

Nature and Nurture: Proposing a Reconciliation

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This article addresses an historically controversial topic: the question of whether the same-sex attraction (SSA) in men is innate or acquired. Several studies in the field of genetics have shown that there is a possible genetic influence on SSA. On the other hand, psychology debated contributions from psychoanalysis on this subject, such as the perspective of the absent, abusive father as well as traumas caused by other members of the same gender leading to defensive detachment. Presently, there appears to be a consensus that same-sex sexuality develops from both biological and environmental influences. But how? In this article, I posit a possible route for such interaction. I raise the hypothesis that biological factors involved in the homosexual tendency would manifest themselves in the high sensitivity of some children, since this trait would predispose boys to defensive detachment as well as to gender wounds caused by other men. This hypothesis suggests a possible way to integrate the various published studies which show that the causes of the origin of SSA in men could be both genetic and environmental.

Keywords: homosexuality, biology, psychology, sensitivity, conciliation

The question of whether SSA is innate or acquired has been very controversial, leaving us with apparently good hypotheses for both biological and social environmental influences. Several studies argue that same-sex attraction has a biological cause mainly of genetic and hormonal origin (Alanko et al., 2010;

Bailey et al., 2013; Goodman, 1997; Schwartz et al., 2010). On the other hand, there are works defending that homosexuality is acquired, such as those of Taylor (1999), Crowson & Goulding (2013) and Vandenbosch and Eggermont (2014), which hypothesized that influences from culture, including the

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media, and some kinds of socialization may be required for SSA to manifest itself.

Also in this line of thinking, Elizabeth Moberly, in 1986, published an article in which she theorized that SSA could be related to difficulties in the father-son relationship, resulting in a deficit in the relationship with the same-sex parent. This relationship deficit, she hypothesized, would result in a break in the connection between father and son. As a result, the son does not have his natural emotional needs met. The boy develops a disidentification with the male parent and starts to have a feeling of ambivalence in relation to men in general. This ambivalence, in turn, results in a generalized defensive detachment; that is, the boy moves away from the male universe in order to protect himself from being hurt again.

As soon as this detachment occurs, a search for attachment repair, which in adolescence turns into an erotic attraction for other men, begins. This man will later seek to fulfill his emotional needs for acceptance and love through sexual relationships with other men. From the various models that try to explain SSA as acquired, I have chosen that of Elizabeth Moberly, because it is the closest to what some clinicians observe in the narratives of non-heterosexual men: distancing from parents as well as from the male universe. Bieber et al. (1962) had reported relationship problems between non-heterosexual children and parents quite some time ago. I believe defensive detachment could also be one of the causes of the high rate of psychiatric disorders found in non-heterosexual people.

From a biological point of view, studies of genetics have been published in order to find some inherited factors related to SSA. Bailey & Pillard (1991) studying twins found concordance for non-heterosexuality in 52% of monozygotic twins and 22% of dizygotic twins. In a

study carried out in Sweden, Langstrom et al. (2010) found a genetic heritability factor of 34% to 39% in men and 18% to 19% in women. Ganna et al. (2019), studying around 477 thousand people from Europe and the United States, demonstrated definitively that 32.4% of factors that differ in nonheterosexuals as a group from heterosexuals as a group are attributable to variation in genes. Genes tested in the Ganna et al. study, taken together, accounted for 8% to 25% of this genetic variation. The figure of 32.4% in the genome wide analysis study by Ganna et al. matches the figure of 32% found in the meta-analysis by Poldermann et al. (2015) of 50 years of twin studies. Hence, 32.4% is the best figure to date.

Other studies have investigated whether prenatal hormones are involved in the manifestation of SSA, but findings remain inconclusive (Mayer & McHugh, 2016). Studies of epigenetics, the science that studies the influence of environmental factors on the activation and deactivation of genes as well as their modulation by the same factors, have found interesting results in behavioral change in animals, but nothing conclusive in humans (Wang et al., 2019). Jannini et al. (2010) stated that an important difference between biological and non-biological environmental lines of study is that the vast majority of researchers who defend the biological factors for SSA also recognize the importance of environmental factors, but those who maintain that this trait is developed after birth usually deny any biological influence.

