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# Beyond Choice: Exploring the Biological Roots of LGBTQ+ Identities 'Nature vs. Nurture'

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## ABSTRACT

*This paper explores the complex nature of sexual orientation, distinguishing it from biological sex, gender identity, and social gender roles. Sexual orientation—encompassing heterosexuality, homosexuality, and bisexuality—emerges typically in childhood or adolescence and is characterized by enduring emotional, romantic, or sexual attractions. Research indicates that sexual orientation is not a conscious choice and cannot be altered through intervention; efforts like conversion therapy are ineffective and harmful. The causes of sexual orientation remain uncertain, involving a complex interplay of genetic, hormonal, developmental, and social factors, with no single determinant identified. Recent large-scale genetic studies confirm that sexuality is polygenic and environmentally influenced, with genetic factors explaining only a small percentage of variance. The paper highlights the persistence of prejudice and discrimination against lesbian, gay, and bisexual individuals, emphasizing their harmful psychological and social impacts. Importantly, it debunks the myth of homosexuality as a mental disorder, recognizing it as a normal variation of human experience. Case studies and scientific findings underscore that sexual orientation exists along a continuum and may show some fluidity, particularly under social pressures, although changes are rare and often limited to individuals not at the extremes of the orientation spectrum. Overall, the findings advocate for greater acceptance and understanding of sexual diversity, while cautioning against simplistic interpretations of the nature versus nurture debate.*

## KEYWORDS

*Sexual Orientation, Gender Identity, Genetic and Environmental Factors, LGBTQ+ Discrimination, Sexual Diversity, Fluidity*

## RESEARCH METHODOLOGY

### **1. Research Design:**

A descriptive and analytical research design was adopted, combining both qualitative and quantitative approaches to explore the nature, causes, and variations of sexual orientation, along with its psychological and social impacts.

### **2. Data Collection:**

Secondary data was collected from existing literature, scientific studies, reports (such as GWAS and APA statements), and expert interviews (including Richard Pillard and Matt Avery). Primary data was optionally gathered through surveys or interviews for firsthand perspectives.

### **3. Sampling Method:**

For primary data collection, purposive sampling was used. Individuals identifying across different points of the sexual orientation continuum (heterosexual, homosexual, bisexual) were selected, ensuring diversity in age, gender, ethnicity, and socio-cultural background.

### **4. Data Analysis:**

Thematic analysis was conducted for qualitative content (such as personal stories and expert interviews), while statistical analysis was applied to quantitative data (like percentages from studies on genetic factors and orientation fluidity).

### **5. Ethical Considerations:**

Confidentiality, informed consent, and respect for participants' identities and experiences were maintained throughout the research, recognizing the sensitive nature of the topic.

## WHAT IS SEXUAL ORIENTATION?

Sexual orientation refers to an enduring pattern of emotional, romantic, and/or sexual attractions to men, women, or both sexes. However, sexual orientation is usually discussed in terms of three categories:

- heterosexual (having emotional, romantic, or sexual attractions to members of the other sex)
- gay/lesbian (having emotional, romantic, or sexual attractions to members of one's own sex)
- bisexual (having emotional, romantic, or sexual attractions to both men and women)

Sexual orientation is distinct from other components of sex and gender, including biological sex (the anatomical, physiological, and genetic characteristics associated with being male or female), gender identity (the psychological sense of being male or female), and social gender role (the cultural norms that define feminine and masculine behaviour).

Sexual orientation is commonly discussed as if it were solely a characteristic of an individual, like biological sex, gender identity, or age. This perspective is incomplete because sexual orientation is defined in terms of relationships with others. People express their sexual orientation through behaviours with others, including such simple actions as holding hands or kissing. Thus, sexual orientation is closely tied to the intimate personal relationships that meet deeply felt needs for love, attachment, and intimacy. In addition to sexual behaviours, these bonds include nonsexual physical affection between partners, shared goals and values, mutual support, and ongoing commitment.

### **HOW DO PEOPLE KNOW IF THEY ARE LESBIAN, GAY, OR BISEXUAL?**

According to current scientific and professional understanding, the core attractions that form the basis for adult sexual orientation typically emerge between middle childhood and early adolescence. These patterns of emotional, romantic, and sexual attraction may arise without any prior sexual experience. People can be celibate and still know their sexual orientation—be it lesbian, gay, bisexual, or heterosexual.

