

Article

Who Is a Woman: Sex, Gender and Policy Making

Daphna Joel ^{1,*} and Cordelia Fine ²

¹ School of Psychological Sciences and Sagol School of Neuroscience, Tel-Aviv University, Tel-Aviv, Israel, djoel@tauex.tau.ac.il

² School of Historical and Philosophical Studies, University of Melbourne, Melbourne, Australia, cfine@unimelb.edu.au

* Corresponding author: djoel@tauex.tau.ac.il

Submitted: 7 July 2021, accepted: 11 July 2022, published: 31 October 2022

Abstract: Heated debates are taking place over the question: Who is a woman? Many of these are over inclusion criteria for policies that seek to promote equality, safety and/or privacy for girls and women by excluding boys and men. Science cannot resolve these debates, but its concepts and data can offer useful insights and information for policy makers who have to make principled and workable policy decisions about inclusion criteria. To assist policy makers in this difficult task, we begin by reviewing three key concepts that are often misunderstood and conflated: sex, gender, and gender identity. We then review key issues that policy makers should consider: the purpose(s) of the specific policy and whether it relates to sex, gender, and/or gender identity, and the distributions of benefits and costs for all stakeholders. As these considerations sometimes point to a conflict of interests, we end with some suggestions for how such conflicts might be ameliorated. Although we do not offer solutions to these difficult policy decisions, we hope that this article will help reduce misunderstandings, and facilitate open discussion and good decision making in this contentious policy context.

Keywords: gender; gender identity; sex; gender roles; transgender; ethics; policy

How to cite: Joel, D.; Fine, C. Who Is a Woman: Sex, Gender and Policy Making. *Journal of Controversial Ideas* **2022**, 2(2), 6; doi:[10.35995/jci02020006](https://doi.org/10.35995/jci02020006).

©2022 Copyright by the authors. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY 4.0) license.



Introduction

There are currently heated exchanges taking place in many Western countries (including USA, UK, Australia, and within the European Union) over the question: Who is a woman (or girl)? Many of these disagreements arise from the conjunction of two issues. One is the need for appropriate definitions of who is a woman (or girl) when it comes to policies that seek to promote equality, safety and/or privacy for girls and women by excluding boys and men. The second is the rise of rights to gender self-determination for transgender populations, who also need policies that seek to promote their equality, safety and/or

privacy, including access to spaces often segregated by sex. This has led to debates over who should be included in spaces and opportunities provided for women and girls. (It is for this reason that conflicts are most often about what defines being a woman or being female, rather than being a man or male.)

An overarching context of the Western countries that are the primary setting in mind for this discussion is the historical and ongoing organization of society around two sex categories, male and female. Sex categories are a key administrative classification, and they are also sometimes used to govern access to spaces, including many that are used by, or mandated for, vulnerable populations, such as refugees or prisons (Spade, 2015). Sex is also a protected attribute in discrimination law, allowing for affirmative action on the basis of sex. While in some contexts there is general agreement that such classifications/segregation are necessary and beneficial (and the debate is largely focused on criteria for inclusion), for other contexts there can be disagreement as to whether it is desirable at all. However, in general, conflicts arise from two relatively recent developments.

The first is the expansion of the term 'trans'. Trans, as part of the term 'transsexual', was used to describe individuals who feel marked incongruence between birth-registered sex and the sense of themselves as a member of the other sex, a phenomenon that came to be known as gender dysphoria (Meyerowitz, 2002). These individuals may seek medical transition (hormonal and/or surgical; nowadays referred to as gender-affirming treatment), social transition (non-medical changes aimed at being identified as a member of the desired sex), and/or legal transition (e.g., a change of the sex category registered on a legal record or document, such as birth certificate) in order to relieve distress by living as a member of the desired sex, and to protect privacy. The term 'transgender' was introduced in the 1990s and, as described in more detail later, has gradually developed into an umbrella term that encompasses many other subjectivities within the concept of gender identity, such as genderqueer, genderfluid, agender, and non-binary, and regardless of whether individuals experience gender dysphoria or desire or undertake medical or social transition (Diamond, 2004; Levitt, 2019).

This leads to the second important development: legislative amendments, proposed or enacted, to the requirements before legal sex can be altered in accordance with gender identity, and legislative or policy changes whereby gender identity, rather than sex or fulfilment of specific criteria, (potentially) becomes the basis for access to some sex-segregated services, spaces and opportunities. For example, in many jurisdictions, legal transition can be contingent on some type of modification of one's body (e.g., genitals) and/or maintenance of a gender role for a minimum period (e.g., evidence of 'living as a woman' for 2 years), and/or on medical gatekeeping in the form of a diagnosis of gender dysphoria. However, in the past decade, a growing number of countries or jurisdictions have proposed or enacted legislation to allow legal transition on the sole basis of self-identified gender identity. For example, in the state of Victoria in Australia, as of May 2020 adults have been able to legally transition without any bodily changes or statement from a health professional (*Births Deaths and Marriages Victoria*). Consistent with the recent conceptual expansion of the term 'trans', individuals can nominate a sex descriptor of their choice (i.e., not just female or male), and may make such changes repeatedly.

Legislation in this area differs across states and countries, and its full implications for duty bearers can be ambiguous until tested in court. Moreover, depending on the legislative context, legal transition may not necessarily provide the final word on who is included in spaces or opportunities for women and girls. For example, the

UK's Equality Act (2010) permits the exclusion of trans women, including those who have legally transitioned, from women-only services, occupational requirements, women-only clubs, competitive sports, all-women shortlists, and communal accommodation, so long as the exclusion is sufficiently justified ('a proportionate means of achieving a legitimate aim'). Conversely, legal transition is not always a requirement for trans women to access such spaces (Sharpe, 2020).

While it is not our aim here to attempt to review or interpret legislation, these legal and policy developments have brought to the fore contested understandings of what it means to be a woman (or girl). Indeed, there can be deep philosophical rifts between commentators, which can in turn give rise to considerable offense. For those who hold the view that trans girls and women simply *are* girls and women, by virtue of identifying as such, even debating whether trans girls and women should be excluded from spaces or opportunities reserved for girls and women appears deeply discriminatory against transgender people. Conversely, for those who take the position that girls and women are such by virtue of having been born with a female reproductive system, redefining these concepts in terms of subjective feelings and/or gendered expression ignores the central role of being female-bodied in women's and girls' experiences of disadvantages and inequalities that, in turn, are the basis of sex-based rights and protections. According to this view, it also risks either making the concept of 'woman' meaningless (due to the circularity of a definition of a woman as someone who identifies as a woman), or defining it in terms of gender norms and stereotypes (e.g., Joyce, 2021).

Relatedly, the terminology used to describe the stakeholders in these debates is, itself, often a matter of debate. This is not surprising, as no terms are politically neutral. Those who define a woman on the basis of gender identity prefer the terminology *cisgender* (or *cis*) *women* and *transgender* (or *trans*) *women*. This seeks to recognize the latter's identity as women, and bestows equal and equivalent membership of both groups to the category of women. In contrast, those who define a woman as an adult human female and believe that sex cannot be changed, sometimes prefer to retain the unmodified word *women* for this group exclusively (i.e., as a sex term rather than a gender identity term), and to contrast this with either *transgender women* or *trans-identified males*. Moreover, some commentators object to the term *cisgender women* because many females do not identify with the traditionally feminine behavioral and personal attributes that a female gender identity is taken to imply (see the section *Gender identity* below).

Although no choice of language is politically neutral, we have sought in this manuscript to use terms responsive to the different concerns in these debates. In order to respect individuals' gender identification, we use 'trans women' as a contraction of the term *transgender women*. We also consider that using the unmodified term *women* to refer to adult human females would, in the context of discussing questions as to who is included in policies 'for women', implicitly presuppose an answer. However, we also recognize the legitimacy of concerns about the use of the term *cisgender women*. We therefore use 'cis' for anyone who doesn't self-label with a non-normative identity, such as, trans or non-binary. This is similar to Serano's (2007) 'cissexual', which means anyone who does not have a sense of incongruence with regards to their sex.

