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Longitudinal Analysis of Gender and Geographical Representation in the Development Biology NIH Study Section

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INTRODUCTION

It is well documented that women are underrepresented in the scientific community. According to the National Academies of Sciences, Engineering and Medicine, women do not pursue careers in science due to the barriers they face in matters such as funding and resources[1]. Additionally, Guan Y, et al. found that most published papers in the United States originate from a handful of metropolitan areas[2]; illustrating that in addition to gender disparities in the field, there are also geographic disparities. To ensure discoveries that serve humanity broadly, the scientific community should be at the forefront of diversity and inclusion.

Each year the various NIH Study Sections have three meetings to review research grant applications to determine what studies receive government funding. These study sections include disciplines such as Alcohol Abuse, Aging and many others with the focus of this present study being the section regarding Developmental Biology. To evaluate the current diversity of the scientific community, we analyzed the NIH Developmental Biology Study Section rosters for the years 2011, 2016 and 2021.

Methods

A pilot tested Google Form was utilized for data extraction that included the entries: NIH study section, member name, member position, type of membership, member institution, member state, and gender. Gender was determined through institutional profiles of the members, or in the absence of a profile, by utilizing genderize.io - requiring a probability of 0.6 before reporting gender.

When determining region of residence, geographic divisions were identified using a model (Fig. 1) created by the *U.S. Census Bureau*[3].

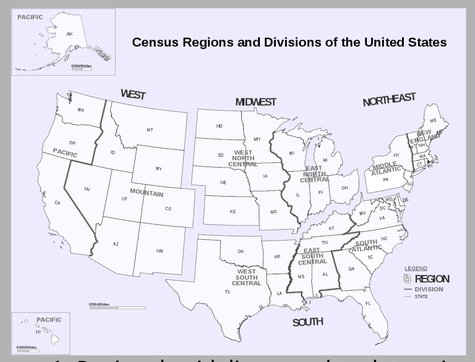

Figure 1: Regional guidelines used to determine geographical representation

RESULTS

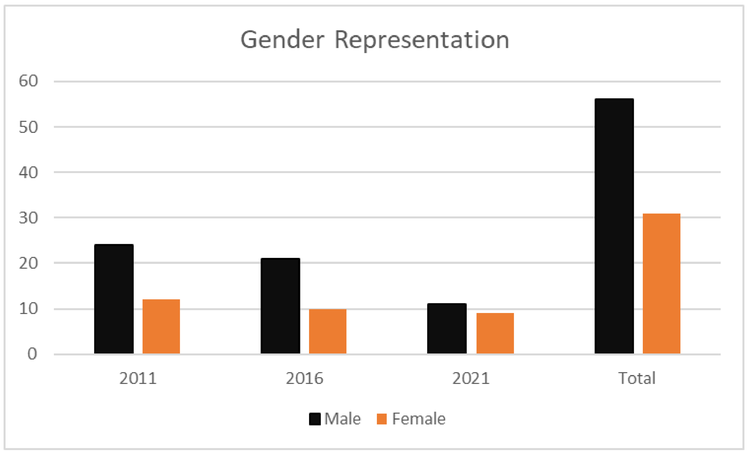

Figure 2: In the years 2011, 2016 and 2021 the Development Biology NIH study section had had more male members than female members. In the year 2011 there were 24 males (67%) and 12 females (33%); in 2016 there were 21 males (68%) and 10 females (32%); and finally in 2021 there were 11 males (55%) and 9 females (45%). Taken together, there were a total of 56 male (64%) and 31 female (36%) participants over the three years.

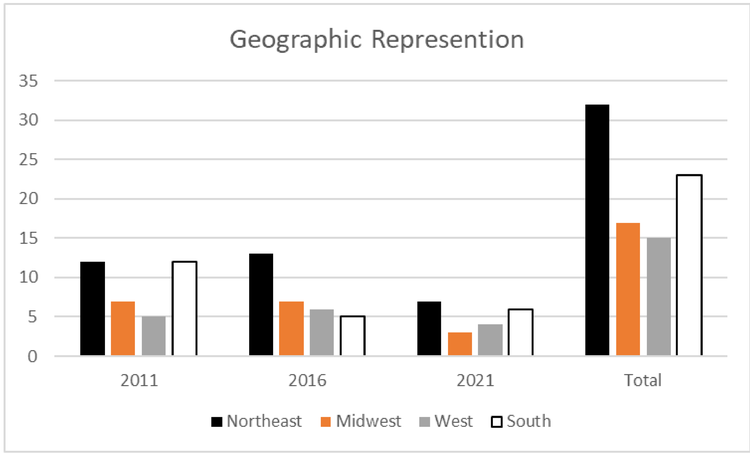

Figure 3: In the years 2011, 2016 and 2021 there were no appreciable trends regarding geographic residence from year to year, however, in total, there were more members from the Northeast. In 2011, 12 members lived in the Northeast (33%), 12 in the South (33%), 7 in the Midwest (19%), and 5 in the West (14%); in 2016, 13 members lived in the Northeast (42%), 7 in the Midwest (23%), 6 in the West (19%) and 5 in the South (16%); in 2021 7 member lived in the Northeast (35%), 6 in the South (30%), 4 in the West (20%) and 3 in the Midwest (15%). Taken together, there were a total of 32 members from the Northeast, 17 from the Midwest, 15 from the West and 23 from the South over the three years.

DISCUSSION

We found that the NIH Developmental Biology study sections for the years 2011, 2016 and 2021 showed consistently more male than female members. Additionally, while there were not obvious trends in member's residence from year-to-year, when considering all three years together, the Northeast was observably overrepresented.

While imbalances in geographical and gender representation are noticeable, it may partially be explained by the lack of turnover in study section membership. For example, many of the members, both male and female, were recurring and participated in more than one meeting. With that said, recent initiatives of inclusion might be dampened due to long term memberships. It is also worth noting that member involvement for the year 2021 was less than previous years, likely due to the COVID-19 pandemic which could have also masked a more recent and progressive vision.

Future Direction

- Expand the study to include more study sections and increase the time frame
- Account for recurring members
- Assess gender and geographical representation in other scientific organizations
- Expand the focus to include racial disparities

References

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