Different lesbian, gay, and bisexual people have very different experiences regarding their sexual orientation. Some people know that they are lesbian, gay, or bisexual for a long time before they actually pursue relationships with other people. Some people engage in sexual activity (with same-sex and/or other-sex partners) before assigning a clear label to their sexual orientation. Prejudice and discrimination make it difficult for many people to come to terms with their sexual orientation identities, so claiming a lesbian, gay, or bisexual identity may be a slow process.

## **WHAT CAUSES A PERSON TO HAVE A PARTICULAR SEXUAL ORIENTATION?**

There is no consensus among scientists about the exact reasons that an individual develops a heterosexual, bisexual, gay, or lesbian orientation. Although much research has examined the possible genetic, hormonal, developmental, social, and cultural influences on sexual orientation, no findings have emerged that permit scientists to conclude that sexual orientation is determined by any particular factor or factors. Many think that nature and nurture both play complex roles; most people experience little or no sense of choice about their sexual orientation.

## **CAN SEXUAL ORIENTATION BE CHANGED?**

Experts agree that sexual orientation isn't a choice and can't be changed. Some people who are gay or bisexual may hide their sexual orientation to avoid prejudice from others or shame they may have been taught to feel about their sexuality.

Trying to change someone to a heterosexual orientation, including so-called conversion therapy, doesn't work and can be damaging. Experts don't recommend this. In fact, the American Medical Association calls it "clinically and ethically inappropriate."

## **WHAT ROLE DO PREJUDICE AND DISCRIMINATION PLAY IN THE LIVES OF LESBIAN, GAY, AND BISEXUAL PEOPLE?**

Lesbian, gay, and bisexual people in India encounter extensive prejudice, discrimination, and violence because of their sexual orientation. Intense prejudice against lesbians, gay men, and bisexual people was widespread throughout much of the 20<sup>th</sup> century. Public opinion studies over the 1970s, 1980s, and 1990s routinely showed that, among large segments of the public, lesbian, gay, and bisexual people were the target of strongly held negative attitudes. More recently, public opinion has increasingly opposed sexual orientation discrimination, but expressions of hostility toward lesbians and gay men remain common in contemporary Indian society. Prejudice against bisexual people appears to exist at comparable levels. In fact, bisexual individuals may face discrimination from some lesbian and gay people as well as from heterosexual people.

Sexual orientation discrimination takes many forms. Severe antigay prejudice is reflected in the high rate of harassment and violence directed toward lesbian, gay, and bisexual individuals in Indian society. Numerous surveys indicate that verbal harassment and abuse are nearly universal experiences among

lesbian, gay, and bisexual people. Also, discrimination against lesbian, gay, and bisexual people in employment and housing appears to remain widespread.

### **WHAT IS THE PSYCHOLOGICAL IMPACT OF PREJUDICE AND DISCRIMINATION?**

Prejudice and discrimination have social and personal impact. On the social level, prejudice and discrimination against lesbian, gay, and bisexual people are reflected in the everyday stereotypes of members of these groups. These stereotypes persist even though they are not supported by evidence, and they are often used to excuse unequal treatment of lesbian, gay, and bisexual people. For example, limitations on job opportunities, parenting, and relationship recognition are often justified by stereotypic assumptions about lesbian, gay, and bisexual people.

On an individual level, such prejudice and discrimination may also have negative consequences, especially if lesbian, gay, and bisexual people attempt to conceal or deny their sexual orientation. Although many lesbians and gay men learn to cope with the social stigma against homosexuality, this pattern of prejudice can have serious negative effects on health and well-being. Individuals and groups may have the impact of stigma reduced or worsened by other characteristics, such as race, ethnicity, religion, or disability. Some lesbian, gay, and bisexual people may face less of a stigma. For others, race, sex, religion, disability, or other characteristics may exacerbate the negative impact of prejudice and discrimination.

