

# How Many Gays Are There? It Depends

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*This is not a study of “homosexuals” but of participants in homosexual acts... This is the activity, and these are the actors, that I set out to study in 1965*

(Humphreys, 1970, p. 18).

Since the time of Laud Humphreys' *Tearoom Trade* and his investigation of “covert deviants,” homosexuality has achieved both public and scientific visibility. Once considered by scientists to be a legal, moral, and mental abnormality, homosexuality is currently perceived by many scholars and youth as merely statistically deviant. This is not to deny that some portion of the US population still believes that same-sex sexuality is a religious and psychological aberration. It is the statistical and not the psychological health question that I address in this chapter: *How many gays are there?* In other contexts I explore whether the answer to this question matters in select (primarily clinical) domains (Savin-Williams, 2006).

Early gay scholars answered the “how many” question based on a misreading of Kinsey's findings (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953), proclaiming, “10%!” Recently, sexologists have more prudently proposed a lower fraction, less than 1 in 25 (Diamond, 1993). A questionnaire study of US and Canadian college students concluded that findings did not “by all reasonable criteria” support suggestions that 10% of young adults identify as nonheterosexual. “Instead, our findings were much closer to estimates [citations] of less than 4% of males (and less than 2% of females) being predominantly non-heterosexual” (Ellis, Robb, & Burke, 2005, p. 578).

Essentially neglected in previous prevalence research are the critical, inherently logical prior questions, “Who's gay?” and “How much gayness is necessary to be gay?” I argue that estimates of the statistical standing of nonheterosexual orientation groups must first decide how relevant populations are defined. Because of dramatic changes in recent cohorts regarding the openness and possibility of nonheterosexuality (Savin-Williams, 2005), my focus, except where otherwise noted, is on data collected from adolescents and young adults growing up during the past two decades.

## Defining Sexual Orientation

### *Historic Interest*

The stunning findings produced by Kinsey and associates (1948, 1953) regarding the unexpected widespread engagement in homosexual behavior by a diverse and mundane populous of North Americans generated considerable scientific and political attention about the possibility of life-long homosexual individuals and their sexual activities. What Kinsey actually concluded was that 10% of males are “more or less exclusively homosexual... for at least three years” after age 16, but only 4% are “exclusively homosexual throughout their lives, after the onset of adolescence” (Kinsey et al., 1948, p. 651). Compared to males, the homosexual prevalence rate among females was about a half to a third “who were, in any age period, primarily or exclusively homosexual” (Kinsey et al., 1953, p. 475). These more stringent restrictions, largely ignored and rarely cited, correspond to modern estimates of 2–4%.

Several sexologists, however, question these approximations based on how homosexuality is conceptualized and defined. McConaghy (1999) argued that one of the unresolved issues in scientific sexology is appreciating the fact that the majority of individuals with same-sex attraction and behavior identify not as homosexual, but as heterosexual. For example, a recent study of over 4,000 New York City male adults revealed that more straight-identified than gay-identified men had sex with at least one man and no women in the past year (Pathela, Hajat, Schillinger, Blank, Sell, & Mostashari, 2006). In the Ellis study (Ellis et al., 2005), although only 2% of college men and women identified as homosexual/bisexual, 9% had exclusive same-sex sexual fantasies and an additional 4% reported 51–99% of their sexual fantasies were same-sex oriented. Is the prevalence rate of homosexuality/bisexuality 2% or 13%?

McConaghy also maintained that sexual orientation is less categorical than it is a spectrum, and points on a continuum with degrees of opposite- and same-sex attraction, desire, and behavior. At what point one demarcates “homosexual” and how much of same-sex sexuality is necessary to fall into this category are vital but unsettled considerations. Among Norwegian adolescents, 16% had some degree of same-sex attraction; the proportion was 7% if counting same-sex sexual contact and 3% if identifying those with a bisexual/gay self-label (Wichstrøm & Hegna, 2003). Among Turkish university students a similar pattern was found: 7% had sexual desire for the same sex but only 2% had an orgasmic same-sex relationship and 2% considered themselves as homosexual or bisexual (Eskin, Kaynak-Demir, & Demir, 2005).

