

SEX AND GENDER IN HEALTH RESEARCH

Erin Prosser-Loose, PhD, Research Equity and Diversity Specialist, College of Medicine, University of Saskatchewan, Saskatoon, SK, Canada

INTRODUCTION

Exclusion of individuals on the basis of sex and gender in health research has led to lack of knowledge of biological sex differences, and the presence of gender bias in research design and health delivery. In an effort to address this, research funding agencies such as CIHR, SHRF, and the Heart & Stroke Foundation, now require researchers to integrate sex and gender considerations into their projects. We present this resource to help you think about how you can approach this, and why it is important.

DEFINITIONS & CONCEPTS

SEX = BIOLOGICAL, ie. genes, hormones, anatomy
is NOT binary; exists on a spectrum

INTERSEX = variations in sex characteristics that do not fit boxes of 'male' and 'female'

Consider chromosomal variation - each leads to several possible variations in genes, hormones, sex organs, and 2^o sex characteristics:

46XX + SRY 46XX 45X 45X/46XY 47XXY 46XY + gene mutation 46XY

Could sex differences and/or variations in sex characteristics play a role in mechanism, pathway, intervention, outcome, etc.?

GENDER = PSYCHO-SOCIAL, ie. behaviours, expressions
is fluid and multidimensional

Consider these 4 dimensions of gender:

ROLES IDENTITY RELATIONS INSTITUTIONS

Behaviour norms, societal expectations
• child caregiver role is gendered as female

Inner sense of self
• masculine, feminine, non-binary, cis, trans, 2-Spirit

Interpersonal interactions
• workplace dynamics, patient-doctor dynamic

Distributions of power in political, educational, social institutions
• decision making power in the health care system

Could these aspects of gender play a role in recruitment, intervention, participant responses, KT plan, etc.?

BASIC SCIENCE CONSIDERATIONS:

CELLS all have a sex. Know and indicate the sex origin of cell lines, and try to balance primary cells between sexes when possible.

ANIMALS have a sex but not gender. However, consider how sex interacts with context, ie. strain, age, temperament, behaviour, and environment. Watch for human biases misinterpreting different behaviors between the sexes as 'wrong'. Another way to include sex in your work is to consider stress responses, behaviour, etc. of your animals based on sex of the handler.

Concepts of gender differ among cultures. For example, many Indigenous cultures have alternatives to the male-female binary which dominates most Western cultures. Instead, many Indigenous societies include gendered male and female roles within both matrilineal and matriarchal frameworks. Additionally, most Indigenous cultures recognized the inherent value of gender-diverse and gender-fluid people, and uplifted them within their societies, especially from spiritual perspectives. Colonialism introduced and enforced patriarchal systems, in which there are inherent power imbalances, and the privileging of men over women and Two-spirited people (a modern, pan-Indigenous term encompassing a gendered spectrum of individuals with diverse ceremonial roles). It is crucial to know context so that culturally appropriate and responsive definitions can be articulated.

*Dr. Alexandra King, Nipissing First Nation
Cameco Chair in Indigenous Health, University of Saskatchewan*

WHERE ARE THE BIASES, AND WHY?

WOMEN: ALWAYS POTENTIALLY PREGNANT
hormones "too complicated", therefore excluded
result: missing/inaccurate knowledge in several areas

LGBTQ2S+ : DISCRIMINATION & PRIVACY ISSUES
exclusion in research and reluctance to participate
result: missing/inaccurate knowledge in several areas

INDIGENOUS: DISCRIMINATORY, UNETHICAL TX
colonization effects on gender roles
ignorance of Indigenous research methods
result: major disparities in health

MEN: STANDARD, DEFAULT BODY
some disparities in "female diseases"
i.e. osteoporosis, breast cancer, mental health disorders

GUIDING QUESTIONS

- Have sex differences been established in your field?
- Have dimensions of gender been examined?
- Have LGBTQ2S+ individuals been included?
- Has context, age, ethnicity, etc., been considered?
- Who is absent? What don't we know about?
- Is S/G of the researcher/animal handler/interviewer a factor?
- Are data collection tools sensitive and appropriate?
- Is recruitment strategy appropriate?
- Is KT plan appropriate?

WHY SHOULD YOU CARE?

Integrating sex and gender considerations...

- Improves rigour and reproducibility of research
- Better serves the public taxpayers who fund research
- Broadens the applicability of research
- Addresses ethical principles of research, including respect for persons and doing no harm
- It's the right thing to do!

CONSIDER THE CONSEQUENCES

- Women 47% > likely to be prescribed inappropriate medications
- Drugs pulled off the market b/c harmful/fatal in women
- Men 3x more likely to die of suicide
- SK First Nation girls' suicide rate 26x > than non-FN girls
- 2/3 heart disease research focuses on men
- Women 50% < likely to survive cardiac arrest, and < likely to be resuscitated by bystanders
- Indigenous women and women from South Asian, Chinese, and Afro-Caribbean decent have higher rates of heart disease and poorer outcomes vs. white women
- Feminine gender, independent of female sex, is associated with higher risk of recurrence of cardiovascular events
- 50-75% of girls and women with ADHD go undiagnosed due to differing of symptoms from boys and men
- Genome data sets are 80% Euro decent, <1% Indigenous
- Genetic studies often omit X chromosome
- 90% of LGBT youth have reservations about reporting sexual orientation to their clinicians, which has been associated with inadequate screening for communicable diseases

LEARN MORE

CoM researchers can contact erin.prosser-loose@usask.ca for further resources and assistance, and for info on the CoM Sex and Gender Champion group, the Sex and Gender Trainee Group, and the Sex, Gender, & Diversity email list.