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Gender-inclusive writing for epidemiological research on pregnancy

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ABSTRACT

People who have a uterus but are not cisgender women may carry pregnancies. Unfortunately to date, academic language surrounding pregnancy remains largely (cis)woman-centric. The exclusion of gender-diverse people in the language of pregnancy research in English is pervasive. In reviewing a random sample of 500 recent articles on pregnancy or pregnant populations across health research fields, we found that only 1.2% of articles used gender-inclusive language (none of them in epidemiology), while the remaining 98.8% used (cis)woman-centric language. First and foremost, recent recommendations highlight the need to include trans, non-binary and gender-diverse people in study design. Meanwhile, there remains a lack of awareness that *all* research on pregnancy can contribute to inclusiveness, including in dissemination and retroactive description. We explain how the ubiquitous use of (cis)woman-centric language in pregnancy-related research contributes to (1) the erasure of gender diversity; (2) inaccurate scientific communication; and (3) negative societal impacts, such as perpetuating the use of exclusionary language by students, practitioners, clinicians, policymakers, and the media. We follow with recommendations for gender-inclusive language in every section (i.e., introductions, methods, results, discussions) of epidemiological articles on pregnant populations. The erasure of gender-diverse people in the rhetoric of research about pregnant people can be addressed immediately, including in the dissemination of results from ongoing studies that did not take gender into consideration. This makes gender-inclusive language a crucial first step towards the inclusion of gender-diverse people in epidemiological research on pregnant people and other health research more globally.

Keywords: obstetrics, women's health, reproductive health, reproduction, transgender, sexual and gender minorities, gender identity, LGBT, rhetoric, writing

INTRODUCTION

Individuals who are not women but were assigned female or intersex at birth often have a uterus and may carry pregnancies.[1] This includes transgender, non-binary, and gender-diverse people¹ who do not have a gender identity and gender modality² congruent with their assigned sex at birth.[2] A recent study of gender-diverse people assigned female or intersex at birth found that 12% had been pregnant and 11% desired future pregnancies.[3] With younger generations being more likely to openly identify as LGBTQIA2+,[4, 5] the proportion of pregnant people who do not identify as cisgender women can be expected to increase. Meanwhile, gender-diverse people still face legal, political, and cultural obstacles in receiving proper reproductive care and community health services,[6-8] which can be compounded by intersections of identity such as class, ethnicity, race, and their combination.[9-11] Moreover, gender-diverse people are rarely included in health promotion models and public health campaigns.[12-15] This is reinforced by the fact that gender-diverse people are generally excluded from epidemiological research on pregnancy, both from a design and language perspective.

Recent guidelines for “women’s health” research highlight the need to be more inclusive by collaborating with LGBTQIA2+ – especially trans, non-binary, gender-diverse, and intersex – researchers and communities and adapting research methodologies to be inclusive of diversity in terms of gender identities and modalities.[16] Epidemiological research on pregnant populations would similarly benefit from (a) properly planning, in the design phase and based on the research questions, for the inclusion of gender-diverse people, (b) measuring gender sensitively and

¹ Throughout this article, the term “gender-diverse” will be used for conciseness instead of “trans, non-binary, and gender-diverse”.

² Gender identity refers to a person’s sense of self in relation to gender; Gender modality refers to this gender identity in relation to their sex assigned at birth (i.e., congruence or non-congruence); see [2] for glossary of sex- and gender-related terms.

appropriately, and (c) involving LGBTQIA2+ communities in the research process, from identifying research priorities to ensuring sensitivity of the research methods and surveys; see [17]. Within these recommendations for the inclusion of gender-diverse people in the entirety of the research process, more inclusive language is one aspect of a global change of practices, from community engagement to research questions, study populations, measurement, design, and dissemination.[16, 17] In addition to creating more inclusive study designs, linguistic choices can also contribute to more accurate reporting.

The exclusion of gender-diverse people in the language used in research on pregnancy is pervasive. In reviewing a random sample of 500 recent English articles on pregnancy or pregnant populations across health research fields, we found that only 1.2% of articles used gender-inclusive language (none of them in epidemiology), while the remaining 98.8% used (cis)woman-centric language (see online supplemental materials). This shows that there remains a lack of awareness regarding the unique role of language and terminology for inclusiveness and specificity of *all* research on pregnancy, even research analyzing data from previous studies that did not take gender into account, and regardless of whether the research question and/or sample included gender-diverse people. Accordingly, in the present essay, we discuss why gender-inclusive language should be seen as an essential consideration for the dissemination of pregnancy-related research. We then provide guidance for gender-inclusive language in future writings disseminating epidemiological research on pregnant samples and populations.

