and this increased to 32% by 2018 (Pierron et al., 2020). Although the proportion of female psychiatrists had increased from 2009 to 2018 their participation in certain roles, namely, the symposia organised by pharmaceutical companies, chairpersons of the academic events, and members of the scientific and organising committees, was low (Pierron et al., 2020). A similar trend had been noticed regarding the representation of female psychiatrists in the annual meetings of the *American Psychiatric Association* between 2009 to 2019 (Sebbane et al., 2022).

Under-representation of women is not limited to disciplines like psychiatry: similar trends are also reported in other major medical disciplines, such as, rheumatology (Hasan et al., 2022), orthopedic surgery (Gerull et al., 2020a), general surgery (Gerull et al., 2020b), critical care medicine (Mehta et al., 2018), emergency medicine (Partiali et al., 2021) and dermatology (Oska et al., 2020). Considering the underrepresentation of women in leading roles in various medical disciplines, including psychiatry, we aimed to assess the proportion and trend of female authors in mental health journals during the last 20 years.

METHODS

Data Extraction

Data was extracted from *Scimago Journal & Country Rank* (<https://www.scimagojr.com/journalrank.php?category=2738>) between January and June 2024. The *Journal Ranking* under the *Psychiatry and Mental Health Category* (within All Subject Category) was checked to obtain the proportion of female authors per year. Data on journal name, SJR ranking (Q1, Q2, Q3, and Q4), and percentage of female au-

thors was gathered. To analyse the trend, data spanning the last two decades (2003-2023) at five-year intervals: 2003, 2008, 2013, 2018, 2023 was obtained. The 2023 quartile position of the journals was considered and the female authors' proportion at the mentioned points extracted. There were more than 570 journals in total with more than 140 journals in each quartile. Our goal was to collect data from the top 100 journals for each quartile, making a total of 400 journals. The aim was to check the trends and to determine the distribution based on the impact of the journals and each category of the class to assess any inter-quartile variations. It should be noted that the proportion of female authors was unavailable in some journals in different years and our analysis, therefore, only included 390 journals.

Statistical Analysis

Data was processed using Microsoft Excel (version 2010 for Windows) and Stata (version 13). Descriptive statistics were used to summarise the proportions of female authors and their trends over time. To assess the statistical significance of the trend, a linear regression analysis was performed, modeling the percentage of female authors as the dependent variable, and the publication year as the independent variable. The Intercept represents the estimated percentage of female authors at the baseline year (year zero = 2003). The Year Coefficient indicates an average annual increase in the proportion of female authors. R-squared values measure how well the model explains the variability in the percentage of female authors. And the p-value tests whether the increase in female authorship over time is statistically significant ($p < 0.05$ was considered significant).

Ethical Approval

The data was extracted from publicly available sources without any human interaction. Therefore, no formal ethical approval was sought, and informed consent was not relevant for this study.

RESULTS

Our analysis included 390 journals. The detailed number of journals and the average proportion of female authors are mentioned in Table 1. The proportion of female authors was 54.6% (95% confidence

interval 49.7-59.8) in 2023, 51.9% (95% confidence interval 46.8-57.1) in 2018, 48.8% (95% confidence interval 43.1-55.4) in 2013 (Table 1).

Table 1. Distribution of female authors of mental health journals in the last two decades (2003-2023)

	2003		2008		2013		2018		2023	
	Number of journals	% of female authors (95% Confidence interval)	Number of journals	% of female authors (95% Confidence interval)	Number of journals	% of female authors (95% Confidence interval)	Number of journals	% of female authors (95% Confidence interval)	Number of journals	% of female authors (95% Confidence interval)
Q1	53	39.0 (25.9-52.1)	63	42.9 (30.7-55.2)	65	45.7 (33.6-57.8)	86	49.7 (39.2-60.3)	98	53.4 (43.5-63.3)
Q2	61	42.7 (30.3-55.1)	76	45.6 (34.5-56.8)	87	46.9 (36.5-57.5)	93	51.0 (40.9-61.2)	98	53.6 (43.8-63.5)
Q3	55	48.2 (35.0-61.4)	64	47.9 (35.7-60.2)	79	50.8 (39.8-61.8)	94	54.4 (44.3-64.5)	99	57.0 (47.3-66.8)
Q4	44	39.4 (24.9-53.8)	61	46.9 (34.4-59.4)	71	51.5 (39.8-63.1)	85	52.5 (41.8-63.1)	95	54.4 (44.4-64.4)
Total	213	42.5 (35.8-49.1)	264	45.9 (39.8-51.8)	302	48.8 (43.1-54.4)	358	51.9 (46.8-57.1)	390	54.6 (49.7-59.8)

