

Systematic Review

Study on analysis of gender disparities among the first authors of publications on Menetriers disease

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ABSTRACT

The disparities in gender representation within academic writing highlight pervasive social prejudices and inequalities, with male researchers predominating in both quantity and visibility, perpetuating a cycle of unequal representation. This imbalance limits the diversity of perspectives in intellectual discourse. However, there has been a noticeable increase in the representation of female authors, breaking traditional gender barriers. This research article aims to investigate gender disparities among first authors in medical literature concerning Menetrier's disease over the past 22 years. A cross-sectional study of 130 relevant publications from PubMed between January 2001 and December 2022 was conducted, analyzing the gender distribution of first authors using SPSS software. Results indicate that 70.7% of the articles had male first authors, with intermittent periods of female author prominence. While countries like China, Spain, and Italy showed relatively equitable gender ratios, others such as Japan, Turkey, India, and the Republic of Korea exhibited significant male dominance. However, no significant association between gender and country of authors was found. Despite these findings, limitations include potential errors in gender determination methods, focusing solely on first authorship, and overlooking contributions from co-authors, while the selected journals and countries may not fully represent global gender disparities.

Keywords: Gender disparity, First author, Menetrier's disease, Trends, PubMed

INTRODUCTION

Menetrier's disease is an uncommon stomach disorder with an unknown origin, characterized by a noticeable thickening of the stomach lining, and is thought to be caused by infectious organisms, such as *Helicobacter pylori* and cytomegalovirus.¹ The most prevalent indication is discomfort in the upper abdomen; additionally, swelling in the extremities due to low levels of albumin and an increased permeability of the stomach lining are frequently observed.² Key indicators for

diagnosing Menetrier's disease encompass a widespread intensification of the stomach lining folds, excessive growth of foveolar cells, and the deterioration of glandular tissue, resulting in a reduction in the number of main and parietal cells.^{1,2}

Historically, the realm of research articles was dominated by male authors, and this imbalance underscored the systemic challenges that hindered women's full participation and recognition in the research arena.³ The prevalent gender bias skews perspectives, limiting the

diversity of insights in scholarly discourse. Over the years, the landscape of research articles within the medical field has witnessed a notable and inspiring transformation, marked by a significant rise in the representation of female authors. This evolution is reflective of the progressively inclusive nature of academia and the breaking down of traditional gender barriers.⁴

Exploring gender trends in research published about Menetrier's disease holds significant importance in understanding potential disparities in healthcare outcomes and research representation. Given that Menetrier's disease primarily affects adults, understanding gender-specific manifestations and responses to treatment is crucial for optimizing patient care and improving clinical outcomes.⁵ Furthermore, investigating gender trends in research on Menetrier's disease can shed light on broader issues of gender equity and representation in medical research, potentially uncovering biases in research funding, publication opportunities, and academic recognition. By addressing these disparities, researchers and healthcare professionals can strive for more inclusive and comprehensive approaches to understanding and managing Menetrier's disease, ultimately benefiting patients of all genders.

Thus, the present study aims to identify the gender trends among first authors of publications related to Menetrier's disease. The choice of first authors is motivated by their significant contribution to the research, as they are typically responsible for conceptualizing the study, designing experiments, and writing the manuscript.⁶ Moreover, studying gender disparities among first authors provides valuable insights into the early stages of researchers' careers, where biases and barriers may be most pronounced.

Aim and objectives

Aim and objectives of the study were to identify the gender trends among the first authors of Menetrier's disease related articles published between 2000 and 2022, and also identify any potential disparities.

METHODS

This cross-sectional study aimed to investigate gender disparity in publications related to Menetrier's disease over a 22-year period. Data collection was conducted using the PubMed search engine, with data extracted on August 9, 2023. Data collection involved a systematic search using the term "Menetrier's disease" on PubMed. The publication date range was set from January 1, 2000, to December 31, 2022, to focus on recent literature. The search results were arranged in descending order from most recent to least recent, and the complete list of articles was downloaded in .csv format. Subsequently, the full names of the first authors and their respective countries of origin were obtained, with country determination based on their institutional affiliations.

A total of 130 research articles, case reports, and review articles related to Menetrier's disease published between 2000 and 2022, and had the term "Menetrier's disease" in the title were included in the study.

Gender determination using NamSor

Gender determination for the first authors and their respective country affiliations was conducted using the NamSor application programming interface (API), which employs a probabilistic approach based on an individual's full name and country of origin.⁷ The authors' country affiliations were inferred from their institutional affiliations. Previous studies, such as those by Tricco et al, Baobeid et al, and Kuruvila et al have validated the reliability of the NamSor API for author gender determination.⁸⁻¹⁰ The NamSor API assigns a probability range (0 to 1) for an individual's gender. Authors with a probability of 0.6 or lower underwent manual verification against their publicly available institutional profiles, and any discrepancies were corrected by the researchers. Authors whose gender remained unidentified were excluded from the analysis.

The collected data was exported to Microsoft excel for organization and initial processing. Statistical analysis was performed using R studio (ver. 4.3.1), with Fisher's exact test utilized to explore the association between the variables of gender and country. An autoregressive integrated moving average (ARIMA) model was utilized for time series analysis, and data visualization in form of graphs and charts was accomplished using Datawrapper.

