Purpose: To analyze the publication patterns of Pakistan Journal of Ophthalmology (PJO) for the last 24 years from 1995 to 2018.

Study Design: Descriptive Bibliometric analysis.

Place and Duration of Study: Medical Libraries, College of Applied Medical Sciences and College of Science & Health Profession, King Saud bin Abdul Aziz University for Health Sciences, Riyadh Saudi Arabia. June 2018 to April 2019.

Material and Methods: The data for the study was retrieved from websites of Pakistan Journal of Ophthalmology (PJO) and Pak Medi Net for statistical analysis in MS Excel 2010 version. The data was analyzed by dividing the studied period into two parts; a) first 12 years (1995 – 2006) and b) the last 12 years (2007 – 2018) for better understanding. This study examined 855 articles published in 24 volumes with 8.9 articles per issue from 1995 to 2018 contributed by 2816 authors.

Results: A gender-wise comparison among the contributing authors revealed 2378 males (84.4%) and 437 females (15.5%). It was also revealed that 141 (16.4%) articles were written by a female as the first author during the studied period. Majority of the articles (n = 734, 85.8%) were written by multiple authors instead of single authors (n = 121, 14.1%). Maximum number of articles were published in the year 2014 & 2018 (48 articles in each volume) and minimum number of articles were published in 1995 and 1997 (20 articles in each volume).

Conclusion: This study finds that Pakistan Journal of Ophthalmology (PJO) is published regularly and over the last 24 years has gained the confidence of researchers, institutes, and readers.

Key Words: Authorship, Bibliometrics, eye diseases, Journal.
documents. There are 74 journals enrolled in Web of Science (WoS) and 117 enrolled on a link Scimago journal and country rank, related to various ophthalmic sub-specialties. Scientific writings began with the two general medical journals; French Journal des Savants and the British Philosophical Transactions of the Royal Society in the 17th century until the end of 18th century. Before the end of 20th century specialist medical journals were famous, and later the journals which reflected the sub-specialties of any discipline of health sciences got attention of medical communities.

This particular study was conducted to find the characteristics of publications in Pakistan journal of ophthalmology during the last 24 years.

**MATERIAL AND METHODS**

The data of articles published in Pakistan Journal of Ophthalmology (PJO) during the year 1995 – 2018 was downloaded, collected and tabulated in MS Office (Excel 2010) in the library of College of Applied Medical Sciences, King Saud bin Abdul Aziz University for Health Sciences Riyadh, Kingdom of Saudi Arabia. Data was collected from June 2018 to April 2019 from the websites of Pakistan Journal of Ophthalmology (PJO) (http://www.pjo.com.pk/), and from Pak Medinet (http://www.pakmedinet.com/).

The data was analyzed by dividing the studied period into two parts; a) first 12 years (1995 – 2006) and b) the last 12 years (2007 – 2018) for better understanding. The objectives of the study were; a) to find the year, volume & issue wise publications, b) to explore the contribution of authors in publications, c) to discover the gender-wise distribution of the authors, d) to identify the pattern of authorship. Statistical analysis of the results was done using Microsoft Excel, version 2010.

**RESULTS**

There were 2816 authors who contributed 855 articles, which were published with an average of 35 articles per volume and 8.9 per issue during the studied period. Maximum number of articles were published in the year 2014 & 2018 (48 articles in each volume) and minimum number of articles were published in 1995 and 1997 (20 articles in each volume) as shown in figure 1. Male authors were 2378 (84.4%) and female authors were 437 (15.2%) out of 2816 total authors. The ratio of female authors was significantly increased as the first author in the last 11 years of publication (figure 2).

Majority 85.8% articles were written by multiple authors in both halves (25.8% and 56.9%). There were 14.1% articles written by solo or single author out of 855 articles. The first half shows that the solo articles were 33.2% higher than the second half (figure 3). There were only ten female authors who submitted article as single-author.

Distribution of articles Year, Volume & Issue-Wise during the years 1995 to 2018 is given in table 1. Table 2 (Distributed in A & B halves) explains the
The production of 25.3% articles were as single or solo during the studied period. The first half shows that the breakdown of authorship pattern.

Table 2(A): Breakdown of authorship pattern.

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APIA: Articles per-issue average

Table 2(B): Breakdown of authorship pattern.

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breakdown of authorship pattern in the publications during the studied period. The first half shows that the production of 25.3% articles were as single or solo author as compared to 7% in the second half. The increased number of publications over the past years shows constant publication approach and
determination of the researchers and the editorial team of PJO.