Figure 1 shows the proportion of female authors in mental health journals over the years for each quartile (Q1, Q2, Q3, Q4). There was an increasing trend in the proportion of female authors from 2003 to

2023 (Table 1; Figure 1). The total proportion of female authors has increased from 42.5% in 2003 to 54.6% in 2023. Furthermore, the proportions increased steadily for all ranking quartiles.

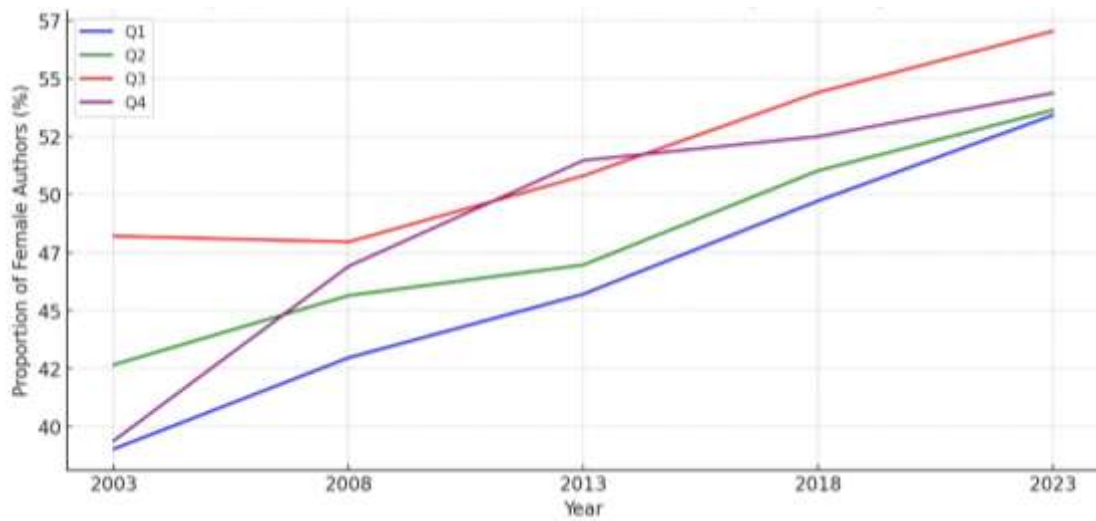


Figure 1. The trend of female authors in mental health journals in different quartiles in the last two decades (2023-2003)

The regression analysis demonstrates a statistically significant increasing trend in the percentage of female authors in mental health journals over the years across all quartiles. The year coefficient is positive and substantial in all cases, indicating that the per-

centage of female authors has consistently increased over time. The high R-squared values suggest that the year is a strong predictor of the percentage of female authors. A detail of regression analysis is presented in Table 2.

Table 2. Regression analysis of the trend of the proportion of female authors in mental health journals

Metric	Total (%)	Q1 (%)	Q2 (%)	Q3 (%)	Q4 (%)
Intercept	-1171.53	-1383.86	-1051.91	-918.0	-1381.5
Year Coefficient	0.6	0.7	0.54	0.48	0.71
R-squared	0.99	0.99	0.97	0.90	0.83
p-value (year)	<0.001	<0.001	0.001	0.01	0.021

DISCUSSION

The trend of female authors

This analysis indicates an increasing representation of female authors, and a positive trend toward a greater representation of female authors in mental health journals across all assessed quartiles in the last two decades. It is interesting to note that female authors were over-represented (about 55%) in mental health journals in 2023, and 2018 (about 52%) with a steady state increase during the last two decades. It was about 43% in 2003. The increment is statistically significant for journals in all ranking quartiles and there is no significantly inter-quartile variations in the gender distribution of authors for the *Psychiatry and Mental Health* category.