THE NEED FOR GENDER-INCLUSIVE LANGUAGE IN RESEARCH ON PREGNANCY

The ubiquitous use of (cis)woman-centric language shows that research on pregnancy is using conventional and limited terminology without accounting for potential variability in the study population. A shift to gender-inclusive language should be seen as a priority for research on pregnant populations since, as discussed below, it has many implications for the erasure of pregnant people of other gender identities and modalities than cis women, the accuracy of scientific communication, and the social impact of research.

Erasure

As noted by Bouman et al.[18], linguistic choices have been made to “discriminate, abuse, marginalize, disrupt, and destabilize individuals and communities,” including gender-diverse people, in a manner that ranges from ill-informed use to purposeful violence. In terms of language used to refer to pregnant people, (cis)woman-centric language essentially erases the existence of other pregnant people.[17, 19] Accordingly, through the ubiquitous use of (cis)woman-centric language, epidemiological and other health research on pregnancy inadvertently reinforces cisnormative and binary models of gender, in turn reinforcing inequity and erasure of gender-diverse people.[19, 20]

The terms we use necessarily represent an act of selection. Scholars of science, language and culture have suggested that any kind of term is a selection of reality and therefore a deflection of reality, with some things being made salient and others being marginalized by the terms we choose.[21, 22] Accordingly, (cis)woman-centric language selects a binary view of gender while deflecting or rejecting the more complex nature of gender identity and modality.

This dynamic of selection/deflection inherent to scientific terminology is not confined to language use; it also affects the actions taken in the scientific research process. The terms scientific research uses direct researchers' attention and, consequently, their actions and observations.[21, 23] In other words, what epidemiological science sets out to look for can follow from the terms it adopts.

Using a restrictive set of (cis)woman-centric terms conveys meaning about the studied population and can inadvertently perpetuate stereotypical thinking.[24, 25] This can lead epidemiological researchers to ignore gender diversity more broadly. In addition to diverting researchers' attention from the importance of gender-related issues in pregnancy, (cis)woman-centric language can also reduce the trust of gender-diverse people and negatively influence their willingness to participate in research.[26] Accordingly, (cis)woman-centric language can make it more difficult to fully encompass the diversity of experiences with pregnancy in research and to integrate intersexuality, transness and the realities of people with various gender modalities and identities in the research process. In turn, this can hinder research into the determinants of perinatal health and public health efforts aimed at reducing inequities and promoting the health of all pregnant people.

Scientific communication

Beyond erasure, (cis)woman-centric language in pregnancy-related research is problematic from a scientific communication point of view. First and foremost, it can make scientific writing inaccurate or imprecise.[19, 26] Scientific language needs to be clear about the phenomena being studied. Most studies use (cis)woman-centric language without any mention of gender (see online supplemental materials). Accordingly, when research articles mention their inclusion

criteria as being “pregnant women,” it is unclear whether pregnant people who are not cisgender women were included or excluded. All studies on pregnant people that did not report the gender identity of their sample may have unknown gender variability, making terms such as “women,” “mothers,” and “maternal” inaccurate descriptors of their sample. Gender-inclusive language includes gender-diverse people *and* cisgender women, making it more accurate than (cis)woman-centric language when the gender identity of participants is unknown. Furthermore, the authors have noted from their personal experience that even cisgender people might feel uneasy with gendered terms such as “mother” and “maternal.” Thus, while most parent cisgender women identify as mothers, some do not and the use of inclusive language may be relevant when preferred gendered terms outside of gender modality were not measured.

Because of the overall bias of the literature towards (cis)woman-centric language, we can see most studies to date as being imprecise regarding the gender identity and modality of their participants as well as their identification with gendered terms. Accordingly, for the same reasons discussed above, using gender-inclusive language should be considered appropriate when referring to previous studies that referred to their participants as “women,” especially when the sample included gender-diverse people or the gender identity of the participants is not reported.