In this article I have come up with a possible conciliatory explanation in which I theorize that the biological factors that involve same-sex attraction would manifest themselves as a personality trait that increases a boy's predisposition to develop non-heterosexuality, namely,

greater sensitivity or hypersensitivity. Guerim et al. (2015) reported in their studies that this trait of human temperament is more pronounced in non-heterosexual men. Ganna et al. (2019) did not find genes that they specifically identified as associated with sensitivity, but they did find that genetic predispositions to depression and anxiety were associated with same-sex behaviour. Such predispositions may make a boy more vulnerable to developing depression, anxiety, or suicidality as a result of adverse experiences, hence may cause a boy to be more sensitive.

Returning to the hypothesis raised by Moberly (1986), who coined the term defensive detachment, I believe that not only can the absence of fatherly love cause this detachment from the male universe, but also wounds caused by other men (sexual abuse or bullying, for example), called gender wounds, can cause trauma, particularly in a hypersensitive child. I believe these wounds are more pronounced when they are directed at the child's sexuality. Therefore, wounds caused by men (gender wounds), which are related to the child's sexual identification (such as sexual abuse), are more likely to cause defensive detachment, in addition to deep trauma.

Several studies report that non-heterosexual people, both male and female, have a higher prevalence of developing psychiatric disorders such as generalized anxiety, depression, and suicidal ideation (Chakraborty et al., 2011; Fredriksen-Goldsen et al., 2012; Mayer, 2016). The authors of these studies argue that the main factors that might be related to the higher incidence of these disorders in this specific population could be the non-conformity with their sexual orientation caused by the prejudice and discrimination they suffer from society. I do not deny these factors, but the same

psychiatric problems occur in non-heterosexual adolescents and adults who grow up in developed countries which have liberal attitudes toward sexuality (Björkenstam et al., 2016; De Graaf et al., 2006; Hatzenbuehler, 2011).

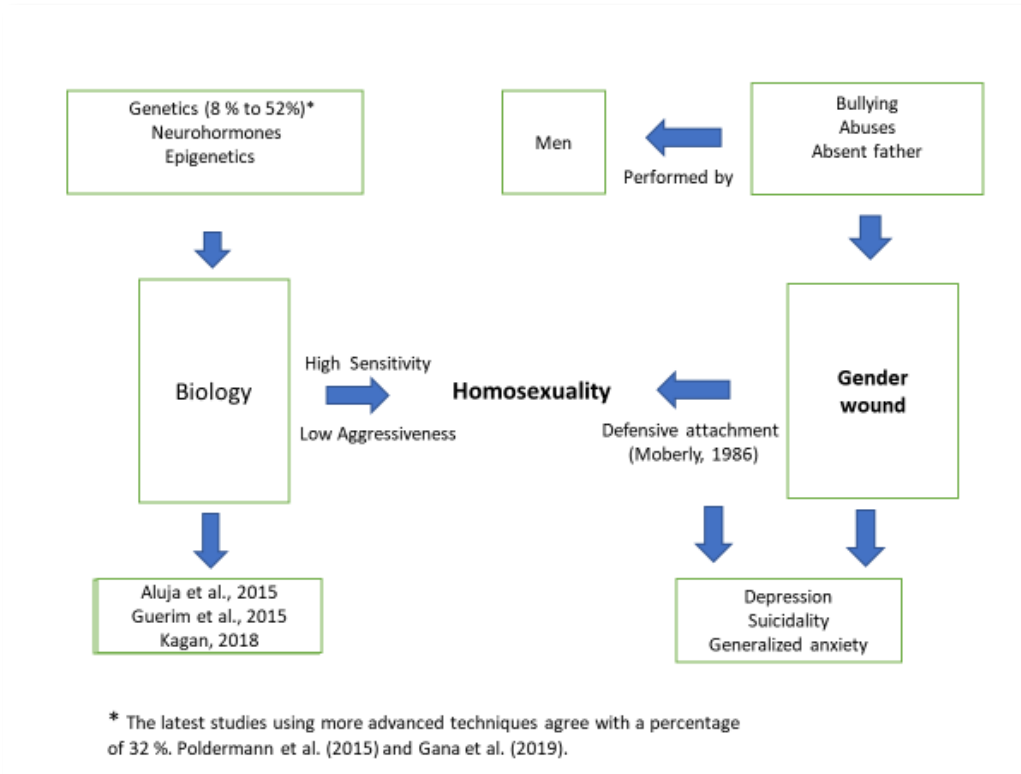
I present the hypothesis that both the gender wounds the hypersensitive child suffers, as well as the defensive detachment that isolates him from the male universe, add up to, or may even surpass, the impact of discrimination and prejudice previously mentioned with regard to the development of psychiatric disorders. Hypersensitivity could translate into what Kagan (2018) called high reactive children. Kagan proposes that children, in response to different sensory stimuli, could be divided into two types of temperaments: those of more reactive temperament and those of less reactive temperament. These traits are related to the nuclei of the amygdala, which are part of the limbic system. High reactive children are characterized by a greater response to unexpected events, such as crying and limb movements, being less sociable with unknown partners, in addition to presenting greater symptoms of social anxiety and depression.