We would like to note at the outset that our goal here is not to attempt to resolve any specific policy disagreement. Arguably, inclusion criteria can and likely should vary depending on the underlying purpose or context of the policy (Clarke, 2019; Harper, 2017; Sudai, 2018). As Clarke (2019, p. 936) has argued in relation to legal definitions:

Whether sex or gender should be defined based on genetics, hormones, morphology, physiology, psychology, elective choice, documentary evidence such as birth

certificates, public perceptions, something else, or not at all—is a difficult question to answer in general. The answer may be different if the law's purpose is to forbid discrimination, express respect for a person's identity, ensure accurate medical records, create fair divisions in sporting events, provide affirmative action for people disadvantaged by male dominance, or some mix of these goals.

Our goal is rather to assist those tasked with making these difficult decisions. To this end, we begin by reviewing the key concepts of sex, gender and gender identity.

Key Concepts: Sex, Gender and Gender Identity

A major barrier to clear policy discussions are multiple understandings of the key concepts of sex, gender and gender identity, and confusing uses of terms. This includes multiple meanings of 'sex', the interchangeable uses of 'sex' and 'gender' as well as 'gender' and 'gender identity', and the use of sex labels to refer to gender identity (e.g., 'female gender identity' or 'trans male').

Sex

Currently, the term 'sex' has at least three common meanings—a source of considerable ambiguity and misunderstanding. The first common meaning is *sex category*, that is, membership in one of the two sex categories (female or male). The second meaning is *sex as a biological system*: a loosely defined set of genes and hormones that affect the development and functioning of the reproductive system. The third is what Griffiths (2021) calls *phenotypic sex*—'the familiar idea that sex is defined by the typical physical characteristics (phenotypes) of males and females'. As sex-related genes and hormones affect many aspects of human physiology, including bones, muscles, fat tissue, and the brain (de Vries and Forger, 2015; Joel, 2016), *phenotypic sex* often refers not only to the internal and external genitalia but also to morphological, and even neural, characteristics of human females and males.

Sex Category

From a biological perspective, the terms 'male' and 'female' relate to two reproductive types, or sex categories, that are distinguished by the gametes (the cells that fuse together in the process of sexual reproduction) they produce. By definition, females produce the larger gametes (eggs) and males produce the smaller gametes (sperm). In humans, eggs and sperm are produced, respectively, by ovaries and testes. Thus, sex category can be defined by the gonads, and it is only in extremely rare cases (~1:100,000, Blackless et al., 2000; Lee et al., 2016) that a baby is born with gonads that are not clearly either ovaries or testes. Currently, gonads can be removed, but ovaries cannot be changed into testes or testes into ovaries.

Sex as a Biological System

The development of a person's gonads and genital organs occurs in utero and is governed by hormones and genes. Sex-related hormones, the best known of which are testosterone, estrogen and progesterone, are also responsible later in life for the development and functioning of these organs as well as for the development of secondary sex characteristics (e.g., breasts, facial hair), and affect other morphological features (e.g., height, fat and muscle distribution). While often referred to as 'female' versus 'male'

hormones, in fact they do not belong to two distinct categories, as the gonads do. Rather, these hormones are found in all humans, in levels that overlap to a greater or lesser degree, depending on the hormone, age and other factors (reviewed in Hyde et al., 2019; Joel and Yankelevitch-Yahav, 2014). In addition, the levels of these hormones are very dynamic within each individual, changing across the life span (e.g., prenatally, neonatally, childhood, adolescence, menopause, advanced age) as well as in response to internal and external conditions and stimuli (e.g., pregnancy, menstrual cycle, stress, competition, parenting, e.g., Geniole et al., 2017; van Anders et al., 2015). Sex-related genes are not well defined, but many of the genes responsible for the formation of the gonads reside on autosomes, and only a few are found on the X and Y chromosomes (Richardson, 2013). Thus, unlike sex categories, sex as a biological system is a dynamic and often overlapping multi-dimensional variable (Hyde et al., 2019; Joel and Yankelevitch-Yahav, 2014).

Although currently sex-related genes are not medically modified, medically induced alterations of the levels of sex-related hormones are very common, from reproductive-aged females who use birth control pills, to medications for prostate or breast cancer. There are also pharmacological interventions that can promote the typical average hormone levels of reproductive-aged females, or males, including as part of gender-affirming hormonal treatment.

Phenotypic Sex

Being a human female is very strongly associated with external sex characteristics in the form of female external genital organs (vulva and clitoris), while being male is tightly associated with external sex characteristics in the form of male external genital organs (scrotum and penis) (Blackless et al., 2000; Lee et al., 2016). For this reason, one can rely on the form of the external genitalia to identify sex category at birth in the vast majority of cases. Nonetheless, both naturally occurring and medically induced variation in primary sex characteristics means that there is diversity in *phenotypic* sex. For example, approximately 0.02% of human neonates have external sex characteristics that are not clearly female or male (Blackless et al., 2000; Hull, 2003). Currently available surgical and pharmacological interventions can alter or remove many primary sex characteristics (e.g., a womb, a penis), for different purposes, including gender-affirming medical treatment.

If understood to include additional morphological as well as neural characteristics, phenotypic sex becomes even more diverse in its manifestation. As noted above, sex-related hormones are responsible for the development of secondary sex characteristics (e.g., breasts, facial hair), and affect other physical characteristics and capacities, like height, shoulder breadth and upper body strength. In contrast to the genitalia, some of these physical characteristics are affected not only by sex-related hormones but, to a larger or lesser degree, also by gender norms. Also unlike the genitalia, where clear male and female forms exist and intermediate forms are rare, there are varying degrees of overlap between females and males for all other physical measures. Thus, not all males lack breasts and are taller and stronger than all females, and not all females lack facial hair and are shorter and weaker than all males. However, these morphological and physical capacities are strongly intercorrelated (Carothers and Reis, 2013), meaning the presence of one in a form more common in males than in females predicts the presence of other characteristics in a form more common in males than in females, and vice versa. Relatedly, one's sex category can often be accurately predicted on the basis of these morphological features, even if the genitalia are covered.

The effects of hormonal interventions on physical capacities provide a burgeoning area for research (e.g., Jordan-Young and Karkazis, 2019; Scharff et al., 2019;

Wiik et al., 2020). Hormonal and surgical interventions can change some physical characteristics to a level typical of members of the other sex (e.g., facial hair, haemoglobin levels), but, if provided post-puberty, appear to have limited or no effect on others (e.g., height, shoulder breadth, muscle mass and strength, or pelvic width, Harper et al., 2021; Hembree et al., 2017; Hilton and Lundberg, 2021; Spanos et al., 2020).

Diversity and overlap are even more pronounced in the brain. Current findings reveal that sex effects on the brains of both females and males arise out of interactions between genetic, hormonal and environmental factors (for a recent review see, Joel et al., 2020). As a result, there is high variability in the degree of 'maleness'/'femaleness' of different features within a single brain (Joel, 2011, 2021; McCarthy and Arnold, 2011). Indeed, studies of the human brain reveal group-level differences in specific brain measures, but brains are often composed of mosaics of both female-typical and male-typical measures (Alon et al., 2020; Joel et al., 2015, 2020). Moreover, unlike other facets of phenotypic sex (that is, genitals and secondary sexual characteristics), an individual's sex category provides little information regarding their brain structure and function and how these will be similar or different from someone else's brain (Alon et al., 2020; Eliot et al., 2021; Joel et al., 2018).

