

Key study: Bailey & Pillard (1991)

The role of genetics in the study of human behaviour has been very influential. Prior to research that indicated that sexual orientation may have its roots in our genetic coding, homosexuality was considered a mental illness. In some countries and states within the USA, homosexuality was illegal.

Bailey & Pillard's (1991) study is one of the more frequently cited studies of the genetic basis of sexual orientation. It is important to understand how the study was done and why the study is rather problematic.



The procedure

The researchers recruited monozygotic (MZ) and dizygotic (DZ) twins as well as adoptive brothers through gay publications. All of the sample was voluntary and male. All twins in the study were raised together – which means that we can reasonably assume that the environment was highly similar.

Sexual orientation of relatives was assessed either by asking relatives directly, or when this was impossible, asking the gay participant who had volunteered for the study.

In addition, the researchers used questionnaires to assess the participants' level of Childhood Gender Non-conformity (CGN). **Childhood gender nonconformity** is a phenomenon in which pre-pubescent children do not conform to expected gender-related patterns, and/or identify with the opposite gender. Gender non-conformity in children can have many forms, reflecting various ways in which a child relates to his or her gender. These behaviours include, but are not limited to:

- Cross gender clothing and grooming preferences;
- Playing with toys generally associated with the opposite sex;
- Preference for playmates of the opposite sex;
- Identification with characters of the opposite sex in stories, cartoons or films.



Results

Bailey & Pillard found that 52% of MZ twins were both self-identified homosexuals, 22% of DZ twins were so, and 11% of non-related adopted brothers were so. Later study showed that non-twin brothers had a rate of 9.2%. This evidence shows that the more closely genetically linked a pair is, the more likely they both are to exhibit gay or straight tendencies.

The researchers found that the participants' self-reported history of childhood gender non-conformity did not predict homosexuality in any of the three samples. Thus, childhood gender nonconformity does not appear to be correlated with the development of homosexuality. However, monozygotic pairs were very similar in their level of childhood gender nonconformity.

Discussion

The fact that the researchers found an increased frequency of homosexuality in MZ supports a genetic link for homosexual behavior. However, there are several limitations of this study.

First, there is the problem of the sample. The sample was "nonrandomly selected." It was done through advertisements in gay-friendly magazines. The fact that it is not a random sample means that the study is open to **ascertainment bias**. This is a problem in many pedigree and twin studies which hope to establish a genetic link for behaviour. The fact that all of the people who contacted the researchers already had a gay member of the family, skews the data.

To understand this better, think about doing a study on the primary sex ratio in humans. If we asked all the women present to report the number of male and female siblings in their family, the women will report collectively a higher ratio of females. This method of data collection would be biased towards families in which there is at least one woman (themselves), includes many families in which they are only-children, and excludes families with *no* female and *multiple* males. So, by using a sample where everyone already has one gay male in the family, the sample is no longer representative.

Another problem of this study is the reliance of self-reported data. Even zygosity was determined by asking the participants. So, a person could say that his twin was MZ, but there was no evidence provided to verify this if the twin was not contacted. The low level for adopted brothers could be partly because there were a lot of participants who didn't want the brother contacted. Often the sexuality of the brother was reported by the gay twin, but without verification from the brother. Often the relatives were not contacted.



In addition, the participants were asked to report on their level of Childhood Gender Non-conformity. Even in cases where both brothers filled in the questionnaires, there is the problem that this information is retrospective in nature - that is, they are trying to recall what their behaviour was like as children. Memories are open to distortion, especially as the stereotype of the “gay child” may influence their perceptions of what they were like as a child. The reliability of this data is highly questionable.

There are other limitations of the study which are true of most studies of sexuality. First, the construct of homosexuality is difficult to standardize. It is difficult to know what exactly it means to be “homosexual” and whether it would be interpreted equally by all who answer the questionnaires.

In addition, the sample sizes of such studies tend to be very small. There is a limited number of MZ and DZ twins. And they limited their sample to males. And then they had to look for those sets of male twins where at least one brother was self-identified as gay. This is a limited pool and thus questions of generalizability arise.

Lastly, there is the question of reductionism. Though genetics may play a role in our sexual orientation, the question is to what extent do environmental influences also play a role in our sexual orientation? Most probably our sexual orientation is not attributable to a single gene, nor solely to biological factors. In addition, perhaps the dichotomous nature of heterosexual vs. homosexual may be less clear than we would like to believe.

References

Bailey, Michael J and Richard C Pillard. A Genetic Study of Male Sexual Orientation. *Archives of General Psychiatry* (December 1990).