Another biological factor that could influence how boys react to bullying and abuse is a predisposition to aggression. Aluja et al. (2015) demonstrated that the human androgen receptor (AR) gene can present different polymorphic extensions of the CAG codon, and when this codon appears in its smallest version, the AR receptor is more sensitive to free testosterone. These authors found a positive relationship between shorter CAG codons and a higher rate of aggressive behavior in men. Other studies have found similar results finding that aggressive men tend to be more extroverted and to have a more uninhibited personality (Jonsson et al., 2001; Turakulova et al., 2004).

Boys who are more aggressive and have a more uninhibited personality could face situations of abuse and stress in a less traumatic way, since they have a stronger reaction towards the aggressor and do not allow themselves to be hurt continuously. I hypothesize that one genesis of SSA is an interaction of two main factors: biological factors, which contribute to the high or low reactive temperament inherited by the boy

(Kagan, 2018), as well as a more or less aggressive personality (Aluja et al., 2015), and a gender wound, which is a trauma caused mainly by significant male figures such as father and friends. This wound may lead him to defensive detachment.

Figure 1 shows how this interaction could occur:



was subjected. Each of these variables can have different intensities as well as different interactions in each individual. These different dynamics would explain the many variations that exist in the sexuality of non-heterosexual people.

Several points still need to be clarified so that the presented model can be consistent. One of them is how the different known biological factors (genetics, neurohormones, epigenetics etc.) might influence children's sensitivity. Kagan (2018) comments, in his studies about human temperament, that high reactive children have greater activity in the region of the amygdala in the limbic system. I hypothesized that this could be a cause of different levels of sensitivity that children have.

Another matter that needs further clarification is what would explain the case of non-heterosexual men who do not have a genetic influence. I hypothesized that they could be less sensitive, but would have been exposed to a deeper gender wound, such as sexual abuse, quite common in the history of people with SSA (Mayer et al., 2016). There may also be other causes of SSA. For example, Nicolosi (2009) reports that he saw some men who did attach to their father in early childhood, but they experienced gender wounds later in childhood or adolescence, and their father failed to provide much needed emotional support. As a result, they experienced painful feelings about themselves as men and may have detached from their father.

Future research should look into potential ways that biological and environmental influences may intersect leading to SSA. The *APA Handbook of Sexuality and Psychology* (Rosario & Schrimshaw, 2014, in Tolman & Diamond, v. 1, p. 583) says, "Biological explanations, however, do not entirely explain sexual orientation. Psycho-

analytic contingencies are evident as main effects or in interaction with biological factors. A joint program of research by psychoanalysts and biologically oriented scientists may prove fruitful."

I believe that this work can contribute in this direction.

