His and Hers Healthcare? (Strategic) Essentialism and Women's Health

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In 1998, McCormick, Kirkham, and Hayes observed a rift between women's health research and postmodern and poststructuralist feminist theories. They describe how the latter "problematized the very basis of the feminist political project," including the basis of women's health as a research program, by critiquing appeals to universal womanhood and questioning the sex/gender distinction (McCormick, Kirkham, and Hayes 1998, 496). Initially, the authors seem in agreement with this problematization, explaining that any definition of womanhood not only unifies (some) women but also excludes (other/Othered) women, and that sex cannot be considered in isolation from gender because bodies always already exist in a social context *and* because knowledge about bodies is always produced within certain discourses. Ultimately, however, they argue that it is not feasible or necessary to completely avoid essentialism, which – they suggest – would only "satisfy the obscure demands of theoretical purity," after all (503). Here, they refer to Spivak's notion of *strategic essentialism* (Spivak & Rooney 1989). They propose that strategic essentialism, which they define as "the essentialized term (i.e., *woman*) [becoming] a mobilizing slogan aimed at specific political ends" is necessary and appropriate to guide women's health research, as long as researchers remain aware of the danger of "cutting off many groups of women and disallowing the heterogeneity that exists beyond the dominant groups" (McCormick, Kirkham, and Hayes 1998, 502).[1]

Writing 25 years later, I observe that women's health research policies and practices that have developed during this time have indeed relied greatly upon essentialism.[2] However, as I will argue in more detail below, the dangers identified by McCormick et al. have not been averted, and the categories "women" and "men" are routinely reified in ways that are detrimental to equality. In many instances, this happens through the privileging of sex as a biological variable, but even when this is not the case (e.g., when "women" remains an undefined form of address), womanhood is often

DOI: 10.54195/HSOV8373_CH09

represented as a homogenous category that allows for little to no variation. As such, I will argue that the contemporary landscape of women's health fails to mobilize essentialism in a way that is sufficiently self-reflexive (if such a thing is even possible). In what follows, I will analyze a number of examples to support these arguments, question the desirability and feasibility of strategic essentialism in the interest of women's health, and point to alternative approaches.

Every Cell Has a Sex: Women's Health in the 21st Century

Why would "women" be needed as a mobilizing slogan for political ends in the first place, when it comes to health today? In 1977, the US Food and Drug Administration (FDA) banned all "women of childbearing potential" from early-phase clinical drug trials (Center for Drugs Evaluation and Research 1977). This was a response to the discovery that certain drugs taken by pregnant women had caused serious fetal damage (Merkatz 1998). Of course, this protective measure harmed women by drastically reducing the diversity of bodies involved in early drug trials. Women's health advocates, therefore, started to look for health differences beyond reproductive and sexual systems to amass evidence for the importance of biological sex as a health determinant (Epstein 2007). According to Eckman, this strategy profoundly transformed the landscape of women's health research as biological sex came to be "understood as residing *throughout* a woman's body, [and] constructed as the difference that *most* determines women's health" (Eckman 1998, 141, emphasis added). Indeed, in 2001, a report titled *Exploring the Biological Contributions to Human Health: Does Sex Matter?* (Pardue and Wizeman 2001), commissioned by the Society for Women's Health Research, argued that "[sex] matters in ways that we did not expect. Undoubtedly, it also matters in ways that we have not begun to imagine" (x).

The report also introduced the phrase "every cell has a sex" (4), which reverberated throughout the next two decades as large funding bodies developed policies calling for more representative research, including a routine assessment of differences between women and men. For example, the phrase was used to introduce a Canadian Institutes of Health Research grant to fund research on health disparities between men and women (Canadian Institutes of Health, 2015). It was invoked to promote a US National Institutes of Health policy that requires all funded research to

include sex as a biological variable (Rabin 2014; see also Clayton and Collins 2014), and it motivated the EC to fund the development of similar guidelines for studying sex in life science research (Klinge 2010).[3] It was also mobilized for more public-facing health communication, as in cardiologist and Wellesley College president Paula Johnson's TEDtalk "His and hers… health care" which has over 1.2 million views (Johnson 2013). These developments have been fueled by reports showing that health disparities between women and men, including treatment responses, persist (e.g., Franconi et al. 2007) and by reports showing that research often still relies on men and male non-human animals (e.g., Zucker and Beery 2010).

