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BRIEF REPORT



From Gender and Sex to Gender/Sex: Reconceptualizing Critical Research Categories

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ABSTRACT

Integrating new methods and conceptualizations that recognize the complexity of sex, gender, and their entanglements is critically necessary to advance practice in anthropology. Gender and sex are not static concepts but evolve over time and vary across cultures, influencing societal organization and interpersonal interactions. Recognizing gender and sex as more complex than binary categories is crucial, especially for medical and biocultural anthropology. Using the combined term gender/sex signals this recognition. The entanglement of gender/sex impacts social research, biomedical practice, and policy-making. However, reliance on rigid categories can hinder rigorous research, as the terms “sex” and “gender” encompass various layers and contexts. Clear definitions and terminology are essential for inclusive research and practice, requiring continual updates and engagement with community perspectives.

PLAIN LANGUAGE SUMMARY

In anthropology, it's important to understand that ideas about sex and gender aren't simple. They change over time and are different in different cultures. This affects how societies are organized and how people interact with each other. Instead of thinking of sex and gender as just male or female, it's better to see them as more complicated. This is especially important in fields like medical and biocultural anthropology. Using the terms “gender/sex” or “sex/gender” show that we understand this complexity. The way gender and sex are connected affects social research, medical practices, and making rules and policies. But if we stick too strictly to simple categories, it can make our research less accurate. So, it's important to have clear definitions and use the right words when we do research. And, we need to keep talking to the communities we collaborate with to make sure we understand their perspectives.

KEYWORDS

Gender; sex; biomedical practice; social research; gender/sex

To advance practice in anthropology requires the integration of new methods and conceptualizations that acknowledge the true complexity of sex, gender, and their entanglements (DuBois and Shattuck-Heidorn 2021). Although gender and sex remain central, our understanding of these terms and what they do (and do not) reflect transforms over time, varies by place and culture (e.g., see the introduction of Latinx/e Salinas and Lozano 2019; Schudson, Beischel, and van

Anders 2019), and is contested and in flux. Yet they remain important in guiding all the societal organization and interpersonal interactions that are the focus of practicing anthropologists.

Sex and gender are increasingly recognized as more complex than binary categories accurately capture (Fausto-Sterling 2019), with significant implications for practitioners of medical and biocultural anthropology in particular. As suggested through use of the combined terms, “gender/sex”

they are inextricably entwined (e.g., Kaiser et al., 2007; Van Anders and Dunn, 2009). Feminist intervention initially distinguished social gender from biological sex in part to undermine biologically essentialist subordination of women in large part through reductionist arguments rooting women's behavior inaccurately in reproductive biology. This separation also binds gender and sex in separate spheres, limiting engagement with their co-constitution and biosocial entanglements. Gender/sex entanglement is increasingly recognized as meaningful in ways that impact social and scientific research (e.g. Hyde et al. 2019), biomedical practice (e.g., Ritz and Greaves 2022), and teaching, law, and policy (Sudai et al. 2022). Gender/sex entanglement sheds light on complex phenomena like human development (Fausto-

Sterling 2019), and health and disease (Krieger 2003).

In many ways, rigid reliance on categories themselves pose a central problem for rigorous applied research; in fact, "biological sex" is a proxy category used in ways often riddled with assumptions and biases – mistaken for some simple binary rooted in reproductive biology (Springer, Stellman, and Jordan-Young 2012). In practice, the term "sex" might reflect any combination of layers including chromosomal, hormonal, gonadal, or genital sex (DuBois and Shattuck-Heidorn 2021). When reporting data from surveys and research, the term "sex" generally reflects a self-report measure of assigned sex at birth based on genital sex. Or, it is a measure of gender identity and arguably should instead

Table 1. Key sex and gender terms and definitions (adapted from Brewis et al. 2024).

