

Gender Differences in AGU Journals

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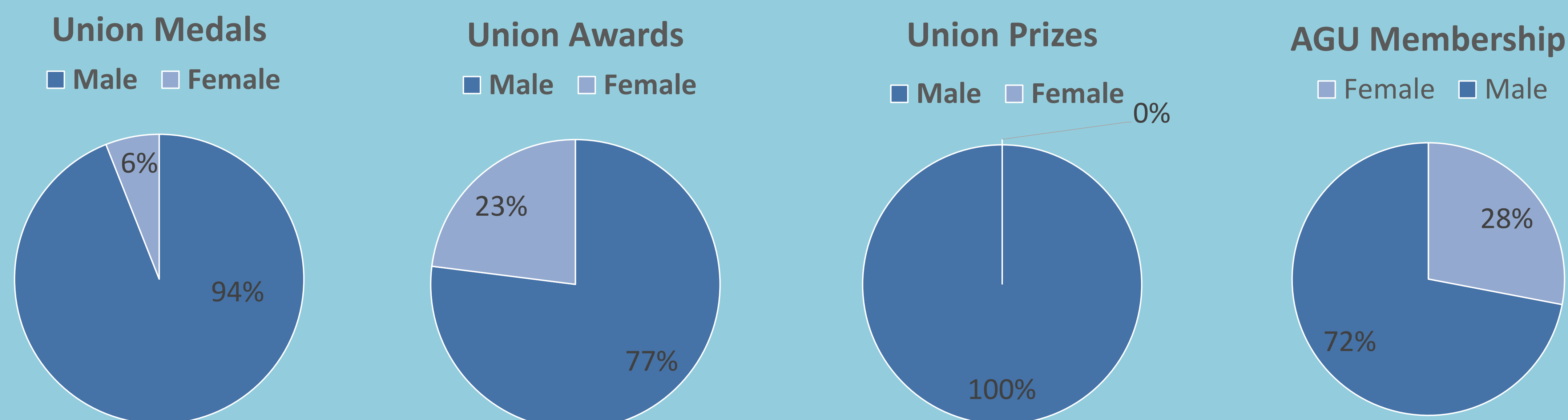
Introduction

Women are underrepresented in STEM disciplines [5]. They abandon scientific disciplines at higher rates than men [6]. In STEM related fields, women encounter a lack of mentorships, stereotypes, sexual harassment, and assault [6]. Explicit and implicit bias testing showed that males as well as females hold negative sex-based stereotypes against females [5]. Overall, women are twice less likely to be hired than men, and men are more likely to be offered higher salaries [3] They are more likely to obtain less glowing letters of recommendation for postdoctoral fellowship [4].

Scientific research presents significant evidence that women are underrepresented in science fields. For instance, Earth science journals have a small percentage of women [6]. Women also are underrepresented as last authorship in fields such as Bioscience and Math [7]. A study performed in astronomy measured gender difference in citations between male and females. The results showed that women receive 10% fewer citations than expected regarding academic work in astronomy [2]. However, double-blind review showed positive effects in papers published by women [1].

AGU History

- The American Geophysical Union was founded in 1919 [1], and now it is the largest professional geoscience society comprising 60,000 members in 137 countries, which only 28% are women [7].
- The objective of this non-profit organization is dedicated to benefit humanity by encouraging investigations in Earth and space science [1].
- Women are historically underrepresented in AGU awards, as reviewers for AGU journals, and in last authorship in AGU journals [7,8,9].
- Recently AGU has been implementing programs and initiatives to decrease the gender differences in these areas [7].



Figures 1: Gender distribution of 2018 AGU awards and honors (left 3) compared to society membership (bottom). Data from [10]

Methods

The current research addresses gender differences in geophysical journals published by the American Geophysical Union (AGU). It is hypothesized that papers with a male first author received a greater number of citations than papers with a female first author. The current study collected reference data derived from AGU journals that have published at least ten years of volumes. The next step, which is in process, is to determine and add the first names of the first author of each paper to identify whether they are female or male. After the first names are assigned the number of citations of papers with male vs. female first authors will be compared.

Results

Table 1: Papers from AGU journals used in the study

Journal	Year Founded	Number of Articles	Impact Number
Geophysical Research Letters	1974	35,434	4.34
Tectonics	1982	2,808	3.58
Geochemist Geophysics Geosystems	2000	3,532	2.98
Global Biogeochemical Cycles*	1987	2,406	4.45
Journal Geophysical Research	1896	70,562	3.48
Paleoceanography*	1986	2,143	2.72
Radio Science	1966	6,630	1.42
Reviews of Geophysics	1963	1,962	13.53
Water Resources Research	1965	15,665	4.36
Space Weather	2003	782	2.89

*Higher representation of women than average for geology

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