The necessity to make health research more representative and to study health disparities beyond reproductive differences has, by itself, not been controversial. However, dominant strategies that emerged in response to these challenges have attracted critiques informed by feminist theory. For example, whereas the separation of the terms sex and gender is professed as a best practice by many women's health advocates (in part because these terms have often been used in indiscriminate or otherwise confused ways), feminist critics have noted how this facilitates the prioritization of biological data over other types of enquiries and the subsequent naturalization of phenomena that are not strictly biological (e.g., Kleinherenbrink 2016; Shattuck-Heidorn and Richardson 2019). Instead, therefore, some feminist scientists have insisted on using the term "sex/gender" or "gender/sex" so as to not lose sight of their inseparable entanglement and to refuse the biologization of that which is always already social and worldly (e.g., Kaiser et al. 2009; Fausto-Sterling 2019).

A focus on sex as a binary, biological variable assumes that womanhood is a clear-cut, universal variable. However, as the history of feminist theory itself shows, womanhood can be construed as universal in ways that are not necessarily biological. In this chapter, I am concerned with such construals as they occur in the discourse and practices surrounding women's health. Many occur in relation to so-called sex-based or sex-specific medicine, but as some of the examples below will demonstrate, appeals to "women" as a universal medical category also occur when both sex and gender are taken into account. The point I wish to make in this piece is that when women's health advocacy moves the needle from one size fits all (i.e., the "male norm") to two sizes fit all (i.e., "his and hers" health care), this will benefit *some* women but it will also reify a binary understanding of "women versus men" that undermines the effort to improve health care for all.

The Construction of Womanhood as a Universal Medical Identity

An appeal to universal womanhood as a homogenous, clearly bounded, and biomedically distinct category appears in many instances in the current rhetoric and practices surrounding women's health. Phrases like "every cell has a sex," "his and hers health care," "the difference an X makes,"[4] or "female brain injury"[5] circulate in policy documents, research papers, conference talks, public campaigns, and other spaces. Such phrases conjure an understanding of womanhood as an essence that pervades the entire body and that cleanly separates two distinct medical subjects by scaling up linearly from chromosomes to health outcomes. This goes against well-established feminist critiques that show that sex differences are much more complex and contingent (e.g., Fausto-Sterling 2016; Pape 2021).

There are at least two problems at play here that facilitate sex essentialism: first, sex is rarely explicitly defined and operationalized in research, which both assumes and implies that sex is uniform and thus not in need of specification (DiMarco et al. 2022; Richardson 2022). Second, sex is commonly treated as a causal variable or mechanism, whereas it is more appropriate to see sex as a proxy for more specifiable factors or mechanisms that are likely to hold more predictive power, like body weight or hormonal levels (Springer, Stellman, and Jordan-Young 2012; Maney 2016).

Appeals to womanhood as a universal category also appear in (proposals for) sex-specific medical interventions. A prime example is the sleeping drug Zolpidem. The US FDA adjusted the recommended dosages after reports that women have more accidents due to excessive morning-after sedation than men. This is widely celebrated by women's health advocates as the first-ever sex-based prescription, demonstrating the need for sex-specific medicine. However, successive evidence suggests that sex is not a strong predictor of the impact of Zolpidem because of high individual variation; in fact, the new guidance risks *undertreatment* of women (Greenblatt, Harmatz, and Roth 2019). Such crude implementations of sex-specific treatment are even more problematic when one considers that less than a third of studies that claim to find a sex-based difference in treatment response actually conduct a proper statistical evaluation to support this (Garcia-Sifuentes and Maney 2021).

