Homosexuality:

A Literature Review

The purposes of this paper are to review the current literature on homosexuality in the field of psychology and to discuss how the literature is complemented by that in other scientific fields. The literature pertaining to homosexuals in the domain of psychology is sparse. Interest has peaked since 1973, when the Diagnostic and Statistical Manual of Mental Disorders (DSM) - II removed homosexuality from its catalogue and de-classified it as a mental disorder (Meyer, 2001). Yet there are still gaping holes within the research, voids that do not exist for other minorities. Perhaps the idea of sex, specifically homosexual sex, is still taboo in science, and thus the research gaps reflect the timidity with which scientists approach such topics as evolutionary reasons for homosexuality, homosexuals and mental disorders, and the cross-cultural history and manifestations of homosexuality. Our survey will take us beyond the specific domain of psychology, as I will attempt to contextualize concepts that have not yet been directly related to homosexuals. Perhaps that is an essential step in increasing awareness of the need for research on homosexuals in science and academia: establishing concrete connections between homosexuality and already recognized, reputable academic concepts and domains. I suggest that the first and most integral step to increase interest and awareness is this: a comprehensive review of the literature available on homosexuality in science.

In order to better understand the homosexual population that we are studying, I will first review the research dedicated to demography within the homosexual community. Firstly and surprisingly, most studies have found that the prevalence rate for homosexuals of both sexes to be less than projected in the general population. Black (2000) found that only 2.8% of men and 1.4% of women identified as gay (as defined by the experimenters). This total incidence rate of 4.2% is far below the socially perceived prevalence rate of homosexuality, ten percent. This rate, ten percent, is also derived from US Census statistics and Bayes' Theorem. In Grulich's

2003 study of homosexual experience in a sample group of Australians, he found that a broad range of in-between 2-8% of men and women reported lifetime homosexual experiences. This upper quartile of this wide range is closer to the accepted ten percent, but not yet concordant with the perceived prevalence level. This does not imply, though, that the actual percentage of homosexuals within the general population is less than ten percent. The reasons for this discordance in statistical rates are many.

The definition of homosexuality is muddled and ever-changing, as it is very much a function of the societal context in which it is being defined. (This will be discussed further later.) For example, the Merriam Webster College Dictionary Tenth Edition defines homosexuality as, “Erotic activity with another of the same sex.” In the General Social Survey, used in some of the studies we are analyzing, Badgett defines homosexuality as, “Having more same-sex partners than opposite since age 18” (Black, 2000). This leads to erroneous data in research, as often subjects do not define homosexuality exactly like or even similarly to researchers. Thus someone who does not think of himself as homosexual may be defined as such by experimenters, and so his data might confound statistics. In addition, subjects may be more likely to provide false information regarding their sexuality compared to other domains. Because of the social stigma attached to being gay, subjects may falsify information despite the anonymous basis of the surveys and questionnaires. Black (2000) speculates that only one-third of homosexuals report themselves as homosexual on surveys. It is difficult to obtain a random sample of homosexuals because of small, unrepresentative sample sizes used in the research. This lack could be another reason for the low reported incidence rates of homosexuality in the general population. That is, there may be a 10% incidence rate for homosexuals, but our studies may not include a sample that demonstrates this ratio.

With these problems in mind, consider the following findings: The typically researched homosexual is more likely to have an English speaking background than any other language. He/she is also expected to have a higher level of education than his heterosexual counterparts and is more likely to report a "[W]hite-collar or managerial/professional occupation" (Grulich, 2003). If one is a gay man, he will likely earn less than a heterosexual man (the reasons for this are unknown, especially given the previous statistic), while if one is a gay woman, she will typically earn more than her heterosexual counterpart. Our typical homosexual will most likely not live in an intimately-partnered housing situation at the time of a survey, as only a fraction of both sexes do. He/she is more likely to live in a big city rather than any other type of geographical location. Black (2000) confirms this statement by naming the twenty cities in the United States with the largest gay male populations, including San Francisco, Los Angeles, Washington D.C., Chicago, New York, Seattle, Ann Arbor, and Madison.

In terms of sexual activity, multiple studies have found that homosexual men have more partners than homosexual women, with a ratio of approximately ten to one (p-value than 0.001). This statistic has heavy implications for the male health world, especially concerning the HIV virus, which has commonly been perceived as over-prevalent within the male homosexual community. Apparently, these perceptions are justified, as Grulich (2003) reports that in the year 2001, 82% of men infected with the HIV virus reported homosexual experience at some point in their lives. In fact, and ironically, the way in which many statistics on homosexuals, including ones in this paper, are obtained is through HIV screening, both before and after one is diagnosed.

Perhaps a reason that homosexual men have a significantly higher number of HIV cases than homosexual women is that homosexual men are more sexually active and thus more

susceptible to infection by such viruses than homosexual women. Grulich (2003) states that "Men [report] significantly younger ages at first homosexual sex than did women." Also, men are less likely than women to have their first homosexual experience with a regular partner, and overall, men knew their first partner for less time than did women. In terms of homosexuals' most recent sexual experience, condom usage was reported in only "Forty-six percent of men who engaged in insertive anal intercourse and…50.6% of men who engaged in receptive anal intercourse" (Grulich, 2003). These statistics are alarming indeed and have myriad implications both for the high prevalence rate of HIV within the gay male population and the low rate in the female gay population. That is, differences in sexual activity between gay men and gay women may reduce transmission of HIV in women.

Beyond HIV and other sexually-transmitted diseases, which will be discussed later at greater length, homosexuals are affected pervasively by mental disorders more so, evidently, than heterosexuals. In fact, homosexuals are two to five times more likely to have mental disorders than heterosexuals (Meyer, 2001). Meyer also states specifically that gay men and women suffer more from substance abuse and mood disorders. Homosexuals are also five to six times more likely than heterosexuals to have suicidal ideation and three times as likely to act on such urges. Cochran (2000) summarizes Ferguson, et. al.'s 1999 findings that homosexuals report higher levels of depression, generalized anxiety disorder, and substance abuse problems than do heterosexuals. Sandfort, et. al. (2001) confirm such findings. Cochran (2000) also reports co-morbidity rates three to four times higher for homosexuals than heterosexuals. That is, they are more likely to suffer from more than one mental disorder concurrently.