RESULTS

In this study, 130 articles were screened and analyzed. This study yielded various significant findings.

Among 130 articles retrieved, complete author names were successfully identified for all of them. When considering the distribution of gender, 92 (70.7%) of the authors were male, 37 (28.4%) were female, and there was one author whose gender could not be determined (Table 1).

Table 1: Gender frequencies.

Gender	N (%)
Female	37 (28.3)
Male	92 (70.7)

Figure 1 illustrates gender ratios over a 22-year perspective for first authors. An analysis of the data according to the year demonstrated female authors only surpassed their male counterparts in the years 2006, 2010, and 2014. No female authors were identified in the years 2000, 2002, 2013, 2019, or 2020. A maximum of four female authors were retrieved between 2016 and 2021.

Figure 2 highlights the cumulative counts of the proportion of observed and predicted author articles to total female

and male author articles. The proportion of both female and male articles increased over time. A notable difference was found between observed and predicted counts for female authors between 2012 and 2022.

Figure 3 and Table 2 shows a breakdown by country of the number of female and male first authors, along with the gender ratio that is found by dividing the number of female authors by the number of male authors. For example, China, Spain, and Italy have gender ratios of approximately 1.33, indicating slightly more female authors. While countries like Japan and Turkey have lower gender ratios, signifying a lower count of female authors, no significant association was found between gender and country of origin ($p=0.5022$).

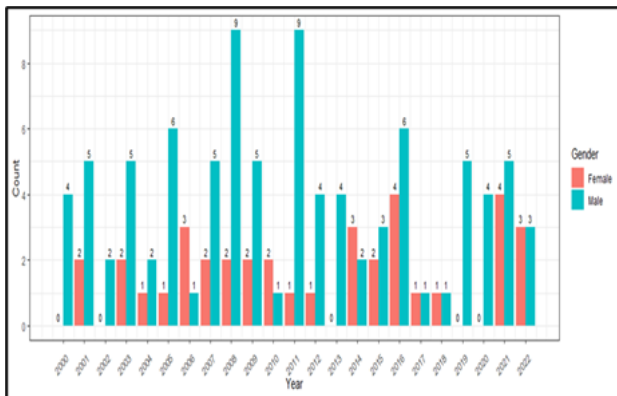


Figure 1: Total number of male and female first authors each year.

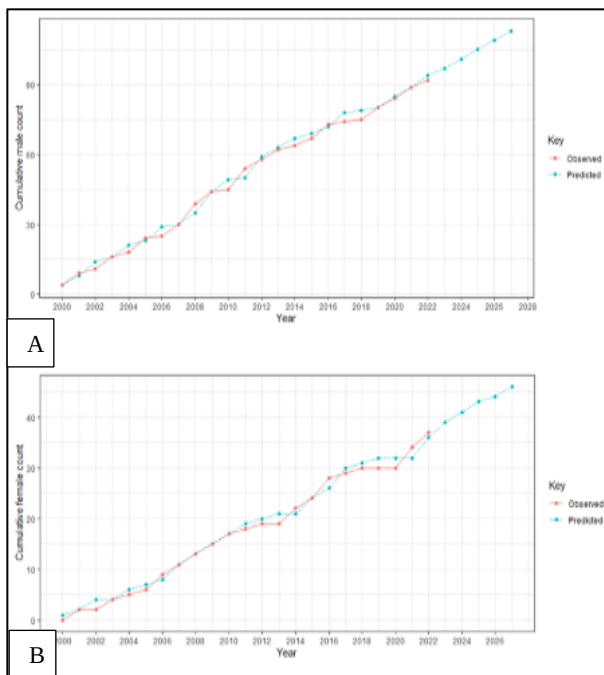


Figure 2 (A and B): Observed publication trends among cumulative male count and cumulative female count first authors from 2000 to 2022 and prediction of trends for the next 5 years.

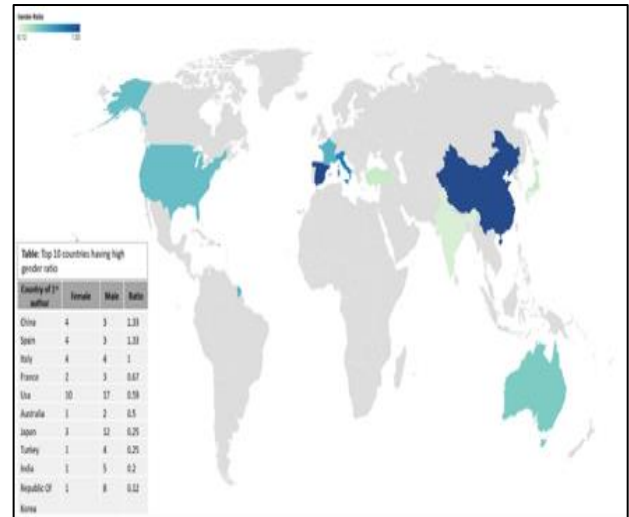


Figure 3: Gender trends in publications based on country, (2000-2022).