Another widely cited example of why sex-based medicine is necessary, is that of heart attacks. Findings of disparities in heart attack symptoms

have led to sex-specific diagnostic standards (ESC Committee for Practical Guidelines 2012) and to sustained efforts to educate the general public about "atypical" symptoms deemed more common in women. A Google image search for "heart attack symptoms" yields various infographics that distinguish between women and men. Some, like the infographic developed by the Go Red for Women initiative of the American Heart Association, explain that women experience "chest pain but not always," whereas others mention only "chest discomfort" or leave out chest pain altogether for women.[6] Whereas this suggests that "men's heart attacks are like *this*, and women's heart attacks are like *that*," a recent systematic review shows that the difference is not so stark: chest pain was reported by 79% of men versus 74% of women (Van Oosterhout et al. 2020). The exaggeration of such disparities puts men with atypical heart attacks, as well as women with typical heart attacks, at risk of underdiagnosis (Ferry et al. 2019).

As a final type of example, appeals to universal womanhood also appear in public campaigns that aim to raise awareness about women's health. In a discourse analysis of public-facing online platforms for Alzheimer's disease in women, my collaborators and I found a frequent use of rhetorical strategies (e.g., the selective presentation of statistics or the use of gender-normative style and content) that construct womanhood as a universal medical identity (Mohr, Kleinherenbrink, and Varis 2020). In addition, in contrast to previous work that criticized the overwhelming whiteness of women's health campaigns, we found a strong visual representation of racial and ethnic diversity in our corpus. This might be understood as a positive acknowledgment of intersectionality – i.e., the fact that gender/sex-related health differences and racial/ethnic health differences mutually constitute each other (along with other axes of inequality). However, actual information about racial and ethnic health disparities in Alzheimer's disease was exceedingly scarce on the platforms we examined. We contend that in lieu of such information, the visual representation of diversity amongst women has the paradoxical effect of obscuring the importance of such differences by implying that *all* women are united and the same in the face of the threat of Alzheimer's disease. This is not the case, however, since racial and ethnic health disparities overall seem about as large as gender/sex-based disparities, and these categories interact so that gender/sex differences depend on race/ethnicity and vice versa – thus, some women are more at risk than others (Mayeda et al. 2016; Avila et al. 2019).

Figure 1 The campaign image from the 'Behandel me als een dame' campaign. WOMEN Inc., KesselsKramer, photographer Bert Teunissen, 2016.

A similar case in point is the Dutch campaign that was launched in 2016 by the NGO Women Inc. to introduce a new national research agenda to investigate health disparities between women and men. The campaign image features the slogan "Treat me like a lady," and shows women of various ages and with various skin tones and hair types, one of them seated in a wheelchair, all dressed in green operation gowns (Figure 1).[7] Whereas such visual representation of diversity is laudable, this campaign does not actually *address* the importance of diversity other than sex and gender. As such, this image suggests that we are all women *despite* these differences, and thereby invites us to understand womanhood as a universal determinant of health that overrides or precedes any other health inequalities.

Strategic Essentialism?

I do not argue that the male bias in biomedical research is not a feminist issue, or that gender/sex-based differences should not be considered in medical research or practice. I also do not argue that we must abandon the terms "women" or "women's health" altogether. Such categories remain necessary and valuable as a means of discovering, measuring, and discussing inequalities. Reducing complex realities to categories is also useful to make scientific research feasible. Moreover, categories serve as heuristics

for medical practitioners when weighing different options for testing and diagnosis. As such, I do not see flagging gender/sex-based health disparities as a *starting point* for further inquiry and intervention as the major issue. Serious problems do emerge, however, when we forget that categories are just that – a starting point, a provisional reduction, an imperfect and temporary proxy. This occurs when we talk about "female brains" as if these are actual entities that can be found in real people rather than statistical constructs; when we develop sex-based treatments because of a statistically significant but small difference; or when we suggest that men's heart attacks are like *this* and women's heart attacks are like *that*.

