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Rare bugs: Gender and subjectivities in the field of mathematical research in Chile

Bichos raros: Género y subjetividades en el campo de la investigación en matemáticas en Chile

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Background
Previous research has documented the construction of femininity according to a notion of strangeness in patriarchal cultures in general, in universities and scientific fields taken as a whole, and in male-dominated fields, such as engineering and mathematics. However, forms of subjectivation, understood following Michael Foucault as discourses, practices, and devices through which individuals elaborate, transform, and access a particular way of being, may vary among regions and research areas. We do not have studies on processes of gendered forms of subjectivation in Chile's mathematical research field. Social research related to mathematics and gender in this country has so far focused on school performance or career choice.

Aims
To explore the construction of gendered subjectivities in the research field of mathematics in Chile.

Method & procedures
This paper presents a qualitative discursive content analysis of 11 focus groups performed between April 2019 and June 2020. Sixty-two mathematicians (42 men and 20 women) from leading research centers and departments in Chile participated. The first series of seven focus groups included men and women mathematics researchers. This series aimed to explore central features of the field of mathematical research in Chile. The second series of four focus groups included only women researchers in mathematics and aimed at deepening the exploration of their experiences from a gender perspective.

Results & discussion
We distinguish three meanings of the notion of strangeness that articulate the construction of subjectivities of women mathematicians: disciplinary, statistical, and normative. a) Mathematicians tend to describe themselves as inhabitants of a strange and largely uncomprehended group. b) Being a minority within this group, women experience loneliness and isolation. c) Furthermore, while mathematical geniality is identified with masculinity, women are identified as not belonging naturally to this field. Using the theory of ambivalent sexism, we suggest that these discourses are articulated in benevolent and hostile ways around three stereotypical figures: helplessness,

motherhood, and object of male desire. We propose that ambiguous forms of expression perpetuate the field's sexist structures.

Conclusion

These results illuminate how women in the field of mathematical research in Chile are invisibilized in positions of prestige yet made visible under stereotyped forms of femineity. Unlike what has been observed in other male-dominated fields, in mathematical research, there is a double movement of marginalization (Henrion, 1997): first concerning generalized expectations about the construction of work trajectories and then within the same mathematical community. Within a community that represents itself as marginalized from the rest of society, but at the same time strongly internationalized, women mathematical researchers express feeling like "rare bugs"; they feel that they are "the others in this space." The theory of ambivalent sexism, which until now has guided research of an eminently quantitative nature in different areas (Connor et al., 2017), has allowed us to deepen the qualitative analysis of the discourses of mathematicians. It gives a more complex account of the forms of stereotyped visibility of women that normative otherness brings with it in this field. These results advance the understanding of the field of mathematical research in Chile from a gender perspective.

Keywords: ambivalent sexism, gender, mathematics, otherness, subjectivity

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