More research is dedicated to the reasons why homosexuals suffer from mental disorders relative to heterosexuals than to actual statistical rates. A consensus within the research

community is that societal pressures influence rates of homosexuals' mental disorders more than any other factor. Researchers conceptualize these social pressures differently. For example, Meyer (2001) speaks of a 'minority stress' that is brought on by the discrepancy in heterosexual and homosexual culture, e.g. the existence of marriage sanctions for homosexuals but not heterosexuals. This presumably leads to a general increase in internal and social stress levels that is beyond the handling capability of the immune system. Meyer also invokes the term 'internalized homophobia', which is the internalization of social antigay attitudes in lesbians, gays, and bisexuals. Meyer claims that this internalized homophobia leads to anxiety, depression, and substance-abuse. Cochran (2000) also cites social stress as a major contributing factor to the increased prevalence rates of homosexuals' affective, anxiety, and substance-abuse disorders relative to heterosexuals. Further, she agrees that 'internalized homophobia' is a cause of such mental distress.

Some of the most prevalent disorders in the homosexual community are eating disorders, and these eating disorders are thought to be influenced by the social factors about which we're speaking. Eating disorders such as bulimia and anorexia are almost equally prevalent in homosexual and heterosexual males (Carlat, et. al., 1997). This is telling in that for most mental disorders, homosexuals show an incidence rate commensurate to their rate in the general population. But in eating disorders, homosexuals constitute a large portion of those afflicted, suggesting an underlying reason for such a high incidence rate. Scientists cite high social and personal pressures. Before affirming such claims I should ask, what are some of the statistics regarding homosexuals and eating disorders, and why are so many homosexuals afflicted with them?

In a study of 135 male patients with eating disorders, Carlat, et. al. (1997) found that 42% of the bulimics were homosexual and bisexual. A smaller but still significant number, 22%, of anorexics were homosexual and bisexual men. Finally, 32% of homosexuals and bisexuals were diagnosed with at least one unspecified eating disorder. Carlat found that homosexuals with bulimia are especially likely to also suffer from major depressive disorder, substance-abuse, and personality disorders. Also, Carlat found an important psychological factor associated with bulimia: Many parents of bulimics were significantly overweight, leading to body-conscious ideation and obsession. Indeed, Carlat concluded that homosexual males with eating disorders were less satisfied with their shape and body weight than heterosexual males with eating disorders. Carlat suggests that this might be due to biological similarities between homosexual men and heterosexual women, who similarly place a high premium on body image and the like. These biological similarities only manifest, however, after being triggered by social pressures. Here we see an example of the interplay between biology and culture; biological vulnerabilities in homosexual males are triggered and exacerbated by perceived cultural pressures to be skinny and/or beautiful, while heterosexual males feel less pressure and any biological susceptibility to such is not given the opportunity to manifest.

Meyer (2001) supports the notion that femininity contributes to the high incidence rate of eating disorders in the male homosexual population. According to him, femininity is more common in the male homosexual population than in the heterosexual one, and it is this femininity which predisposes one to high eating psychopathology. Masculinity, then, as measured by inventories such as the Bern Sex Role Inventory, might prove to be a protective factor against eating psychopathology. This notion is supported by Meyer's findings: Homosexual men with higher levels of femininity were more likely to show dieting and bulimic

behaviors. Further, there was a negative correlation between masculinity and bulimic behaviors. A most telling statistic is that more-feminine homosexual women are more likely to partake in restrictive eating behaviors than less-feminine homosexual women, suggesting it is an emphasis on femininity that is predisposing homosexual women toward eating psychopathology, not homosexuality itself.

Russell (2001) disagrees with Meyer's conclusions concerning femininity and risk factors for eating psychopathology. He found that sexual orientation, not femininity, was the main contributing risk-factor for disordered eating in men. Homosexual men had more pathological scores on myriad surveys, including the BDI. Further, homosexual men displayed more psychopathological eating tendencies, e.g. the rate of recurrent binge-eating episodes for homosexuals versus heterosexuals, 25% : 10%, and the comparative rate of purging, 11.7% to 4.4%. Russell also found that social support systems or lack thereof contribute to lessened self-esteem and higher depression rates. This is intuitive, as homosexuals may find it more difficult to obtain and maintain a consistently supportive social system; after all, more people unquestionably reject homosexuality than do heterosexuality. This lack of support systems could perpetuate low self-esteem, poor body image, and ultimately, the high incidence rate of eating disorders in homosexual males.

Williamson (2001) brings our research on eating disorders full circle by purporting that the internalization of social norms regarding attractiveness and slimness propels some homosexuals into a self-loathing spiral that facilitates eating disorders. This internalized homonegativity he (218) coins and defines as "Negative and distressing thoughts and feelings experienced by lesbians and gay men about their sexuality." The extent to which these negative thoughts and feelings pervade one's thought processes is strongly negatively correlated with

body satisfaction and self-esteem in young gay men but not in young heterosexual men. This finding implies either that the pressure in the gay world regarding physical appearance is not present in the heterosexual community or that this pressure does exist, but heterosexual males are impervious to its self-deleterious effects. Williamson also reports dissatisfaction with one's sexual orientation, as evidenced by many homosexuals, as being correlated significantly with prevalence of eating disorders. Young men are plagued more than older men by this dissatisfaction, which seems to be ameliorated with participation in homosexual-oriented social events such as Gay Pride Parades. At these events, homosexuals might find comfort in being surrounded by those that have faced similarly difficult life experiences and histories.

So far we have discussed the ways in which defining one as homosexual can be both scientifically necessary and problematic. Low reporting rates of homosexuality lead to small sample sizes and statistical results that lack power. Regardless, research has made some conclusions regarding general demographics of homosexuals as well as the prevalence rates and causes of their mental disorders. Eating disorders in male homosexuals is one of the most well-researched topics in the field, yielding conclusions with implications for homosexuals that are both personal and social. For example, I might predict that eating disorders are present in homosexual males with low self-esteem, and this low self-esteem facilitates stereotypically gay behaviors, such as rampant promiscuity, that increases one's sense of desirability and belonging. In order to enrich our discussion of homosexuals' sociality and the consequences that follow, we might investigate such a prediction by more deeply exploring homosexual male behavior.

