

# Tracking micro-minorities: methodological solutions to the challenge of small numbers

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## Oral presentation

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## Abstract

This paper aims to raise awareness, problematise and look for solutions to the challenge of small numbers in quantitative analysis of inequalities in education. Gathering data and evaluating progress are key aspects of regulatory reporting in higher education. However, when working with some hyper-marginalised groups of people (or micro-marginalised people), we run into the problem of small numbers—which can present methodological, legal, ethical and practical concerns. The biggest danger is that small numbers of individuals means that a group, a specific characteristic or a set of intersectional factors get ignored as it was not clear how to account for them in the data.

Examples include exploring progression and completion rates for a university department which had 1 transgender student, and a 10-year analysis of the progression of another department's undergraduate students which identified only 5 students of a targeted underrepresented group. This paper draws on frameworks of quantitative criticalism and critical quantitative inquiries and explores methodological solutions from a range of fields, including psychology, epidemiology, public health, neuroscience and medical research. Research drawing on critical quantitative approaches, or CritQuant, focuses on the use of numerical data to uncover power inequities, the formulation of rigorous models to better represent minoritised people and social groups and prioritising social justice-oriented research. Critical race quantitative intersectionality, or QuantCrit, more specifically draws on critical race theory. However, neither approach provides specific methodological solutions to the problem of small numbers in an existing dataset.

How researchers use statistical analyses shapes their research toward or away from social justice agendas. Points include how proactively using social category data can uncover and address discriminatory practices, and how analytic approaches may not fully support equity efforts. While research over the past five years has raised awareness of the need for criticality in quantitative research, specifically that of race and ethnicity, less has been done on the specific methodological approaches for doing so or for broadening efforts more widely across socio-demographic characteristics. Integrations of intersectionality theory and moderated general linear modelling (MGLM) offer some possibilities for methodological approaches using a social justice perspective.

The paper presents on principles to guide more equitable research practices including balancing privacy and transparency. It also offers methodological solutions and considerations for different analytical approaches, including: small sample sizes, comparing across groups, intersectional analysis, interpreting binary outcome variables and eliminating outliers.

## Keywords

methodology, statistical analysis, education, evaluation

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