

Homosexuality: Innate or Acquired?

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Abstract

Homosexuality is one of the most controversial contemporary issues of our time. There are a lot of arguments on the issue. Different circles have different things to say about it; ranging from the scientist, to politicians, to the religious folks, everyone seems to have a different opinion about it. Even within same circles there seems to be disagreements on the subject matter. Homosexuality is gradually gaining acceptance in different societies, recently nations like America and Ireland passed the bill legalizing same-sex marriage and serious advocacy is being made for other nations to follow suit. One of their major reasons being that homosexuality is an inherent trait and hence homosexuals should be given equal human right. But what does research actually show? Is being homosexual caused by biological or psychological factors, or an interaction between the two? What is the role of choice in being homosexual? Is homosexuality modifiable or changeable? These are the core issues this paper seeks to address.

Keywords: Homosexuality, Innate, Acquired, Biological, Psychological, Same-sex-marriage

I. INTRODUCTION

Homosexuality can simply be defined as sexual relations between like genders (i.e., two males or two females). It has been practiced for thousands of years [1]. Homosexuality has been given different labels throughout history. It has progressed from a sin to a crime, then a mental illness, a style of life, and is now characterized by a genetic predisposition [2]. Homosexuality was considered as a mental disorder up until December 15, 1973 when the American Psychiatric Association's Board of Trustees passed a ground breaking decision unanimously and subsequently released a statement that rejected legal discrimination on the basis of sexual orientation. Based on this decision homosexuality was removed from the Diagnostic and Statistical Manual of Mental Disorders (DSM) [3]. But it is important to note that, the declassification of homosexuality as a mental disorder was not based on scientific evidence alone, but on a combination of political, economic, social as well as scientific factors. Proximately, the political pressure of gay activists, the increasingly vocal gay community, and the "alleged" presence of scientific validation for their claims led to a reconsideration of the pathological state of homosexuality; Shouldn't the declassification of homosexuality which was regarded as a mental disorder be based strictly on scientific evidence, why the interplay of political, social and economic factors? [4].

An important question that has being asked over time is: What causes homosexuality? There are two main set of theories that attempts to explain the cause homosexuality. One is that homosexuality is influenced by biologic factors i.e. it is innate. The second is that homosexuality is developed as a result of psychological influences and early experiences i.e. it is acquired. In the public square, the latter has appeared to be in the decline and the former gaining grounds in recent decades [5]. These two set of theories are going to be considered in turn.

II. BIOLOGICAL THEORIES (IS HOMOSEXUALITY INNATE?)

The biological theories of homosexuality can be mainly grouped into two – the neurohormonal theory and the genetic theory. These two theories are interrelated and it is impossible to put a clear cut between them.

A. *Neurohormonal Theory*

One of the key areas in the science of homosexuality has been the investigation of the relationship between the brain development and differentiation and the presence or absence of different pre- and post-natal hormones. The theory that homosexuality was the result of a deficiency of male sex hormones in male homosexuals and, conversely, excessive levels of testosterone in lesbians, was repeatedly raised from the 1940s through the late 1970s [5]. This area has its foundations in the attempts of the nineteenth and early twentieth centuries to correlate different aspects of human behaviour and character to biological and neurological determinants [6].

As early as the 1960s, Günter Dörner, from East Berlin, had already conducted animal experiments (on rats) in order to demonstrate the importance of the hypothalamus in sexual behaviour [7, 8, 9]. His experiments suggested that pre-natal exposure to androgen, a male sex hormone, led to the masculinisation of the genitalia and brain. Specifically, genetically female offspring of mothers who had been injected with male sex hormones were observed to have masculinised external genitalia and display more male typical sexual behaviours [6, 10]. Similar hormonal experiments involving male homosexuals led Dörner to formulate his famous hypothesis of the gay brain [6]. This was that male homosexuals have a female differentiation of the hypothalamic region of the

brain caused by underexposure to pre-natal androgen [11]. However Dörner's evidence for this was both indirect and controversial and so the investigation turned to identifying the specific brain structures which might be responsible for human sexuality [6].