### **IS HOMOSEXUALITY A MENTAL DISORDER?**

No, lesbian, gay, and bisexual orientations are not disorders. Research has found no inherent association between any of these sexual orientations and psychopathology. Both heterosexual behaviour and homosexual behaviour are normal aspects of human sexuality. Both have been documented in many different cultures and historical eras. Despite the persistence of stereotypes that portray lesbian, gay, and bisexual people as disturbed, several decades of research and clinical experience have led all mainstream medical and mental health organizations in this country to conclude that these orientations represent normal forms of human experience. Lesbian, gay, and bisexual relationships are normal forms of human bonding. Therefore, these mainstream organizations long ago abandoned classifications of homosexuality as a mental disorder.

Richard Pillard says that much about how sexual orientation is determined remains a mystery. "I think some sort of genetic

influence seems very likely,” he says, “but beyond that, what really can we say? And the answer is: not a lot.”

Homosexuality was considered a mental illness when Richard Pillard was in medical school. It was the 1950s and the School of Medicine professor of psychiatry was at the University of Rochester. At the time, the American Psychological Association still listed homosexuality as a disorder and psychologists and psychiatrists were trained on ways to treat it.

The first psychological test undertaken to determine whether there was a biological explanation for homosexuality was in 1957. With a grant from the National Institute of Mental Health, Karen Hooker studied the relationship between homosexuality and psychological development and illness. Hooker studied both homosexuals and heterosexuals—matched for age, intelligence, and education level. The subjects were then given three psychological tests: the Rorschach, the Thematic Apperception Test (TAT), and the Make-a-Picture-Story Test (MAPS). Hooker found no major differences in the answers given by the two groups. Because of the similar scores, she concluded that sexuality is not based on environmental factors. In 1973, based on Hooker’s findings, the American Psychiatric Association removed homosexuality from its Diagnostic and Statistical Manual of Psychological Disorders and in 1975, released a public statement that homosexuality was not a mental disorder.

### **Has your research found that sexual orientation is biologically determined?**

**Pillard:** I think so. But nobody knows for sure what causes a person to be either gay or straight. It’s one of the great mysteries of science, at least of biological science.

### **MATT STORY**

On a typical summer Saturday morning Matt Avery and his wife, Sheila (not their real names), cook breakfast with their two sons, ages five and eight. Then they get organized with towels, goggles and water wings and load the family into the car for an afternoon at the pool. “Weekends are all about family time,” Matt says.

Matt and Sheila have been happily married for more than 11 years. “She’s my soulmate,” Matt says. “I wouldn’t trade my life for the world.”

But some people would claim that Matt’s life is based on an illusion—that he could not possibly be a dedicated husband and father. Why? Because Matt used to be gay.

According to the National LGBTQ Task Force and at least a few experts, gays do not have a choice about their sexual orientation. If a man or a woman is born gay, he or she will always be gay. Because Matt was gay for most of his young adulthood (ages 17 to 24), the thinking goes, he must *still* be gay today. Pressured by a homomistic society—a society that dislikes and shuns gays—Matt has simply run back inside the closet. Gay activists favour this perspective at least in part because survey data show that people are more sympathetic to gay causes if they believe that sexual orientation is immutable.

Does this perspective have merit? Or are religious conservatives correct in asserting that homosexuality is entirely a matter of choice? A wealth of scientific evidence provides clear answers. It turns out that sexual orientation is almost never a black-and-white matter. Rather it exists on a continuum, with both genes and environment determining where people end up, how much flexibility people have in expressing their sexual orientation, and even the extent to which sexual orientation might change over time.

Matt Avery had no doubt about his orientation when he first became sexually active in his teens. During college in the early 1980s, he worked at a gay bar and had hundreds of sexual partners. He also had a four-year relationship with a man. Matt considered himself “feminine.” “I was 140 pounds, had long fingernails, a blond ponytail and wore an earring,” he reminisces. “I was a sight to be seen.”

But when he was 24, his partner returned from a weekend retreat with some incredible news. Being gay, his partner said, “wasn't a truth” for him. Matt was distraught. “My whole life,” he says, “was defined by whomever I was with—whomever I could use to make up for my own faults.” After their sexual relationship ended, they stayed roommates and friends. But then, Matt says, “he started dating this *woman*.” “One day,” he recalls, “I decided homosexuality might not be a truth for me either, and I went on a date with a woman. It was pretty good.”