Small-scale studies of the brains of trans women and men before any medical intervention reveal a complex picture of group-level similarities and differences between the transgender groups and the corresponding same or other sex-at-birth cis groups (for review see, Nguyen et al., 2019). The same complexity is evident in studies reporting the effects of hormonal treatments on brain structure and function. The average change is typically small and is only sometimes towards the average score in the corresponding cis group, while the variability of the changes between individuals is very high (for review see, Nguyen et al., 2019). Taken together with the observation that the brains of most humans are unique mosaics of female-typical and male-typical measures, it seems very likely that while one's brain structure can be expected to be different after hormone treatment, it is still likely to continue to take a mosaic form. Indeed, a recent co-analysis of several hypothalamic measures (that show large sex/gender differences) revealed that most of the trans women in the sample possessed a mosaic brain (Joel et al., 2020).

Sex: Summary

'Sex' can refer to sex category (male or female), sex as a system (genes and hormones), or phenotypic sex (in particular primary sex characteristics, but potentially also conceptualized as including secondary sex characteristics, body morphology, and the brain). Phenotypic sex, particularly post-pubescence, often allows an accurate prediction of gonadal sex, thus giving rise to what might be referred to as *social sex* (i.e., whether one is perceived by others as female, male or not readily classified as either). The latter is also affected by many non-biological characteristics, such as hair style, apparel, vocal modulation, interactional styles, behavioral manners, and name use (e.g., Levitt, 2019; Morgenroth and Ryan, 2021; Tate et al., 2014).

These very different usages of the term 'sex' may help to explain a portion of some persistent disagreements in these debates, such as whether or not 'sex' is binary, or can be changed. For example, sex categories are binary (only ~1:100,000 are born with gonads that are not clearly either ovaries or testes) and cannot be reversed (i.e., from ovaries to testes or from testes to ovaries), while there is more overlap, dimensionality and mutability among the characteristics of phenotypic sex and sex as a system (see Table 1 for a summary of the different meanings of sex and the corresponding answers to whether 'sex' is binary and can be changed).

Table 1: The different meanings of sex.

Meaning of 'Sex'	Components	Binary?	Can Be Changed?
Sex category	Gonads	Binary (~1:100,000 are born with gonads that are not clearly either ovaries or testes)	Gonads can be removed, but ovaries cannot be changed into testes or vice versa
Sex as a system	Genes	Most of the genes involved in gonad formations are found in both females and males (as most are located on autosomes or on the X chromosome, and only a few on the Y chromosome)	Sex-related genes are currently not being medically modified
	Hormones	Sex-related hormones form an overlapping, multi-dimensional and dynamic system	Often modified; Pharmacological interventions can promote the typical average hormone levels of reproductive-aged females and males
	Genitals	About 0.02% of human neonates have external genitalia that are not clearly female or male	Genital organs can be removed or modified by surgical and pharmacological interventions
Phenotypic sex	Other body morphology	All measures are continuous, and generally overlapping, although often strongly intercorrelated	Hormonal and surgical interventions can change some, but (if provided post-puberty) not all, physical characteristics to a level typical of members of the other sex
	Brain	Characterized by diversity, high overlap, and mosaicism; Sex category provides little information about brain structure, or similarity or difference to another's brain	A complex and highly variable pattern of changes following hormonal interventions
Social (perceived) sex		Typically binary—most people are automatically perceived as either male or female, although androgynous gender presentation may lead to exceptions	Genital organs and other physiological as well as non-biological characteristics can be modified

Gender

Adding to the confusion, the term 'gender' also has several meanings, including as a synonym for sex categories, as well as to refer to gender identity (Stock, 2021). This is unfortunate, as 'gender' has been central to our ability to think of the social aspects of being female or male. One such sense is in reference to the psychological and behavioral attributes of an individual that are culturally associated with males or females (i.e., masculinity and femininity, e.g., Unger, 1979). Or, more broadly, 'gender' may be understood as a hierarchical system of social relations between the sexes (e.g., Ridgeway, 2011).

Femininity and Masculinity

Although they may vary across time and place, there are group-level behavioral differences between males and females. Some of these are substantial (e.g., sexual interest in females *versus* males), many others are negligible to moderate (e.g., reading comprehension, extraversion; Hyde, 2005), and some are rare in both sexes while still being more common in one than the other (e.g., sexual violence). However, these characteristics do not create two distinct categories at the individual level. Rather, people possess unique combinations of both feminine (i.e., more common in girls/women than in boys/men) and masculine characteristics (e.g., Joel et al., 2015). In other words, average differences at the population level do not typically allow for accurate predictions regarding the specific preferences, attitudes, and behaviors of an individual on the grounds of their sex category, or for useful generalizations as to ‘what women (or men) are like’.

Gender as a Hierarchical Social System

The inclusion of sex as a protected attribute in discrimination law marks recognition of the fact that one’s registered or social sex category structures one’s social interactions, across all or most social contexts, due to gender norms, stereotypes and social institutions (e.g., Lippert-Rasmussen, 2014; Ridgeway, 2011). Gender norms include laws that restrict property, reproductive or legal rights, or that restrict educational or economic opportunities, on the basis of sex category, but also include informal gender norms that, by leading to social sanctions for those who violate them, serve to facilitate conformity to feminine and masculine codes. Gender stereotypes culturally attribute particular masculine and feminine psychological and behavioral attributes to males and females, respectively, facilitating discriminatory behavior. Gender norms and stereotypes may also shape behavior via internalization. Gendered social institutions, such as the media, the family, workplaces and government help to produce and sustain inequalities between the sexes (such as media that reproduce gender stereotypes, or tax and transfer policies that encourage a gendered division of paid and unpaid labor).

The content and effects of these gender norms, stereotypes and institutions are affected by race, class, age, nationality, religion, ability status and so on (e.g., Crenshaw, 1989; Hall et al., 2019; Maroto et al., 2019), as well as transgender status, which we address specifically in a later section. The overall outcome of the gender system is a consistent pattern of female material, sociocultural and political disadvantage, relative to comparable males, albeit that some issues predominantly affect boys and men (for discussions, see Benatar, 2012; Robeyns, 2003). Even in countries in which the sexes have equal political rights, such as the United States, compared to comparable men, cis women have lower wages and wealth (Chang, 2010; Semega et al., 2020), less leisure time (Charmes, 2022), lower representation in leadership positions (Rhode, 2017), and are at greater risk of sexual and gender-based harassment and violence (Fitzgerald and Cortina, 2018; Tjaden and Thoennes, 1998). For, inter alia, mothers, women of color, working class women, and women with disabilities, these inequalities are often particularly severe or appear in unique forms (e.g., Chang, 2010; Crenshaw, 1989; Hooks, 1984).

Decades of research across multiple disciplines has elucidated and documented the mechanisms by which these inequalities arise. Such research has identified mechanisms that operate at the level of the individual (e.g., effects of gender socialization on self-concept, interests, and skills), interpersonal dynamics (e.g., via descriptive and prescriptive stereotypes, and social networks), organizational/institutional norms and policies (e.g., ‘ideal worker’ norms that marginalize primary caregivers in both pay and

career progression, and women's greater unpaid care labor in the household), and/or mechanisms operating at the societal level (e.g., devaluing or deprioritizing of females within religion or legislation) (e.g., Chang, 2010; Ferrant et al., 2014; Jones, 2019; Pearse and Connell, 2016; Ridgeway, 2011; Rudman and Glick, 2008; Unger, 1979).

Gender Identity

The term "gender identity" was coined in the 1960s to refer to a person's stable and immutable sense of themselves as belonging to a particular sex. The concept was initially discussed in the context of people with atypical sex development or among transgender people (then referred to as transsexuals) expressing a strong desire to change sex (see Meyerowitz, 2002). There has been little agreement about how gender identity (in this sense) develops, with theories throughout the decades including: the action of a sex-linked biological factor in utero, awareness of one's genital anatomy, or gender-specific socialization (for reviews see Diamond, 2004; Gülgoz et al., 2019; Martin and Ruble, 2004; Person and Ovesey, 1983). The available evidence suggests that no one factor is decisive (e.g., Erickson-Schroth, 2013; Gooren, 2006; Gülgoz et al., 2019; Jordan-Young, 2010; Olson et al., 2015; Voracek et al., 2018).