Dörner's conclusions were reinforced by Gorski and colleagues who found that, in rats, the size of the 'sexually dimorphic nucleus' of the hypothalamus is established very early in life and influences later sexual behaviour [12]. Subsequently, the same team of researchers showed that two nuclei of the hypothalamus, INAH 2 and 3 were twice as large in men as in women [13]. Gorski and colleagues also reported another feature in brains that is related to sexual orientation. The anterior commissure, a bundle of fibres running across the midline of the brain, is larger in women and gay men than in heterosexual men [6].

All these results paved way for Simon LeVay's influential study of 1991, who was then at the Salk Institute for Biological Studies in San Diego, California. His study was the first "significant" published study that indicated a possible biological role for homosexuality [14]. LeVay compared the hypothalamic structure of the brains of heterosexual and homosexual men, and reported subtle differences between them. LeVay measured a particular region of the brain (the interstitial nuclei of the anterior hypothalamus—INAH) in postmortem tissue of three distinct groups: (1) women; (2) men who were presumed to be heterosexual; (3) and homosexual men [1]. It is this study in particular which was to be a major milestone in the study of homosexuality even though the significance of LeVay's results is still unclear to this day [6].

LeVay reported that clusters of these neurons (INAH) in homosexual men were of the same size with clusters in women, both of which were significantly smaller than clusters in heterosexual men. LeVay reported that the nuclei in INAH 3 were "more than twice as large in the heterosexual men as in homosexual men" [14]. This difference was interpreted as strong evidence of a biological link to homosexuality. LeVay's assumption was that homosexual urges can be biologically based – so long as cluster size is accepted as being genetically determined [1].

However his study had its limitations when considering the methodology, which LeVay himself admitted to. One of the key problems is that the study has never been replicated. William Byne noted, "LeVay's work has not been replicated, and human neuroanatomical studies of this kind have a very poor track record for reproducibility. Indeed, procedures similar to those LeVay used to identify nuclei have previously led researchers astray" [15].

All 19 of the homosexual subjects died of AIDS, and LeVay noted another "problem" was the possibility that AIDS patients constitute an unrepresentative subset of gay men [16]. Byne continued his comments on LeVay's work saying, "AIDS has been shown to decrease testosterone levels, so it should be expected that those who suffered from that condition would have smaller INAH" [15]. His inclusion of a few brains from heterosexual men with AIDS did not adequately address the fact that at the time of death, virtually all men with AIDS have decreased testosterone levels as the result of the disease itself or the side effects of particular treatments [1]. To date, LeVay has examined the brain of only one gay man who did not die of AIDS [14].

Another anomaly of LeVay's study was the fact that three of the "heterosexuals" had brain clusters smaller than the mean size for the homosexuals. On the other hand, three of the homosexuals had larger clusters than the

mean size for “heterosexuals.” [16]. Thus, LeVay was forced to admit, “The existence of ‘exceptions’ in the present sample (that is, presumed heterosexual men with small INAH 3 nuclei, and homosexual men with large ones) hints at the possibility that sexual orientation, although an important variable, may not be the sole determinant of INAH 3 size.” [14]

LeVay, in fact, admitted that his claim of a *correlation* between this brain structure and sexual orientation could not prove *causation*, or even the direction of influence [16], noting that “The results do not allow one to decide if the size of INAH 3 in an individual is the cause or consequence of that individual’s sexual orientation, or if the size of INAH 3 and sexual orientation co-vary under the influence of some third, unidentified variable” [14].

Furthermore, in a scientific environment where controls and standards are a necessity, LeVay did not possess a complete medical history of the individuals included in his study. He therefore was forced to assume the sexual orientation of the non-AIDS victims as being heterosexual, when some may not have been. In addition, bear in mind that he had no evidence regarding the sexual orientation of the women whose brains he examined [1]. LeVay has admitted: “It’s important to stress what I didn’t find. I did not prove that homosexuality is genetic, or find a genetic cause for being gay. I didn’t show that gay men are born that way, the most common mistake people make in interpreting my work. Nor did I locate a gay center in the brain” [17].

