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Article

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The article draws attention to research ethical issues relating to how a lack of sex/gender perspectives can produce biased research results, but also how the inclusion of sex/gender perspectives can be at risk of reproducing stereotypes.

Written by: Trine Rogg Korsvik og Linda Marie Rustad. The article was first published at forskningsetikk.no 11 January 2022.

Gender perspectives in research content can provide new insights and more precise and valid research results. By gender perspectives we refer to research that includes the sex and/or gender dimension as part of the research design and analyses. The article draws attention to research ethical issues relating to how a lack of sex/gender perspectives can produce biased research results, but also how the inclusion of sex/gender perspectives can be at risk of reproducing stereotypes.

Before discussing ethical issues relating to sex/gender in research content, let us shortly outline the concepts of sex and gender.

Definitions of sex and gender

The distinction between sex and gender was established in the 1960s and 1970s to repudiate the historical practice of using biological sex differences between men and women to legitimate the subordination of women (Nielsen 2018). One typical example is the assumption of women's inability to think rationally due to their uterus, widely used in the 19th century as an argument to exclude women from intellectual and political activities.

Sex refers to biological, physiological and anatomical sex differences between females and males relating to chromosomes, genes, hormone levels, reproductive organs, brain structure, muscle mass, etc. Some people are born with variations of sex characteristics, also called intersex.

Gender refers to socially and culturally constructed norms, values and expectations related to men or women, boys or girls. Gender also refers to attitudes and behaviours related to what is regarded masculine or feminine. The notion of masculine or feminine, manly or womanly, is often unconscious, and the concept of gender varies over time and between cultures.

In many languages, the same word is used to refer to both biological sex and socially constructed gender, such as the Norwegian word kjønn. In the 1960s and 1970s the word "sex roles" (kjønnsroller) was established to describe socially constructed gender relations.

Interaction between sex and gender

Gender differences result from the interaction between socialization and biology. One example is the difference in women's and men's reactions to toxic chemicals (SAICM 2018). In general, the female body is more vulnerable to toxic chemicals, especially in connection with reproductive cycles, pregnancy, lactation, and menopause. Additionally, toxic chemicals may be transmitted from mother to child during pregnancy and lactation. Females carry greater reserves of fatty tissue than males, making them generally more vulnerable to the impacts of fat-soluble chemicals. On the other hand, in many societies more men than women are exposed to such substances in their workplace. This case illustrates how gender differences are caused by a combination of biological sex differences and social factors related to the gendered division of work and occupational roles.

Biological sex does not necessarily correspond to expectations connected to female or male behaviour, nor to individuals' sense of belonging to one gender. Some people identify as, for example, trans or non-binary. This matter of fact ought to be considered by researchers, for instance when designing surveys. Furthermore, researchers should reflect upon their own predetermined expectations about how gender is articulated or performed. When integrating a gender dimension in research, the researcher can be confronted with different or other understandings of gender.

Research ethical considerations

Gender perspectives is thus about including sex and/or gender as a dimension in research design and analyses. There is no definitive answer as to how this should be done, rather there are multiple ways to work with sex/gender in research content (see e.g. Korsvik and Rustad 2018; European Commission 2020). Here, we will focus on two research ethical issues. First how a lack of sex/gender perspectives may produce biased research results. Second, how uncritical inclusion of sex/gender perspectives can reproduce gender stereotypes.

Lack of sex/gender perspectives may produce biased research results

The gender dimension may have an impact on research results, even when gender is not explicitly articulated. What is often referred to as gender-blind research assumes that the research is gender neutral. Evidently, there are gender-neutral research projects. However, some research may appear gender-neutral, but actually turns out to have a relevant gender dimension. An example from legal research can be used to illustrate this point.

Legislation is gender neutral. That does not, however, necessarily mean that gender neutral legal rules affect women and men equally. Professor in Law, Ingunn Ikdahl, has shown how the rules for old-age pensions, which are the same for everyone, lead to approximately 85 per cent of minimum pensioners being women (Ikdahl 2022). The pension is calculated according to individuals' previous income and takes little account of the situation of women who have worked part-time or stayed at home with small children in a time when few were entitled to day care. A gender perspective in legal research can thus involve examining how gender comes into play in the distribution of rights and duties, advantages and disadvantages, legal protection, and punishment.

Gender bias is a widely used term to characterize research that either unconsciously or implicitly favours one gender over another, or research that reinforces gender stereotypes. Gender bias in research can be the result of the researcher's unconscious perceptions or prejudgments about gender.

Historically, men were the normative reference in science. What is known as "neutral" and "objective" science can be criticised for being gender-biased in the way that men were implicitly understood as representatives of humans, or of "man". The man as the norm is articulated through the assumption that what generally applies to men also applies to women, or that women are perceived as peculiar or as deviant from men. The androcentric epistemology has been challenged over the last few decades. One of the criticisms is that androcentric science is not objective enough, and that acknowledging that scientists are not neutral when it, for example, comes to the formulation of research hypothesis, can provide greater transparency about the preconditions the research builds on (Code 1992; Haraway 1991; Harding 1992).

In medical research, gender bias and the notion of men as the norm have had fatal consequences for women's health. A well-known example is from research on cardiovascular diseases. Until the 1990s, it was customary to assume that men and women have the same symptoms of heart attack. This, however, proved to be wrong. Instead of the typical male symptoms of chest pain and arm pain, women may suffer pain in the stomach or back, and other symptoms. Frequently, physicians have interpreted women's different symptoms as caused by psychological distress. As a consequence, men's typical heart attack symptoms are called "common" or "classic", while women's symptoms have been called "non-specific", even though post-menopausal women have heart attacks to the same extent as men. Due to under-diagnosis of heart attack in female patients, numerous women have died or received the wrong treatment (Cramariuc et al. 2015; Løchen og Gerdts 2015; Regitz-Zagrosek et al. 2016; Winsnes Rødland 2018).