Questions of who belongs in particular sexual groupings and on what basis are central for a viable paradigm for research on sexual orientation (Diamond, 2003a; Savin-Williams, 1990, 2001). Yet, science provides few definitive answers about the appropriate means of defining sexual orientation. In most investigations, inclusion criteria for designating homosexual populations are a crap shoot with little

theoretical justification or consensus about what constitutes homosexuality. Is it a girl who consistently and unavoidably falls in love with other girls? A boy whose penis is aroused by films of naked boys? Boys who engage in same-sex behavior, regardless of their specific activities or regardless of how frequently they do it? Girls who identify themselves as lesbians or bisexuals? Most investigators simply ignore these questions and assume a practical methodological stance: whatever is prudent to insert in a questionnaire. Sometimes homosexuality is not defined and inclusion is based on such criteria as who shows up – volunteers from gay organizations or parades – or those who self ascribe a gay label. Such individuals are indeed likely to be gay, but they are also clearly not exhaustive and not necessarily representative of those with a same-sex orientation.

The historic question remains, “What is a gay?” What is it that is most essential, and to what degree, to designate such individuals? Because empirical distinctions among various operational definitions are seldom made, consumers of research are left uncertain as to how best to assess homosexuality or if those who participate in gay research are representative of gay lives. Indeed, I have argued over the past two decades that traditional gay youth research recruits are likely *not* representative of the much larger population of same-sex attracted youth, who frequently have a developmental history quite discrepant from the usual survey respondents.

### ***Sexual Orientation Components or Expressions***

Most generally, sexual orientation is defined by whether one is erotically attracted to males, females, or both (LeVay & Valente, 2006). Scientists who investigate the etiology of homosexuality usually conclude that it is present from birth, either because of genetics and/or prenatal hormonal events (Mustanski, Chivers, & Bailey, 2002). Sexual orientation is discernible from retrospective reports of pre-pubertal attractions/infatuations (Savin-Williams, 2005) and from childhood sex-atypical behavior and interests (Bailey & Zucker, 1995; Cohen, 2004; Ellis et al., 2005). It is during puberty and shortly thereafter when sexual orientation becomes most clearly manifested in reports and experiences of sexual arousal, romantic attraction, sexual behavior, and sexual identity (Savin-Williams & Cohen, 2004; see Box 1 for definitions).

In the biological and health sciences, sexual orientation is frequently inferred based on reports of *sexual behavior* during the past year or over a lifetime (since puberty). A single instance of same-sex activity, regardless of its normative significance for the individual’s overall pattern of sexual behavior, usually places one in the homosexual category. For example, using the National Household Survey of Drug Abuse data set, Cochran and Mays (2000) defined as homosexual those who report any same-sex partners during the past year. Similarly, using interview data from the Netherlands Mental Health Survey and Incidence Study, Sandfort (Sandfort, de Graaf, Bijl, & Schnabel, 2001; Sandfort, de Graaf, & Bijl, 2003)

## **Box 1** Components of sexual orientation<sup>a</sup>

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*Sexual Orientation* is the preponderance of erotic and romantic arousals, feelings, fantasies, and behaviors one has for males, females, or both.

Sexual orientation can be assessed by various components.

### **Sexual Attraction**

*An intense, physiological, uncontrollable erotic or sexual desire for males, females, or both sexes.*

- “On a scale of 1–4, where 1 is very appealing and 4 is not at all appealing, how would you rate each of these activities: ...having sex with someone of the same sex?” (Laumann, Gagnon, Michael, & Michaels, 1994, p. 293).

### **Romantic Attraction**

*Being or wanting to be in a primary loving, romantic relationship with males, females, or both sexes.*

- “Have you ever had a romantic attraction to a male? Have you ever had a romantic attraction to a female?” (Udry & Chantala, 2005, p. 484).

### **Sexual Behavior**

*Involvement in (minimally) genital contact with males, females, or both sexes.*

- “Have you ever had a relationship with someone of your own sex which resulted in sexual orgasm?” (Eskin et al., 2005, p. 188).
- “Here, by ‘sex’ or ‘sexual activity,’ we mean any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is, feeling really turned on, even if intercourse or orgasm did not occur” (Laumann et al., 1994, p. 67).

### **Sexual Identity**

*Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality.*

- “Pick from these six options: gay or lesbian; bisexual, but mostly gay or lesbian; bisexual, equally gay/lesbian and heterosexual; bisexual, but mostly heterosexual; heterosexual; and uncertain, don’t know for sure” (D’Augelli, Hershberger, & Pilkington, 2001, p. 252).
- “Do you think of yourself as heterosexual, homosexual, bisexual, or something else?” (Laumann et al., 1994, p. 293).