In recent years, the conception of gender identity has broadened beyond simply the sense of one's sex as male or female. This is evident in the multiplicity of gender identity labels. For example, James et al. (2016, p. 44) reported that 12% of respondents identified with a gender identity term not among the 25 listed in their U.S. Transgender Survey, and provided "more than 500 unique gender terms with which they identified". Gender identities have been conceptualized as "self-categorization into a gender group" that may be within traditional categories (male or female), beyond them (e.g., 'gender blender') or outside them (e.g., 'agender') (Tate et al., 2014, p. 303), and as "constellations of personal qualities (such as behaviors, attitudes, feelings, and interactional styles) associated with physiological sex within a given culture", such as 'Southern Belle femininity' (Levitt, 2019, pp. 276–77). Accordingly, analyses of transgender narratives reveal that individuals choose a gender identity label that authentically reflects their inner sense of self (e.g., Levitt, 2019; Tate et al., 2014), and this label may change as new gender identity labels become culturally available (e.g., non-binary).

Moreover, in transgender people, even identification with being a man or a woman no longer necessarily entails gender dysphoria or a strong desire for social, medical or legal transition. As noted earlier, this has been accompanied by a shift to the conceptually broader term 'transgender', to better encompass the identities of those who, unlike transsexual individuals, 'adopt and embrace fluid, shifting, and ambiguous gender identifications, which seek to combine attributes of masculinity and femininity rather than to "switch" from one gender identity to the other' (Diamond et al., 2011, p. 633). For example, the 2015 U.S. Transgender Survey (with nearly 28,000 respondents) found that 21% of respondents were living as neither a man nor a woman, and 15% lived sometimes as one gender, and other times as another (James et al., 2016). Similarly, while the dominant narrative of transsexual individuals was, historically, one of 'crossing over', more recent transgender narratives also describe oscillations between genders, deliberately ambiguous gender presentation, or an explicitly political project designed to help dismantle gender dichotomies and hierarchies (Ekins and King, 1999; Whittle, 2006).

With this more recent understanding of gender identity, as Morgenroth and Ryan (2021, p. 1118) note, the binary of man *versus* woman 'falls short of describing the gender-identity experiences of many individuals', including those who do not identify as transgender. In line with this, gender identity experiences that transcend the binary

have also been reported in children and adults who do not self-label as transgender, with individuals reporting feeling sometimes as both genders or as neither (Jacobson and Joel, 2019; Joel et al., 2013; Martin et al., 2017). For example, a survey that included nearly 5,000 such adults, both female and male, found that many responded in a non-binary fashion to questions about always feeling like a woman and never as a man (or vice versa), feeling as both genders, in-between genders, and neither gender (Jacobson and Joel, 2019). This is consistent with the aforementioned findings that individuals generally possess combinations of masculine and feminine attributes. In contrast, body dysphoria (dislike of one's body because of its female or male form and the desire to have the body of the other sex) was relatively distinctive of (although not exclusive to, or universal in) participants identifying as transgender and, to a lesser degree, those identifying as gender diverse.

As Stock (2021) has noted, the concept of 'gender identity' therefore refers to a multiplicity of phenomena with extremely broad, and often divergent, subjectivities (see also Whittle, 2006). For example: occasional cross-dressing versus medical transition; fluid versus permanent; dysphoric versus political; binary versus non-binary.

Summary

The purpose of these brief reviews has not been to provide the 'right' definitions of sex, gender, and gender identity, but to attempt to clarify, and especially differentiate, contemporary understandings of these concepts. Importantly, these phenomena interrelate in complex ways to create female (and sometimes male) disadvantage. While one substantial point of disagreement is to what extent unequal outcomes between the sexes are due to inherently different preferences and predispositions (i.e., direct effects of sex as a system on brain and behavior), it is relatively uncontroversial within feminism that gender as a system (i.e., gender norms, stereotypes and institutions) constrains or steers individuals' choices and behavior, while simultaneously devaluing feminine gender roles (see Robeyns, 2003 for argumentation that these are key justice-related criteria). Different policies have been constructed over the years to offset female disadvantages. Before reviewing the major types of such policies, we describe the gender-related disadvantages of transgender individuals.

Trans-Related Considerations

The gender system also contributes to substantial disadvantage for trans individuals, in two primary ways (Spade, 2015). First, trans people's non-conformity to gender norms relating to gender presentation and expression can give rise to discrimination, harassment, hostility, and sexual and gender-based violence. Although high-quality data and research are scarce (which of course can, in and of itself, be seen as a manifestation of disadvantage), this has been documented in the family, in employment, and in places of public accommodation (e.g., retail stores, restaurants, government agencies, public transportation) (e.g., Report of the United Nations High Commissioner for Human Rights, 2011; James et al., 2016; Johns et al., 2019; Ozturk and Tatli, 2016). Second, the ubiquity of sex classification in societal and administrative organization, including access to sex-segregated spaces, can compound these issues (Spade, 2015). For example, a trans woman who is a victim of domestic violence may be refused access to a refuge for women.

The inclusion of gender reassignment or gender identity as protected attributes in equality legislation in many jurisdictions indicates a state commitment to reducing material,

social and political gender-based disadvantages experienced by trans people. There is controversy, however, regarding whether these aims should, in part, be achieved by including trans women (and girls) in policies originally constructed for females. This issue is complicated by the fact that from the perspective of some trans women, inclusion in women-only spaces is not necessarily only a measure for reducing the disadvantages they experience, but also a manifestation of freedom to live in accordance with a deeply felt gender identity, and a form of public recognition of that identity. Freedom to live in accordance with one's gender identity tracks respect for people's autonomy to pursue their own valued ends and opportunities without undue interference. Thus, controversies about including trans women in policies constructed for cis women would not be avoided even if there were policies specifically tailored to promote the equality of trans individuals, and thereby reduce their disadvantages. However, proposed and enacted policies to include trans women in policies designed to reduce cis women's disadvantages have led to arguments that this undermines the underlying purpose of those policies. It is to this issue that we now turn.

Considerations for Policy Makers

Policy Purposes

Table 2 provides a summary of the considerations for policy makers. We begin by discussing three main categories of commonly disputed policies, while recognizing that these are not exhaustive (for example, we do not discuss policies regarding language). This discussion reveals that policies can vary a great deal with regards to whether facets of sex, gender and/or gender identity (and even which aspects of each) are most relevant to the policy purpose.

Table 2: Considerations for policy makers.

Q1: What Is/Are the Policy Purpose(s)?	Q2: What Aspect(s) of Sex/Gender Is Relevant for the Policy's Purpose?	Q3: Is There a Conflict of Interests?
<ul style="list-style-type: none"> • Women-only spaces, groups and services <ul style="list-style-type: none"> - Privacy - Safety - Wellbeing (e.g., trauma recovery) • Affirmative action <ul style="list-style-type: none"> - Paid work - Politics - Culture/arts - Transparency measures / reporting requirements - Sport 	<ul style="list-style-type: none"> • Sex category • Sex as a system • Phenotypic sex <ul style="list-style-type: none"> - External genitals - Secondary sexual characteristics - Body morphology • Social sex (whether one is perceived by others as female or male) • Femininity and masculinity • Social system (norms, stereotypes, institutions) • Gender identity 	<ul style="list-style-type: none"> • What is at stake for different stakeholder groups? • Do you have accurate and relevant data? • Do inclusion criteria need to be based on either sex category or gender identity? • Can you increase the available resource? • Can you directly target relevant basis of disadvantage? • Can you use universal measures? • Are some rights and responsibilities more primary than others?