Being homosexual himself, it is no surprise that LeVay observed: “...People who think that gays and lesbians are born that way are more likely to support gay rights.” In a *Newsweek* article, LeVay was quoted as saying, “I felt if I didn’t find any [difference in the hypothalamuses], I would give up a scientific career altogether” [18]. Given how (poorly) twisted LeVay’s data are, and his own personal bias, his abandonment of science may have ultimately been of greater service [1].

Further studies have been carried out on other structures of the brain trying to establish a relationship between these structures and sexual orientation in men. They include: the anterior commissure [19], the suprachiasmatic nucleus [5] and the corpus callosum (23 studies on it had conflicting reports). However these studies have their flaws especially with the issue of non-reproducibility [16].

Byne and Parsons have this to say in conclusion concerning the brain studies: “In summary, three as yet uncorroborated reports suggest that the size of three different brain structures may vary with sexual orientation in men. These reports must be viewed cautiously while replication studies are pending.” The authors note further that even if these inconclusive findings were consistently replicated, “we will not know whether the anatomic correlates are a cause or a consequence of sexual orientation” [20].

Other neurohormonal studies include “the clicks and sniffs theory” propounded by McFadden and Pasanen in 1998 that examined the auditory systems of male and female homosexuals compared to male and female heterosexuals, and tried to establish similarities between them [21]. Breedlove in 2000 proposed a “hyper-androgenisation theory” which attempted to establish a relationship between sexual orientation between sexual orientation and handedness, finger length ratio and sibling number [22].

At best it can be concluded that neurohormonal theories can only account for a small fraction of incidence of homosexuality (and even then it is perilous to ignore social factors) and so can neither be invoked as an explanation of the whole nor a proof of innateness [6].

B. Genetic Theory

This theory argues that homosexuality is linked to the genetic constitution of individuals. One of the most popular genetic studies cited to support the contribution of genetic factors to sexual orientation is a study carried out by Kallman in 1952. In this famous work, he reported a 100% concordance rate (genetic association) for sexual orientation among monozygotic (identical) twins [23].

If this result were true, it would have been undeniably irrefutable by people who doubt the biological causation of homosexuality [1]. However, Kallman subsequently conjectured that this perfect concordance was an artifact, possibly due to the fact that the sample was largely drawn from mentally ill and institutionalized men [24]. But this research was ground breaking for the twin studies as it relates to sexual orientation [1].

Michael Bailey and Richard Pillard, carried out a similar research on identical twins, and discovered a 52% concordance rate, which means that for every homosexual twin, the chances are about 50% that his twin will also be homosexual [22].

A fascinating question however arises from this discovery: if there was something in the genetic code that made an individual homosexual, why didn't all the identical twins become homosexuals, since identical twins have the same genetic endowment? [25]. Bailey himself acknowledge probable selection bias and noted that he sampled in venues where participants considered the sexual orientation of their co-twin before agreeing to participate in his study [26]. Bailey yet conducted another research using the Australian Twin Registry, which had an anonymous response format and reported a concordance rate of 20% to 37.5%, depending on how loosely one defined homosexuality [26]. It is interesting to note that Bailey's first study received a great deal of media attention while the second study received little or no attention [25].

Bailey's research far from proves a biological origin of homosexuality. Rather, his research clearly demonstrates that biology is not sufficient to explain the origin of homosexuality. If there is one thing the twin studies on homosexuality strengthens, is the role of environment in determining the expression of biological predisposition, if any, in an individual. It is indeed a known fact in science that the environment can modify gene expression [25, 27].

In 1993 the media reports trumpeted that scientist had at last discovered the "gay gene". This was erroneously based on the research of Dean Hamer. Hamer and his team attempted to link male homosexuality to a stretch of DNA (Xq28) located at the tip of the X chromosome, the chromosome that some men inherited from their mothers [35]. He examined 40 pairs of non-identical twin gay brothers, and ascertained that 33 pairs – which is a number significantly higher than the 20 pairs that chance would dictate – had inherited the same X-linked genetic markers from their mothers [28].

Surprisingly Dr. Neil Risch who invented the method Hamer used for his research criticized the work [25]. Risch had this to say concerning the work, “Hamer *et al.*, suggest that their results are consistent with X-linkage because maternal uncles, and cousins related through a maternal aunt have a higher rate than other types of cousins. However, neither of these differences is statistically significant.”[29].

