

The Medical Community's Understanding of Homosexuality

Paul Wertsch, MD

Chair, AMA Advisory Committee on
GLBT issues concerning patients,
medical students, and physicians



Scientific data on homosexuality

- Population studies
- Animal studies
- Neuroanatomy
- Genetic data
- Can sexual orientation be changed?



Population studies

- Alfred Kinsey- 1940's
 - Commonness of homosexuality
 - Steady rate in urban versus rural areas
 - Men
 - 37% men, one homosexual experience
 - 10% exclusively homosexual last 3 years
 - 4% exclusively homosexual
 - Women
 - 13% women, one homosexual experience
 - 1-3 % exclusively homosexual
 - 0.3% of married women

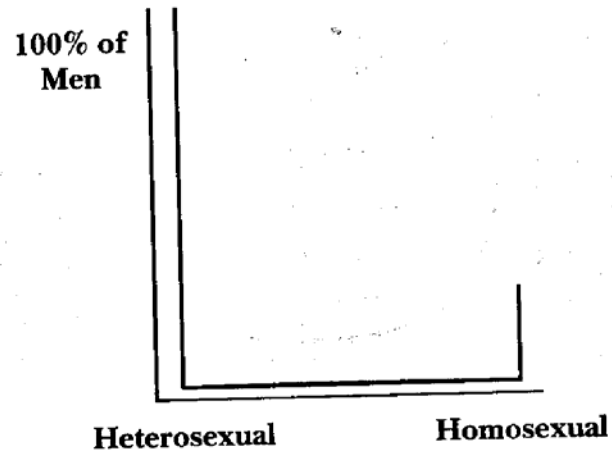
Population Studies

- Alfred Kinsey
- Immutability of homosexuality
 - He tried to find people who had changed their sexual orientation, and could find **NONE.**

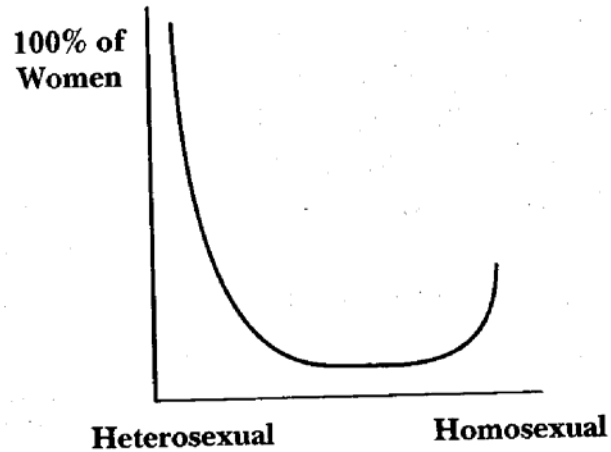


Kinsey Distribution Data

**DISTRIBUTION OF SEXUAL
ORIENTATION: MEN**



**DISTRIBUTION OF SEXUAL
ORIENTATION: WOMEN**



Population Studies

- Exit poll- 1992 election
- Age difference in recognition of orientation
- People over age 60 years old
 - 1% self identified themselves gay or lesbian
- People 18-29 years old
 - 5% self identified as gay or lesbian



Population Studies

- University of Chicago 1994 survey
- Men
 - Same sex desires 7.7%
 - Same sex behavior 7.1%
 - Identified as gay 2.8%
- Women
 - Same sex desires 7.5%
 - Same sex behavior 3.8%
 - Identified as lesbian 1.4%

Population Studies

- University of Chicago 1994 survey
- Increased concentration in urban areas
- 12 largest metropolitan areas in the US
 - 9.2- 16.7 % of men self identified as gay



Population Studies

- Minnesota Twin Registry 1997
 - 2.5 % men gay
 - 1.68 % women lesbian
- US Public Health 2000 Twin Study
 - 3.1 % men gay
 - 1.5 % women lesbian



Gay and Lesbian Families

- 2000 U.S. Census
 - 33% of same sex female households have children under 18 living with them
 - 22% of same sex male households
 - 45% of married heterosexual couple have minor children living with them



Animal Studies- Farm

- 16% of rams won't mate with females
 - 6% no sexual interest
 - 10% prefer same sex partners even if females are present
 - Ewes rarely engage in same sex behaviors



Hormones in the brain

- Estradiol in the amygdala (limbic area) correlates with sexual attraction
- Ewes and homosexual rams
 - Low estradiol in the amygdala
- Heterosexual rams
 - High estradiol
- Homosexual rams
 - Lower aromatase in preoptic area which converts testosterone to estradiol



Same Sex Behavior in Nature

- *Biological Exuberance*
 - Bruce Bagemihl, PhD 1998
- Same Sex mating behaviors documented in 450 species
 - Elephants, walruses, giraffes
- Pair bonding
 - 10% of Canada Geese nests- same sex pairs
 - Nests with twice the number of expected eggs



Neuroanatomy in animals

- Rats- Sexually dimorphic nucleus is 5X larger in males than females
- Fetal rats denied testosterone 3 days prior to birth to 5 days after birth- the sexually dimorphic nucleus remain in the female pattern
- Critical period for the hormone stimulation for the development of the male brain.



Human Neuroanatomy

- Simon LeVay, at the Salk Institute
- Found a sexually dimorphic nucleus in humans the **Interstitial Nuclei of the Ant. Hypothalamus (INAH3)**
- 2-3 times larger in heterosexual vs homosexual men
- 2 times larger in men vs women



Human hearing

- Cochlear function men vs women
- Women can hear softer tones
 - Androgen effect- prenatal period
- Lesbian women's cochlea functions in the male mode



Odor Recognition differences

- Dr. Ivanka Savic, from Stockholm, Sweden reported in the Proceedings of the National Academy of Sciences- May 2005
- Tested pheromones (chemicals secreted by an individual which effect behavior in other members of the same species.)