Women-Only Spaces, Groups and Services

The first set of policies seeks to promote girls' and women's privacy, safety and other dimensions of wellbeing. One subset of such policies pertains to public (or state) intimate spaces such as toilets, changing-rooms, refuges and shelters, dormitories or prisons by provisioning them with their own facilities, from which men (and boys over a certain age) are excluded. With respect to privacy, this recognizes that in certain contexts (such as

communal accommodation or a person employed as a changing room attendant), the need for privacy justifies single-sex provision (e.g., [UK's Equality Act, 2010](#)). Here, it is the physical variables of phenotypic sex or, more specifically, social sex, that are most relevant to these policies. However, it is worth noting that there is variation across individuals and populations in how important this kind of privacy is, and in which contexts. For example, mixed-sex nudity (e.g., in saunas) is commonplace in some countries.

With respect to safety, this exclusion is based on the fact that males comprise the vast majority of the perpetrators of sexual objectification, sexual harassment, and sexual violence. This aspect of the policy is therefore based on the expression of certain masculine behaviors and, to some degree, a male advantage in physical strength that is part of phenotypic sex. Like other exclusions based on statistical group differences (e.g., minimum age for driving, or mandatory retirement), it is a form of imperfect line-drawing that is both over- and under-inclusive: it excludes all males (not just the minority who pose a genuine threat to females); and it does not exclude dangerous females. Members of excluded groups may regard such policies as denigrating (e.g., implying that they are not competent to drive or work, or are potential assailants), but these expressive costs are considered justified, as weighed against the practical benefits and, in these instances, enhanced safety for females.

A 'softer' subset of these policies is the institution of formal groups and associations (e.g., a menopause support group). One underlying reason for the provision of women-only groups/associations of this kind is to create a particular kind of emotionally safe or supportive environment based on sex- and/or gender-based shared experiences. A related, further subset of policies is women-only services, such as a national screening program for cervical cancer, assistance with breastfeeding for new mothers, or a women-only group counselling service for victims of sexual assault. The underlying reason for the provision of women-only services is that there is little or no demand among men for the service, or that those in need of the service will be better served by gender-specialized deliveries. (In the latter case, a women-only group may be seen as equivalent to a specialist mental health group for individuals of a specific age range, such as young adults. Even though age is a protected attribute, it is usually considered justified to discriminate on the basis of age for this purpose.) For some women, for groups or services involving discussion of particularly private, intimate or distressing information (e.g., rape recovery), part of creating such an environment may be the absence of individuals at risk of expressing certain unwanted masculine behaviors, and/or whose social sex is male.

Affirmative Action

A second set of policies takes the form of affirmative action (e.g., gender quotas on boards; women-only prizes, fellowships, shortlists or competitions; targeted recruitment, workshops, training or networking events) that seeks to reduce (and eventually eliminate) the material, political and/or sociocultural disadvantage experienced by girls and women as a group. These policies seek to create substantive equality between women and men, based on argumentation that this is not achieved by equal treatment (formal equality) where there is a background context of unequal conditions.

Although only benefiting *some* members of the disadvantaged group, affirmative action measures seek to break the nexus between group membership and disadvantage at the system level ([Khaitan, 2015](#)). Forms of affirmative action that temporarily reserve an opportunity or resource for women are controversial. Their legitimacy rests on the assumption that the measure will have positive effects for the group more broadly, and

that the beneficiaries will help to change institutions structurally, socially or culturally in ways that will help undo lingering effects of male dominance (see [Fine, 2021](#)). The proposed mechanisms by which this is hoped to come about may be quite complex and context-specific (e.g., as a role model to younger women, representing women's interests and concerns based on group identification and/or shared sex- or gender-based experiences, social network effects, creating a 'critical mass' of women to change group dynamics and discussion, challenging norms about the ideal incumbent of the position, and so on). It follows that different aspects of sex and gender may be relevant for different affirmative action policies. For example, social sex may be the most relevant aspect for policies with an equality promoting purpose achieved mainly by providing a role model for other women or challenging stereotypes that males are more suited for particular roles. In contrast, repeated experiences of having social interactions structured by one's (social) sex may be most relevant for policies that seek to promote equality primarily by challenging androcentric policies, practices, products or services ([Fine et al., 2020](#)).

A specific form of affirmative action is sex-segregated competitive sporting activities. These provide females with access to the benefits of meaningful competition and the possibility of competitive success, given that most popular sports require physical skills and attributes (a facet of phenotypic sex) for which post-pubescent males, on average—and particularly at the highest levels—are greatly advantaged ([Coleman, 2017](#)). As for other kinds of affirmative action, while elite competitions ultimately benefit only a relatively small number of individual female athletes, they bring system-level benefits by challenging stereotypes about females' sporting abilities, providing role models, and raising the status of women through the visibility of sporting celebrities.

Transparency Measures and Reporting Requirements

A third set of policies takes the form of transparency measures and reporting requirements (e.g., female representation on publicly listed boards of companies, gender pay gap data, crime statistics). Some of these measures can be seen as a form of affirmative action ([Khaitan, 2015](#)), as they ideally contribute to systemic change by motivating action (e.g., by 'naming and shaming'). Such measures provide data that can document group-based disadvantage, monitor change over time, and assist in the planning and delivery of services ([Sullivan, 2020](#)). The purpose of such data is thus, in part, to track the continuing effects of gender as a system on female versus male outcomes.

Policy Purposes: Summary

As this overview indicates, the underlying purpose(s) of the many policies currently being contested do not simply relate to one attribute, such as sex category, phenotypic sex, or gender identity. Nor does identification of the relevant attribute provide 'the answer' to a policy's inclusion criteria, because there are other considerations to take into account. Alongside practical issues of feasibility, there is also the important matter of how a change in policy will affect *all* stakeholders.

Considering All Stakeholders

Good policy considers the benefits and burdens of different inclusion criteria for *all* stakeholders, and how these are to be distributed. Core to this process should be, as a priority, the moral imperative for everyone to be able to participate fully in public and civic life which, at a minimum, requires freedom from violence, harassment, discrimination,

and personal or economic exploitation. In many contexts, achieving a fair distribution of benefits and costs will require wide consultation and/or data collection. Changing inclusion criteria in these contexts constitutes a major social shift that, like any other such shift in a democratic society, requires free and open debate (Burt, 2020) and wide consultation with relevant stakeholders.

In addition, perceptions of risks and benefits are often biased. For example, they may be skewed to be consistent with people's positive or negative feelings about an issue (e.g., Finucane et al., 2000), or be biased by highly salient or emotional events that have the effect of making very rare events seem more likely than they actually are, because instances can readily come to mind (Tversky and Kahneman, 1974). For example, widely and repeatedly circulated emotive examples of trans women winning sporting events or committing male-typical crimes may give rise to perceptions that such events are much more probable than they really are. It is therefore vital that, wherever possible, policy makers commit to transparent, evidence-informed decision-making. It may be wise to consider piloting policy changes, with a commitment to collect relevant data and monitor impact. For example, detailed data on the experiences of trans people in employment and public and civic life are extremely important; so too are the experiences of cis girls and women in spaces affected by policy changes.

In considering benefits and costs of different inclusion criteria, decision-makers also need to be sensitive to the heterogeneity among the primary stakeholders (Burt, 2020). For example, the psychological costs of sharing an intimate space with a male-bodied person will likely be greater for some populations of cis girls and women, for example, those escaping male violence (e.g., users of domestic violence refuges). Similarly, it seems plausible to suggest that the costs of being excluded from a women-only space (or women-only competition) will be significantly greater for a medically transitioned trans woman with gender dysphoria, than to someone who does not have gender dysphoria and has not medically transitioned, or who identifies as a woman on a part-time basis. Such considerations should also include the distribution of burdens among the stakeholders. Thus, in some settings, the costs to cis girls and women of the inclusion of trans girls and women may be limited to occasional discomfort or inconvenience, for example, for those who prefer not to share public toilets with someone perceived to be male. In contrast, the absence of safe public accommodation due to risks of using male facilities will, for many trans women (James et al., 2016) curtail their daily freedom to access public and civic life. And, of course, the possibility of gains from greater diversity within women's spaces from the inclusion of trans women should not be overlooked.