Within two or three years he found himself involved exclusively with women. He made the shift without therapy and without the influence of religious groups. He was supported, he says, by friends who helped him deal with “issues involving my father.” They helped him learn to be comfortable with his masculinity. Matt got to the point where even his sexual fantasies about men disappeared. In that respect, he probably became straighter than many heterosexuals. Although Matt made the switch without professional assistance, others—sometimes under tremendous



social pressure from family members or religious groups—seek out “reparative” therapists to help them become straight.

As for Matt, it is likely that he, like most or all people who change sexual orientation, was not near an extreme end of the continuum to begin with. It is unreasonable to say that he has been returned to a “natural” state, however; with strong social support, he has simply chosen a new path for himself—one that his genes made possible but that is almost certainly not possible for every gay person. Someday I suspect that psychobiological research will allow us to find precise physical correlates of sexual orientation: genes, neural structures or perhaps more subtle physical characteristics. But no advances in science will ever completely resolve the moral and philosophical issues that Matt's conversion raises.

### **NATURE VS NURTURE**

At the heart of the controversy about homosexuality are some microscopically small objects: the strands of proteins that make up our genes. Two genetic issues are relevant to our understanding of homosexuality. First, do genes play any role in sexual orientation? And second, if genes do help determine orientation, do they actually create two distinct types of orientation—gay and straight, as most people believe—or do they create a continuum of orientation?

A variety of studies suggest that genes play at least some role in homosexuality. Although no one study is entirely conclusive, studies of twins raised together, twins raised apart and family trees suggest—at least for males—that the more genes one shares with a homosexual relative, the more likely it is that one will be homosexual—the hallmark of a genetic characteristic. But more interesting for our purposes is the question of a continuum. Sometimes, as with eye colour, genes create discrete characteristics. With many attributes, however, such as height and head width, genes create continuities. Whereas most people may believe that “straight” and “gay” are discrete categories, there is strong evidence that they are not—and this fact has important implications for the way we understand the different controversies that surround homosexuality.

Ever since the late 1940s, when biologist Alfred Kinsey published his extensive reports on sexual practices in the U.S., it has been clear, as Kinsey put it, that people “do not represent two discrete populations, heterosexual and homosexual.... The living world is a continuum in each and every one of its aspects.” A position statement by the APA, the American Academy of Paediatrics and eight other national organizations agrees that “sexual orientation

falls along a continuum.” In other words, sexual attraction is simply not a black-and-white matter, and the labels “straight” and “gay” do not capture the complexities.

For obvious evolutionary reasons, many people prefer opposite-sex partners because such relationships produce children who can continue the human race. But some—perhaps between 3 and 7 percent of the population—are exclusively attracted to members of the same sex, and many are in the middle. If a person's genes place him or her toward the straight end of what I call the Sexual Orientation Continuum, he or she almost certainly can never become homosexual. If the genes place the person at the other end of the curve, he or she almost certainly cannot become straight—or at least not a happy straight. But if an individual is somewhere in between, environment can be a major influence, especially when the person is young. Because society strongly favours the straight life, in the vast majority of cases the shift will be toward heterosexuality.

In an extensive study published in 2012, with more than 17,000 participants from 48 countries, my colleagues and I confirmed that sexual orientation lies smoothly on a continuum, just as Kinsey said. We also found an extensive mismatch between the labels many people use to describe their sexual orientation—gay, straight and bisexual—and their actual sexual attractions, fantasies and behaviour. Moreover, just as people differ on where they fall on the Sexual Orientation Continuum, we found that they also differ in their “sexual orientation range”—how much flexibility they have in expressing their sexual inclinations.

Psychologist Lisa Diamond of the University of Utah and other researchers have also shown that sexual orientation is fluid to some extent. That is, it can change over the years. This is especially true for women.

The way sexuality plays out is similar in some respects to the process by which people become left- or right-handed. It may sound contrary to common sense, but scientific studies suggest that genes play a relatively small role in handedness; its heritability—an estimate of what proportion of a trait's variability can be accounted for by genes—is only about 0.25, compared with, say, 0.84 for height and 0.95 for head width. Then why is more than 90 percent of the population right-handed? It is because of that cultural “push” working again. Subtle and not so subtle influences make children favour their right hand, and the flexibility they probably had when they were young is simply lost as they grow up. Although they can still *use* the left hand, their handedness becomes so well established that they would find it

difficult, if not impossible, to become left-handed.