Even Hamer himself, never claimed to have found a gene that determines that a person will be homosexual. Rather, he claimed to have located a genetic component to some instances of male homosexuality [16]. Hamer writes, “The role of genetics in male sexual orientation was investigated by pedigree and linkage analyses on 114 families of homosexual men....The goal of our work was to determine whether or not male sexual orientation is genetically influenced. We used the standard techniques of modern human genetics, namely pedigree analysis and family DNA linkage studies”. [28]

Hamer further admitted the influence of environmental factors on homosexuality [16]. He said:“Given the overall complexity of human sexuality, it is not surprising that a single genetic locus does not account for all of the observed variability. Sib-pairs that are discordant at Xq28 should provide a useful resource for identifying additional genes or environmental, experiential, or cultural factors (or some combination of these) that influences the development of male sexual orientation.”[28] Criticisms of Hamer’s study was not aired. Hamer, like LeVay, Bailey, and Pillard, did little to correct the misinterpretation of his research [25].

Some years later, Rice and his associates replicated Hamer’s study with more elaborate research, and interestingly the genetic markers were found to be insignificant. Rice and his fellow researchers concluded: “It is unclear why our results are so discrepant from Hamer’s original study. Because our study is larger than that of Hamer *et al.*, we certainly had adequate power to detect a genetic effect as large as was reported in that study. Nonetheless, our data do not support the presence of a gene of large effect influencing sexual orientation at position Xq28”.[30]

Alfred Kinsey, a sex researcher, whose research is erroneously used to cite that 10% of the America population are homosexuals, is seldom quoted on his rejection of a biological origin for homosexuality [16]. Kinsey’s colleague and biographer, Wardell Pomeroy, reports: “By the end of 1940 he had recorded more than 450 homosexual histories, enough to convince him that the psychologists were making matters worse by starting with the assumption that homosexuality was an inherited abnormality which could not be cured simply because it was inherent. Kinsey was convinced that there was absolutely no evidence of inheritance”.[31]

Baron explains a key objection to “gay gene” theories: “Support for a genetic hypothesis is further complicated by cultural and evolutionary considerations....Sexual patterns are to some extent a product of society’s expectations, but it would be difficult to envisage a change in the prevalence of a genetic trait merely in response to changing cultural norms. Also, from an evolutionary perspective, genetically determined homosexuality would have become extinct long ago because of reduced reproduction. Thus the purported linkage stands in apparent contradiction to the flimsy genetic and epidemiological evidence....[A] single gene or a particular genetic mechanism is unlikely to explain most of the variance in a phenomenon as complex as sexual orientation. Whether or not this sample is truly representative of familial homosexuality is an open question”. [32]

The human genome is complete and the Human Genome Project is over. The human X and Y chromosomes (the two “sex” chromosomes) have been completely sequenced. It was discovered that the X chromosome contains 153 million base pairs, and harbors a total of 1168 genes. The Y chromosome—which is much smaller—contains “only” 50 million base pairs, and is estimated to contain a mere 251 genes. Yet neither the map for the X nor the Y chromosome contains any “gay gene”.[33]

To date, all theories regarding the existence a “gay gene” remain unsubstantiated. However, some researchers suggest that genetics may play an indirect role through the presence of certain temperamental traits that increase the likelihood that certain individuals will experience same-sex attractions or come to identify themselves as homosexual [16].

C. The Political Agenda behind Promoting the “Gay Gene”

It is clearly seen that the scientific prove for the so called “gay gene” has not been substantiated yet the idea is still widely spread and accepted. Concerning this, Byne and Parsons note: “Finally, political arguments have been offered in favour of biologic causation. It has been suggested that if sexual orientation is largely a biologic phenomenon, ‘society would do well to re-examine its expectations of those who cannot conform’; and, writing in the ‘Opinions and Editorials’ pages of the *New York Times* (December 17, 1991: 19), Bailey and Pillard stated: ‘If true, a biological explanation is good news for homosexuals and their advocates.’ However, political arguments have no impact on biologic realities, including the extent of genetic or hormonal influences on the emergence of sexual orientation.” [20]