Perhaps needless to say, these considerations will highlight conflicts of interest. We therefore end with some suggestions for how these might be ameliorated.

Navigating Conflicts of Interest

Our first suggestion is to consider whether inclusion criteria need to be an either/or case. Whenever possible, it may be best to use policies relating to both sex and gender identity. For example, it is important for national census data to collect information about both sex category (e.g., as registered at birth) and gender identity (Sullivan, 2020), a policy of benefit also to the transgender community in terms of enhanced information about their situations and circumstances, including intersectional effects with sex (as for the U.S. Transgender Survey 2015, James et al., 2016). Policy makers might also be able to consider an intersectional approach, whereby a certain proportion of opportunities for women (e.g., seats on public boards or women-only political shortlists) are reserved for birth-registered females (i.e., cis women, trans men, and female non-binary people).

Intersectional approaches recognize that sex and transgender status may intersect in ways that sometimes give rise to quite different patterns of disadvantage. Conflating them will harm both cis and trans women, and may leave trans boys and men under-served.

It has also been suggested that, where possible, organizations or the state provide provision for 'all-gender' facilities, in addition to sex-segregated ones (Burt, 2020; Stock, 2021). In some situations, single-occupancy solutions obviate the need for any type of inclusion criterion, as has been the case for many years with toilet facilities in trains and planes. While such solutions are sometimes argued to be implausible, it is worth noting that those advocating for female-only facilities in the previous century were informed that this was infeasibly expensive (see Rhode, 1989). These solutions could be realized progressively as buildings are constructed, updated or renovated, as has been done to increase accessibility for those with disabilities.

Our second suggestion is, where feasible, to use criteria that directly target the relevant basis for disadvantage, rather than 'women' per se. Affirmative action measures, for instance, can usefully and justly distribute benefits on the basis of a relevant factor that correlates with being a member of a protected group, but not membership of the group per se (Khaitan, 2015). Indeed, such policies may be more effective at targeting actual disadvantage. For example, rather than providing a research fellowship or career advancement program for women, it can be offered to those returning to research after a certain period of parental leave or care-related part-time work. Such a policy distributes benefits to those with caring responsibilities, who are primarily females, but without excluding men (cis or trans) or trans women—any of whom may have been disadvantaged by caring responsibilities or more typically female part-time work. Similarly, identifying and mitigating 'masculine defaults' in institutions may be more effective in creating equal opportunities for women than direct forms of affirmative action, while also benefiting anyone who does not conform to a traditional white, middle-class heterosexual male gender role (Cheryan and Markus, 2020; Ely and Meyerson, 2000).

A third suggestion is to consider whether universal measures, rather than affirmative action, may be appropriate. This includes policies such as better job conditions for low-paid or insecure workers. Such measures benefit the most economically disadvantaged, among whom protected groups are disproportionately represented. Alternatively, where universal measures aren't appropriate or possible, policy makers should recognize that liberalizing the membership of those eligible for access to very limited resources, without a concomitant increase in the resources, is likely to lead to deteriorating relations and conflicts between members of protected groups. The obvious solution to preventing this is for policy makers to simultaneously increase the provision of resources or opportunities available (e.g., substantively increased funding for domestic shelters).

All of the above notwithstanding, policy makers also need to recognize that, although ethical decision-making often involves balancing different principles, some rights and responsibilities are more fundamental than others (Pike, 2020; Zakhem and Palmer, 2012). As an example of this approach, Pike (2020) has argued, in relation to who may play women's rugby, that the institution governing World Rugby has a particularly strong responsibility to prioritize the safety of players, then to protect fairness of competition (since this, he argues, is an overriding objective of sport), and only then to promote inclusion to those identifying as women.

Concluding Remarks: Steps for Policy Makers

Our review laid the groundwork for four questions that policy makers need to consider when constructing inclusion criteria for policies that seek to promote equality, safety and/or privacy for girls and women by excluding boys and men: What is the underlying purpose(s) of the policy? Does it relate to sex, gender and/or gender identity? How would changing the policy affect the underlying purpose? How will the equality, safety and/or privacy of trans people be met? If these considerations point to a conflict of interests, policy makers should consider five additional questions: Can both sex and gender identity be included in a policy expansion? Can the policy target the source of disadvantage directly? Can universal measures be implemented instead? Are perceptions of risk unbiased? And are there any overriding rights and responsibilities to be prioritized? Although we do not offer solutions to these difficult policy decisions, we hope that these considerations will help facilitate good decision making in this contentious policy context.

Acknowledgments: We sincerely thank numerous colleagues for their generosity in providing feedback on earlier versions of this manuscript.

References

- Alon, N., Meilijson, I. and Joel, D. (2020). Analyzing brain data by sex: Are we asking the right question? *bioRxiv*. [CrossRef]
- Benatar, D. (2012). *The second sexism: Discrimination against men and boys*. Hoboken, NJ: John Wiley.
- Births Deaths and Marriages Victoria. Accessed 12 April 2021. <https://www.bdm.vic.gov.au/change-a-record-of-sex/adult-born-in-victoria>.
- Blackless, M., Charuvastra, A., Derryck, A., Fausto-Sterling, A., Lauzanne, K. and Lee, E. (2000). How sexually dimorphic are we? Review and synthesis. *Am J Hum Biol*, 12(2), 151–66. [CrossRef]
- Burt, C. H. (2020). Scrutinizing the U.S. Equality Act 2019: A feminist examination of definitional changes and sociolegal ramifications. *Feminist Criminology*, 15(4), 363–409. [CrossRef]
- Carothers, B. J. and Reis, H. T. (2013). Men and women are from Earth: Examining the latent structure of gender. *Journal of Personality and Social Psychology*, 104(2), 385–407. [CrossRef] [PubMed]
- Chang, M. L. (2010). *Shortchanged: Why Women Have Less Wealth and What Can Be Done about It*. Oxford, UK: Oxford University Press.
- Charmes, J. (2022). Variety and change of patterns in the gender balance between unpaid care-work, paid work and free time across the world and over time: A measure of wellbeing? *Wellbeing, Space and Society*, 3, 100081. [CrossRef]
- Cheryan, S. and Markus, H. R. (2020). Masculine defaults: Identifying and mitigating hidden cultural biases. *Psychological Review*, 127(6), 1022–52. [CrossRef] [PubMed]
- Clarke, J. (2019). They, them, and theirs. *Harvard Law Review*, 132, 894–991. [CrossRef]
- Coleman, D. L. (2017). Sex in sport. *Law and Contemporary Problems*, 80, 63–126.
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum*, (1), 8.
- de Vries, G. J. and Forger, N. G. (2015). Sex differences in the brain: A whole body perspective. *Biology of Sex Differences*, 6, 15.
- Diamond, L. M., Pardo, S. T. and Butterworth, M. R. (2011). Transgender experience and identity. In S. Schwartz, K. Luyckx and V. Vignoles (eds), *Handbook of identity theory and research* (Vol. 2, pp. 629–47). New York: Springer.
- Diamond, M. (2004). Sex, gender, and identity over the years: A changing perspective. *Child and Adolescent Psychiatric Clinics of North America*, 13(3), 591–607. [CrossRef]
- Ekins, R. and King, D. (1999). Towards a sociology of transgendered bodies. *The Sociological Review*, 47(3), 580–602. [CrossRef]
- Eliot, L., Ahmed, A., Khan, H. and Patel, J. (2021). Dump the “dimorphism”: Comprehensive synthesis of human brain studies reveals few male-female differences beyond size. *Neuroscience & Biobehavioral Reviews*, 125, 667–97.
- Ely, R. J. and Meyerson, D. E. (2000). Advancing gender equity in organizations: The challenge and importance of maintaining a gender narrative. *Organization*, 7(4), 589–608. [CrossRef]

