

Viewpoint: Genetics can help us navigate the ‘toxic’ transgender debate in more compassionate ways



Can a man [menstruate](#) and [give birth](#) or a woman have a [penis](#) and [scrotum](#)?

Sure, such enquiries might seem simply the stuff of social media controversy, but they also touch on one of the rawest recent nerves in the so-called ‘[Culture Wars](#)’ — the question of transgender.

While social media is where the most divisive debate is likely to be found (both vociferously for and against), could we also address the transgender issue from a genetic-biological perspective?

Admittedly, any conclusions we might draw would be both broad and provisional — after all, transgender has only recently exploded into popular consciousness and the reach of genetic analysis has yet to expand into such aspects of the human condition. Yet it is a task worth pursuing, if only to help navigate what’s rapidly become a [politically](#) polarizing and [toxic](#) topic.

First, however, some brief definitions are needed. Here, the term transgender (or trans) is used to refer to those whose gender identity differs from the sex assigned them at birth. Thus trans-women, despite being designated male at birth (on the basis of their physical sexual characteristics), identify themselves as women; similarly, trans-men identify as men regardless of any birth categorization as physically female. The [slogan](#) ‘Trans-women are real women. Trans-men are real men’ is often used to substantiate this [claim](#).

In essence, transgender men and women claim to *know* their real gender identity, irrespective of any apparent mismatch between this and any male or female sexual features observed at birth. Furthermore, gender identity is also independent of any physical or hormonal interventions to realign gender with sex (thus, according to this theory, a trans-woman could indeed have male genitalia, just as a trans-man could still possess female sex organs).

But given these basic definitions, surely a biological-genetic perspective undermines the very concept of transgender?

[screenshot victoria's secret hires first transgender model after fashion show outrage](#)
Brazilian transgender model Valentina Sampaio. Image: Associated Press

For instance, as sociobiologist EO Wilson once famously [quipped](#), “genes hold culture on a leash” — and here, the genetic leash appears far too short to validate a cultural concept such as transgender. At the very least, if our genes determine our sex, this seems to imply that, no, a real man cannot have the functioning sexual organs of a female (e.g., a womb), nor can a real woman have the working genitalia of a male. (Though this too is open to [argument](#) and [counter-argument](#).)

Nonetheless, this is perhaps extending Wilson’s decades-old metaphor far too far, most especially because — as Wilson himself fully [recognized](#) — our genes and our culture have co-evolved, with each

impacting the other in such intricate feedback loops that we are now an utterly culture-dependent species. So while our genes really have molded the contours of our culture, so too has our culture molded our genes. (Here, the metaphor of a restraining leash might be better described as more of a double yoke, with genes and culture not only pulling apart but also tugging each other forward.)

Yet an obvious upshot of this [gene-culture coevolution](#) is the difficulty in disentangling genetic versus cultural influences on what makes us human, most especially with our complex social behavior — including beliefs about sex and gender.

Indeed, these two terms — sex and gender — exemplify the deep interdependence of the gene-culture dynamic. In broad biological terms, sex simply refers to a binary male/female division within a species, premised on each sex's different reproductive functions (at a crude level, sex is a question of gamete size; a species' males have small, mobile sex cells such as sperm, while the females possess larger, less mobile sex cells such as eggs).

Gender, on the other hand, [refers](#) to the culturally determined or [socially constructed](#) roles and behaviors that are considered appropriate for men and women within a given society — for example, the traditional beliefs about women as stay-at-home caregivers and men as go-to-work providers. And that such stereotypes are not the inevitable result of sex per se is evidenced by the rapid recent changes in women's role in society, themselves the result of the greater political, educational and legal rights granted to women.

Nevertheless, because the term gender is now so often used as an alternative to (or, [increasingly](#), instead of) the word 'sex', it has bled into a growing perception that sex too is a social construct. Such [sex/gender confusion](#) is, in turn, a continuation of the wider nature/nurture debate — the seemingly endless dispute about whether genes/biology or environment/culture holds more sway over human affairs.

