Gender should be considered and reported in epidemiology, but why should it be measured?

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In this issue of the *Lancet Regional Health Europe*, Ballering et al.[1] report on their review of gender composite scores, making a useful distinction between data-driven and theory-driven measures. They come from academic traditions in medicine and their justification is based on the need to raise awareness among practitioners and scientists about the impact of the various complex manifestations of gender on health and care.

We recognize the significance of the authors' analysis, although we have questions about the usefulness of gender composite scores in achieving this goal. We come from a population health rather than a patient care tradition, so we are more used to thinking about gender and sex in epidemiologic analyses from a collective than from an individual point of view. Historically, in public health, gender and sex have often been agglomerated and treated as a confounding factor because they can be related to both exposures and outcomes; they were primarily integrated into analyses as "statistical noise" to be neutralized. However, it is now realized that both gender and sex can also be viewed as surrogates for a variety of unmeasured exposures that society distributes unevenly among women and men.[2–4]

Like race/ethnicity and social class, gender is a social construct that may be associated with exposures that public health authorities want to reduce. Thus, the interest in studying the relations between gender and health lies not in describing the variable but in understanding its social implications and the exposures it encompasses. For example, gender is associated with risks to occupational health through various social mechanisms such as job and task segregation, and sex with lack of adjustment of job parameters to such hormone-associated characteristics as body size, muscular strength, and reproductive functioning.[5] Health researchers do not want to intervene to affect the gender of the population, but rather the gender- and sex-associated risks. Consequently, public health interventions aim to transform the risks, not gender itself. For these reasons, we do not see any justification for public health researchers to measure gender at an individual level beyond the self-identification recommended for population-based studies.[4]

However, in health care, the situation seems to differ. The authors suggest that the use of gender composites can improve their field by increasing practitioners' and scientists' awareness of the impacts of all the manifestations of gender on health and care. But how, precisely, could a gender composite improve gender awareness and sensitivity in health care?

Let us consider some potential applications. The authors suggest that incorporating gender composites into the education of medical personnel could enrich their understanding of gender differences. However, in this case, it is not so much the gender index itself that is the operative means, but the recognition of differential characteristics by gender in the list of attributes that contribute to each dimension composing the index. The authors suggest that learning to recognize these differences could lead doctors to be more thorough in taking medical histories and to treat symptoms with a more balanced perspective.

Another application relates to the well-documented finding that physicians treat symptom reports differently according to gender, with those of men and more masculine people being taken more seriously. For example, a study related "feminine traits of personality" to delayed care for acute coronary syndrome.[6] A better understanding of gender-associated pain expression (and sex-associated symptoms?) could help sensitize ER staff and provide better and more equitable care.

However, we must remain vigilant about the risks of gender stereotyping that could lead to reinforcing prejudices. For example, could the inclusion of traits such as 'neuroticism' and 'anxiety' in gender composites[7] potentially confirm existing stereotypes rather than mitigating them? Many gender indices include the Bem Sex-Role Inventory, which has been heavily criticized for perpetuating gender stereotypes and biases.[8,9]

It is therefore crucial to use these indices in a way that broadens the understanding of human situations rather than reinforcing biases. It may be that health care personnel should consider a wider range of human situations when making recommendations for exercise or healthy meal preparation, for example by thinking about the work/family interface and women's more crowded schedules. Also, since the gender composites are typically validated by association with participants' self-declared sex, extra care should be taken in developing accurate and nuanced questions on sex and

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gender identity.[4] Finally, as the authors point out, gender is differently lived and expressed in different cultures and, we would add, in different social classes and ethnoracial groups within cultures. Use of gender composites in medical education must incorporate these nuances, if the practice is to improve the quality of medical care.

Contributors

KM wrote the first draft of the comment, with the help of VL. VL suggested ideas and rewrote some parts of the comment. Both authors agreed on the final content.

Declaration of interests

The authors have no conflict of interest to declare.

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