<sup>a</sup>Based in part on Savin-Williams (2006)

linked mental health and sexual orientation by defining as homosexual anyone who reported same-sex behavior in the preceding year. Others make a higher demand, defining homosexuality as engaging in *exclusive* same-sex behavior (Durant, Krowchuk, & Sinal, 1998; Faulkner & Cranston, 1998). Yet, same-sex oriented youth may have limited opportunities to find desired sexual partners (few identifiable peers willing to engage in same-sex behavior), yearn for sexual experimentation or pleasure with opposite-sex peers, or desire to fit in and appear heterosexual. For some youth, of course, sex with both sexes is simply an expression of their bisexuality. Unexamined in these data sets are the contexts in which the same-sex activity takes place (whether in a prison, rectory, boarding school, the bedroom), the frequency of sexual behavior (once, occasionally, daily), or the motivations for the behavior (lust, curiosity, love, money, friendship). Thus, a young woman who has among her daily sexual encounters with men a single, mutual masturbation experience with a best female friend is in the same category as a young man who has exclusive, daily oral/anal intercourse with multiple male partners. Seldom do investigators record or consider these extenuating variables.

Also unexamined is what constitutes sex for the subjects (for a more general discussion of this issue, see Savin-Williams & Diamond, 2004). When Norwegian students were asked about their "homosexual experiences," 27% of the girls and 7% of the boys responded affirmatively. If asked specifically for particular sexual behaviors, 26% of the girls and 4% of the boys engaged in French kissing; if, however, the category was genital experiences the proportions dropped to 5% and 3%, respectively (Hegna & Larsen, 2005).

By contrast, in the psychological and social sciences, sexual orientation is usually determined by a self-reported description of sexuality, usually referred to as *sexual identity*. In most cases, the single-choice options are limited to gay, lesbian, bisexual, and heterosexual; occasionally, "not sure," "uncertain," or "something else" is included, but then discarded in analyses because of its low frequency. For example, the Massachusetts Youth Risk Behavior Survey posed the question, "Which of the following best describes you?" Subjects selected one of the following: "heterosexual (straight)," "gay/lesbian," "bisexual," or "not sure" (Garofalo, Wolf, Wissow, Woods, & Goodman, 1999). In other studies, questionnaire stems include phrases such as "think of yourself as" or "nominate yourself as." A second strategy is to give participants a 5-point scale from exclusive heterosexual to exclusive homosexual and instruct them to select one of the five descriptors (e.g., "mostly heterosexual"). Investigators seldom define these terms or agree about how to group the response options, such as how far along the continuum is to be counted as gay. For example, in one of the most productive data sources on the lives of gay youth, participants were to "describe yourself." Available responses included:

1. Gay or lesbian
2. Bisexual, but mostly gay or lesbian
3. Bisexual, equally gay/lesbian and heterosexual
4. Bisexual, but mostly heterosexual
5. Heterosexual
6. Uncertain, don't know for sure

Terms such as gay, bisexual, mostly, and uncertain were not defined; the relevant domains of sexuality to be described were not specified; only individuals in the first three groups were included in the study (the true gays and bisexuals); and data analyses treated the three groups as one (“lgb”) (D’Augelli, Hershberger, & Pilkington, 2001).

The other two components of sexual orientation, *sexual attraction* (sometimes named arousal, desire, fantasy) and *romantic attraction/relationship*, are the least frequently assessed. Indeed, a study less than a decade old on “homosexual demography” (Hewitt, 1998, p. 390) noted that homosexuality “can be defined behaviorally or in terms of an individual’s sexual identity” – with no indication that same-sex attraction or love might be a method of assessing homosexuality. Recent inclusions of romantic or sexual attraction are often practically or politically motivated: questions that explicitly ask minors about their sexual identity, especially when terms such as gay and lesbian are included, and sexual activities are too controversial and threaten parental consent (Caldwell, Kivel, Smith, & Hayes, 1998). Political reservations contributed to the definitions of sexuality in the National Longitudinal Survey of Adolescent Health (Add Health) (Udry & Bearman, 1998a, b). Although the third wave of data collection (when participants were young adults) asked about sexual identity, the first two waves, primarily given to adolescent minors, queried about the gender of sexual behavior and romantic attraction. Participants’ attraction and behavior were classified as opposite-sex, same-sex, both-sex, or none. In early analyses of the data set, the middle two categories were perceived to capture “a broad range of youths, both those who might identify themselves as gay, lesbian, or bisexual and those who would not,” but who might eventually come out (Russell & Joyner, 2001, p. 1277). For other researchers as well, romantic/sexual attraction was considered to be a surrogate, an acceptable proxy for sexual identity, the apparent sine qua non sexual orientation component (Caldwell et al., 1998, p. 345; see also Ellis et al., 2005).