One might argue that reification is an unavoidable aspect of language. However, feminist researchers have formulated best practices that help us push back against this effect of categorization in scientific research, including but not limited to: better recognition of gender and sex variation beyond binary divisions, more explicit operationalization of sex (what is sex a proxy for?), better reporting of variation within and overlap between groups, and more systematic investigation of the contingency of sex differences on contextual or personal factors (e.g., Rippon et al. 2014; Richardson 2022). Such practices might be demanding but are not unfeasible, and while they still align with the goal of eliminating the male bias in medical research, they help us understand health disparities in more complex and nuanced ways than dominant approaches currently allow.

What, then, about the *strategic* advantage of essentialism? We must acknowledge the appeal: alluding to womanhood as a homogenous identity allows for a straightforward message about sexism and sisterhood that can be digested by a wide audience and that can foster coalitions. As Keyes et al. note, "nuance is not always politically possible" (2020, 7). Thus, one might argue that there is a need to take one step at a time: first, get stakeholders on board with a simple message; next, introduce complexity and nuance. In fact, sex-based medicine is often represented as a gateway to personalized or precision medicine (e.g., Ferretti et al., 2018). And, by visually signaling that womanhood is understood in inclusive terms, campaigns like the ones discussed above do seem to avoid the danger of "cutting off many groups of women" (McCormick et al. 1998, 502). However, sidestepping the problem of universalism is not the same as resolving it. Including women of color, for example, does not *address* the fact that the biomedical norm has not only been male but also white, let alone bring to light how maleness and whiteness have been mutually con-

stituted as norms. As such, the question is which damage is done if essentialism is used strategically as a first phase, and if this does not actually thwart further progression. The obvious alternative strategy is to adopt an intersectional perspective from the outset, which also considers the importance of sex and gender but not as overriding or preceding other differences (Bowleg 2012; Hankivsky 2012).[8] In this light, it is heartening that the European Union emphasizes intersectionality in its Horizon Europe funding scheme (see White et al. 2021).

Concluding Reflections

The examples discussed here create the fiction that a majority of people fall within two homogenous categories. It thereby assumes that being a (cisgender) woman or a (cisgender) man is a strong predictor of *any* medical measurement or outcome. As discussed above, however, this is not even the case for widely cited examples that purportedly demonstrate the need for sex-specific medicine. This exaggeration of health disparities, while useful for building political and scientific coalitions, potentially has detrimental medical effects. It also stands to reason that stereotypical beliefs will spill over from the medical into other realms, such that medical essentialism will encourage discrimination in other contexts.

Notions of "his and hers" healthcare furthermore exclude transgender, nonbinary, and intersex people – groups that are already poorly treated in/by the medical system. But the harmful impact of medical essentialism on such groups extends even beyond inappropriate healthcare; the notion that women and men are medically distinct populations has been leveraged to support their discrimination and persecution, including, for example, the anti-transgender law in Hungary, anti-trans bathroom bills in the US, and the transphobic "#FreeSpeechBus" that toured Europe and North America (as documented by Sudai 2019, Sudai et al. 2022, and Richardson 2022).

In an interview with Rooney, Spivak pointed out that "a strategy suits a situation, a strategy is not a theory" (Spivak 1989, 127). In the current landscape of women's health, essentialism is used in ways that appear strategic, but also as a foundation for theory – and there appears to be considerable slippage between the two modes. Rather than maintaining a strategic distance from feminist critiques that undermine the coherence of woman-

hood, as recommended 25 years ago by McCormick et al. 1998, what we need today to advance women's health is precisely the more serious uptake of feminist theories and methods that challenge essentialism and binarism (e.g., by using intersectionality as a theory and method). Anecdotally, in my personal experience, expressing such critiques is sometimes seen as "anti-feminist" because it ostensibly stands in the way of getting things done to improve women's health. The question is, however, *which* women stand to benefit and which ones are left behind if we cling to essentialism, strategic or otherwise.[9]