Previous studies conducted in other disciplines and academic domains identified female under-representation across the globe in leadership roles, academia, research, and various prestigious positions (Ramakrishnan et al., 2014). A review of American academic medicine over twelve years revealed a significant under-representation of women in leading academic positions such as professorship, chairpersonship, and deanship (Yu et al., 2013). Hafeez et al., (2019) analysed the editorial board members of 119 psychiatry journals and found that women represented approximately 30% of the boards. Under-representation of women editors of psychiatry journals in South Asia (Arafat et al., 2022), and in the editorial boards of leading suicide journals (Arafat et al., 2024) noted in previous studies, is contradictory to the findings of this study. Additionally, the mentioned studies assessed the data cross-sectionally whereas in this study, there was under-representation in the earlier decade (2003-13) and the proportion of female representation had increased gradually from 42-54%.

A recent bibliometric analysis of review article publications related to schizophrenia was evaluated for gender disparity (Vijayakumar et al., 2023). The analysis included articles published between 2019 and 2022, and it was found that in terms of being the first author of the publication, there is an under-representation of women in comparison to men (44.4% versus 55.6%). However, the percentage of representation of women increased from 2019 to 2022 (Bernardi et al., 2020). This change has also been observed in various surgical specialty publications where women were under-represented as first authors (Bernardi et al., 2020). Gmeiner et al., (2022) evaluated the gender representation of authors in all the published articles in high-impact journals, such as, the *American Journal of Psychiatry*, the *British Journal of Psychiatry*, and *JAMA Psychiatry*, from 1994 to 2019 (over a period of 25 years). There is an under-representation of females as any authors, first authors, and overall senior authors, although there has been an increasing trend during the reported time frame (Gmeiner et al., (2022). These findings correlate to this report.

Although previous studies identified female under-representation, an increment in gender representation of women has been noticed in the mental health research domains involving mood disorders, schizophrenia, child psychiatry, and general psychiatry (Trimmel et al., 2023). When it comes to the percentage of first authors in publications involving psychiatric epidemiology and basic research in biological psychiatry, more than 50% of authors are females (Trimmel et al., 2023). This indicates that recent years have witnessed the reduction of gender disparity in psychiatric research and publications.

Implications of the study results

Our current analysis indicates that the participation

of females in mental health research and publications has increased in comparison to males. This may be due to the complex nature of the human mind, its measurement, and research methods. This may also be the result of increased awareness of mental health problems around the world. Moreover, it may be related to the nature of the clinical workplace environment which is conducive to females. However, further studies are necessary to confirm these speculations.

STRENGTH AND LIMITATIONS

To the best of the authors' knowledge, this is the first study assessing the proportion and trend of female authors in mental health journals for the last two decades. Secondly, data were collected from a well-accepted source (Schimago). However, there are multiple limitations in this study. Firstly, we extracted data from a single source, and journals from low and middle-income countries may not be featured in the database. Secondly, data was collected purposively (first 100 journals for each quartile): this may challenge the generalisation of the study findings. Thirdly, a proportion of female authors was missing in some journals: this has been reflected and may challenge the interpretation. Fourthly, the quartile of the journal may be changed over time and this was not considered during the analysis. Fifthly, data from all five specific years were not available in some journals as not all journals had been running for more than two decades.

CONCLUSIONS

This study indicates that female authorship in mental health journals has increased steadily over the last two decades and surpassed males in the last decade. However, cautious consideration is warranted in generalising the study results, considering the limitations of this analysis. Further studies with non-purposive sampling and data from multiple sources could reveal a different scenario.

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Author Contributions

Conceptualization: SMY Arafat

Methodology: SMY Arafat, SK Kar

Data Curation: P Chaudhary

Data analysis: M Martheonis

Project Administration: SMY Arafat

Supervision: SMY Arafat

Writing – Original Draft Preparation: SMY Arafat, SK Kar

Writing – Review & Editing: All authors

All authors have read and approved the final version of the manuscript.

Clinical Trial Registration

Not applicable

Conflict of Interest

None declared.

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ORCID

S. M. Yasir Arafat <https://orcid.org/0000-0003-0521-5708>

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