Much literature exists on homosexual social and sexual activity, but unfortunately, it focuses mostly on negative aspects of the homosexual lifestyle. For example, many authors have written on the homosexual phenomenon of barebacking, its causes, effects, and relationship to

the ever-prevalent HIV-virus within the homosexual community. Barebacking can be defined simply as "Intentional, unprotected anal intercourse" (Halkitis, et. al., 2003) between two homosexual males. Halkitis, et al. (2003) completed a study concentrating on this phenomenon in which gay and bisexual men from New York City reported their previous sexual behavior as it related to barebacking, HIV-status, and psychosocial factors, and his findings are cause for alarm within not only the homosexual but also the medical community.

The motivation for this study is the presence of an "[I]ncrease in the rate of unprotected sexual behaviors among Men who have Sex with Men (MSM) in HIV epicenters within [prevalent] gay communities…" (Halkitis, et al. 2003). In fact, a study conducted of homosexual males in San Francisco found an increase in barebacking rates from previous years, from 24% to 37% (Howard, 1998). Halkitis, et al. (2004) found another increase in barebacking rates, with 45.5% of respondents reporting the activity. Why would men engage in such behavior given the inherent risks? Homosexuals' perceived benefits of barebacking include increased emotional connectivity to one's partner and a more satisfying sexual experience. Obviously, though, such satisfaction is negated and superceded by the risks associated with the behavior.

While barebacking rates rise, so too does the rate of HIV-seropositivity within the gay community. Currently (2004), the Journal of the American Medical Association (JAMA) reports that the majority of those living with HIV are MSM's. Further, Koblin, et al. (2002) report an HIV-seropositivity rate of 8-10% within the homosexual community, nearly a doubling of the incidence rate recorded in the 1990's. Thus, we see an increase in rates of barebacking resulting, presumably, in an increased quantity of HIV-positive homosexual men. But is this conclusion correct? Halkitis, et al. (2004) found that subjects mostly reported HIV-seroconcordant bareback sex; that is, unprotected anal sex with someone who has the same HIV-status as the subject. This

might imply that there is an unspoken understanding attached to this seemingly dangerous sexual act. Nevertheless, one can almost never be positive of another's HIV-status, and so barebacking proves to be a dangerous and ultimately unwise sexual endeavor. Indeed, barebacking, at some point in his sexual career, is reported by 84% of HIV-seropositive men, indicating a high correlation between barebacking and HIV-acquisition.

Within the act of anal intercourse, some behaviors and roles facilitate the transmission of HIV more so than others. Let us define some terms before continuing. During anal intercourse between two males, usually one will consistently assume the role of 'top,' or the partner who plays the insertive role, and the other will assume the role of 'bottom,' or the partner who plays the receptive role (Hart, et al., 2003). Also, there exists a third sexual category called 'versatile,' reserved for those homosexuals who report participating in both sexual roles. Consequently, scientists use the terms Insertive Anal Intercourse (IAI) and Receptive Anal Intercourse (RAI) to describe the different sexual experiences a homosexual male might have during anal intercourse. Such distinctions are medically important because men who engage in RAI are at greater risk to contract the HIV virus than those who engage in IAI. Logically, more bottoms report HIV-seropositivity (Hart, et al., 2003).

Hart, et al. (2003) discuss such culturally determined terms and their implications for the social and medical worlds in which gay men find themselves. The researchers found that such labels are pervasive, especially among those within the HIV-positive community. Before this study, such titles and implications were thought only to be prevalent in and relevant to middle-class, White, gay men. Despite attempts to rigidly define the participants in homosexual anal intercourse, nearly half identified as versatile, indicating a greater complexity to intercourse between two males than once thought (Hart, et al., 2003). Further, the declaration of adopting

only the sexual role of top or bottom does not preclude a man from engaging in the opposite sexual role, as 41% of tops engaged in RAI (with either the same or a different partner) within three months of the study (yet they still do not deem themselves versatile). Using such distinctions is helpful for predicting rates of HIV-seropositivity, as bottoms are more likely to be HIV-positive. Beyond this, being a top or bottom does not predict one's safety in sexual practice, e.g. the use of a condom. Any further effects from the title of top, bottom, or versatile are psychosocial in nature (Hart, et al., 2003). For example, tops are less likely to report their sexual identity as gay, and they are also likely to report more internalized homophobia and anxiety than bottoms or versatiles. Such internalized homophobia might lead to destructive behavior (e.g. drug use) that is both a cause and effect of risky sexual behavior amongst male homosexuals. This reluctance from tops to report as gay and the mentally detrimental consequences of this reluctance are perhaps driven by cultural expectations. Tops, the active sexual partner – the inserters – might have more trouble accepting their homosexuality. After all, they are not receiving anal intercourse; because of this, perhaps they do not and want not to perceive themselves as gay. Bottoms, conversely, accept their homosexuality more openly because they participate in more commonly-known gay behaviors, specifically receptive anal intercourse. Thus they experience less mentally detrimental consequences, e.g. internalized homophobia.

Woody, et al. (2001) compared results from two national surveys, the Vaccine Preparedness Study (VPS), given to homosexual males, and the 1995 National Household Survey on Drug Abuse (NHSDA), filled out by many heterosexual males, to find discrepancies in drug use between the two sexual demographics. In doing so, the scientists hoped to prove, firstly, that homosexuals use drugs more than heterosexuals, and furthermore, that this use of

drugs facilitates unsafe sexual behaviors that increase the spread of the HIV virus and other sexually transmitted diseases (STD's). The results support these hypotheses, as "VPS participants were significantly more likely to use any non-alcohol substance than the single, urban, age-standardized, largely non-MSM national sample" (Woody, et al., 2001). Three substance types were especially popular among MSM's: poppers, sedatives, and marijuana. The data on poppers, a type of "upper", is most interesting as it is reportedly used by MSM's commonly to increase sexual pleasure.