<i>Gender</i> is a multidimensional construct referring to cultural, social, and psychological aspects shaping individual experiences and identity, and also how people organize and structure society. The broad construct of gender also includes gender-based norms, gender identities, and gender expression. <i>Gender identity</i> refers to a person's internal sense of their gender, (which is not necessarily visible or obvious to others). <i>Gender expression</i> refers to external displays and ways of conveying one's gender and gender identity. It can include names, pronouns, voice, behaviors, body characteristics, clothing, and hairstyle. These signals and means of self-expression are culturally contextualized, vary by place and social circumstances, and can change over time.	<i>Sex</i> is a multidimensional construct based on a cluster of sexual-reproductive anatomical and physiological traits (i.e., chromosomal sex, hormonal sex, gonadal sex, genital sex). Among humans, sex is typically assigned at birth as male, female, or in some cases intersex. This assignment tends to be binary based solely on genital sex. Sex attribution also occurs through social interactions based on interpretation of several aspects including secondary sex characteristics and gender expression.	<i>Sex/Gender and Gender/Sex</i> are combined terms used to reflect the reality of gender and sex entanglement and co-production. These combined terms signal the complex bidirectional influences of social gender (e.g., individual identity, expression, behaviors, roles and preferences) and sex-linked biological factors (e.g., physiological and anatomical traits).
<i>Gender and/or sex binarism</i> are a social classification systems whereby people are categorized as either woman/female or man/male which are often assumed to be fixed/unchangeable and tied to culturally embedded social norms and expectations. Categorization usually occurs through social interaction, and individuals are often expected to conform to culturally specific norms of men /masculinity or women/ femininity, associated with their assigned sex at birth. Binarism is challenged and resisted in many ways by individuals and communities globally.	<i>Cisgender</i> refers to individuals whose gender identity and/or experience aligns with the gender often associated with their assigned sex at birth.	<i>Transgender</i> refers to individuals whose gender identity and/or experience differs from the gender often associated with their assigned sex at birth. Not all people who identify as transgender or who have trans experience access gender affirming medical care.
<i>Nonbinary</i> refers to individuals whose gender and/or experience is outside of a gender or sex binary. Specific terms (e.g., nonbinary, genderqueer) are often contested and influx and always culturally contextualized. Additional terms may include 2S/two spirit or third gender (but see Towle and Morgan (2002) for critiques). The category nonbinary thus encompasses a wide range of experiences. This includes those whose gender is between or beyond binary genders and those whose experience doesn't include gender at all .	<i>Intersex</i> is a multidimensional construct based on patterns of sexual-reproductive anatomy that do not fit the normative categories of female or male. There are over 30 recognized differences in sexual development that are characterized with this term.	

reflect diversity and the context in which it is being used (Richardson 2022; Pape et al., 2024).

The term “gender” is similarly complex, often used interchangeably with “sex,” or to otherwise reference gender identity, expression, and/or role as well as aspects of power, structurally organized through institutional practice. Though recognition of gender fluidity and complexity has long been acknowledged and the limitations and problems of simply proliferating gender categories is well documented (Nicholas and Clark 2020), entanglements of gender/sex remain challenging to capture in practice. Methods for data collection, analysis, interpretation, and dissemination need to continue to advance best practices in ways that maintain rigor and best contribute to inclusivity and equity (van Anders 2015).

To support better methodological practices in relation to sex and gender, Table 1 provides several useful terms and definitions. Ideally, this helps address a need for greater definitional precision at all stages of research design, execution, and dissemination. The incorporation of critical frameworks and novel methodologies proposed such as those cited here enable more ethically responsible, rigorous, and community-based research and application of research in practice. Though reporting of these data is standard practice in research, there is often little or no detail provided about what/how data were collected. Clarity of terms can assist applied anthropologists as they collect, analyze, or report data inclusive of aspects of sex and gender. Consistently updating and nuancing terms and their definitions is also key for inclusive teaching and training practices. Finally, gender/sex terminologies are continuously in flux and vary based on language and cultural context, so these can be considered a starting point for community-based research and interventions, rather than fixed or universal. It is important to always reference updated literature and connect with key community informants during each phase of research.

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