Professor and specialist in cardiovascular diseases Eva Gerdts at the University of Bergen points out that more than half of women who suffer heart disease still receive the wrong treatment, as they get a different type of heart disease than men. Because biological differences between women and men are not sufficiently recognized, the standard treatment for heart disease in men is still used as basis for all treatments. Medications for heart failure, heart attacks and high blood pressure have to a little extent been tested on women, according to Gerdts (Samfunnsviteren 14.5.2021).

Another example from medical research is how gender bias can affect psychiatrists' diagnosis of schizophrenia. Men are diagnosed with schizophrenia far more often than women. A case simulation study by Anne Høye (2012) showed that psychiatrists interpreted the same case description of the development of psychosis in a patient differently if the patient was described as male or female. When the case was presented to be about a male patient, the diagnosis of schizophrenia was made much more often than when the exact same case was presented to be about a female patient. The gender difference in diagnosis was thus solely based on the psychiatrists' interpretation of the identical patient description (Høye 2012). The example illustrates how interpretations of symptoms are influenced by cultural ideas about gender and what is "typical" for women and men.

Gender bias can also go the other way, to men's disadvantage. For example, breast cancer and osteoporosis have been considered "women's diseases", although men can also get them. Almost a third of all osteoporosis patients are men. These three examples from medicine illustrate why sex and gender perspectives in research are important both to obtain more precise and nuanced research results, and to uncover gender biases that can lead to incorrect diagnosis and treatment.

Gender perspectives that reproduce gender stereotypes

Research that includes the gender dimension does not necessarily have to focus on differences between women and men. In some cases, attention to sex/gender differences can help reproduce and reinforce stereotyped, i.e. not research-based, ideas about gender. For scientists who are working with gender perspectives, it can be a research ethical challenge when they are communicating their research to the mass media, which like to emphasize small statistical gender differences to attract more readers (Fine 2010).

One example of overstressing gender differences can be found in research on school performance. Relatively small statistical differences between girls' and boys' school performance tend to end up as a narrative of boys as school "losers" and girls as "winners". Evidently, not all boys are school "losers" and not all girls are "winners". Sociologist Kristoffer Chelsom Vogt (2018) has shown how using gender as the only explanation for school performance without including other variables, such as social class, parents' level of education and the school environment, in the analyses gives a simplified and misleading picture of complex gender relations in society.

According to Vogt, it is under-communicated that the parents' level of education can have more to say for the young people's school performance than their gender. He argues that the widespread stereotypical notion of boys as "losers", directs attention away from the great variations within the gender categories, and risks causing girls' and women's problems being overlooked. The results of focusing on boys as "losers" and girls as "winners" might be an unintentional obscuring of the interaction between different forms of social inequality that shapes young people's problems and privileges. Vogt also discusses how the presentation of boys as losers may cause a victim mentality among boys themselves (Vogt 2018).

Gender researcher Harriet Bjerrum Nielsen has also looked into gender in schools. She has analysed different understandings of gender that are relevant when illustrating research ethical issues that arise when gender perspectives are used in such a way that gender stereotypes are reproduced or reinforced. Nielsen (2018) explains how gender can indicate a *categorical distinction* between women and men, girls and boys, i.e., that a person is either female or male. At other times, gender refers to the *different distribution* between women and men as groups, for example that men as a group on average have a higher income than women, or that women as a group on average have a higher sickness absence rate than men.

In research, as in everyday life, it is not uncommon that cultural notions of gender and average gender distribution are mixed up and understood as categorical gender differences about what gender is. It may involve portraying something that characterizes many women as "feminine" and what characterizes many men as "masculine", even when there is a large proportion of women and men who do not fit the characterization.

Such interpretation of data can help reproduce gender stereotypes that ignore social and historical variations, as well as the substantial variations within the groups of women and men, and the overlap between them (Nielsen 2018).

Conclusion

Gender perspectives are not *always* relevant, and there is no right or wrong answer to what gender perspectives must involve. Researchers working with gender perspectives use a variety of different theoretical and methodological approaches. Including the gender dimension in research projects does not presuppose that one has to stress differences between men and women, but to explore how gender relations work in different contexts and in intersection with other variables, such as age, income level, education, ethnicity, geographical position, and so on.

The examples from medical research show that sex and gender perspectives can even save lives.

Sex-aggregated data and statistics are important because they can form a starting point for further analyzes with a gender perspective. At the same time, a binary division into male/female may exclude other gender categories. In addition, the researcher should also take care not to exaggerate gender differences in the interpretation of data and dissemination of research.

It has been argued that the sex/gender dimension is not equivalent to counting the number of women and men and that critical theory which questions power relations is imperative in studies that include gender. Gender perspectives in research must not necessarily problematise power relations. However, it is essential for researchers to critically reflect upon their own and others' often unconscious assumptions about gender, and not to succumb to gender stereotypes in the interpretation of data. Research is itself a critical activity. Asking critical questions is a prerequisite for gaining new knowledge. What gender means in each context should, like other assumptions, be critically assessed throughout the research process.

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Kilden

Kilden
The Research Council of Norway
Visitor address: Drammensveien 288
PO box 564
1327 Lysaker

Phone: +47 22 03 70 00

post@kilden.forskningsradet.no
genderresearch.no

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