References

- Alanko, K., Santilla, P., Harlaar, N., Witting, K., Varjonen, M., Jern, P. & Sandnabba, N. K. (2010). Common genetic effects of gender atypical behavior in childhood and sexual orientation in adulthood: A study of Finnish twins. *Archives of Sexual Behavior*, 39(1), 81–92. <https://doi.org/10.1007/s10508-008-9457-3>
- Aluja, A., García, L. F., Martí-Guiu, M., Blanco E., García, O., Fibla, J., Blanch, A. (2015). Interactions among impulsiveness, testosterone, sex hormone binding globulin and androgen receptor gene CAG repeat length. *Physiology & Behavior*, 147, 91–96. <http://dx.doi.org/10.1016/j.physbeh.2015.04.022>
- Antonio, V. E., Colombo, M. M., Monteverde, D. T., Martins, G. M., Fernandes, J. J., Assis, M. B., Montenegro, S. & Batista, R. S. (2017). Neurobiology of emotions: An update. *International Review of Psychiatry*, 29(3), 293–307. <https://doi.org/10.1080/09540261.2017.1285983>
- Bailey, J. M. & Pillard, R. C. (1991). A genetic study of male sexual orientation. *Archives of General Psychiatry*, 48(12), 1089–1096. <https://doi.org/10.1001/archpsyc.1991.01810360053008>
- Bailey, N. W., Hoskins, J. L., Green, J., & Ritchie, M. G. (2013). Measuring same-sex behavior: The influence of

- the male social environment. *Animal Behavior*, 86(1), 91–100.
<https://doi.org/10.1016/j.anbehav.2013.04.016>
- Bieber, I. et al. (1962). *Homosexuality: A Psychoanalytic Study*. Basic Books.
- Björkenstam, C., Andersson, G., Dalman, C., Cochran, S. & Kosidou, K. (2016). Suicide in married couples in Sweden: Is the risk greater in same-sex couples? *European Journal of Epidemiology*, 3(7), 685–690.
<https://doi.org/10.1007/s10654-016-0154-6>
- Chakraborty, A., McManus, S., Brugha, T. S., Bebbington, P. & King, M. (2011). Mental health of the non-heterosexual population of England. *The British Journal of Psychiatry*, 198(2), 143–148. <https://doi.org/10.1192/bjp.bp.110.082271>
- Crowson, M. & Goulding, A. (2013). Virtually homosexual: Technoromaticism, demarginalization and identity formation among homosexual males. *Computers in Human Behavior*, 29, A13–A39.
<https://doi.org/10.1016/j.chb.2013.01.017>
- De Graaf, R., Sandfort, T. M. & ten Have, M. (2006). Suicidality and sexual orientation: Differences between men and women in a general population-based sample from the Netherlands. *Archives of Sexual Behavior*, 35, 253–262. <https://doi.org/10.1007/s10508-006-9020-z>
- Fredriksen-Goldsen, K., Emler, C. A., Kim, H. J., Muraco, A., Erosheva, E. A., Goldsen, J., Charles, P. & Ellis, H. (2012). The physical and mental health of lesbian, gay male, and bisexual (LGB) older adults: The role of key health indicators and risk and protective factors. *The Gerontologist*, 53(4), 664–675.
<https://doi.org/10.1093/geront/gns123>
- Ganna, A. et al. (2019). Large-scale GWAS reveals insights into the genetic architecture of same-sex sexual behavior. *Science*, 365(6456), 882–810. <https://doi.org/10.1126/science.aat7693>
- Goodman, R. E. (1997). Understanding human sexuality—Specifically homosexuality and the paraphilias—In terms of chaos theory and fetal development. *Medical Hypotheses*, 48(3), 237–243. [https://doi.org/10.1016/s0306-9877\(97\)90313-3](https://doi.org/10.1016/s0306-9877(97)90313-3)
- Guerim, L. D., Carvalho, H. W. & Lara, D. R. (2015). The relationship between temperament and sexual orientation. *Journal of Affective Disorders*, 175, 379–384.
<https://doi.org/10.1016/j.jad.2015.01.029>
- Hatzenbuehler, M. L. (2011). The social environment and suicide attempts in lesbian, gay, and bisexual youth. *Pediatrics*, 127(5), 896–903.
<https://doi.org/10.1542/peds.2010-3020>
- Jannini, E. A., Blanchard, R., Camperio-Ciani, A., & Bancroft, J. (2010). Male homosexuality: Nature or nurture? *The Journal of Sexual Medicine*, 7(10), 3245–3253.
<https://doi.org/10.1111/j.1743-6109.2010.02024.x>
- Jönsson, E. G., Gertten, C., Gustavsson, J. P., Yuan, Q. P., Lindblad-Toh, K., Forslund, K., Rylander, G., Mattila E., Marja, Å. M., Schalling, M. (2001). Androgen receptor trinucleotide repeat polymorphism and personality traits. *Psychiatric Genetics*, 11(1), 9–23. <https://doi.org/10.1097/00041444-200103000-00004>
- Kagan, J. (2018). Perspectives on two temperamental biases. *Philosophical Transactions of the Royal Society, B* 373: 20170158. <https://doi.org/10.1098/rstb.2017.0158>