- Erickson-Schroth, L. (2013). Update on the biology of transgender identity. *Journal of Gay & Lesbian Mental Health*, 17(2), 150–74.
- Ferrant, G., Pesando, L. M. and Nowacka, K. (2014). *Unpaid Care Work: The Missing Link in the Analysis of Gender Gaps in Labour Outcomes*. Boulogne Billancourt: OECD Development Center.
- Fine, C. (2021). Agender bender. *The Monthly*, August. Accessed 7 February 2022. <https://www.themonthly.com.au/issue/2021/august/1627740000/cordelia-fine/agenda-bender#mtr>.
- Fine, C., Sojo, V. and Lawford-Smith, H. (2020). Why does workplace gender diversity matter? Justice, organizational benefits, and policy. *Social Issues and Policy Review*, 14(1), 36–72. [CrossRef]
- Finucane, M. L., Alhakami, A., Slovic, P. and Johnson, S. M. (2000). The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*, 13(1), 1–17. [CrossRef]
- Fitzgerald, L. F. and Cortina, L. M. (2018). Sexual harassment in work organizations: A view from the twenty-first century. In J. W. White and C. Travis (eds), *Handbook on the psychology of women*. Washington, DC: American Psychological Association: 40.
- Geniole, S. N., Bird, B. M., Ruddick, E. L. and Carre, J. M. (2017). Effects of competition outcome on testosterone concentrations in humans: An updated meta-analysis. *Horm Behav*, 92, 37–50. [CrossRef]
- Gooren, L. (2006). The biology of human psychosexual differentiation. *Horm Behav*, 50(4), 589–601. [CrossRef]
- Griffiths, P. (2021). The existence of biological sex is no constraint on human diversity. *Aeon*. Accessed 29 December 2021. <https://aeon.co/essays/the-existence-of-biological-sex-is-no-constraint-on-human-diversity>.
- Gülgoz, S., Glazier, J. J., Enright, E. A., Alonso, D. J., Durwood, L. J., Fast, A. A., Lowe, R., Ji, C., Heer, J., Martin, C. L., et al. (2019). Similarity in transgender and cisgender children's gender development. *Proceedings of the National Academy of Sciences USA*, 116(49), 24480–85.
- Hall, E. V., Hall, A. V., Galinsky, A. D. and Phillips, K. W. (2019). MOSAIC: A Model of Stereotyping through Associated and Intersectional Categories. *Academy of Management Review*, 44, 643–72. [CrossRef]
- Harper, J. (2017). Athletic Gender. *Law and Contemporary Problems*, 80, 139–53.
- Harper, J., O'Donnell, E., Sorouri Khorashad, B., McDermott, H. and Witcomb, G. L. (2021). How does hormone transition in transgender women change body composition, muscle strength and haemoglobin? Systematic review with a focus on the implications for sport participation. *British Journal of Sports Medicine*, 55(15), 865–72. [CrossRef]
- Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H. and T'Sjoen, G. G. (2017). Endocrine Treatment of gender-dysphoric/gender-incongruent persons: An endocrine society clinical practice guideline. *Endocrine Practice*, 23(12), 1437. [CrossRef]
- Hilton, E. N. and Lundberg, T. R. (2021). Transgender women in the female category of sport: Perspectives on testosterone suppression and performance advantage. *Sports Medicine*, 51(2), 199–214. [CrossRef]
- Hooks, B. (1984). *Feminist theory: From margin to center*. Boston, MA: South End Press.
- Hull, C. L. (2003). How sexually dimorphic are we? Review and synthesis. *American Journal of Human Biology*, 15, 112–16. [CrossRef] [PubMed]
- Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, 60(6), 581–92. [CrossRef] [PubMed]
- Hyde, J. S., Bigler, R. S., Joel, D., Tate, C. C. and van Anders, S. M. (2019). The future of sex and gender in psychology: Five challenges to the gender binary. *American Psychologist*, 74(2), 171–93. [CrossRef] [PubMed]
- Jacobson, R. and Joel, D. (2019). Self-reported gender identity and sexuality in an online sample of cisgender, transgender, and gender-diverse individuals: An exploratory study. *The Journal of Sex Research*, 56(2), 249–63. [CrossRef] [PubMed]
- James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L. and Anafi, M. (2016). *The Report of the 2015 U.S. Transgender Survey*. Washington, DC: National Center for Transgender Equality.
- Joel, D. (2011). Male or female? Brains are intersex. *Frontiers in Integrative Neuroscience*, 5, 57. [CrossRef] [PubMed]
- Joel, D. (2016). Captured in terminology: Sex, sex categories, and sex differences. *Feminism & Psychology*, 26, 335–45.
- Joel, D. (2021). Beyond the binary: Rethinking sex and the brain. *Neuroscience & Biobehavioral Reviews*, 122, 165–75.
- Joel, D., Berman, Z., Tavor, I., Wexler, N., Gaber, O., Stein, Y., Shefi, N., Pool, J., Urchs, S., et al. (2015). Sex beyond the genitalia: The human brain mosaic. *Proceedings of the National Academy of Sciences of the United States of America*, 112(50), 15468–73. [CrossRef]
- Joel, D., Garcia-Falgueras, A. and Swaab, D. (2020). The complex relationships between sex and the brain. *Neuroscientist*, 1073858419867298. [CrossRef]