Notes

1 As Ray 2009 argues, even though Spivak's explication of strategic essentialism evolved over time, it differs overall from most contemporary invocations of the term. Whereas Spivak insisted on "appropriating" and "critiquing" essentialism in the same move, contemporary feminist discourse uses the term merely to highlight the advantage of temporarily accepting womanhood as a stable category (Ray 2009, 155). Spivak herself also lamented this uncritical circulation of the term as if it is "simply [...] the union ticket for essentialism," and she eventually gave up the term (although not the project of thinking through the problem it addresses; see Danius, Jonsson and Spivak 1993, 35).

2 For the purposes of this text, I understand essentialism as any explicit or implicit appeal to womanhood as a universal category – that is, an understanding of "women" as a clearly bounded group that shares, minimally, one core feature – whether that feature is conceptualized as biological or cultural or remains undefined.

3 This common refrain notwithstanding, the focus of policies has differed somewhat across geographical context. Whereas the US has a significant history of focusing on sex as a biological variable, EU policy has considered sex-based analysis as part of its "gender dimension." In my observation, EU policy tends to acknowledge the interconnectedness of sex and gender *and* intersectionality more than US policy.

4 This slogan is used by the US Society for Women's Health Research in infographics, symposia, and videos (e.g., Greenberger 2009).

5 See https://www.pinkconcussions.com/

6 See https://www.heart.org/en/news/2020/01/21/get-familiar-with-signs-of-a-heart-attack-or-stroke for the Go Red infographic; https://herheart.org/heart-attack-signs-in-women/ for an example that mentions "chest pain" for men but

"chest discomfort" for women; and https://www.munsonhealthcare.org/heart/what-are-the-symptoms-of-a-heart-attack for an example that omits chest symptoms altogether. All examples appeared on the first page of a Google search conducted on 10-08-2022.

7 https://www.behandelmealseendame.nl/

8 Another core tenet of intersectionality is to pay attention to structural power, which many of the examples discussed here also fail to do.

9 Many thanks to Veronica Vasterling, whose work and mentorship have been a tremendous inspiration and support.

References

- Avila, J. F., J. M. J. Vonk, S. P. Verney, K. Witkiewitz, M. Arce Rentería, N. Schupf, R. Mayeux, J. J. Manly. 2019. "Sex/Gender differences in cognitive trajectories vary as a function of race/ethnicity." *Alzheimer's & Dementia*, 15, no. 12: 1516-23.
- Bowleg, L. "The problem with the phrase women and minorities: intersectionality – an important theoretical framework for public health." 2012. *American Journal of Public Health*, 102, no. 7: 1267-73.
- Canadian Institutes of Health, *Catalyst Grant: Sex as a Variable in Biomedical or Translational Research*. URL: https://www.researchnet-recherchenet.ca/rnr16/vwOpprtntyDtls.do?prog=2309&view=search&terms=sex+as+a+biological+variable&incArc=true&type=EXACT&resultCount=25&next=1 [last accessed 10 August 2022].
- Center for Drug Evaluation and Research. 1977. *General Considerations for the Clinical Evaluation of Drugs.* FDA, Washington, DC.
- Center for Drug Evaluation and Research. 1993. *General Considerations for the Clinical Evaluation of Drugs.* FDA, Washington, DC.
- Clayton, J., and F. Collins. 2014. "Policy: NIH to balance sex in cell and animal studies." *Nature*, 509 (7500): 282-83.
- Danius, S., S. Jonsson, and G. Chakravorty Spivak. 1993. "An Interview with Gayatri Chakravorty Spivak." *Boundary*, 2, 20, no. 2: 24-50.
- DiMarco, M., H. Zhao, M. Boulicault, and S. S. Richardson. 2022. "Why 'sex as a biological variable' conflicts with precision medicine initiatives." *Cell Reports Medicine*, 3, no. 4: 100550.
- Eckman, A. K. 1998. "Beyond 'The Yentl Syndrome.' Making women visible in post-1990 women's health discourse." In The visible woman: Imaging technologies, gender, and science, edited by P. Treichler, L. Cartwright, C. Penley, 130-68. New York: New York University Press.

