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Vyvyan Evans Ph.D.
Language in the Mind

TRANSGENDER

Why Biological Sex Is Not the Same as Gender

Exposing myths and prejudice in the so-called Gender Wars.

Posted August 3, 2023

Reviewed by Michelle Quirk



KEY POINTS

- **Biological sex is not binary, but runs on a spectrum.**
- **Gender is not necessarily determined by biological sex.**
- **Gender is a social and linguistic construct that varies across cultures.**

Richard Dawkins, the celebrated evolutionary biologist, has recently used the claim that biological reality entails that sex is binary, to launch a broadside on the gender choices of trans people.

In an article entitled: “**Why Biological Sex Matters**,” Dawkins trivializes the use of nongendered pronouns (such as they/them) on the basis that such use is a distortion of (bio-

It is now fashionable to use “gender” for what we might call fictive sex...Your genes and chromosomes may determine your sex, but your gender is whatever floats your boat. ...Many of us know people who choose to identify with the sex opposite to their biological reality. It is polite and friendly to call them by the name and pronouns that they prefer. ... You have a right to your private lexicon, but you are not entitled to insist that we change our language to suit your whim.

One problem with Dawkins’ argument is that it is biologically reductive. It reduces something that is not strictly speaking biological, namely gender, to a hypothetical “biological reality.” Gender is a social identity that is constructed and mediated through social life and language, and that has varied across time and varies across cultures.

A second problem is that Dawkins takes a very narrow view of biological sex. He assumes genotypic sex to be definitional—the genetic material encoded on the sex chromosomes—XX for a woman and XY for a man. But a second component is phenotypic sex. The latter refers to the internal and external sex organs of an individual.

Moreover, genetic and phenotypic sex don’t always align. Sometimes individuals are born with sex chromosomes that diverge from the binary (female XX/male XY) norm, resulting in sexual organs that are underdeveloped. In other cases, during development, a foetus, and in some cases during childhood, an individual develops sex organs that don’t align with genetic instructions. In such cases, there is a misalign-

So let's examine and debunk three common myths concerning biological sex and gender.

Myth 1: Biological sex is binary.

The existence of different intersex conditions, due to the complex interplay between genetics and (neurological and physiological) development, demonstrates that biological sex is better conceived as a spectrum, rather than being binary.

For instance, genetic variations can result in a female being born with just a single X chromosome (Turner's syndrome: XO), which results in the ovaries failing to develop properly. Another variation can result in a male being born with an extra X chromosome (Klinefelter's syndrome: XXY), resulting in the inability to produce sperm.

THE BASICS

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Developmental variations can result in genetically typical males or females exhibiting either ambiguous sexual organs or sexual organs that don't align with their genotypic sex. For instance, individuals who are born with an insensitivity to the hormone androgen are born genetically male (genotypically XY) yet look female in appearance and have the sex organs of a female. Often individuals who have this syndrome don't become aware of it until puberty, when they fail to menstruate. A famous example of a historical figure whom some experts have suggested experienced this is Joan of Arc.

Another example of variation concerns individuals who are genetically male but are born with female genitalia. However, later in life, around puberty, they develop male sexual organs, aligning with their sex phenotype. This variation is caused by the lack of an enzyme: 5- α -reductase.

According to the well-known Fausto-Sterling estimate, 1.7 percent of the world's population exhibits intersex variation. However, some medical practitioners choose to reserve the term "intersex" for just those cases in which phenotypic sex varies from the genotypic norm (excluding cases such as Turner's and Klinefelter's syndromes), which then lowers the numbers of those considered intersex.

TRANSGENDER ESSENTIAL READS



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The Psychological Impacts of Gender-Affirming Hormone Therapy

Either way, however one defines what counts as intersex, biological sex is variable, and in medical terms, is better thought of as running along a spectrum, rather than being binary.

tion of reality.

A particularly pernicious myth is that trans individuals are in some sense fabricating the feeling that their lived experience of gender does not align with their biological sex, engaging in a "whim" in Dawkins' terms.

There are two potent lines of evidence that militate against this. The first relates to the harrowing condition known as gender dysphoria. This is the distress felt by people whose sense of having a male or female identity differs from the biological sex they were assigned at birth.

Gender dysphoria is a documented and widely recognized psychological and clinical condition that leads to anxiety, depression, and, tragically, all too frequently, suicide. Moreover, it is relatively prevalent. *Black's Medical Dictionary* states that the condition occurs once in every 30,000 male births and once in 100,000 female births.

Second, there is emerging medical evidence that being transgender may have a genetic basis. For instance, in a comprehensive clinical [study](#) published in *The Journal of Clinical Endocrinology & Metabolism*, scientists found sex-signaling genes in trans women (biologically male at birth) may lead to brain development with areas that are less "masculine" and more "feminine." Other recent studies, summarised in a research paper [here](#), observe that divergent brain development can influence gender identity in a way that may be at odds with biological development.

In short, the felt experience of gender dysphoria by some (transgender) individuals may be the result of genetic and/or developmental factors.

male/female construction

Gender constitutes an individual social identity. It is constructed through a particular culture (or subculture), which is to say the social norms, practices, and behaviors in which we partake. And, importantly, it is constructed and enacted through language, including pronoun use.

ARTICLE CONTINUES AFTER ADVERTISEMENT

In this, gender is a social construct in the same way that money or traffic laws are constructed through shared practice, language, and physical artefacts. Money only exists because we all agree to the “social fiction” that physical or electric currency has value with real-world mercantile consequences. In the same way, modes of dress, behavior, and linguistic use are used to construct, convey, and respond to gendered identities.