D. Role of Media in Promoting the “Gay Gene”

Bem refers to the role that the media play in distorting the scientific evidence and misleadingly assuming that there exists a “gay gene”: “Like all well-bred scientists, biologically oriented researchers in the field of sexual orientation dutifully murmur the mandatory mantra that correlation is not cause. But the reductive temptation of biological causation is so seductive that the caveat cannot possibly compete with the excitement of discovering yet another link between the anatomy of our brains and the anatomy of our lovers’ genitalia. Unfortunately, the caveat vanishes completely as word of the latest discovery moves from *Science* to *Newsweek*. The public can be forgiven for believing that research is but one government grant away from pinpointing the [sexual] preference gene.”[34]

III. THE PSYCHOLOGICAL THEORIES (IS HOMOSEXUALITY ACQUIRED?)

The psychological theories can be divided into three main categories: psychoanalytic, social learning, and interactional. Each of these has made contributions to understand possible routes to the development of homosexual interactions, and there is some scientific evidence to support each [25, 35].

A. Psychoanalytic Theory

This theory proposes that homosexuality results from a context of difficult family relationships, particularly a detached, disconnected father and an over-involved mother. These unhealthy relationships contribute to the

rejection of a masculine or feminine identity. A renowned psychologist, Joseph Nicolosi, suggests that homosexuality is essentially a reparative drive in which a person attempts to satisfy unmet same-sex needs (affection and approval) and to correct gender identity deficits [6, 25, 35].

There are some researches that support the notion that disordered parent-child relationships – where the child rejects identification with the same-sex parent and turns to same-sex peers or adults for love support and affirmation [25].

One research that is still considered as a landmark in this field is that which was published in a book in 1962, conducted by Irving Bieber and her team. Bieber, an influential researcher in the field of the etiology of homosexuality in the 1960s, summarized the team's findings this way: "The 'classical' homosexual triangular pattern is one where the mother is CBI [close-binding-intimate] with the son and is dominant and minimizing toward a husband who is a detached father, particularly a hostile-detached one. From our statistical analysis, the chances appear to be high that any son exposed to this parental combination will become homosexual or develop severe homosexual problems." [36]

However in 1969, Evelyn Hooker criticized Bieber's work on the basis that she used subjects who were undergoing psychiatric treatment and thus the results are presumably not applicable to the broader population of homosexuals [37]. But Ray B. Evans carried out a similar research using subjects drawn from the general population which addressed Hooker's criticism and further supported Bieber's finding of greater family dysfunction in the childhood of homosexuals [38]. Several other works have been done that supports Bieber's findings [39].

According to the *'Archives of Sexual Behavior'* Freud [40] described the mothers of homosexuals as excessively loving and their fathers as retiring or absent. Stekel [41] noted strong, dominant mothers and weak fathers. In Terman and Miles [42] found the mothers of homosexuals to be especially demonstrative, affectionate, and emotional, while the fathers were typically unsympathetic, autocratic, or frequently away from home." [39, 16]

The *Bulletin of the Menninger Clinic* noted the following from a review of the literature back in 1963: "Bender and Paster in a study of 19 actively homosexual children, found either a grossly deficient or very negative relationship with the same-sex parent, coupled with an overly intimate attachment to the opposite-sex parent." The Bulletin also states that "... in a recent publication by West, a number of contemporary investigators are cited who independently have reached the same conclusion concerning mother-son factor in male homosexuality. In this same publication, West also presents his own study in England of 50 homosexuals males and 50 matched control (non-homosexuals) males. His findings clearly show that male homosexuals are more much more likely to come from a family constellation involving an over-intense mother and unsatisfactory father relationship". Daniel G. Brown also reported that when he served as a psychiatrist in the U.S. Air Force, "there was the opportunity to interview and test approximately 40 male airmen in whom predominant or exclusive homosexuality was the major problem. In more than 30 of these cases, the mother-son and father-son relationship conformed to the family pattern described above. Not one of these airmen had a close, warm, affectionate attachment to his father or a father-substitute in childhood." [43]

A 10-year literature survey carried out by Bradley and Zucker also indicates that sons with childhood gender nonconformity (CGN) – a type of psychological disorder characterised by children showing behaviours, attitudes and personality traits of the opposite sex from their own – often perceive relationships with their fathers as distant, negative and conflicted [44].

