

Male Homosexuality: Is It Nature or Nurture?

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Abstract: This is an overview of nature and nurture arguments for male homosexuality based on the literature review. This article summarized and discussed both sides of nature and nurture perspectives and how they may contribute to the development of male homosexuality. From the nature perspective, the genetic, brain structure, and evolutionary arguments are included. From the nurture perspective, the birth order and family dynamics are mentioned. Both the nature and nurture aspects seem to play an important role in order to explain homosexuality. It is suggested that for future studies in this field, researchers may explore and compare the evolutionary connection of female and male homosexuality. In addition, the grey matter volume (GMV) in different brain regions seems to be a contributor to homosexuality; further examining the connection between the brain region's function and homosexuality may be necessary.

Keywords: Male homosexuality, nature, nurture.

1. Introduction

Whether male homosexuality is formed from nature or nurture has long been a heated topic around the world. Some researchers argue that sexual orientation is pre-determined when one is born, while some other researchers insist that the postnatal influences on one's sexual preferences are not to be ignored. Researchers try to further bolster their claims by conducting studies and proposing ideas. It is important to investigate both sides' contributions in order to capture and compare the broader opinions of the scientific community. The purpose of this study is to explore both the nature and nurture arguments for male homosexuality by using academic review to summarize and discuss some male homosexuality hypotheses over the years. From the nature perspective, the current study will focus on the biological features and evolutionary explanations. Biological features include genes and brain structures as influencing factors of male homosexuality. Evolutionary grounds consist of natural selection theory and inclusive fitness theory to argue that homosexual individuals are contributing to human reproduction by sacrificing their reproductive chance to benefit their families. From the nurture perspective, the birth order of male siblings as well as family dynamics are being overviewed. In fact, according to past literature, the birth order effect seems to be a part of both the nature and nurture arguments of male homosexuality. The hypotheses for the family dynamics approach explain homosexuality by revealing its connection with parental roles and childhood maltreatment. Overall, the current study will provide only a portion of the nature and nurture arguments for the origins of homosexuality, and there are more research findings that are not included and discussed.

2. Male Homosexuality from Nature Perspective

2.1. Biological Characteristics and Male Homosexuality

Past literature suggested that genes [1;2], and brain structures [3] may be indicators of one's sexual orientation. Harmer et al.'s [1] study aimed to explore whether there is a connection between inherited gene patterns and the tendency towards male homosexuality in the family context. Researchers conducted a DNA analysis on 40 pairs of male homosexual siblings and their families. Researchers focused on finding a similar DNA pattern in a region on the long arm of the X chromosome called Xq28. According to the authors, there are past studies that provided evidence for the connection between genes in the Xq28 region and male homosexuality. The results of the DNA analysis revealed that out of 40 sibling pairs, 33 of them share similar genetic patterns in Xq28. The research results add weight to the natural development of male homosexuality by suggesting the possible correlation between male sexual preference and the inheritance of DNA markers in the Xq28 region. Whitam et al.'s [4] twin study agreed with the aforementioned evidence by approaching male homosexuality from a genetic perspective. Researchers hired twin participants from various countries, including 38 pairs of monozygotic twins and 23 pairs of dizygotic twins. Researchers confirmed participants' identity and sexual orientation by asking for their childhood photos, doing individual interviews with them as well as their families, and providing a set of questionnaires. After calculating the percentage of participants' sexual orientations, the results indicated that the concordance rate of monozygotic twins being homosexual is 65.8%, and the concordance rate of dizygotic twins being homosexual is 30.4%. Furthermore, 34 out of 38 monozygotic twins are male homosexuals so that the results may provide a stronger connection for genetic influence on male homosexuality. According to Prescott and Kendler [5], monozygotic twins share nearly 100% of their genes, and dizygotic twins share around 50% of their genes. Relating this statement to Whitam et al.'s [4] homosexual twins' study, it is possible to conclude that individuals with higher similarity in genes may increase the tendency to share the same sexual orientation. Therefore, it may suggest that genes may be one of the indicators of male homosexuality.

Votinov et al. [3] argued that differences in individuals' brains may lead to different sexual orientations. Votinov et al.'s research hired participants across four gender and sexual orientation categories: heterosexual male, homosexual male, heterosexual female, and homosexual female. Researchers used a brain scanner to measure participants' grey matter volume (GMV) in brain regions, including the thalamus, precentral gyrus, and putamen. Grey matter is a brain tissue that is the main component of the central nervous system. It is responsible for processing and transmitting information throughout the brain and spinal cord and supporting cognitive, sensory, and other functions. The results of the brain scanning revealed that heterosexual males and females tend to have greater GMV in the thalamus and precentral gyrus and less GMV in the putamen compared to homosexual males and females. Oppositely, homosexual males and females seem to have lesser GMV in the thalamus and precentral gyrus and greater GMV in the putamen compared to heterosexual males and females. According to the results, it is possible to conclude that one's brain structure may be different when individuals identify their sexual orientation toward the same sex or opposite sex due to the found similarity of homosexual males and females and heterosexual males and females. This evidence adds weight to the hypothesis that male homosexuality can be determined by one's biological traits.