- Epstein, S. 2007. *Inclusion: The politics of difference in medical research*. Chicago: University of Chicago Press.
- ESC Committee for Practice Guidelines (CPG), J. J. Bax (CPG Chairperson) (The Netherlands), H. Baumgartner (Germany), C. Ceconi (Italy), V. Dean (France), C. Deaton (UK), R. Fagard (Belgium) et al. 2012. "Third universal definition of myocardial infarction." *Journal of the American College of Cardiology*, 60, no. 16: 1581-98.
- Fausto-Sterling, A. 2016. "On the critiques of the concept of sex: An interview with Anne Fausto-Sterling." *Differences*, 27, no. 1: 189-205.
- Fausto-Sterling, A. 2019. "Gender/sex, sexual orientation, and identity are in the body: How did they get there?" *The Journal of Sex Research*, 56, no. 4-5: 529-55.
- Ferretti, M. T., M. F. Iulita, E. Cavedo, P. A. Chiesa, A. Schumacher Dimech, A. Santuccione Chadha, F. Baracchi et al. 2018. "Sex differences in Alzheimer's disease – the gateway to precision medicine." *Nature Reviews Neurology*, 14, no. 8: 457-69.
- Ferry, A. V., A. Anand, F. E. Strachan, L. Mooney, S. D. Stewart, L. Marshall, A. R. Chapman et al. 2019. "Presenting symptoms in men and women diagnosed with myocardial infarction using sex-specific criteria." *Journal of the American Heart Association*, 8, no. 17: e012307.
- Franconi, F., S. Brunelleschi, L. Steardo, and V. Cuomo. 2007. "Gender differences in drug responses." *Pharmacological Research* 55, no. 2: 81-95.
- Garcia-Sifuentes, Y., and D. L. Maney. 2021. "Reporting and misreporting of sex differences in the biological sciences." *Elife* 10: e70817.
- Greenberger, P. 2009. "Symposium: Does SexX Really Matter – What a Difference an X Makes: Welcome Remarks." Health Law and Policy Brief, 3, no. 2: 3-5. Available at: https://digitalcommons.wcl.american.edu/hlp/vol3/iss2/2
- Greenblatt, D. J., J. S. Harmatz, and T. Roth. 2019. "Zolpidem and gender: Are women really at risk?" *Journal of clinical psychopharmacology*, 39, no. 3: 189-99.
- Hankivsky, O. 2012. "Women's health, men's health, and gender and health: Implications of intersectionality." *Social science & medicine*, 74, no. 11: 1712-20.
- Johnson, P. *His and hers… health care.* TEDtalk. 2013. URL: https://www.ted.com/talks/paula_johnson_his_and_hers_health_care [last accessed 10 August 2022].
- Kaiser, A., S. Haller, S. Schmitz, and C. Nitsch. 2009. "On sex/gender related similarities and differences in fMRI language research." *Brain research reviews*, 61, no. 2: 49-59.