A research carried out in 2006 in Denmark (which is the first country to legalize homosexuality, and is known largely for its tolerance for homosexuality), provides very strong evidence in support of this the Psychoanalytic theory [6]. Using a population sample of over 2 million Danes aged between 18 and 49 the researchers assessed detailed marriage records for men and women marrying a same-sex partner between 1989 and 2001. The researchers found that both men and women from unstable or broken families or with “unknown fathers” were more likely to marry homosexually. To put some figures on these men whose parents divorced before their 6th birthday were 39% more likely to marry homosexually than their peers while men who ceased cohabiting with both parents before the age of 18 years old were also far more likely (55-76%) to contract such a partnership. It was also observed that children with older mothers, only-children and urban-born children were also found to be significantly more likely to marry homosexually suggesting the importance of other factors. From this the authors concluded that their study provided “population-based, prospective evidence that childhood family experiences are important determinants of heterosexual and homosexual marriage decisions in adulthood.” [45] It hardly needs to be added that this represents research into sexual orientation on an unprecedentedly large scale [6].

Even though, psychoanalysis suffers from a lack of rigorous studies to support it. Nonetheless, there is an abundance of clinical case reports that support the psychoanalytical theory of homosexuality, especially those cases that precede the deletion of homosexuality from the APA Psychiatric Manual in 1973 [25].

B. The Social-Learning Theory

This theory explains how individuals learn through observation and adopt actions and attitude from significant others [46]. This theory maintains that behavioral conditioning, direct and indirect, accounts for the attractions we develop and the behaviors we adopt [46]. This perspective holds that, children and adolescents learn about sexual behavior and preference from parents, peers, and media [46]. Children get rewarded or punished by significant others from their sexual attitudes and behaviors [47]. For example a young boy may have been involved with masturbation and/or pornography activities with his peers and learned homosexuality activity from such interactions. Social learning suggests that peers and the media have tremendous influences on the sexual attitudes and behavior of adolescents [25].

Social learning can also account for the role of serious trauma, such as sexual abuse, in the development of homosexual behavior [47]. Studies have also shown that homosexuals report a disproportionately high percentage of incestuous sexual relationships during childhood [48].

Some researchers have found a higher prevalence of sexual abuse in the histories of both male and female homosexuals. Shrier and Johnson [49] discovered that boys who were sexually abused were seven times more likely to self-identify as homosexual or bisexual [25]. Friedman and Downey [50] concluded that boys who later

identified as homosexual became sexually active at an earlier age than did homosexual counterparts [25]. One survey by Bramblett and Darling [51] found that among adult male survivors of such abuse 14% perceived themselves as gay and 32% as bisexual compared to 88% heterosexual and 12% in a non-abused control group.

In a survey carried out by People Can Change (PCC) in 2004 reports that 48% of respondents said that, as children or youth, they had been sexually abused by an older or more powerful person. Usually it was by a male (83 out of 205 respondents, or 40%), and in those cases, 96% considered the abuse to be a contributing factor to their developing same sex attraction feelings, and 43% said the abuse was one of the three most significant factors. 93% of the respondents said they had had other sexual experiences, including masturbation, pornography, sexual fantasy and sex play with other boys as children or youth, and of those who did, 93% said they believed these experiences contributed to their same sex attraction feelings [52].

Sexual abuse could ruin the lives of children through the introduction of confusion, particularly gender confusion [53]. Social-learning also describes how the needs for attention and affection get mixed up with sexuality when sexual abuse occurs. Children can develop an affinity for homosexual relationships because physical stimulation can be reinforcing [54]. Boys specifically are prone to cognitive errors when they confuse the physical stimulation with the sexual abuse [55]. The physical stimulation from the sexual abuse is simply an indicator that the body is working; the body makes no judgment on the abusive act itself. It is clear that the gender confusion emerges from sexual abuse and that such confusion is often seen in the backgrounds of homosexual men [25].