Cochran, et al. (2004), in their study of non-medical drug use and dependence among homosexuals in the US, challenged the common notion that homosexuals are two-three times more likely than heterosexuals to abuse drugs. But, the scientists confirmed that homosexuals use drugs throughout their lifetime more so than heterosexuals, including and especially marijuana, cocaine, and heroine. Significant differences, with homosexuals always showing higher use, were also found for hallucinogens, sedatives, tranquilizers, and stimulants, generally. In both hetero- and homosexual populations, males were more likely to report drug use than females (Cochran, et al., 2004). And, in both male and female homosexual populations, marijuana was the single drug that homosexuals used the most. However, we must be wary of assuming a link between drug use and risky sexual behavior, as higher overall use of drugs, especially marijuana, does not imply a higher level of such drug use.

Parsons, et al. (2003) focused on HIV-seropositive men in their study of sexual behaviors amongst HIV-infected homosexual males in New York City and San Francisco. Shockingly, over one-third (37%) reported either unprotected IAI or RAI on surveys. Again, sexual role was prominent, this time in determining the extent to which one partner protects and cares for another, as tops perceived less responsibility to care for their partner than did bottoms. In fact,

there exists a certain level of sexual awareness amongst gay men, as some studies report HIV-positive men purposely bottoming so as to reduce the risk of transmitting HIV to their partners. Most homosexual men knew their HIV-status, but also, most (77.7%) did not know the status of at least one of their partners within the past three months. The latter fact obviously undermines the former. Further, 22.6% of subjects reported having the most unsafe type of sex for the study's purposes, RAI with a partner of unknown HIV-status. And incidentally Parsons et al. (2003) found that men who used poppers were more likely to also report unprotected anal intercourse (UAI) than those who did not report popper use. Clearly then, the potential exists for HIV to continue to spread throughout the homosexual community (Parsons, et al., 2003).

Lester Pincu (1989) discusses the extent to which drug use and promiscuity within the homosexual community are not just sub-cultural phenomena, but instead are indicative of actual compulsivity within the community. He (63) proposes that sexual compulsivity, driven by both drug use and other cultural factors, follows logically from the suppression of this or any minority community: "The more sexually repressed and/or homophobic a culture is, the stronger is the tendency for persons to engage in anonymous sex as a substitute for denied intimacy." Whereas most scientists look to homosexuals themselves as the cause of the community's internal strife, Pincu instead takes a more sympathetic view, and in doing so, he cites anxiety as a major cause of drug use and promiscuity, typically anxiety-reducing behaviors. I think an interplay exists that drives such detrimental behaviors between anxiety, caused by external factors such as social pressures and ridicule, and strife within the homosexual community, caused by internal factors such as internalized homophobia.

Other literature in the field looks to explain not only the problems within the homosexual community, but instead homosexuality itself. Perhaps this is the most widely written-on topic in

the literature, as significant attention is paid to multiple theories that attempt to explain homosexuality, including genetic, biological, and environmental theories. I will now discuss these theories.

Whereas many scientists accept, to some extent, that genetics contributes to homosexuality, Bearman and Bruckner (2002) provide striking evidence for the opposite: a strictly environmental conceptualization of homosexuality. Their study compared same-sex attraction among opposite-sex twin pairs using the following logic: Opposite-sexed twin pairs – that is, a boy and girl raised together – are more likely to be raised in a gender-neutral environment than same-sexed twins. This less-gendered socialization in early childhood, then, helps to shape future same-sex romantic attraction. Thus, the authors conclude that environment is the main factor in determining one's sexual orientation. Bearman and Bruckner (2002) state that adolescent male opposite-sex twins are two times as likely to report same-sex attraction compared to similar-sex twins. Further, the scientists hypothesize that parents treat opposite-sex twins in a more similar and less-gendered way than same-sex twins. This logic comes into question, however, as one might expect same-sex twins to be treated more similarly than opposite-sex twins. After all, if two children are both the same age and sex, parents might treat them more similarly than if they were solely the same age. The Bearman and Bruckner study provides us with a unique and intelligent example of a way in which sexual orientation can be environmentally constructed. However, en route to their conclusion, the scientists neglect a multitude of evidence that indeed supports the genetic and biological bases of homosexuality. This evidence will be discussed more later.

Another study by Knafo (2005) investigated gender-atypicality amongst children in attempts to link it with future homosexuality. Indeed, theory and empirical evidence corroborate

the idea that gender non-conformity can be a precursor of adult homosexuality. Knafo (2005) reports that most children are aware of their gender by age two, and by ages three or four, children are aware of their expected sex role. Interestingly, "Children's self-described gender typicality relates positively to their global self-worth and self-perceived social competence and negatively to the extent of internalizing problems…" (Knafo, 2005). For comparative purposes, Knafo divided gender-atypical children in his study into two categories: fully gender-atypical and partially gender-atypical, based on the extent to which children were high on behaviors and preferences characteristic of the opposite sex. Results indicate that about 25% of the variance in boys' femininity can be accounted for by genetic factors, whereas environment accounts for 53%. The remaining 22% of variance, then, can be attributed to combined gene-environment effects. In fact, for all types of children – typical male, typical female, partially gender-atypical, fully gender-atypical, etc. – heritability of masculinity within gender atypical women was higher than for any other demographic. Thus, Knafo (2003), like Bearman and Bruckner, supports a stronger environmental contribution to homosexuality than genetic.

Attempting to sift through the literature on homosexuality, biology, and genetics can be daunting, so let us start simply. The sex of a child is determined by the absence or presence of the Y-chromosome, donated by the father. When a baby does receive the Y- chromosome, he (for it will be a boy) receives most of his genetic detailing from his mother, as the Y-chromosome has been proven to be small in comparison to the X-chromosome (Miller, 2000). Thus, it is presumed that homosexuality, like many other traits, is inherited from the mother. Indeed, prenatal development is proposed to affect sexuality greatly, and will be discussed more soon. Further, there is a correlation, sometimes attributed to the mother, between birth order in brothers and homosexuality. Each additional older brother that one has increases the odds of his

(only applicable to males) homosexuality by 33% (Blanchard, 2001). This correlation has not been doubted seriously, because birth order has been shown to affect other traits as well, e.g. career interests (Sulloway, 1996). Pillard (1998) purports that this phenomenon is due to the accumulation of placental cells in the maternal uterine endometrium from early pregnancies that affect later gestations. One such effect may be the increased chance of homosexuality for the sons of later gestations. Another hypothesis for this birth order phenomenon is by Miller (1999), who states that an increasing rate of homosexuality in birth order would reduce the amount of reproductive competition amongst the brothers; therefore it is reproductively advantageous for a younger brother to be homosexual as to open up reproductive options for the older brothers. One final hypothesis is that having older brothers grants one the opportunity to become attracted to them, and thus to lean toward homosexuality. Of these three hypotheses, the first, grounded in biology, seems to be the strongest in explaining individual differences in sexual preference in the family structure.