DISCUSSION

According to an Editor of the American Journal of Ophthalmology, there are many hardships faced by the editors including, irregular behaviors by authors, delayed information by the authors for submission and rejection by other journals ⁸. American Journal of Ophthalmology received 1042 full-length original manuscripts from 53 countries, between October 2009 to September 2010. Majority of articles (273) were from the United States of America followed by Japan (141). Among these, 257 (24.6%) were accepted for publication ⁹. An interesting study was applied on ophthalmic literature published in American Journal of Ophthalmology and Archives of Ophthalmology from January 2012 to December 2012 to determine the statistical methods used to evaluate the participation of an author in research productivity. This study examined 780 peer-reviewed articles and 618 (79.2%) articles were reported to use most of the statistical methods. Contingency tables, t-tests, and nonparametric tests were frequently used ⁹.

To assess the contribution of Arab authors in ophthalmology, a study was designed and conducted in Web of Science (WoS) in 2015. The study found that 216,921 articles were published under the title of “Ophthalmology” worldwide. It was also revealed that the participation of Arab countries in researching ophthalmology is 0.96% around the globe. The contribution of researchers affiliated with Arab countries was constant, with 828 articles. Kingdom of Saudi Arabia had the highest research output followed by Egypt 461 articles and Tunisia 210 articles. Countries with the highest collaboration with researchers in the Arab world in ophthalmology research were USA followed by England and Spain. The most research productive organization in Arab countries was King Khalid Eye Specialist Hospital with 396 articles authored or co-authored ¹⁰. A similar study was initiated on PubMed (Free) database to know the participation of Indian ophthalmic papers published from 2001 to 2006 in the peer-reviewed journals in the discipline of ophthalmic and vision research. Results showed that 2163 articles were published during the studied period ¹¹. In the previous decade, a study was conducted to analyze the scientific production published in the field of ophthalmology and visual sciences in Argentina, Brazil, Chile, Paraguay and Uruguay from 1995-2004. Study found that 1216 articles were published in this period. This study provides a novel perspective in this field to maintain quality and quantity in ophthalmology and visual sciences research ¹².

An analysis was conducted in 2018 on quarterly Pakistan Journal of Pharmaceutical Sciences (PJPS) from 1998 to 2012. Total 2941 authors contributed 722 articles. This study revealed that publications were doubled in PJPS after the year 2005. The percentage of female authors was 32.4% ¹³. Writing scholarly in a journal is the core component for communicating to a specific audience in the specialty with other sub-specialties of the subject. A retrospective appraisal of this journal displayed the robust peer-review system, which helps researchers to communicate research idea appropriately to its readers. A similar study was conducted to explore research trends in the ophthalmic literature published in the top twenty ranked ophthalmology journals from 2009 to 2013 relative to the research productivity of a country ¹⁴. It showed that 7,338 articles were published by the USA, UK, and Europe out of 19338 articles, followed by China, Korea and India as major contributors ¹⁴. Additionally, an interesting study unfolds the development in the past decade and found 100 most cited articles under the title “Ophthalmic epidemiology” which were published in Ophthalmology journal and cited 61 to 333 times ¹⁵.

Simultaneously, an observational study conducted to analyze women’s participation in original articles and editorials on three ophthalmology journals, which comprised past ten years as academic publications. The study found the participation of female researchers was 671 original articles with 89 editorials ¹⁶. Moreover, a huge study was conducted in ophthalmologic journals indexed in Web of Science (WoS) from 2008 to 2018 to determine the representation of female authorship according to first name, under the title “Sex Disparities in Ophthalmic Research: A Descriptive Bibliometric Study on Scientific Authorships”. The data of 248 ophthalmic journals retrieved 87,640 (25.4%) articles, which were written by 344,433 authors. Overall 120,305 (34.9%) female participants were calculated ¹⁷. However, according to one research, the contribution of female scholars is advanced in dermatological research as compared with other medical disciplines ¹⁸.

In January 2019, a study was conducted to estimate the number of publications on nephrology clinical trials published from 1966 to 2017 and preclinical studies from 1945–2017 in two databases.
namely; a Cochrane library and PubMed indexed journals. Study reported that 118 clinical trials and 135 preclinical studies were published in leading journals\(^9\). Moreover, an interesting study figures out that 2,135 peer-reviewed papers were published from 2009 to 2018 on retinal vein occlusion (RVO) a subspecialty of ophthalmology from Web of Science Core Collection to identify potential collaborators and partner institutions\(^20\). Lastly, assessing gaps are important to researchers between the specialty and subspecialty of visual sciences to categorize the objectives for achieving goals in future. Our study enlightened the encouraging policies of PJO to publishing, organizational environment and support of information technologies, which are influential factors in encouraging contributors in ophthalmic research.

CONCLUSION
This study finds that Pakistan Journal of Ophthalmology (PJO) is published regularly and over the last 23 years has gained the confidence of researchers, institutes, and readers.

Disclaimer
None to declare.

Conflict of Interest
None to declare.

Funding Disclosure
None to declare.

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Author’s Contribution
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Study design, Data Collection, Manuscript writing, final review.

Mumtaz Hussain Satti
Study design, Data Collection, Manuscript writing final review.