

Challenges and Future Directions for Promoting Intersectional Quantitative Studies in Physical Activity Research

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Understanding health inequalities is essential for improving social justice. Intersectionality refers to a theoretical framework for studying the intersection of multiple social categorizations that create unique experiences and related social inequalities. Currently, the majority of the intersectional studies in the physical activity field have a qualitative design; thus, there is a need for quantitative intersectional studies. This commentary aims to explore primary obstacles impeding intersectional quantitative research and provide recommendations for overcoming these obstacles in physical activity research. In the commentary, we discuss that the lack of accessibility of large-scale and diverse data sets, and suboptimal social categorizations and intersectionality-related questions may contribute to the scarcity of intersectional quantitative research in the field. To facilitate intersectional quantitative analyses, we advocate for making large-scale data sets accessible for intersectional secondary analyses, diverse sampling, standardizing questions and categories related to intersectionality, promoting inclusive research designs and methods, and using the appropriate questions and social categorization that reflect the distinct experiences of each subgroup. By addressing these challenges, researchers may gain new insights into health disparities, making physical activity research more inclusive and contributing to more equitable health outcomes.

Keywords: health disparities, health promotion, health behavior, accelerometry, methods

Understanding health disparities is crucial for improving social justice. Many studies have investigated how various social characteristics, such as gender, age, or socioeconomic position, are related to different health-promoting behaviors, including physical activity. In recent years, there has been growing recognition of the importance of taking an intersectional approach, that is, incorporating the interactions of such characteristics that create unique experiences of privilege and oppression, also in the field of physical activity research.¹⁻³ The 6 core ideas of intersectionality consist of social inequality, power relations, relationality, social context, complexity, and social justice.⁴ Indeed, a number of intersectional studies have shown how certain intersectional groups defined by age, gender, ethnicity, socioeconomic status, religion, and other factors engage in lower levels of physical activity.^{2,5} For example, qualitative studies showed that Muslim girls experienced more barriers to participating in physical activities^{6,7} and that Black women have been hypersexualized and disadvantaged in the context of college sports.^{8,9} Yet, the majority of existing intersectional studies in the field of physical activity have been qualitative. There is an urgent need to address the lack of quantitative intersectional studies in the field.¹ This commentary aims to explore challenges impeding intersectional quantitative studies and provide recommendations on how to address these challenges.

The Need of Large Data Sets

To capture each intersectional subgroup with sufficient statistical power (eg, Asian girls from a low socioeconomic position, White

religious single men, etc), large data sets (eg, $n > 1000$) are required for intersectional quantitative analyses.¹⁰ Indeed, intersectional analyses including 3 or 4 social categories (eg, gender, ethnicity, and socioeconomic position) can result in >30 intersectional subgroups.^{11,12} However, large-scale data sets that enable intersectional quantitative analyses are scarce, especially large-scale accelerometer studies.^{11,13}


To advance intersectional quantitative research, we advocate for making large-scale or pooled data sets easily accessible for secondary analyses. Examples of open-access large-scale data sets include the National Health and Nutrition Examination Survey¹⁴ and the UK Biobank.¹⁵ The National Health and Nutrition Examination Survey is particularly noteworthy as it is free of charge and easily accessible via the National Health and Nutrition Examination Survey website.¹⁴ The International Children's Accelerometry Database is an example of pooling and harmonizing multiple data sets. The International Children's Accelerometry Database is a pooled data set of 20 worldwide data sets on accelerometry and is accessible for external researchers upon submission of a research proposal.¹⁶ The availability of raw accelerometer data is cardinal for harmonization as there is no consensus on data processing to this day. Yet, harmonization of survey-based data is also challenging, especially with different classifications regarding intersectionality-related variables. We, therefore, advocate for standardization of questions, categories, and processing regarding intersectionality-related variables.