Social impact

Inclusive language in research is not only about the research and academic community, but also about social impact and connection with the communities we wish to collaborate with, study and serve. Indeed, the scope of influence of language in research is much larger than its direct readership. First, the terms used in epidemiological research are vehicles for educating future

generations of scientists. The terms scientists use are learned by students through both research articles and textbooks, which they use to understand the discourse of the epidemiological community and its specific way of seeing its subject matter.[27] Among research teams, we also learn terms from mentors, colleagues, and collaborators. Therefore, the use of more precise, gender-inclusive language in epidemiological research on pregnancy would allow students and mentors to better understand the breadth of issues related to pregnancy.

Research language also moves beyond academia when picked up in knowledge translation efforts, conferences, press releases, media coverage, and social media activities. Thus, through the use of gender-inclusive language, pregnancy-related research could increase the ubiquity of terms that are used by gender-diverse communities and those who strive to be their allies. At the same time, this could increase the acceptability of gender-inclusive language across other sectors that have yet to adopt or see the value in adopting these linguistic changes, including practitioners, clinicians, policymakers, the media, and more broadly the general population.[28-30]

RECOMMENDATIONS FOR FUTURE EPIDEMIOLOGICAL RESEARCH ON PREGNANT POPULATIONS

Following the points made above in favor of the use of gender-inclusive language, we recommend that terms be chosen thoughtfully in all sections of scientific articles. Overall, terms related to cisgender women should not be unequivocally dismissed from research. Both (cis)women-related language and gender-inclusive language should be used with care and accuracy. Below we provide recommendations for every section of epidemiological articles on pregnant populations.

Our recommendations are based on the current state of language and gender reporting in the field. Accordingly, since the gender of pregnant participants is currently rarely reported or measured, our recommendations favor gender-inclusive language as more accurate language. In the future however, the field should move towards measuring and reporting participants' gender modality/identity as any other demographic measures. As this becomes the norm, cis women-related terms and language inclusive of gender diversity will be able to better co-exist by qualifying sampled participants and studied pregnant populations precisely and appropriately, which will avoid erasure of both cisgender women and gender-diverse pregnant people.

Introductions

Introductions and backgrounds pertinent to pregnant people should use gender-inclusive language. Even though the majority of previous articles refer to their sample as (assumed cisgender) “women,” the vast majority do not measure or report gender that is otherwise often conflated with “sex.”[31-33] Using gender-inclusive language not only contributes to reducing erasure, but also to more accurate descriptions. Furthermore, because of the current (cis)woman-centric language in pregnancy-related research, simply using the feminine grammatical gender when referring to an article that reported having only cisgender women participants would be unclear to readers. Indeed, the reader would not know whether the female grammatical gender is used because of the prevalence of cisnormative binary language, or because participants in the cited study were all cisgender women.

Accordingly, we recommend using either gender-inclusive language (if the nature of the sample is not relevant), which does include cisgender women, or being clear that in that section of the introduction, the feminine grammatical gender is used because it is referring to a cisgender

women-only sample (e.g., “In a sample of cisgender women, a study found that...”). While this may seem strange due to the current cisnormativity of the field, a good rule of thumb is to report cisgender identity in the same manner that other gender identities and modalities would be reported.[19] Accordingly, reporting the gender of a sample in this manner would be equivalent to reporting that a sample consisted of gender-diverse people (e.g., equivalent to “In a sample of pregnant transgender men, a study found that...”).

Methods and results sections

In methods sections, inclusion and exclusion criteria should be transparent regarding gender identity and modality. As explained in the previous section, saying that “pregnant women” were recruited is unclear as to whether gender-diverse people may have been included due to the ubiquity of cisnormative language. Thus, whether gender-diverse people were included or excluded should be reported. When gender-diverse people were not explicitly excluded, but the research design was not adapted for their inclusion, aspects of recruitment that could include gender-specific language should be detailed. While some recruitment methods may not involve the possibility of (cis)woman-centric or gender-inclusive language, such as recruiting through affiliated clinics and hospitals,[34] other recruitment methods do, such as recruitment via ads (e.g., via social media [35]). In those cases, details on language practices should be provided, especially whether it was gender-inclusive (e.g., Are you pregnant? Participate in our study on...) or used feminine grammatical gender (e.g., Recruiting pregnant women for a study on...).

