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Gender Identity and Gender Presentation of Female STEM Leaders in the United States

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Abstract. The underrepresentation of women in science, technology, engineering and mathematics (STEM) and in leadership is well documented. In this study, participants in the overlap area of women in STEM leadership were asked about their gender identity and their gender presentation/expression. Participants were US women in STEM leadership positions. The women surveyed primarily had feminine gender identities and feminine gender presentations. These data suggest that the women in these positions can honestly present themselves at their workplace.

INTRODUCTION

The underrepresentation of women in science, technology, engineering and mathematics (STEM) fields [1, 2] and the underrepresentation of women in leadership [3] are well documented. However, little research exists in the area of overlap: women in STEM leadership [4].

Multiple factors could explain the underrepresentation of women in STEM leadership, drawing on the barriers to women in STEM and women in leadership [1–3]. One possible factor is that women do not feel they can present their authentic self in positions of STEM leadership [5]. Having to conceal part of one's identity can make a workplace inhospitable [6], and could be part of why women are not found in these positions at a representative proportion [4].

In discussions of gender, two variables of interest are gender identity and gender presentation (also called gender expression) [7]. Gender identity is how one defines oneself in the sense of a masculine or feminine role, and it is internal to a person. Gender presentation is how one presents oneself to the outside world. Gender identity and gender presentation are not necessarily identical in an individual.

This study centers on the following research question: How do the gender identity and gender presentation of US women STEM leaders relate to each other? Women in the past, and in the not-so-distant past, have dressed (or been encouraged to dress) in a less feminine manner to fit in as they enter the male-dominated fields of STEM [8, 9]. Is this still true?

METHODOLOGY

Respondents included 54 women in the United States who have a STEM leadership position, such as dean of a STEM college, department chair or head of a STEM discipline, or director of a STEM laboratory. Limited demographic information was collected from respondents, and it was not possible to explore intersectionality in this study.

The majority of women in the study sample had some training in leadership or formal training such as a degree. Disciplines were spread across the STEM fields: physics, chemistry, information technology, data science, geoscience, biochemistry, biology and engineering. When the women were asked about other identities that have created barriers, the top two responses were age (n = 8) and race/ethnicity (n = 6). Other responses included appearance, health issues and sexual orientation.

A 28-question survey was created and pilot tested to explore the experiences of women leaders in STEM fields [10]. The first two questions on the survey asked for gender and leadership position to verify the sample. Respondents

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were recruited via personal emails, social media (snowball sampling), and an open invitation on the author's website. By the time of the data analyzed here, over 100 women had completed the survey. For this study, only US women were used in the analysis.

The survey included two questions about gender identity and gender presentation, shown in Fig. 1 and 2. The questions included a slider from 0 to 10, with 0 being feminine and 10 being masculine. One of the limitations of these questions was the binary nature of the responses, as opposed to a more open way to explore gender identity and gender presentation.

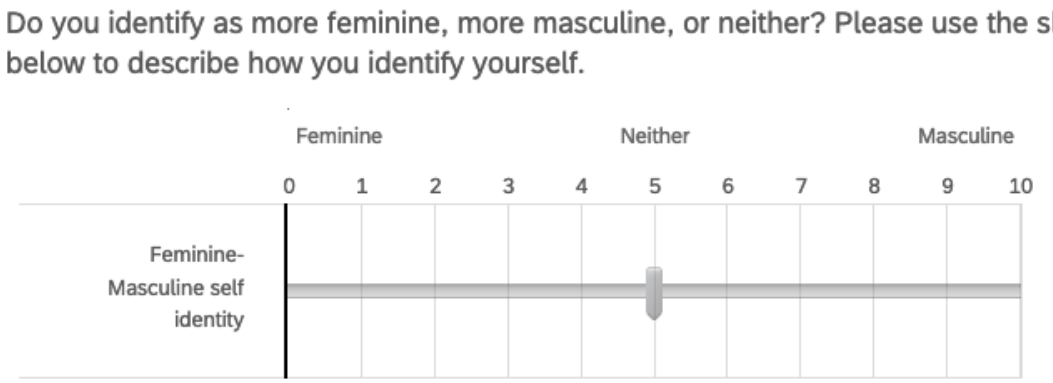

FIGURE 1. Survey question asking respondents about gender identity.

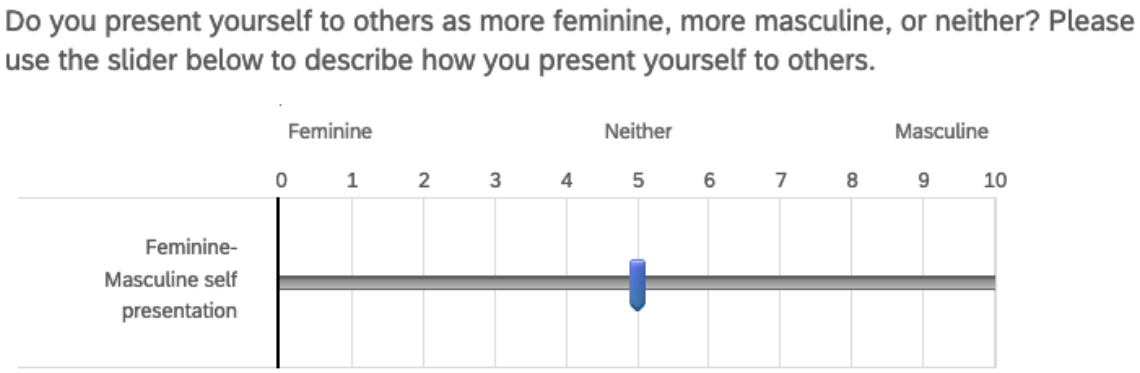

FIGURE 2. Survey question asking respondents about gender presentation.