Table 3 illustrates the gender distribution of authors within various journals. "Clin Gastroenterol Hepatol" has the highest gender ratio of 2, indicating a higher representation of female authors compared to male authors. Journals like "N Engl J Med," "Sci Transl Med," and others have gender ratios of 1, indicating an equal representation of both genders. Journals with lower ratios, such as "BMJ Case Rep" and "Cureus," showed higher count of male authors.

Table 2: Top journals having favourable gender ratio.

Journals	Female	Male	Ratio
Clin Gastroenterol Hepatol	2	1	2
Med Clin (BARC)	1	1	1
N Engl J Med	1	1	1
Sci Transl Med	1	1	1
Turk J Pediatr	1	1	1
Bmj Case Rep	1	2	0.5
Cureus	1	2	0.5
Dig Liver Dis	1	2	0.5
Gastroenterology	1	2	0.5
Gut	1	2	0.5

Table 3: Top countries having high gender ratio (at least 10 publications).

Country of first author	Female	Male	Ratio
China	4	3	1.33
Spain	4	3	1.33
Italy	4	4	1
France	2	3	0.67
USA	10	17	0.59
Australia	1	2	0.5
Japan	3	12	0.25
Turkey	1	4	0.25
India	1	5	0.2
Republic of Korea	1	8	0.12

DISCUSSION

This research study aimed to investigate the gender disparities of first authors in publications related to Menetrier's disease over a period of 22 years.

The examination of gender disparities in academic authorship offers useful insights into prevalent social constructs and inequities. In this current study, there is a notable prevalence of male first authors in comparison to female first authors, which mirrors gender imbalances observed in other scientific disciplines.¹¹ This current study found that there is a significant gender disparity, i.e., 92 (70.77%) of the first authors are male. This observation highlights a prevailing pattern.¹² The existence of this gap is not limited to topics such as Menetrier's illness but rather represents a larger pattern among scientific fields, indicating the presence of an underlying systemic problem.^{11,13}

As observed in this study, the ARIMA model prediction has a more optimistic perspective with comparable growth rates for both genders. However, the observed reductions for female authors in 2013 and 2020 present intriguing points for contemplation. The 2020 reduction, set against the backdrop of the COVID-19 pandemic, perhaps showcases the disproportionate burden women faced during the pandemic, a sentiment echoed by Myers et al highlighting the amplified challenges women in academia faced due to the pandemic.¹³ The dip in 2013, while harder to pin to a singular global event, might be a reflection of the persistent challenges female researchers face, ranging from balancing academic rigors with familial commitments to combating entrenched biases.^{14,15} However, further research is needed to clarify the true underlying cause of the 2013 drop in female first authorship.

With respect to geographical perspective, significant differences have been observed in this study. While some countries, like Spain and China, tend towards a more balanced male-to-female ratio, others, like the Republic of Korea, are male-dominated. While not statistically significant, these findings could be attributed to a myriad of factors, from cultural norms to institutional policies.^{16,17}

The observation of distribution among various publications highlights the necessity for self-reflection within the academic publishing community. Given the role of journals as gatekeepers, it is incumbent upon them to maintain gender parity.^{18,19}

The findings of this study within broader societal parameters underscores the multifaceted nature of gender disparities. Beyond mere numbers, they hint at persisting biases, skewed opportunities, and the cascading effects of historical imbalances. As society evolves, fostering a diverse academic environment becomes pivotal not just for equity but also for ensuring diverse problem-solving

perspectives.²⁰ As Ghiasi et al observed, gender equity enhances creativity and productivity.²¹

Limitations

Gender determination via a localization website might introduce errors due to the non-zero chance of mistaking the gender. Focusing on first authorship might overlook patterns in co-authorship, as research can involve multiple key roles beyond first authorship. Finally, selected countries and journals might not encapsulate global patterns.

CONCLUSION

The gender representation within academic publications not only serves as a mirror of past inequalities but also offers insights into the future academic environment. Upon analyzing the literature on Menteriers disease, it has been observed that there is a consistent presence of gender disparities among primary writers. Despite notable advancements that have been achieved throughout time, the existing discrepancies continue to endure. The intricate variations brought to light, particularly in certain years such as 2013 and 2020, emphasize the complex obstacles encountered by female researchers. The research on geographic characteristics suggested that cultural and regional elements may contribute to gender discrepancies. Additionally, an examination of several reputable journals revealed that editorial policies and procedures might potentially exert an impact on these differences. Within a wider framework, these discoveries resonate with the need to establish fair and impartial platforms that accommodate all individuals, regardless of their gender. As society progresses, the establishment of an inclusive academic environment is not only a moral obligation but also a crucial requirement for promoting complete, well-rounded, and vigorous research endeavours. In order to foster a more inclusive academic environment in the future, it will be crucial to engage in regular reflection, implement systematic interventions, and foster worldwide partnerships. Through the dissemination of publications and the pursuit of research endeavors, the scientific community is presented with a unique prospect to establish a lasting heritage characterized by principles of parity, exceptionalism, and the promotion of agency.

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