2.2. Male Homosexuality from Evolutionary Perspective

Past studies point out that male homosexuality can be explained by evolutionary theories as well. As mentioned in Thornhill and Fincher's [6] study, natural selection theory provides fundamental ideas when explaining phenomena from evolutionary perspectives. Natural selection theory states that

those with traits that benefit reproduction for the next generation tend to have a higher chance of survival. However, it seems that homosexuality is not favored by evolution due to the lack of reproduction in principle. Therefore, much past research argues that homosexuality is an anti-Darwinism phenomenon. Nevertheless, Wilson [7] indicated in his research that homosexuality can contribute to human reproduction by proposing the inclusive fitness theory. Inclusive fitness theory suggests that individuals may still be contributing to reproduction to the next generation, even if the offspring may not be their direct descendant. Wilson argues in his book that during the hunting-and-gathering period, human ancestors had various difficulties in protecting themselves and their offspring from food shortages, dangerous predators, disease, etc. Therefore, the survival rate of the next generation seemed to be low. The inclusive fitness theory may play a role when some people in a family are willing to sacrifice their reproduction chance in exchange for a higher survival rate of family kin offspring. Without having children, homosexual individuals may be able to spend more time and effort caring for their nephews and nieces, including protecting, feeding, and educating them. In fact, some parts of their genome are still being passed on because they are genetically related to their sister or brothers' children. The results of Salais and Fischer's [8] research agree with the concept of inclusive fitness theory. This research focused on examining the connection between different male sexual orientations and altruism levels. In the research, male participants are divided into two categories, heterosexual males, and homosexual males, based on their self-reported sexual preferences and behaviors. Participants completed Hogan's Scale to measure their empathy level. The results revealed that homosexual males score significantly higher than heterosexual males in empathy assessment. As explained by the authors, individuals who are more empathetic tend to conduct more altruistic behaviors, which means they are more willing to be the one in family that sacrifice their reproduction for others. Therefore, they believe that their research results can contribute to the inclusive fitness theory in explaining male homosexuality.

The nurture perspectives included in this article only focused on parental and family impacts on children's development of homosexuality. According to Baumrind [9], parents hold an irreplaceable role in children's development, including sexual aspects of gender roles, behaviors, and attitudes. Therefore, it is important for the parental role and family dynamics to take part in the nurture argument for male homosexuality. However, there are more nurture arguments in the field relating to influencing factors of one's sexual orientation besides family impact that this article is not including. How one's sexual preference can be affected after they become adults can be a topic that is interesting to explore in future research.

3. Male Homosexuality from Nurture Perspective

3.1. Birth Order and Male Homosexuality

Past research suggests that one's birth order can be one of the indicators of sexual orientation [10]. Blanchard conducted a study to explore the connection between one's birth order and sexual preference. In the study, he hired male homosexual and heterosexual participants and asked them to self-report their number of older and younger sisters, number of older and younger brothers, father's age when they were born, and mother's age when they were born. The researcher conducted a multiple regression to identify the significant predictors of male homosexuality. The results revealed that the number of older brothers was the only significant variable for male homosexuals. The data further indicated that every older brother increases the likelihood of a younger brother being homosexual by 33%. One of the explanations provided by later research of Blanchard related the younger son's homosexuality to parents' rearing styles. Blanchard [11] argues that parents may educate later-born sons in a subtly different way to avoid intrasexual competition between brothers. Maybe this slight difference in child-rearing creates the environment that would increase the possibility for younger sons'

preference for same-sex partners. One of the examples provided in the research to strengthen the idea is leadership. Miller [12] points out that if parents let two brothers compete for family resources and leadership, the final result may not favor either of them due to the fact that they may neutralize each other's effort when competing. However, if parents can moderate two brothers' personalities into one that is more suitable for competing and one for cooperating, then it would be an ideal situation. In this case, the younger son may be educated to have a cooperative personality, which could contribute to sexual preference for the same sex. This argument seems to support Blanchard's hypothesis that parents are trying to ease potential conflict between brothers when creating family environment.