RESULTS

Of the 54 women included in the study, 48 had feminine gender identity (0–4 on the slider) and six had masculine gender identity (6–10 on the slider). There were 46 women with feminine gender presentation and six with masculine gender presentation. Matching gender identity and presentation were reported by 39 women of the 54 respondents. Nine women presented more feminine than their identity and six presented more masculine. Data are presented in Fig. 3.

The majority of women had matching identity and presentation (n = 39) or identities and presentations within one mark of each other (n = 11). The remaining four women included one who presented two marks more feminine than her identity, and one who presented two marks more masculine than her identity. The other two women had very interesting responses: they had identities of 1 (very feminine) but presentation of 6 and 7 (somewhat masculine).

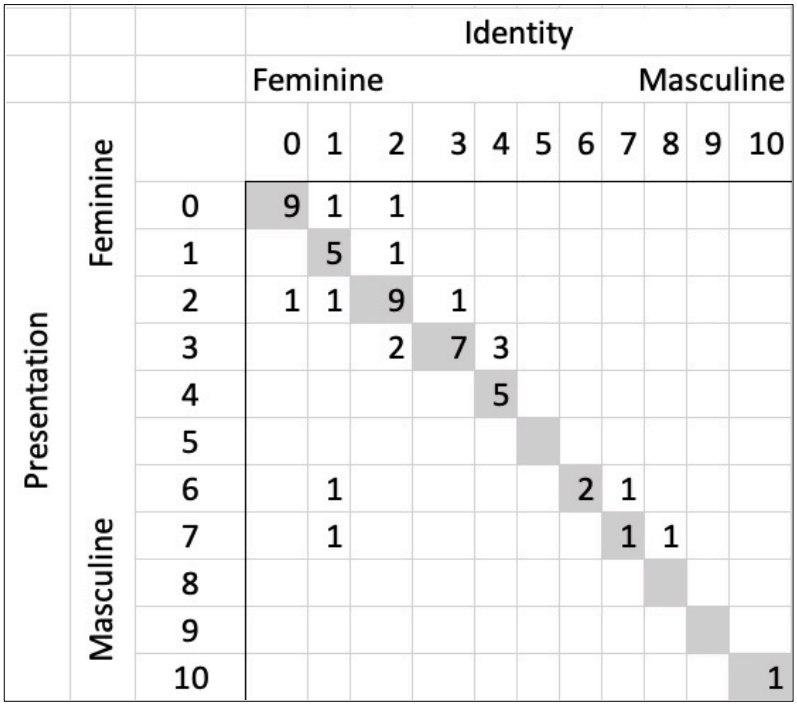

FIGURE 3. Comparison of gender identity and gender presentation of female US STEM leaders, number of women.

DISCUSSION

The results provide evidence that a majority of the women in the study sample are able to present themselves authentically; their gender identity and gender presentation are the same or very close. Only four women of the 54 included in the study had identities and presentations more than one mark off one another: three of the four presented themselves more masculinely.

LIMITATIONS

The sample includes only women from the United States and those in primarily academic leadership positions. The ability to generalize to other populations is limited. Another limitation is that respondents interpreted the two questions personally; they may have defined gender identity or gender presentation as primarily physical/appearance or may have included behaviors as well. Further work should clarify the definitions for respondents. This study also defines gender along one axis only: masculine–feminine. This definition does not allow for other genders to represent themselves (queer, multigender, agender, etc.).

Because limited demographic data were collected, it is unknown how representative this sample is of the larger population of women leaders in STEM.

FURTHER STUDY

This study creates many new research questions that could be explored. Because of the limited sample here, larger samples of women from different contexts would be a great next step. Interviewing women would provide more nuance to the results here. Comparing these women with individuals of other genders could offer insight into possible barriers faced by women and gender minorities. Other studies addressing the limitations of this research would also assist in broadening the knowledge of women in STEM leadership positions.

CONCLUSION

In this study of women in STEM leadership in the United States, the majority of women had gender identities and gender presentations that matched one another. Since women are still significantly underrepresented in STEM fields [11], this result is encouraging in that most of the women did not feel the need to present themselves significantly differently than their identity. Since most of the women had feminine gender identities, this study also demonstrates that women in leadership positions in STEM can be feminine and be successful [12]. Both results offer support to women who aspire to leadership and to the fields of STEM. Furthermore, with women being able to present themselves as feminine, the "face" of science is becoming more diverse—one step in making science more inclusive and welcoming to all.

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