Pheromones

- One was a testosterone derivative produced in men's sweat.
- The second was a estrogen like compound found in women's urine.
- Using PET Scans she studied the effect of these chemicals in the brain by observing which areas “light up” after exposure.



Pheromones

- These chemical reacted differently in the brain and the activity varied by sex.
- **Male sweat chemical** activated the **normal smell centers** (olfactory area) **in men**, but **in women** it activated the **hypothalamus** (an area known to be related to sexual activity in animals.)



Pheromones

- The female estrogen-like compound did the opposite in both sexes.
- Female chemical activated the normal smell areas of women but in men it activated the hypothalamus in an area known to influence sexual behavior in animals.



Pheromones

- Dr. Ivanka Savic then repeated the study of the effect on the brain with gays and lesbians.
- Gay men's brains activated to the females estrogen-like chemical in the normal smell area of the brain just like heterosexual women.



Pheromones

- **Gay men's brains** on PET Scan reacted to the **male sweat chemical** in the **hypothalamus** of the brain just like heterosexual women.
- **Lesbian women reacted** to the male sweat chemical in the smell area and the estrogen-like chemical in the hypothalamus just like **heterosexual men.**



Brain differences

- PET Scan activated areas of the brain responding to different chemicals show:
- Men and women react differently in activating an area of the brain effecting sexual activity.
- Gays react like heterosexual women.
- Lesbians react to these chemicals like heterosexual men.



Genetic Factors

- Bailey and Pillard
- Males
 - 56 monozygous (identical) twins, if one was gay 52% chance the other twin is gay
 - 54 fraternal twins 22% other is gay
 - Non-biologically related brother 11%
- Females
 - Identical twins 48% other is lesbian
 - Fraternal twins 16% lesbian
 - Adopted 6%



Genetics

- Dean Hamer and Angela Pattatucci of the National Cancer Institute studied:
 - 40 male homosexual sib pairs (not twins)
 - 33 of 40 shared a similar gene hunk on the X chromosome Xq28
 - Statistical significance is strong 0.0001
 - Not replicated by others. Certain families?



Genetics

- No gay gene causing homosexuality has been found but genetics strongly influences your chance of being gay. It runs in families.
- Probably a combination of genetic predisposition and neonatal hormonal influences working on the developing brain.



Is homosexuality a choice?

- Homosexuality exists in a sizable minority and especially so in urban areas.
- Brain chemical difference seen in animals.
- Brain function differences seen in humans.
- Genetic influence is strong.
- Homosexuality is determined by your brain's genetic and chemical influences and is not chosen. Biological Imperative.



Is homosexuality a choice?

- A person's sexual attraction to the same sex or opposite sex can be acted on or not, but the attraction can't be changed.
- Strong societal and religious disapproval make some people with same sex attraction not want to act or even acknowledge their true orientation. (internalized homophobia)
- Many people with same sex attraction try to act "normal" frustrating themselves and their opposite sex partners.



Can homosexuality be “cured.”

- There is no good scientific data to suggest that homosexuality can be changed.
- Most data are just anecdotal reports with no good follow up.
- Many of the “cured” still report same sex attractions.



Can homosexuality be “cured.”

- Dr. Robert Spitzer, Columbia University
 - Instrumental in 1973 in getting homosexuality eliminated as a disease by the APA
 - 2001 at the APA paper studying 200 ex-gays
 - Telephone surveys
 - 143 men, 57 women
 - Recruited 43% from ex-gay ministries, 23% from National Assoc for Research and Therapy of Homosexuality
 - 78% of the subjects had written or spoken on publicly in favor of efforts to change.



Can homosexuality be “cured.”

- Spitzer 2001
 - 65% of men and 44% of women developed good heterosexual functioning, but
 - Only 17% of men and 54% of women had no same sex attraction after therapy
 - Methodology criticized
 - Sampling criticized
 - Many subjects were professionally and financially motivated to give positive answers
 - No confirmation- talking to spouses



Can homosexuality be “cured.”

- The American Medical Association opposes “reparative” or “conversion” therapy that is based on the assumption that homosexuality is a mental disorder or that a person should change his/her sexual orientation. 1981,1991,1994,2000



Reading List

- ***A Separate Creation*** by Chandler Burr.
Hyperion Books, 1996
- A nice summary of all the recent research on homosexuality, very readable.
-
- ***Biological Exuberance*** by Bruce Bagemihl,
PhD 1998
- A comprehensive review of homosexuality and bi-sexuality in animals.



Reading List

- ***Genome, The Autobiography of a Species in 23 Chapters*** by Matt Ridley
- Fascinating review of the latest information from the human genome project.
-
- ***The Sexual Brain*** by Simon LeVay. MIT Press, 1993.
- Strong documentation of the neuroanatomical and hormonal studies.
- Dean Hamer and Angela Pattatucci et al., “Linkage Between Sexual Orientation and Chromosome Xq28 in Males but Not Females,” *Nature Genetics* 11 (Nov 1995)

•

Reading List

- ***Anything but Straight*** by Wayne Besen
– ***Unmasking the Scandals and Lies behind the Ex-Gay Myth***
 - ***Good summary of the history, politics and difficulties of the Ex-Gay Industry***
- ***The Sexual Spectrum- Exploring Human Diversity*** by Olive Skene Johnson, PhD
 - **A good recent review of the sexual spectrum**