Even if recruitment methods used feminine grammatical gender, it is important not to assume that gender-diverse people did not participate unless an explicit exclusion criterion based on gender was included. If gender was measured, it should be reported as part of the sample's

demographics in the methods or results section. Additionally, if one or more participant(s) reported identifying as any other gender than *woman*, then inclusive language should be used when referring to the sample participants. If gender was not measured, that should be stated and gender-inclusive language should then be used when referring to the participants.

Discussions

Discussions should use language consistent with the methods and results when referring to the article's current study and use the same recommendations as for the introduction (above) when discussing previous research. Furthermore, gender modality and identity can be included in the variables covered in the discussion regardless of its inclusion in the study. For example, it is current practice in epidemiological research to discuss the representativeness and generalizability of the sample, for example in terms of age, socioeconomic status as well as race and ethnicity.[36] Gender is also an important sociodemographic factor that aids in the evaluation of representativeness and generalizability.[37] Even if gender was measured and the sample was cisgender only, discussing whether results are expected to generalize to gender-diverse people, in collaboration with the concerned communities, is relevant to give the reader a thorough understanding of the meaning and practical value of the results for public and community health. This in turn also avoids putting the burden of interpreting the generalizability of results to all pregnant people on readers.

Gender-inclusive terminology

To aid researchers in using gender-inclusive language, Table 1 provides several alternatives for frequently used (cis)woman-centric terms. A few of these terms, or even some not listed, may be

avored depending on context, participants, and sentence structure. For example, some terms are more appropriate for participants recruited through clinical settings (e.g., *patients* recruited through affiliated hospitals), and some terms only apply when participants are all pregnant people who become or identify as parents. Some researchers may find that other gender-neutral terms may be better suited for their articles. Furthermore, considering the evolving nature of language, especially as it relates to gender diversity, new terms may emerge and become more widespread than the terms we are currently suggesting, and some terms may become outdated.

Table 1 Examples of gender-inclusive alternatives to frequently used (cis)woman-centric terms in epidemiological research on pregnant populations

(cis)woman-centric terms	Gender-inclusive examples^a
Women , as used in	Individuals
Pregnant women	People
Childbearing women	Participants
Women in labor	Patients
Postpartum women	
Women of reproductive age	
Women of childbearing age	
Mothers , as used in	Parents
Mothers	Terms under « women »
Pregnant mothers	
Girls , as used in	x-x-year-old + terms under “Women”
Pregnant girls	Adolescents
	Youth
	Teens
	Teenagers ^b
Maternal , as used in	Pregnancy
Maternal mortality	Perinatal
Maternal complications	Obstetric
Maternal , as used in	Pregnant parent
Maternal health	Birthing parent
Maternal-child health	Perinatal
Maternal (health)care	(Health)care only: Obstetrics
	health/(health)care during pregnancy
Maternity (i.e., motherhood)	Parenthood
Maternity (i.e., period)	Perinatal

Fathers	Co-parents Non-birthing parents Non-childbearing parents Partners
Breastfeeding	Chestfeeding Human milk feeding Nursing
Breastmilk	Human milk Expressed milk

^aKeep qualifier (e.g., pregnant, childbearing, in labor, mortality) and modify bolded gendered term with example terms. Recommendations based on Stroumsa and Wu [38], Moseson et al.[16], McGrath and Brandon [39], Bartick et al.[40], and authors of this article.

^bBased on authors' work with patient partners, many 13-19-year-old parents would prefer researchers abstain from using "pregnant teens/teenagers" due to the stigma associated with the term. Accordingly, using the age-range version when essential (e.g., 13-19-year-old pregnant people) along with the terms under "women" may be favoured, and is also advantageous in that the population under study can be clearly defined.

CONCLUSION

In the present essay, we explained how gender-inclusive language in research on pregnant populations can have a unique role in stopping the erasure of gender-diverse people in research and society. In addition, gender-inclusive language facilitates the inclusion of gender issues in the remainder of the research process and contributing to clear and accurate scientific communication. The erasure of gender modality differences in the rhetoric of epidemiological research about pregnant people, and sexual and reproductive health research in general, can be addressed immediately, including in the dissemination of results from ongoing studies that did not take gender into consideration in the design phase. This makes gender-inclusive language an important first step towards the inclusion of gender-diverse people in research more globally as well as in public health campaigns.