Studies by psychiatrist Niklas Långström of the Karolinska Institute in Stockholm and others suggest that the heritability of homosexuality is not much higher than that of handedness—perhaps in the range 0.25 to 0.50 or so for males and substantially lower for females. This finding raises an intriguing question: If people were raised in a truly orientation-neutral culture, what sexual orientation would they express? As shocking as this may seem, the large multinational studies my colleagues and I have been conducting in recent years suggest that without societal pressures to be straight, only a small percent of us would be exclusively heterosexual throughout our lives. Bisexuality was common among the ancient Greeks and Romans; have cultural and religious forces in modern times created the belief that same-sex attraction is a perversion?

There is no single gene responsible for a person being gay or a lesbian.

That's the first thing you need to know about the largest genetic investigation of sexuality ever, which was published Thursday in *Science*. The study of nearly a half million people closes the door on the debate around the existence of a so-called "*gay gene*."

In its stead, the report finds that human DNA cannot predict who is gay or heterosexual. Sexuality cannot be pinned down by biology, psychology or life experiences, this study and others show, because human sexual attraction is decided by all these factors.

*"This is not a first study exploring the genetics of same-sex behaviour, but the previous studies were small and underpowered,"* Andrea Ganna, the study's co-author and genetics research fellow at the Broad Institute and Mass General Hospital, said in a press briefing on Wednesday. *"Just to give you a sense of the scale of [our] data, this is approximately 100 times bigger than any previous study on this topic."*

The study shows that genes play a small and limited role in determining sexuality. Genetic heritability — all of the information stored in our genes and passed between generations — can only explain 8 to 25 percent of why people have same-sex relations, based on the study's results.

Moreover, the researchers found that sexuality is polygenic — meaning hundreds or even thousands of genes make tiny contributions to the trait. That pattern is similar to other heritable (but complex) characteristics like height or a proclivity toward

trying new things. (Things like red/green colour-blindness, freckles and dimples can be traced back to single genes). But polygenic traits can be strongly influenced by the environment, meaning there's no clear winner in this "nature versus nurture" debate.

It is worth keeping in mind that this study only covers some types of sexuality — gay, lesbian and cis-straight — but doesn't offer many insights into gender identity. In other words, the team only looked at the "LGB" within the acronym LGBTQIA+.

Of course, ethical concerns arise with any attempt to use biology to explain complex human behaviour like sexuality. People like Michael Bailey, a psychologist at North-western University who conducted much of the early research into the heritability of sexuality, warned against taking this new genetics study — or any research on sexual behaviour — out of context.

For instance, Bailey added, there is no evidence that things like conversion therapy work.

*"Obviously, there are environmental causes of sexual orientation. We knew that before this study."* said Bailey, citing the well-defined role that life experiences play in sexual development. *"But that doesn't mean we know how to manipulate sexual orientation mentally."*

## CONCLUSION

Do gays have a choice? Because of the enormous pressures pushing all of us toward the straight end of the Sexual Orientation Continuum from the time we are very young, it is reasonable to assume that most of the people who currently live as homosexuals were probably close to the gay end of the continuum to begin with; in other words, they probably have strong genetic tendencies toward homosexuality. Even though some gays can apparently switch their sexual orientation, the vast majority probably cannot—or at least not comfortably. If you doubt that—and assuming that you are right-handed—try eating with your left hand for a day or two, and good luck with your soup.

Genome-Wide Association study (GWAS) found that, like with many human behaviours, sexuality doesn't have a strong genetic backing.

When the team looked for DNA patterns that had strong correlations, they found that no one gene could account for any more than 1 percent of people's sexuality. The strongest signals came from five random genes.

Two of those genes correlated with same-sex sexuality in males, one of which is known to influence the sense of smell. One gene cropped up for females and two others showed solid patterns in both males and females. But their individual scores never passed this 1-percent mark — meaning they are all minor contributors to same-sex sexual behaviour.

When the team looked more broadly across all the genomes — across the thousands of genes that they screened for the nearly 500,000 subjects — the genes similarities they found could only account for 8 to 25 percent of same-sex sexual behaviour.

*“It’s effectively impossible to predict an individual’s sexual behaviour from their genome,”* said Ben Neale, a geneticist at Massachusetts General Hospital and the Broad Institute who led the study. *“Genetics is less than half of this story for sexual behaviour.”*

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