Yet in this respect, the existence of transgender people seems to undermine any claim that gender — let alone sex — is solely a social construct. That is, anyone assigned 'female' or 'male' at birth would also be socially conditioned to be female or male gender-wise as they grew up, end of story. Thus only if the social construction of gender is *less* influential than its proponents insist could trans individuals even exist.

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Image not found or type unknown

Image: LA Johnson / NPR

Perhaps, though, transgender is something beyond the standard conception of sex and gender — that, for some individuals at least, gender identity (*knowing* that you are male or female) has slipped the leash of both biological sex and socially constructed gender.

To explore what this might mean, it is worth considering the concept of ‘social construct’ in more detail.

Take language, for instance. While humans clearly have a genetically directed [preparedness](#) to acquire language, the actual form of the language (the meanings ascribed to words, say) is socially constructed. The word ‘girl’ is a (particularly apt) example: there is nothing in the sound of the word ‘girl’ that denotes ‘young human female’; it is simply that users of English ‘agree’ that this arbitrary string of phonemes has that particularly meaning.

But language changes over time, as users — often unintentionally — revise their ‘agreement’ of what specific words mean. Interestingly, this has happened with the word ‘girl’, which [originally](#) just meant a young person of either sex.

Does this then suggest we could do something similar with the modern meaning of ‘man’ and ‘woman’ — that is, simply expand the concept to encompass trans-men and trans-women? Unfortunately, such a move (while perhaps quite workable in most aspects of everyday life) merely obscures the crucial point of the argument — whether meaningful differences exist between trans-men and trans-women, on the one

hand, and those who identify with the sex they were assigned at birth, on the other. (Sport is an obvious place where any such [meaningful differences](#) might play out.)

Yet while the ‘trans-women are real women’ claim cannot be simply reduced to arguments over the meaning of words, this still raises important questions about the length of leash that genes could allow culture. With language, genes merely provide us with the learning capacity, but it is culture that fills in the details of the actual language itself (as well as determining if and how these details change).

Another familiar social construct — the concept of money — illustrates the same point. As wage-earners, we all know that money is very ‘real’, with its biological origins likely found in evolutionarily-ancient capacities for reciprocal [exchange-like](#) behaviour.

In the modern technological age, however, where ‘money’ increasingly equates to electrons flickering within computer chips, the link seems increasingly opaque between an evolved capacity for exchange and flashing symbols on an electronic screen.

Yet if our modern conception of money appears less and less constrained by whatever genetic leash it once had, could our conception of ‘gender’ be transitioning into something similar — a social concept increasingly untethered from its biological moorings?

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Certainly, the concepts of gender and money appear founded on genes but substantiated by culture. Transgender, though, seems different. Sure, it is genetically permissible (in the sense that transgender people genuinely have the feelings that they do), though not culturally determined (that is, it arises despite not because of social conditioning). In which case, the term supra-gender – ‘beyond gender’ – might better capture a feature that looks more a matter of human psychology than human society. Indeed, perhaps the focus on sex and gender has led the debate in the wrong direction.

Be this as it may, at the genetic level we are only just moving beyond blindly searching for specific genes for specific behaviors. But because of the incredible recent advances in genetic techniques, allied to the power of computerized data-crunching, we are just beginning to glimpse the incremental influences of thousands of genes on an [ever-widening](#) range of human behaviors. And there seems little to prevent such techniques being brought to bear on transgender.

Quite soon, for example, genetic analysis could allow us to predict gender dysphoria (the condition that leads those to believe their gender identity does not match their physical biology). But that is all that this will be – a blunt prediction based on genes. But to employ an oh-so-21st-century phrase: transgender, it’s complicated.

We are evolved animals who can construct abstract concepts such as money and gender – and transgender. But our evolution has also crafted us as creatures with the capacity for compassion and empathy for others. And if we are ever to untangle the nature/nurture knot, we need to find ways past the

petty politicizing exemplified by the transgender debate.

Bringing a genetic gaze to the subject may not provide clear answers, but it might help us see the question in a much clearer and more compassionate light.

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