There is also evidence to support the role of peers in the development of same sex attractions as well. Research suggests that the lack of connection with same-sex peers sets the stage for later development of same sex attractions [56]. Young men experiencing peer neglect or peer abuse, such as teasing and bullying, often feel disconnected from their own masculinity [56]. Such Trauma, particularly during the early preadolescent years, can cause gender confusion and subsequent problems with sexual orientation [56]. A more recent work of a Pennsylvania psychiatrist, Richard Fitzgibbons, further supports the contribution of peer abuse to the development of same sex attraction [57].

The social-learning theory may also account for the role of cultural factors in homosexuality. A research into Americans' sexual behavior and self-identification by sexual orientation reveals that two factors – urbanization and education – particularly, stand out as having a strong correlation with greater likelihood of engaging in homosexual acts or self-identifying as homosexual [16].

However, it is important to note that the data from many of such studies is correlational and no cause-and-effect conclusions can be drawn. It only suggests that social learning may be a contributing factor to homosexual attractions and homosexual behaviors, but not a direct cause of it. Yet experiences such as sexual abuse and peer pressure often contribute to gender confusion, and such confusion actually makes young people vulnerable to a variety of challenges, including homosexuality [25].

C. Interactional Theory

The interactional theory combines the indirect or predisposing effects of biology with environmental factors to explain homosexuality. This theory was postulated by Daryl C. Bem, a self-identified gay researcher at Cornell University, who argues that genes do not directly cause homosexuality but rather set the stage for homosexuality by influencing temperament [34]. His theory is known as “Exotic Becomes Erotic” which suggest that temperament is associated with gender nonconformity (GNC) where the child is prevented from interacting with same sex peers and thus fails to bond or identify with them, and later on during adolescence these young people sexualize “otherness”, or those whom they are not identified with [34]. Bem’s theory suggests that a child’s experience of being “different” from peers of the same gender leads to a reaction of physical arousal, which then later in life becomes translated into sexual arousal—a process he calls ‘sexual imprinting.’ Bem mentions the illustration of a “gender-nonconforming boy who is taunted by other boys. At first this produces strong negative arousal, but with repeated encounters over time, the fear and anger habituate and the opponent process becomes the conditioned, dominant affect. He thus emerges into late childhood or adolescence experiencing positive affective arousal to males, an arousal ready to be eroticized.” [34]

The interactional theory seems to be a logical alternative to the biological, psychoanalytical, and social-learning theories. The interactional theory postulates that biologically predisposed personality or temperament traits are nurtured in relationships and environment context. Thus, this model accounts for a variety of factors, or what some have labelled the “conspiracy of factors” that later combine to shape homosexual attractions and homosexual behaviours. However, the primary drawback is the failure of interactional theory to consider the role of choice in the development of homosexuality [34].

D. Role of Choice in Being Homosexual

The biological theories argue that homosexuality is innate (factors like genes and prenatal hormones play a vital role); the psychological theories argue that it is acquired (factors like peer pressure, sexual abuse, family, and media play a vital role); yet the interaction theory argue that it is caused as a result of an interplay between biological and psychological factors [35]. However a core question these theories fail to answer is: What is the role of personal choice in being Homosexual?

Debates over homosexuality are often presented in terms of a false dichotomy—either a person is “born gay,” or a person “chooses to be gay.” The truth lies between these two extremes. Choice does not necessarily mean a conscious choice [25]. For the most part, people do not choose what sexual feelings or attractions they experience. However, people choose the sexual behaviours in which they engage (i.e. they choose the way they respond to sexual attractions) [16]. Unbidden attractions may come because of situational factors and prior sexual experience [11]. There may even be some kind of biological predisposition that makes such attractions more probable than not [49]. But these attractions may be either increased or decreased by the choices people make [25].

Byne and Parsons note the role that choice plays in the development of one’s sexual orientation: “Conspicuously absent from most theorizing on the origins of sexual orientation is an active role of the individual in constructing his or her (sexual) identity.” [20]. Diamond, as well, noted that while, biology may predispose a person’s sexual

orientation, and an individual is flexible in responding to such biological predispositions and environmental influences [58]. Lesbian activist Camille Paglia perhaps captures it best when she concluded, “there is an element of choice in all behavior, sexual or otherwise.” [59]

If indeed we are free to choose, then there must be choices. Some cases have been reported whereby there may be no identified antecedents such as an adverse life events, no abuse, no difficult parental or peer relationships, and no identifiable causes, yet a person still identifies as a homosexual [56]. One may be uncertain as to why he or she experiences homosexual attractions. The answer to this uncertainty is quite complex; research has pointed to possible biological factors, possible psychological factors, possible interaction between biological and psychological factors, and the role of choice in the genesis of homosexuality. The interaction model, accompanied by individual choice in responding to these contributions, is the most likely scenario responsible for homosexuality [25].