- Långström, N., Rahman, Q., Carlström, E. & Lichtenstein, P. (2010). Genetic and environmental effects on same-sex sexual behavior: A population study of twins in Sweden. *Archives of Sexual Behavior*, *39*, 75–80. <https://doi.org/10.1007/s10508-008-9386-1>
- Mayer, L. S. & McHugh, P. R. (2016). Sexuality and gender findings from the biological, psychological, and social sciences. *A Journal of Technology and Society*, *50*, 10–143. <https://www.jstor.org/stable/43893424>
- Moberly, E. R. (1986). Attachment and separation: The implications for gender identity and for the structuralization of the self: A theoretical model for transsexualism, and homosexuality. *Psychiatric Journal of the University of Ottawa*, *11*(4), 205–209.
- Nicolosi, J. (2009). *Shame and Attachment Loss: The Practical Work of Reparative Therapy*. Downers Grove, IL: Intervarsity Press.
- Poldermann, T., Benyamin, B., Leeuw, C., Sullivan, P., Bochoven, A., Visscher, P. & Posthuma, D. (2015). Meta-analysis of the heritability of human traits based on fifty years of twin studies. *Nature Genetics*, *47*, 702–709. <https://www.nature.com/articles/ng.3285>
- Rosario, M. & Schrimshaw, E. (2014). Theories and etiologies of sexual orientation. In Tolman, D., & Diamond, L., Co-Editors-in-Chief (2014). *APA Handbook of Sexuality and Psychology, Volume 1. Person Based Approaches*, 555–596. Washington D.C.: American Psychological Association. <https://www.apa.org/pubs/books/4311512>
- Schwartz, G., Kim, R. M., Kolundzija, A. B., Rieger, G. & Sanders, A. R. (2010). Biodemographic and physical correlates of sexual orientation in men. *Archives of Sexual Behaviour*, *39*(1), 93–109. <https://doi.org/10.1007/s10508-009-9499-1>
- Taylor, B. (1999). Coming out as a life transition: Homosexual identity formation and its implications for health care practice. *Journal of Advanced Nursing*, *30*(2), 520–525. <https://doi.org/10.1046/j.1365-2648.1999.01108.x>
- Turakulova, R., Jormb, A. F., Jacombb, P. A., Tana, X. & Easteala, S. (2004). Association of dopamine-b-hydroxylase and androgenreceptor gene polymorphisms with Eysenck's P and other personality traits. *Personality and Individual Differences*, *37*(1), 191–202. <https://doi.org/10.1016/j.paid.2003.08.011>
- Vandenbosch, L. & Eggermont, S. (2014). The role of television in adolescents' sexual attitudes: Exploring the explanatory value of the three-step self-objectification process. *Poetics*, *45*, 19–35. <https://doi.org/10.1016/j.poetic.2014.06.002>
- Wang, Y., Wu, H. & Sun, Z. S. (2019). The biological basis of sexual orientation: How hormonal, genetic, and environmental factors influence to whom we are sexually attracted. *Frontiers in Neuroendocrinology*, *55*, 100798. <https://doi.org/10.1016/j.yfrne.2019.100798>