However, let us consider the second hypothesis, that homosexuality decreases competition, for a moment. Perhaps, as this theory suggests, the homosexuality of one serves a greater purpose for others. One recent and popular theory purports just that: Homosexual men receive genes that predispose them to homosexuality from their mothers, and these same genes boost reproduction in women (Camperio-Ciani, et. al, 2004). This would solve the evolutionary mystery with which homosexuality presents us. Essentially, the theory concedes that this set of genes relieves a small amount of the population, homosexual men, from their reproductive task, but the genes more than compensate for this loss by increasing reproduction in a bigger demographic of the population, women. Using this reasoning, Miller (2000) labels the gene or genes responsible for the continuation of homosexuality as pleitropic, or having more than one

single effect. This would explain why the genes are selected for and consequently why they have survived the natural selection process. Camperio-Ciani, et. al (2004) state that this phenomenon explains the prevalence of homosexuality in males only; the research for females in this realm has not yet been conducted, but surely it is forthcoming.

An integral ingredient in Camperio-Ciani, et. al's hypothesis is that there is more than one gene that constitutes the genetic basis for homosexuality. Thus, it is a polygenic trait. If the effect they proved was parsed down to a single gene, they claim, that gene would most likely spread quickly throughout the population. This would lead to a markedly higher incidence of homosexuality and consequently a lower rate of reproduction in many males. Presumably, over time, this isolated gene would be selected against and we would see the end of homosexuality (Camperio-Ciani, et. al, 2004). This notion of a polygenic basis for homosexuality is supported by other researches in the field, including Miller (2000), who cites the traits discussed earlier that correlate with homosexuality (sensitivity, kindness, etc.). Because these phenotypic manifestations are seen in concert with homosexual sexual desires, Miller concludes that there must be more than one gene at work. In heterosexuals that display these typical 'gay' traits, then, there may be one or some gene(s) involved, but not all that are included in someone who has both homosexual traits and desires. Again, we conclude that homosexuals are slightly aberrant in that they fall outside the otherwise normally distributed dispersion of genes.

Campieri-Ciani and Miller were not the first to isolate one or more genes related to homosexuality. That honor falls upon Dean Hamer, who in 1993 narrowed down the pool of genes responsible for homosexuality from a massive 100,000 to an impressive few hundred. Hamer has pioneered this research, and his sib-pairs experiments are convincing. He studied 40 pairs of gay brothers, and he found that 33 of them shared what Hamer calls reference points, or

"Sites on the chromosome where there are genetic 'markers' that vary from one person to another" (Hamer, 1993). These markers imply that there is a shared fragment of the X-chromosome. Hamer (1993) has even specified which gene is present on these markers, xq28. If this gene had no involvement in homosexuality, we might expect to find it in only half of the sib-pairs, just as any other gene that has a chance of being passed on to one sibling and not the other. Instead we find it in 82.5% of the pairs.

More family studies have been conducted that confirm the genetic basis of homosexuality, and more specifically, the necessary involvement of the X-chromosome. Again, this implicates the mother in the passing on these genes. Pillard and Bailey (1998) opine that genes account for at least half of the variance in sexual orientation. They compared monozygotic (MZ) and dizygotic (DZ) sets of twin brothers for concordance of sexual orientation. The scientists reported that 52% of MZ twins shared their homosexuality and only 22% of DZ twins were concordant in their homosexuality (Pillard & Bailey, 1998). Further, of gay males who had a twin that was adopted and reared by another family, only 11% had a brother who was also gay. These results prove to be very telling in their implication of genetics in finding the 'causes' or 'reasons' for homosexuality. MZ twins, who share more genes than DZ twins, are more likely to share their sexual orientation than other siblings. Moreover, environment obviously influences the rate (or at least the manifestation) of homosexuality, as splitting up a gay twin from his brother decreases the likelihood that the separated brother is homosexual. However, one must be cautious when interpreting this research, as it could be argued that the environment in which one is raised discourages the manifestation of homosexual behaviors and tendencies to the extent that it is suppressed by the legitimately homosexual male/female. This concern is rampant in research on homosexuality and environment, and to date there is no way to reconcile it fully.

Despite objections to the environmental aspect of this research, though, the proof of homosexuality having a genetic component remains solid.

Dermatoglyphics and handedness are interesting fields of study regarding the biological origin of homosexuality . Dermatoglyphics are "The skin ridges found on the palms and soles of all primates and, in humans, are determined between the 8th and 16th week of fetal life…The ridge patterns are not affected by development or the environment (after week 16)…" (Mustanski, et al., 2002). The reason that dermatoglyphics and handedness are points of interest in terms of determinants of sexual orientation, then, is that they reflect early prenatal influences that are potentially unalterable. If we can find correlations between these truly biological aspects of ourselves and sexual orientation, perhaps we can claim a biological component to homosexuality in addition to an environmental and genetic one.

Let us discuss briefly the field and its current findings before discussing the conclusions of this study: The total number of ridges on the hand is sexually dimorphic, as males tend to have a greater number. Further, the only thing that science recognizes as feasibly and significantly affecting this individually given number of ridges is fetal testosterone levels. In terms of handedness, left-handedness is currently associated with many traits or conditions that indicate developmental lapses or "perturbation" (Mustanski, et al., 2002), including autism, dyslexia, and schizophrenia. This relates to homosexuality insofar as it is sometimes viewed as a social aberration, and further, lesbians have been found to have increased levels of non-right-handedness compared to heterosexual women. At the time of this study, however, no empirical evidence has been found to support a difference in the number or structure of ridges as a function of sexual orientation, despite multiple attempts to do so. Based on these facts, we can now discuss this study's conclusions: Again, no significant correlations were found for male

homosexuality and handedness, but the correlation between female homosexuality and non-right-handedness was confirmed (Mustanski, 2002). Further, there was no significant difference found in the number or structure of ridges of homosexuals compared to heterosexuals, which also confirms past research. Overall, the study provided a unique perspective on the topic but yielded few exciting and progressive results.