IV. REORIENTATION THERAPY (IS HOMOSEXUALITY MODIFIABLE OR CHANGEABLE?)

In order to understand re-orientation theory, it is important to discuss the history of psychological care for homosexuality. Prior to 1973, when homosexuality was removed from the American Psychiatric Association (APA) diagnostic manual as a mental disorder, psychological care was routinely provided for those unhappy with their unwanted homosexual attractions [60]. The declassification automatically invalidated the notion of treatment for homosexuality and strongly discouraged research into this area. It is only recently that this trend has begun to be reversed, although useful studies are still very thin on ground [46].

The most extensive survey on this topic has been carried out by Throckmorton, an important proponent of the re-orientation theory. He reviewed all studies done on re-orientation prior to 1998 and found that they reported change rates to exclusive heterosexuality (although not necessarily from exclusive homosexuality beforehand) between 18 and 44%. In addition rates for any shift in orientation were reported to be much higher than this. Throckmorton also found as a general rule that clients with both prior heterosexual experience and motivation for change were the most amenable to therapy [6, 4].

Rosik, another proponent of re-orientation theory, has reported on some of the more recent studies in this area. One of the largest and most significant of these was by Nicolosi, Byrd and Potts. They surveyed 882 clients involved in orientation therapy and focused on 318 individuals that reported exclusive homosexuality before beginning treatment. On concluding such therapy 18% were found to have become exclusively heterosexual and 17% almost entirely so, only 13% remained exclusively or almost exclusively homosexual [35, 61].

The most important recent study, as well as the most controversial, is Spitzer's publication in 2003. This is because, Spitzer is not only a renowned scientist, but he was the main person instrumental to the declassification of homosexuality in 1973. Before embarking on the research he was highly skeptical of re-orientation therapy. Spitzer analysed 200 respondents (143 men and 57 women) who reported a change from a homosexual to heterosexual orientation lasting five years or more through therapy. To qualify for research each respondent had to have a sexual orientation score of at least 60 on a 100-point scale (0 heterosexual, 100 homosexual) before therapy began and had to have experienced a change of at least 10 points towards heterosexuality. While only

11% of the men reported 'complete' change, among women the percentage was a significant 37%. In addition there were many examples of change from a predominantly homosexual to a predominantly heterosexual orientation. These enduring results finally convinced Spitzer of the viability of re-orientation therapy [62].

Upon publication the Spitzer's study met with a whole lot of different reactions. A majority of his criticisms came from his former friends, whom he upheld the same view with in the past concerning re-orientation therapy. On a strictly scientific ground Spitzers was accused of using an unrepresentative population, because his correspondents were mostly religious and married homosexuals who had rejected their own orientation. However his samples were unrepresentative of all homosexuals, it was in fact highly representative of the group of homosexuals who wished to undergo re-orientation therapy [6]. It makes sense that the married, emotionally dissatisfied and religious homosexuals who will want to change and indeed be motivated enough to succeed. Spitzer's study therefore proves that for such as this change is possible, hence debunking the notion that homosexuality is immutable [6].

V. CONCLUSION

The issue of homosexuality as being either innate or acquired is quite dicey. The biological theories propagating the fact that it is acquired have been found to be unsubstantiated and are largely influenced by politics and the media. Psychological theories that support the fact that it is acquired are more logical but they suffer a setback from a lack of rigorous studies to support it. The interactional theory which combines the indirect or predisposing effects of biology with environmental factors to explain homosexuality seems to be the most appropriate model, but it fails to take into consideration the role of personal choice in being homosexual. The interaction model, accompanied by individual choice in responding to these contributions, is the most likely scenario responsible for homosexuality.

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