- Joel, D., Persico, A., Salhov, M., Berman, Z., Oligschlager, S., Meilijson, I. and Averbuch, A. (2018). Analysis of human brain structure reveals that the brain “types” typical of males are also typical of females, and vice versa. *Frontiers in Human Neuroscience*, 12, 399. [CrossRef]
- Joel, D., Tarrasch, R., Berman, Z., Mukamel, M. and Ziv, E. (2013). Queering gender: Studying gender identity in the normative population. *Psychology & Sexuality*, 5, 291–321.
- Joel, D. and Yankelevitch-Yahav, R. (2014). Reconceptualizing sex, brain and psychopathology: interaction, interaction, interaction. *British Journal of Pharmacology*, 171(20), 4620–35. [CrossRef]
- Johns, M. M., Lowry, R., Andrzejewski, J., Barrios, L. C., Demissie, Z., McManus, T., Rasberry, C. N., Robin, L. and Underwood, J. M. (2019). Transgender identity and experiences of violence victimization, substance use, suicide risk, and sexual risk behaviors among high school students—19 states and large urban school districts, 2017. *Morbidity and Mortality Weekly Report*, 68(3), 67–71. [CrossRef]
- Jones, L. (2019). Women’s Progression in the Workplace. Accessed 7 February 2022. https://dera.ioe.ac.uk/34422/1/KCL_Main_Report.pdf.
- Jordan-Young, R. (2010). *Brain storm: The flaws in the science of sex differences*. Cambridge, MA: Harvard University Press.
- Jordan-Young, R. M. and Karkazis, K. A. (2019). *Testosterone: An unauthorized biography*. Boston, MA: Harvard University Press.
- Joyce, H. (2021). *Trans: When Ideology Meets Reality*. London, UK: Oneworld Publications.
- Khaitan, T. (2015). *A theory of Discrimination Law*. Oxford: Oxford University Press.
- Lee, P. A., Nordenstrom, A., Houk, C. P., Ahmed, S. F., Auchus, R., Baratz, A., Baratz Dalke, K., Liao, L.-M., Lin-Su, K. and Looijenga, L.H.J., 3rd. (2016). Global disorders of sex development Update since 2006: Perceptions, approach and care. *Hormone research in Paediatrics*, 85(3), 158–80. [CrossRef]
- Levitt, H. M. (2019). A psychosocial genealogy of LGBTQ+ gender: An empirically based theory of gender and gender identity cultures. *Psychology of Women Quarterly*, 43(3), 275–97. [CrossRef]
- Lippert-Rasmussen, K. (2014). *Born Free and Equal? A Philosophical Inquiry into the Nature of Discrimination*. Oxford, UK: Oxford University Press.
- Maroto, M., Pettinicchio, D. and Patterson, A. C. (2019). Hierarchies of categorical disadvantage: Economic insecurity at the intersection of disability, gender, and race. *Gender & Society*, 33(1), 64–93.
- Martin, C. L., Andrews, N. C., England, D. E., Zosuls, K. and Ruble, D. N. (2017). A dual identity approach for conceptualizing and measuring children’s gender identity. *Child Dev*, 88(1), 167–82. [CrossRef] [PubMed]
- Martin, C. L. and Ruble, D. (2004). Children’s search for gender cues. *Current Directions in Psychological Science*, 13(2), 67–70. [CrossRef]
- McCarthy, M. M. and Arnold, A. P. (2011). Reframing sexual differentiation of the brain. *Nature Neuroscience*, 14(6), 677–83. [CrossRef] [PubMed]
- Meyerowitz, J. J. (2002). *How Sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Morgenroth, T. and Ryan, M. K. (2021). The effects of gender trouble: An integrative theoretical framework of the perpetuation and disruption of the gender/sex binary. *Perspectives on Psychological Science*, 16(6), 1113–42. [CrossRef] [PubMed]
- Nguyen, H. B., Loughhead, J., Lipner, E., Hantsoo, L., Kornfield, S. L. and Epperson, C. N. (2019). What has sex got to do with it? The role of hormones in the transgender brain. *Neuropsychopharmacology*, 44(1), 22–37. [CrossRef]
- Olson, K. R., Key, A. C. and Eaton, N. R. (2015). Gender cognition in transgender children. *Psychological Science*, 26(4), 467–74. [CrossRef]
- Ozturk, M. B. and Tatli, A. (2016). Gender identity inclusion in the workplace: Broadening diversity management research and practice through the case of transgender employees in the UK. *The International Journal of Human Resource Management*, 27(8), 781–802. [CrossRef]
- Pearse, R. and Connell, R. (2016). Gender norms and the economy: Insights from social research. *Feminist Economics*, 22(1), 30–53. [CrossRef]
- Person, E. S. and Ovesey, L. (1983). Psychoanalytic theories of gender identity. *Journal of the American Academy of Psychoanalysis*, 11(2), 203–26. [CrossRef]
- Pike, J. (2020). Safety, fairness, and inclusion: Transgender athletes and the essence of Rugby. *Journal of the Philosophy of Sport*, 48(12), 155–68. [CrossRef]
- Report of the United Nations High Commissioner for Human Rights. (2011). Discriminatory Laws and Practices and Acts of Violence against Individuals Based on Their Sexual Orientation and Gender Identity. Accessed 13 June 2021. https://www.ohchr.org/sites/default/files/Documents/Issues/Discrimination/A.HRC.19.41_English.pdf.
- Rhode, D. L. (1989). *Justice and gender: Sex discrimination and the law*. Cambridge, MA: Harvard University Press.
- Rhode, D. L. (2017). *Women and leadership*. New York: Oxford University Press.

- Richardson, S. S. (2013). *Sex itself: The search for male and female in the human genome*. Chicago: University of Chicago Press.
- Ridgeway, C. L. (2011). *Framed by gender: How gender inequality persists in the modern world*. Oxford, UK: Oxford University Press.
- Robeyns, I. (2003). Sen's capability approach and gender inequality: Selecting relevant capabilities. *Feminist Economics*, 9, 61–92. [CrossRef]
- Rudman, L. A. and Glick, P. (2008). *The social psychology of gender: How power and intimacy shape gender relations*, Paperback ed. New York: Guilford.
- Scharff, M., Wiepjes, C. M., Klaver, M., Schreiner, T., T'Sjoen, G. and den Heijer, M. (2019). Change in grip strength in trans people and its association with lean body mass and bone density. *Endocr Connect*, 8(7), 1020–28. [CrossRef]
- Semega, J., Kollar, M., Shrider, E.A. and Creamer, J. F. (2020). *Income and poverty in the United States: 2019*. Current Population Reports, P60-270 [U.S. Census Bureau]. Washington: U.S. Government Publishing Office.
- Serano, J. (2007). *Whipping girl: A transsexual woman on sexism and the scapegoating of femininity*. Emeryville, CA: Seal Press.
- Sharpe, A. (2020). Will gender self-declaration undermine women's rights and lead to an increase in harms? *The Modern Law Review*, 83(3), 539–57. [CrossRef]
- Spade, D. (2015). *Normal life: Administrative violence, critical trans politics, and the limits of law*. Durham, NC: Duke University Press.
- Spanos, C., Bretherton, I., Zajac, J. D. and Cheung, A. S. (2020). Effects of gender-affirming hormone therapy on insulin resistance and body composition in transgender individuals: A systematic review. *World J Diabetes*, 11(3), 66–77. [CrossRef]
- Stock, K. (2021). *Material girls: Why reality matters for feminism*. London, UK: Fleet.
- Sudai, M. (2018). Toward a functionalist analysis of 'sex' in federal antidiscrimination law. *Harvard Journal of Law and Gender*, 42(2), 421.
- Sullivan, A. (2020). Sex and the census: Why surveys should not conflate sex and gender identity. *International Journal of Social Research Methodology*, 23(5), 517–24. [CrossRef]
- Tate, C. C., Youssef, C. P. and Bettergarcia, J. N. (2014). Integrating the study of transgender spectrum and cisgender experiences of self-categorization from a personality perspective. *Review of General Psychology*, 18(4), 302–12. [CrossRef]
- Tjaden, P. and Thoennes, N. (1998). *Prevalence, incidence and consequences of violence against women: Findings from the National Violence Against Women Survey*. (NCJ 172837). Washington: US Department of Justice, Office of Justice Programs, National Institute of Justice.
- Tversky, A. and Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–31. [CrossRef]
- UK's Equality Act. (2010). Accessed 12 April 2021. <http://www.legislation.gov.uk/ukpga/2010/15/contents>.
- Unger, R. K. (1979). Toward a redefinition of sex and gender. *American Psychologist*, 34(11), 1085–109. [CrossRef]
- van Anders, S. M., Steiger, J. and Goldey, K. L. (2015). Effects of gendered behavior on testosterone in women and men. *Proceedings of the National Academy of Sciences USA*, 112(45), 13805–10. [CrossRef]
- Voracek, M., Kaden, A., Kossmeier, M., Pietschnig, J. and Tran, U. S. (2018). Meta-analysis shows associations of digit ratio (2d:4d) and transgender identity are small at best. *Endocrine Practice*, 24(4), 386–90. [CrossRef]
- Whittle, S. (2006). Foreword. In S. Stryker and S. Whittle (eds), *The Transgender Studies Reader*. New York: Routledge: xi–xvi.
- Wiik, A., Lundberg, T. R., Rullman, E., Andersson, D. P., Holmberg, M., Mandic, M., Brismar, T.B., Leinhard, O.D., Chanpen, S., Flanagan, J.N., et al. (2020). Muscle strength, size, and composition following 12 months of gender-affirming treatment in transgender individuals. *The Journal of Clinical Endocrinology & Metabolism*, 105(3), e805–13.
- Zakheim, A. and Palmer, D. (2012). *Managing for ethical-organizational integrity: Principles and processes for promoting good, right, and virtuous conduct*. New York: Business Expert Press.