Clearly there is a scientific interest in discovering and investigating the origins and behaviors of homosexuals. Ironically, the explosion of HIV within the homosexual community, or at least the connection between HIV and homosexuality, has sparked curiosity in the field that previously was non-existent. Nonetheless, scientists focus on finding the linkages between the ultimate origin(s) of homosexuality and the everyday behaviors of homosexuals more so than on other aspects of the field. No specific explanation can claim rights to discovering the origin of homosexuality, and it is my belief that no one field will ever be able to; instead, in my opinion, an interplay exists between genetics, biology, and environment that produces different levels of homosexual desires, behaviors, and self-acceptance within each homosexual. Only when we understand fully this recipe that composes homosexuals will we be able to understand fully their everyday behaviors. Until then we can increase our understanding of homosexuality by not only studying those in the present, but in our historical and cultural past.

Our review thus far has focused mainly on the present-day American homosexual population. However, in order to fully understand the scope of homosexuality as it has existed in and persisted across time and cultures, we must analyze the literature pertaining to the history of homosexuality as well as the development of homosexuality as a concept, both nationally and internationally. This history is rich and provocative, as it surprises many researchers and laypeople alike who perceive homosexuality as a strictly Westernized convention or creation.

Our review will prove otherwise – that homosexuality, as we perceive it today, not only existed in previous cultures and in different time periods, but that it continues to exist despite varying perceptions of and reactions to it.

Halperin (15) states that Charles Gilbert Chaddock, an early translator of Krafft-Ebing's medical handbook of sexual deviance, first coined and defined the term *homosexuality* in 1892. Before this date, homosexual acts certainly existed, though they were not defined as such. There is documentation of such activity in ancient Greece, for example (Halperin, 14). Men in this culture had sex with women, surely. But this did not preclude them from also having sex with young boys, who themselves would later grow up to have sex with young boys. We cannot say whether such relationships were based entirely on erôs, the erotic desire for another, or philia, a kinship or friendship desire. Greek culture certainly emphasized philia between males; such relationships were widely accepted and even endorsed. We can also assert, though, that relationships based on erôs played a prominent role in ancient Greece's sexual culture. Evidence for such is found in numerous ancient Greek texts (Hubbard, 25). With further consultation of these texts, we can even claim with certainty that women had sex with other women.

Halperin (27), a prominent queer scholar who specializes in ancient Greek society, writes, "Sexuality seems to be one of those cultural fictions which in every society give human beings access to themselves as meaningful actors in their world, and which are thereby objectivated". Halperin here implies that sexuality, in whatever culture it is being analyzed, serves an individual and communal purpose of definition and classification. We learn that this is the case in ancient Greece. In Athens, sexuality and the act of sex itself were, "[M]anifestations of personal status, declaration[s] of social identity…[They] didn't express inward expressions or dispositions as much as political and social standing of people" (32). Thus, we see that while

today sexuality, homosexuality, and heterosexuality facilitate power in gendered relationships, so did they in ancient Greece. For example, a man might establish his social and political dominance over a younger man or woman of any age by playing the sexually active role – that is, penetrating the other partner – in a relationship. The implication of such an act was not that one man was gay and another straight, but that one man was dominant over the other. Winkler (36), in his text, validates these claims by assigning the titles *natural* and *conventional* to any man who penetrates a 'social inferior'. As long as a man is establishing dominance over another, he is acting naturally, even if he is engaging in homosexual sex.

Ancient Greece was not the only culture in history that claims homosexual activity. Surprisingly, many cultures that Westernized society perceives as insular and closed-minded also possessed some form of homosexuality. El-Rouayheb (1) writes, "Male homosexual behaviour and feelings were conceived and evaluated in the Arabic-Islamic Middle East between 1500 and 1800." Like ancient Greek society, this society is described as one in which adult males openly flaunted their love for young boys. However, neither the term homosexuality nor the implications that it carries today in our society were present. While Islamic religious law of the past and present condemn sodomy (liwat), many scholars do not believe that this implies that falling in love with a boy is illicit (El-Rouayheb, 3). Further, and similar to ancient Greek culture, the passive form of sodomy is condemned more so than the active form. Regardless of conditions, clearly there is *some* form of acceptance of homosexuality, even in Islamic culture.

Pflugfelder (23) writes of the Japanese during the Edo period (from 1600-1868), during which no term for homosexuality existed. Instead, Pflugfelder (23-25) speaks of other terms that focused on the activities and agents of sexual acts in Edo-Japanese culture, but none that referred explicitly to homosexuality. For example, 'shudo' described 'the way of loving youths', and

'nyodo' described 'the [male] way of [desiring] women.' Edo culture also possesses terms that indicate a male's readiness to be initiated into the homoerotic, if not plainly homosexual, culture: 'maegami' is defined as the unshorn forelocks of youths who are primed for young adulthood (Pflugfelder, 32). Adult males could be attracted to these youths, whether or not they were married to a female. Conventions of monogamy were overlooked when males desired young boys, but upheld when males desired other females. This perception can be explained in two distinct ways: As a precedence of acceptance placing homosexual infidelity above heterosexual infidelity, or as homosexual infidelity being so different from heterosexual infidelity that it doesn't directly compete with a man's relationship with a woman.

In another Asian country, China, two myths permeate the culture that indicate a prior acceptance and celebration of homosexuality that may affect the society's outlook on homosexuality presently. In one myth, The Duke of Wei took a handsome boy to be his lover. While strolling in his orchard, The Duke offered the remainder of his half-eaten sweet peach to his beloved. To this day people know of the love of the 'half-eaten peach', and the term is a synonym for homosexuality. In "The Cut Sleeve", another Chinese legend, Emperor Dong Xian was sleeping with his boy lover and awoke before him. Careful not to awake his beloved, who was sleeping sweetly on his sleeve, the Emperor cut the sleeve and left the boy in his slumber. Such tales permeate Chinese culture even today (Curtis, 1990).