- Keyes, O., Peil, B., Williams, R. M., and Spiel, K. 2020. "Reimagining (women's) health: HCI, gender and essentialised embodiment." *ACM Transactions on Computer-Human Interaction (TOCHI)*, 27, no. 4: 1-42.
- Kleinherenbrink, A. 2016. *The politics of plasticity: Sex and gender in the 21st century brain*. Dissertation, Universiteit van Amsterdam.
- Klinge, I. 2010. "Sex and gender in biomedicine: promises for women and men. How incorporation of sex and gender in research will lead to a better health care." In *Sex and Gender in Biomedicine,* 15-32, Universitätsverlag Göttingen.
- Maney, D. L. 2016. "Perils and pitfalls of reporting sex differences." *Philosophical Transactions of the Royal Society B: Biological Sciences*, 371, no. 1688: 20150119.
- Mayeda, E. R., M. M. Glymour, C. P. Quesenberry, and R. A. Whitmer. 2016. "Inequalities in dementia incidence between six racial and ethnic groups over 14 years." *Alzheimer's & Dementia*, 12, no. 3: 216-24.
- McCormick, R., V. Kirkham, and J. Hayes. 1998. "Abstracting women: Essentialism in women's health research." *Health Care for Women International*, 19, no. 6: 495-504.
- Merkatz, R. B. 1998. "Inclusion of women in clinical trials: a historical overview of scientific ethical and legal issues." *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 27, no. 1: 78-84.
- Mohr, V., A. Kleinherenbrink, and P. Varis. 2021. "'You can't ignore a number this big': Gender, risk, and responsibility in online advocacy for women's brain health." *Qualitative Health Research*, 31, no. 4: 677-90.
- Oosterhout, R. E. M. van, A. R. de Boer, A. H. E. M. Maas, F. H. Rutten, M. L. Bots, and S. A. E. Peters. 2020. "Sex differences in symptom presentation in acute coronary syndromes: a systematic review and meta-analysis." *Journal of the American Heart Association*, 9, no. 9: e014733.
- Pape, M. 2021. "Co-production, multiplied: Enactments of sex as a biological variable in US biomedicine." *Social Studies of Science*, 51, no. 3: 339-63.
- Pardue, M.L., and T. M. Wizemann. 2001. *Exploring the Biological Contributions to Human Health: Does Sex Matter?* Washington, DC: National Academies.
- Rabin, R. C. 2014. "Labs are told to start including a neglected variable: Females." *NY Times*, May 14.
- Ray, S. 2009. *Gayatri Chakravorty Spivak: in other words*. Newark: John Wiley & Sons.
- Richardson, S. S. 2022. "Sex contextualism." *Philosophy, Theory, and Practice in Biology*, 14: 2.

- Rippon, G., R. Jordan-Young, A. Kaiser, and C. Fine. 2014. "Recommendations for sex/gender neuroimaging research: key principles and implications for research design, analysis, and interpretation." *Frontiers in human neuroscience*, 8: 650.
- Shattuck-Heidorn, H., and S. Richardson. 2019. "Sex/gender and the biosocial turn." *Scholar and Feminist Online,* 15: 2.
- Spivak, G. Chakravorty, and E. Rooney. 1989. "In a word. Interview." *Differences*, 1, no. 2: 124-56.
- Springer, K. W., J. M. Stellman, and R. M. Jordan-Young. 2012. "Beyond a catalogue of differences: a theoretical frame and good practice guidelines for researching sex/gender in human health." *Social science & medicine*, 74, no. 11: 1817-24.
- Sudai, M. 2019. "Toward a Functional Analysis of 'Sex' in Federal Antidiscrimination Law." *Harvard Journal of Law and Gender*, 42, no. 2: 421-76.
- Sudai, M., A. Borsa, K. Ichikawa, H. Shattuck-Heidorn, H. Zhao, and S. S. Richardson. 2022. "Law, policy, biology, and sex: Critical issues for researchers." *Science*, 376, no. 6595: 802-4.
- White, J., C. Tannenbaum, I. Klinge, L. Schiebinger, and J. Clayton. 2021 "The integration of sex and gender considerations into biomedical research: lessons from international funding agencies." *The Journal of Clinical Endocrinology & Metabolism*, 106, no. 10: 3034-48.
- Zucker, I., and A. K. Beery. 2010. "Males still dominate animal studies." *Nature*, 465, no. 7299: 690.