Lack of Diversity in Study Samples

Sample diversity is essential for the advancement of intersectional quantitative analyses. However, populations from the Global South, ethnic minorities, and lower educated and lower income populations are frequently underrepresented in physical activity studies.¹⁷⁻¹⁹ Despite the majority of the world's population residing

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in the Global South, a study in Nature Index revealed that only < 0.001% of articles were generated from collaborations within the Global South.²⁰ Moreover, in the Global North, underrepresentation of lower income and/or ethnic minority groups also persists in the previously mentioned large data sets. There are multiple reasons behind the lack of diverse samples in physical activity research.²¹ Underserved groups may encounter psychosocial (eg, distrust toward researchers²²) or practical barriers²³ (eg, time constraints, language, etc^{21,22}). However, barriers especially exist among researchers themselves²⁴ due to the priority of sample size over sample diversity, reluctance to allocate resources (time, efforts, and finances) toward recruiting underrepresented groups,^{24,25} and lack of attention to more inclusive research designs and methods.¹⁹

Effective strategies to improve diversity of study samples include oversampling of underrepresented groups, promotion of geographically diverse research sites, and collaboration with and engagement of local communities in study design and recruitment.^{10,21,22,26} Community engagement could be particularly valuable as it can help make research more relevant for participants, make measurement tools more user friendly, and provide insight in community-specific barriers.

Noncomprehensive Social Categorization

Providing appropriate questions and answer options regarding social categories is imperative for accurately identifying vulnerable intersectional subgroups. Although there is an increasing demand for more nuanced gender options in health research,²⁷ many data sets still employ limited and mutually exclusive gender categorizations (eg, man/woman/prefer not to disclose, etc). To address this, diversifying gender categories to include LGBTQ identities, rather than consolidating them into binary categories, may yield valuable insights into the unique issues associated with various gender identities. Furthermore, we advocate for allowing multiple responses to the gender identity option²⁸ for individuals with multiple gender identities and adding an open option for individuals who do not identify as one of the prepared gender categories.²⁸ In addition, we advocate for employing a 2-question method for gender questions including both sex assigned at birth and current gender identity²⁹ to prevent misclassification or undercounting of transgender individuals.³⁰

The issues of limited categorization also extend to ethnicity. Many racial classifications in research are often biased and do not accurately reflect cultural and social inequalities and discrimination contexts, which is cardinal to reflecting intersectionality theory.^{3,31,32} For instance, individuals from Middle Eastern and North African backgrounds are officially classified as White in the United States. However, Middle Eastern and North African individuals often face more discrimination and poverty and worse health outcomes compared with White individuals (eg, from European descent).^{33–35} Although ethnic categorizations inevitably involve subjectivity, it is crucial to reconsider racial and ethnic categories beyond skin color and standard ethnic classifications. In addition, we recommend providing a rationale for the ethnic categories in scientific articles to enhance understanding and justification for the included ethnic categories.³⁶

Lack of Inclusion of Multifaceted Nature of Racism

Incorporating information on multiple factors that convey a sense of “foreignness” in data collection phases is important for more

accurate intersectional analyses.^{37–39} This is because racism and related discriminations are affected not only by ethnic origin but also by nationality, accent, visual attributes, religion, and other characteristics.^{37,38} Particularly, individuals with visible “foreignness” (eg, religious clothing or symbols) are more likely to be targeted for discrimination.⁴⁰ In addition, it is important to consider generations of people with a migrant background. For instance, a study conducted in the United Kingdom showed that second-generation South Asian UK citizens exhibited higher levels of physical activity compared with their first-generation counterparts.⁴¹ This may be partially attributable to the general tendency of second or later generations to be more acculturated and/or educated.⁴² Thus, incorporating questions beyond skin color may furnish more nuanced and context-rich insights into inequalities from intersectionality studies.

Conclusions

We discussed several challenges contributing to the scarcity of intersectional quantitative analyses in physical activity research, including the lack of accessibility to large-scale and diverse data sets and suboptimal social categorizations and intersectionality-related questions. To facilitate intersectional quantitative analyses, we advocate for promoting accessibility to large-scale or pooled data sets, standardization of questions and categories regarding intersectionality-related variables, promotion of more inclusive research designs and methods,¹⁹ and the use of appropriate questions³⁹ and social categorizations that capture the unique experiences of each subgroup.³ By doing so, we may gain new insights that have been obscured for decades that deserve attention, resulting in more equitable health outcomes.

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