Renaissance Florence became known for its overtly gay culture, so much that other European countries attached the meaning 'to sodomize' to the word 'florenzen' and the meaning 'sodomite' to the word 'Florenzer' (Rocke, 3). Homosexuality was so rampant that the Ufficiali di Notte - Office of the Night – was formed specifically to combat homosexual activity. Over 3000 homosexuals were incriminated – punished legally or publicly, e.g. - for sodomy or similar

homosexual behaviors (Rocke, 4). In Florentine culture we witness again a definition and perception of homosexuality different from our own; whereas ours are defined by sexual actors and their gender, theirs is defined by sexual acts. (For example, we might look down upon all males who desire other males, while Italians looked down upon males who sought out passive sexual pleasure specifically.) And again we witness purported homosexuality occurring between males of discrepant ages, one adult male and one beloved, or youth. These youths almost always assumed the role of passivity, and thus the adult males' masculine identity was not brought into question. Any confusion of these active and passive roles may have been met with the societal backlash that homosexuality is sometimes met with generally in our and other cultures.

The last culture we will examine in a historical context is that of South Africa. Specifically, let us focus on the Sub-Saharan Gold Mines of the 1930's – 1950's, in which Moodie (411) documented 'Mine Marriages', or official companionships formed between males that worked the gold mines in South Africa. Such marriages are governed by 'mteto', "A set of rules whose parameters are well known and enforced by black mine authorities" (Moodie, 413). These rules state that male youths who are desired by adult males must fill the role of the males' wives, in both the domestic and sexual realms. Boys, in essence, take the place of these males' wives, who are sometimes only miles away at home. In fact, Moodie (413) mentions that the term 'tinkonkana' can be used interchangeably for either 'boys' or 'wives'. Thus, the boys are expected to act as such. Proper 'wifely' behavior is expected and rewarded, as these boys are paid for their services. Acceptance of roles that perpetuate homosexuality seems to be present in this and many other cultures historically. Eastern cultures that claim homosexuality finds its home in Westernized modernity, then, are incorrect. Also wrong would be those that claim that homosexuality is universally perceived in the same, negative way. While cultures exist in which

homosexuality is predominantly condemned, in others it is very much tolerated. Let us examine examples of both.

We will continue our analysis of African culture, this time in a modern-day context. Apparently trends of the past have continued, as Gibson (394) writes that, "Most Africans reject sexual labels [as 'homosexual']..." and, "Often, 'gay' African men have a male lover while remaining happily married in a heterosexual relationship." Thus, as with the Gold Miners of the past, present day African males concurrently maintain homosexual and heterosexual relationships while leaving such relationships undefined. The result, according to Gibson (395), is a culture that implicitly accepts passively-displayed homosexuality. Male-male hand-holding, for example, is socially acceptable, but for two males to reside together, whether married to women or not, would be rejected by the males' families and cultures. Gibson's (394) studied the Kikuyu culture of West Africa specifically, which usually downplayed the seriousness of homosexual relationships, often calling them 'play' relationships. In this culture, such 'play' is acceptable insofar as the males that engaged in this purportedly homosexual activity also continued to reproduce with females. That is, as long as males serve their reproductive function within the community, other, sometimes scandalous behavior is acceptable. Even this acceptance has limits though, evidenced by the condemnation of males taking on overly-passive roles. (This condemnation arises when males are passive not only in homosexual relationships, but also in heterosexual ones.) Thus, there seems to be a cultural premium placed on gender roles instead of sexual activities, unless those sexual activities include gender role confusion (Gibson).

In Sierra Leone, we witness an example of cultural backlash to such gender role confusion. In 2004, as *The Economist* (62) reports, Fanny Ann Eddy, Sierra Leone's most

popular and vocal (qualities usually of a powerful male) lesbian, was murdered in her home as she slept. While 33 out of 54 African countries have made homosexuality illegal, enforcement of such laws is uncommon, and incidents of this violent nature are even more rare. The death of Eddy, a prominent speaker for equal rights, provides a sad and profound example of the variation in acceptance of homosexuality across and within cultures, as we have observed African cultures that both accept and reject homosexuality.

Another society that we have analyzed historically and that we can now analyze presently is that of the Middle East. Baer (25) writes of the Kandahar region's transformation after the defeat of the Taliban from a timidly sexual culture to one that embraced sexual difference. He (25) speaks of "Visible homosexual activity" in Kandahar, public acts that until recently would not only have been disallowed but severely punished. Baer makes it clear that homosexuality as an idea and practice are still frowned upon in much of the Middle East; however, relative to the time during which the Taliban reigned over this specific region, openly homosexual activity has increased exponentially. Tim Reid (Baer, 26), an American reporter, notes, "There appears to be no shame or furtiveness in the behavior of male-male couples" in the Kandahar region. Thus Kandahar provides an encouraging example of openness for homosexuals in a seemingly closed-minded culture. But how common are such cultural progressions, especially in the Middle East?

Halwani (18) describes a different Middle Eastern homosexual culture in Lebanon, one this is forced underground and perpetuated not by openness but by secret networks of friends and acquaintances. These networks, according to Halwani (19), are the product of Western influence, as our terms for and expectations of homosexuality as an ideology have infected the previously undefined Lebanese gay culture. In this way, Western culture has allowed another gay culture to flourish by providing it with a conceptual base, but the price is the perpetuation of

a gay identity that is potentially costly to both Lebanese and other homosexuals. The danger of defining homosexuals and the things expected of them lies in the potential for many homosexuals to follow such guidelines, thus making it is easier for Middle Eastern culture to recognize and chastise homosexuals. Another risk of our homosexual culture bleeding into others is that these mainstream cultures will more readily reject homosexuals, forcing them into social and personal isolation. What follows is what we find in Lebanon, an underground gay scene that doesn't allow for the real issue of mainstream acceptance to surface.