However, Puts et al. [13] proposed that, instead of nurture, birth order could serve as a nature argument for male homosexuality. Puts et al.'s arguments are based on Gaultier and Hicks' [13] maternal immunization hypothesis. This hypothesis states that before a mother is pregnant, she does not have any maternal antibodies in her body. However, when she is giving birth to her son, her blood interacts with the son's blood, and it may cause the mother's body to have an immune response to the proteins in her son's blood and may develop maternal antibodies. According to Puts et al., these maternal antibodies may lead to impacts on fetus' brain structure development and could lower body weight, which may lead to higher chance of sexual orientation towards the same sex. With more sons delivered, the maternal antibodies will accumulate in the mother's body, and later sons will experience more and more exposure to them. Puts et al. argues that it might be the impact of maternal antibodies that alters younger sons' brain development to increase the possibility of male homosexual sexual orientation. To conclude, the birth order effect contributes to the cause of male homosexuality from both the nature and nurture perspective. The nurture arguments focus on the development of homosexuality by pointing out how parents may educate brothers to have different personalities to avoid intrasexual competitions between them. The nature arguments provides the biological evidence that the exposure to maternal antibodies may impact younger sons' sexual orientation.

3.2. Family Dynamic and Male Homosexuality

One of the nurture arguments for male homosexuality may be family dynamics. Some research indicates that the maternal dominant role in the family dynamic as well as childhood maltreatment may contribute to sons' homosexuality. Early in 1916, as Brown mentioned in his research [14], Freud have proposed the hypothesis that the combination of a dominant and protective mother and a neglectful father may impact their sons' sexual orientation towards the same sex. Later, West's [14] study about the connection between parental figures and a son's homosexuality agreed with Freud's hypothesis. West extracted 50 cases of male homosexuality and 50 cases of male heterosexuality from the hospital profiles and summarized their descriptions of their parents. Then, they asked another group of participants to judge homosexual individuals' relationships with their parents according to the description they concluded from each case. The results revealed that male homosexual individuals tend to have more difficulties in their relationship with their fathers. Moreover, male homosexual individuals tend to describe their mothers as "over-intense". Brown's research reviewed West's research and emphasized that when children are forming sexual orientation, in the scenario their mothers are being overcontrolling and establish too much unnecessary physical connection with their sons, they tend to form fear towards their mothers and try to avoid them. Then, these feelings may result in the decrease of interest in females when seeking potential partners. Furthermore, the absence and maltreatment of the father in the family dynamic may lead to a lack of emotional intimacy with father figures; therefore, in the future, they may seek paternal figures in their romantic connection. Roberts et al.'s [15] research agreed to the connection between parental abuse and male homosexuality. Participants of this research self-reported their sexual orientation and their experiences of physical, mental, and sexual abuse in childhood. Researchers conducted multiple regression to explore whether any of those types of abuses predict homosexuality. The result indicated

that sexual abuse significantly predicts females' and males' sexual orientation. In fact, male homosexuality has significantly greater influence from parents' sexual abuse than female homosexuality. This result revealed the connection between parental maltreatment and homosexuality. Overall, the parental roles in the family and childhood maltreatment effectively contribute to the nurture argument of male homosexuality by establishing their impact on children's development.

4. Conclusion

This article focused on reviewing and discussing arguments of male homosexuality from nature and nurture perspectives from past research. Genetic, brain structures, and evolutionary aspects are included to argue for the nature perspective of male homosexuality. Some past research findings revealed the connection between homosexuality and biological causes. Past literature found that DNA patterns inherited on the long arm of the X chromosome tend to increase the tendency of male homosexuality. In addition, the study focused on exploring twin homosexuality suggested that twins tend to increase their chance of sharing the same sexual orientation when they have higher similarities in genes. In other words, the inherited genes seem to be one of the indicators of homosexuality. Some studies offered the evolutionary aspect of the development of male homosexuality as well. The natural selection theory and inclusive fitness theory explain that homosexuals seem to be contributing to human reproduction by sacrificing themselves to benefit their families. Later studies further strengthened this argument by exploring the connection between sexual orientation and altruism level. The results indicated that homosexual individuals tend to have higher altruism levels than heterosexuals, which means that they are more willing to conduct altruistic behaviors; in the evolutionary perspective, sacrifice their reproductive chance for greater family benefits. For the nurture arguments, this article mentioned the birth order and family dynamic effect on male homosexuality. Past study findings mentioned that the existence of every older brother has a 33% increase in the chance of the younger son's homosexuality. Research suggested that birth order can be a nature argument for male homosexuality as well. With more births given to sons, there is a chance that the mother's body would develop maternal antibodies, which will have an impact on younger sons' fetal brain development and may cause pre-determined homosexual sexual orientation. Finally, family dynamics seem to influence children's sexual orientation. Past research mentioned that the combination of an overprotective mother and a neglectful father might lead to the son's fear of women, consequently preferring intimate romantic relationships with the same sex after growing up. Overall, this article revealed the causes of male homosexual development from different aspects. All the arguments seem to be contributing to either nature or nurture perspectives, which leads to the conclusion that both perspectives are unignorable in the development of male homosexuality. For future studies in this field, it may be interesting to dive deeper into the differences in evolutionary perspective between male and female homosexuality. In addition, future research can also investigate how the GMV's function in different brain regions is leading to homosexuality.

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