Importantly, gender can also reflect deep-seated belief systems that underpin a specific civilization. For instance, in the European (and European–American) sphere, there is a hereto-normative binary gender ideal, that arguably can be traced to the human origin story of Adam and Eve that derives from the Western Judaic–Christian tradition.

such cultures, a third gender is often viewed positively – an individual who is indeterminate between male and female characteristics that may also be associated with the ability to mediate between the human world and the realm of spirits.

The hijras of the Indian subcontinent, for instance, have gained legal identity as a third gender. *Hijara* is the generic term for trans women in Hindi. And this status is likely a cultural consequence of Hindu views on reincarnation where gender and biological sex can vary across lifetimes. And, hence, a divergent worldview and belief system vis-à-vis the West entails a more flexible cultural perspective on the relationship between gender and biological sex.

Conclusion

Any individual who struggles with gender identity surely deserves support, understanding, and love. Prejudice based on a failure to appreciate the complexities of biological sex and the consequences of culture and language in shaping and constructing gender identities must be challenged and overcome.

*If you or someone you love is contemplating suicide, seek help immediately. For help 24/7, dial 988 for the **988 Suicide & Crisis Lifeline**, or reach out to the **Crisis Text Line** by texting TALK to 741741. To find a therapist near you, visit the **Psychology Today Therapy Directory**.*



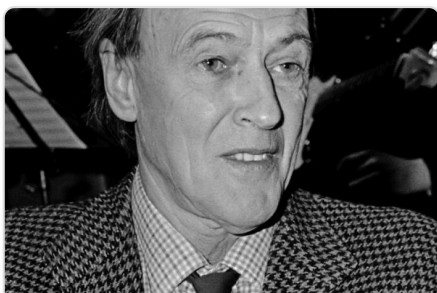
About the Author



Vyvyan Evans, Ph.D., is a language and communication consultant. He received his Ph.D. from Georgetown University.

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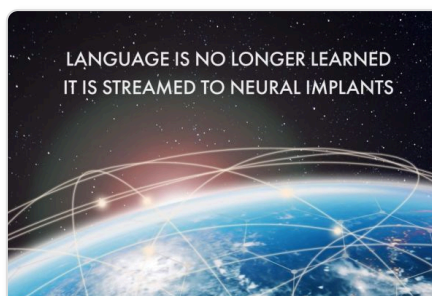


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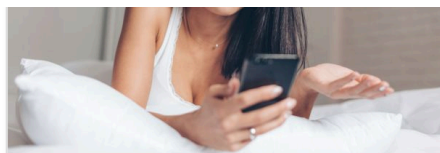


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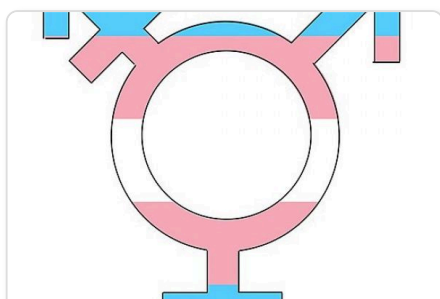


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TRANSGENDER

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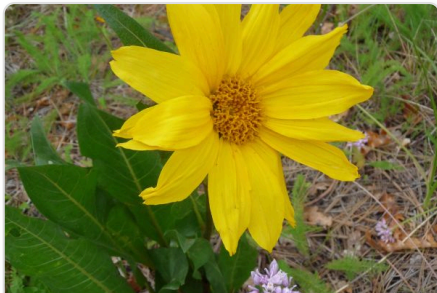
New research explores attitudes about transgender bathroom bill restrictions.



TRANSGENDER 3 MIN READ

International Transgender Day of Visibility

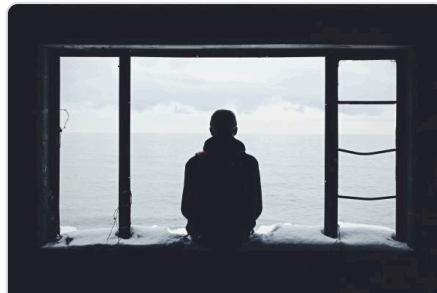
International Transgender Day of Visibility (TDOV) raises awareness about transgender and nonbinary people.



TRANSGENDER 7 MIN READ

Are Transgender Women Just Reinforcing Sexist Stereotypes?

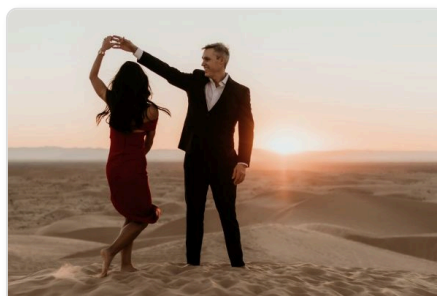
Would transgender women exist if men were free to wear dresses?



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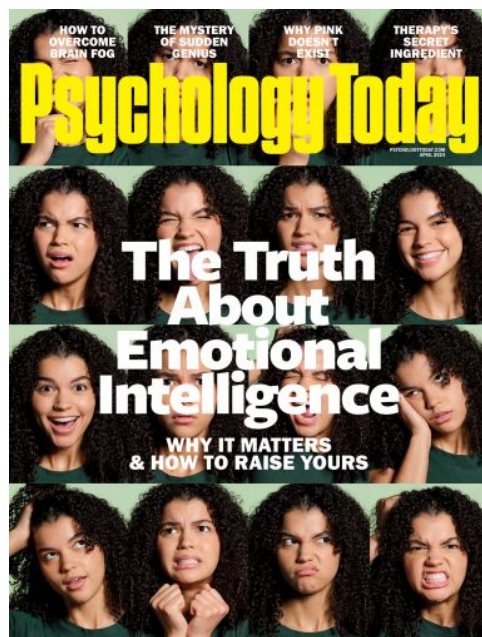
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