In Asian culture today we find examples of homosexual acceptance based on two distinct rationales: cultural restraint and economic gain. For example, Rubin (29) writes of a set of cultural factors present in China that make it difficult for homosexuals to be openly gay while simultaneously protecting these homosexuals from the severely negative potential consequences of homophobia. That is, cultural restraint both precludes one from being 'out', because that would be too socially confrontational, and protects one from being gay-bashed, because that would be socially rude and unacceptable. China is moving towards acceptance of homosexuals, as the Chinese Psychiatric Association announced the deletion of homosexuality from its list of mental disorders in the year 2000, 28 years after the United States (Rubin, 31). Further, China recognizes that gay men and women make up approximately 3-4% of their population – between 36 and 48 million people – a number greater than the total population of Spain (Rubin, 29). This huge number, in addition to Western gay expatriates, contributes to the growing and increasingly more accepted gay culture in China.

In Singapore, homosexuality is viewed as an opportunity for cultural financial gain, and thus gayness is more accepted in this Asian culture. While Singapore is normally viewed as a rigid, authoritarian Asian nation, the government supposedly is working to transform the nation

and its image into one with a creative, ideas-driven economy (Fairclough, 52). The money brought in from gay venues such as clubs, bars, and retail shops are called 'Pink dollars', and according to Fairclough (53), these are the "Driving force behind the liberation" of homosexuals. Gay citizens are hoping that this economic gain will translate into a legislative one, as anti-sodomy laws still exist in Singapore (though they are rarely enforced amongst consenting adults).

For whatever reasons, then, some Asian cultures are moving toward a more accepting perception of homosexuality. What can be said for countries in Europe? In predominantly Catholic countries like Poland, anti-gay sentiments are more common, as many religious and non-religious groups alike have protested any media that promotes openness and acceptance of the gay community, from billboards to legislation (Kitlinski & Leszkowicz, 41). In Italy, another country of Catholic majority, feelings toward gays are more mixed: Many Italians supposedly support gay rights, but not the celebration of them (*Europe*, 56). Recently, a Catholic government official came out as bisexual, an event that caused many to re-evaluate and reconcile their religious beliefs and views on homosexuality. Similarly, in Germany in 2001, Berlin's acting mayor declared himself gay, an event that resulted from and perpetuated Berlin's reputation as a gay Euro-haven (*Stronger*, 41). And finally, while claiming to be accepting of homosexuals generally, the British Confederation of Psychotherapists only recently exonerated homosexuality as a contributing factor to mental disorder, and the country still has yet to produce an openly gay psychotherapist (Twomey, 7). Clearly, in Europe and elsewhere, there is room for a more open and accepting attitude toward homosexuals.

The history of homosexuality tells us that it is not a modern-day cultural convention, and this historical foundation provides relief for homosexuals that are pressured not to be gay

because homosexuality is against present societal norms. Modern-day perceptions of homosexuality tell us that universal acceptance of homosexuals and their acts does not and might not ever exist. Yet, we can claim with confidence that most societies are progressing in their level of openness toward homosexuals and their varying lifestyles. We can only hope for continued trends of progression in the future, for only through acceptance from others will more homosexuals emerge and integrate into what remains a predominantly heterosexual society. And with this emergence will result more opportunities for research on a demographic that has in the past been neglected.

Discussion

In conducting this literature review I have learned, certainly, about the extent to which homosexuality has been researched in the fields of psychology, anthropology, history, and beyond. However, I have also learned about the perception and integration of minorities into the fields of science generally. Allow me to explain.

The sexual minority that consists of all those non-heterosexual is large and diverse. However, this demographic is at a point in the world of science in which it has not yet been accepted as legitimate - as worthy of comprehensive study. Surely there is a multitude of research dedicated to homosexuals and homosexuality. However, the gaps in research are many, especially compared to other racial, ethnic, cultural, and age-minority groups. Once homosexuality is accepted as a legitimate and well-respected cultural minority, a transition that minorities such as women and African Americans once had to endure, then and only then will the scientific world dedicate enough attention to a minority that would surely benefit from research that explores its many facets.

Perhaps this apprehension from the cultural and scientific worlds is understandable; as indicated above, the term 'homosexuality' is only just over 100 years old. And even today, in the scientific studies that do focus on homosexuality, defining the term is problematic. No two studies that I reviewed used the same, verbatim definition of homosexuality. Further, in many of the studies, one of the potential complications, as recognized by the researcher and by reviewers of the studies, is subject-confusion pertaining to his/her sexual status. If I had sex with a male once 12 years ago, am I a homosexual just as someone who regularly engages in such behavior? Many studies polarized sexuality – one is either hetero- or homosexual – instead of implementing a sexuality gradient – allowing one to rate him/herself as, for example, a '5' of '7' on the scale of sexuality.

It is easy to see how this and other pervasive problems within the research discourage scientific endeavors for progression. But we must recognize that fields of study such as homosexuality need such scientific exposure in order to gain the validity that fields of science require for such attention. Homosexuality, as a field, is in a Catch-22 situation: It needs scientific validity in order to gain scientific validity. But from where does this initial validity come, if not from within the scientific community?

I do not mean to sound so bleak. There is much support from science for research on homosexuality. This is evidenced by an array of individual articles as well as whole journals dedicated to the field. However, a discouraging factor about this current research is that much of it is focused on the negative aspects of homosexuality, e.g. the rampant sexual activity and drug use in which homosexuals purportedly partake. This is another reason that homosexuality is perceived negatively; the research that is dedicated to it portrays the lifestyle as one undeserving of respect.

A call to action for homosexuals to be researched as comprehensively as other minorities is necessary. Perhaps research investigating the origins of homosexuality can provide a foundation for this potential research. But we must be wary; studies on the genetic, biological, dermatoglyphical, and cultural components of sexuality may provoke an unpredicted reaction from those who wish to misuse the information. For example, homosexuals might rejoice in knowing that their sexuality has a genetic component, as such information might validate them as 'real' people undeserving of discrimination and ridicule. However, therein lies the potential for eugenicists to abuse such information, posing such questions as, "If we can locate the genes for homosexuality, why not isolate and destroy them, since homosexuals serve no reproductive purpose?"

We must form a compromise, then, of well-intentioned research with an openness to the results of that research - an openness from both scientists and subjects. The results of such comprehensive research may surprise or even frighten both scientists and homosexuals alike. But the opportunity for and benefits of homosexuals progressing personally and communally far outweigh any potential drawbacks of expanding this field of research.

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