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CONTRIBUTORS

CR (she/her) conceptualized the idea and developed the methodology. CR and MF (she/her) conducted the review of 500 recent articles on pregnancy. CR and SW (he/him) wrote the initial draft. CR, SW, KLN (she/her), AP (they/them), RPJ (he/him), LER (she/her), MF, and LMTM (she/her) critically revised the paper/edited the draft and agreed on the final version for submission. CR is guarantor for the work.

COMPETING INTERESTS

LMTM is an interim board member of the Canadian Perinatal Mental Health Collaborative. The other author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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SUPPLEMENTAL MATERIALS

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REVIEW OF GENDERED LANGUAGE IN CURRENT PREGNANCY-RELATED RESEARCH

Method

To examine the prevalence of (cis)woman-centric and gender-inclusive language in the field, we reviewed recent scientific publications in pregnancy-related health research. A search for the MeSH major topic³ “pregnancy” was conducted in PubMed on July 23, 2021, with restrictions for publications from the last year (i.e., capturing articles published between 07/22/2020 and 07/23/2021), human research, and the English language. Results were extracted, and 500 publications were randomly selected for review (see <https://doi.org/10.17605/OSF.IO/JZ6PV> for supplementary spreadsheet with further details on study selection and full list of studies reviewed). For each article, we took note of whether gender-inclusive language was used. For example, terms such as “women”, “girls”, “mothers”, “maternal”, and “maternity” were considered (cis)woman-centric when referring to pregnant participants and populations. When such (cis)woman-centric language was used, we checked whether gender identity was acknowledged in the article (e.g., as a demographic variable, a note, or a limitation). When

³All references indexed in PubMed are given labels called Medical Subject Headings (MeSH), which are official words/phrases assigned by indexers from the U.S. National Library of Medicine after consulting each article [1]. For each article, some MeSH terms are designated as the major topic. Thus, a search for the pregnancy MeSH major topic would capture all articles labeled by indexers as having pregnancy as a major topic, regardless of whether the term “pregnancy” was used in the title and abstract.

gender-inclusive language was used, we took note of the terms used to refer to pregnant individuals. We also coded the research field and the country of first authors. The associations between the use of gender-inclusive language and first authors' field and country were examined using chi-square tests via IBM SPSS Statistics version 27.

Results

Results showed that 1.2% ($n = 6$) of articles used gender-inclusive language, while the remaining 98.8% ($n = 494$) used (cis)woman-centric language. Terms in articles using gender-inclusive language included *patients*, [2-5] *parents*, [6, 7] and *pregnant teens*. [6] The field of first authors was associated with the use of inclusive language ($\chi^2(19) = 84.83$, $p < .001$). Five out of the six articles using gender-inclusive language were by first authors in medicine, which is consistent with most instances of inclusiveness having used the term "patient." The sixth article using gender-inclusive language was the only reviewed article by a first author in communication. [6] There was no geographical pattern, with the association between first authors' countries and the use of gender-inclusive language being non-significant ($\chi^2(60) = 27.74$, $p = 1.00$). Articles using gender-inclusive language were from Australia, China, Pakistan, Spain, and the USA (2 articles).

Out of the articles using (cis)woman-centric language, 0.6% ($n = 3$) acknowledged or mentioned gender identity. In one of these articles, a table showed that participants were asked whether they felt that they were treated poorly by care providers because of their sexual orientation or gender identity. However, the measure and results were not discussed in the text, demographics on gender identity were not reported, and participants were referred to as women throughout. [8] The second study conducted qualitative interviews with 14 participants, and the article reported that one participant was genderfluid but referred to the overall sample as

females/women.[9] Finally, the third article was a review that acknowledged that not all pregnant people are women, while mentioning that the term “women” was used because studies included in the synthesis used that term.[10] Although this was not among the coded variables, we also observed that most articles mentioning “gender” used the term when referring to sex assigned at birth (e.g., fetal/newborn gender) or measured and discussed gender in a cisnormative binary manner (e.g., men/women, when respondents were pregnant people and their partners or healthcare providers). This is consistent with previous findings that sex and gender are frequently conflated in research.[11, 12]

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