By contrast, international investigators have been more willing to assess sexual/romantic attraction as a legitimate measure of sexual orientation. Norwegian youth were asked “Are you sexually interested in men or in women (sexually attracted to, sexual fantasies about)?” and given a 7-point response scale mimicking the Kinsey range (Wichstrøm & Hegna, 2003, p. 145). Similar questions have been asked in Australia (Dunne, Bailey, Kirk, & Martin, 2000; Smith, Rissel, Richters, Grulich, & de Visser, 2003), New Zealand (Dickson, Paul, & Herbison, 2003; Fergusson, Horwood, Ridder, & Beautrais, 2005; Skegg, Nada-Raja, Dickson, Paul, & Williams, 2003), Switzerland (Narring, Stronski Huwiler, & Michaud, 2003), Turkey (Eskin et al., 2005), and the United Kingdom (Warner et al., 2004; Wellings, Field, Johnson, & Wadsworth, 1994).

Most striking about both the national and international literatures is the failure of investigators to ask participants what they believe constitutes sexual orientation. With this in mind, a group of researchers asked mixed-sex and mixed-orientation adolescent focus groups to develop a definition of sexual orientation (Friedman et al., 2004). The youth’s consensus best measure did *not* include the traditional

sexual orientation components sexual identity and sexual behavior because, the youth believed, too many people lie about their sexual activities and misunderstand what their sexuality means when they label themselves with a sexual identity. Their recommendation was to highlight two aspects:

- Whether one is or desires to be in a primary loving, sexual, and romantic relationship with a particular sex
- Whether one has an intense, physiological response for one or both sexes

The latter component, one not generally made by social scientists, can be assessed by physiological genital arousal expressions of sexual orientation – penile plethysmography (changes in the circumference of the penis) and vaginal photoplethysmography (changes in vaginal vasocongestion) (Chivers, Rieger, Latty, & Bailey, 2004; Rieger, Chivers, & Bailey, 2005). The assumption is that such assessments do not easily lie; it might also be possible to measure a continuum of responses (e.g., perhaps how erect the penis becomes). Other less intrusive biologic possibilities not yet adequately developed or tested include brain scans, eye tracking or pupil dilation in response to visual stimuli, differential attention given to male/female stimuli, body odor preference (pheromones), and anatomical variations (e.g., digit length ratio, handedness, otoacoustic emissions, sex-role motor behavior, and sex-atypical behavioral characteristics such as voice and body movement). Many of these assessments have unknown psychometric properties and may elicit unacceptably high levels of error.

Regardless of which sexual orientation component is assessed, little is known about its stability over time or its concurrent and longitudinal consistency – that is, do various sexual orientation components relate to themselves and to one another?

## **Stability and Consistency of Sexual Orientation**

### ***Stability***

The extent to which sexual orientation is stable over time is essentially unknown, a surprising fact given the presumption of its stability by behavioral scientists and the critical nature of these data for issues such as whether sexual orientation is a matter of choice or destiny. Youth maintain that sexual identity (gay today, straight tomorrow) and sexual behavior (it was only a one-time thing) are by their very nature subject to change, especially during adolescence and young adulthood (Friedman et al., 2004). Is sexual attraction and romantic feeling so vulnerable? The stability data for all components are relatively meager and inconsistent.

In a short-term longitudinal study of sexual questioning among pre- and early adolescents, the stability over a school year was relatively high, 0.75 (Carver, Egan, & Perry, 2004). By contrast, among the 14% of Dutch adult men who reported ever having physical attraction to males, about half noted that these feelings disappeared

later in life (Sandfort, 1997). Diamond's (2003b, 2008) 10-year longitudinal study of young women is one of the few to assess long-term stability in same-sex sexuality. Nearly two-third of the young women changed their identity label at least once, often because the identity categories did not adequately capture the diversity of their sexual and romantic feelings for female and male partners. Over time, lesbian and bisexual identities lost the most adherents and heterosexual and unlabeled gained the most. What remained relatively unchanged were reports of sexual and romantic attraction. That is, a young woman might change her identity from bisexual to heterosexual to unlabeled without undergoing a comparable change in her attraction to females.

Several retrospective studies provide support for an instability conclusion, at least for nonheterosexual populations. Among community and college youth, nearly two-third of gay/bisexual-identified individuals thought at one time during their development that they were in the other category (Rosario et al., 1996) – although it is not clear whether the reference to “change” captures identity, attraction, behavior, or some combination of these three. A recent study of adults attempted to clarify this issue by assessing on a 7-point Kinsey scale (from exclusively heterosexual to exclusively homosexual) multiple components of sexuality, including sexual fantasy, romantic attraction, sexual behavior, and sexual identity (Kinnish, Strassberg, & Turner, 2005). Change scores were derived by asking participants to rate themselves on these components for every 5-year period beginning with ages 16–20 years. In general, women and nonheterosexuals were more likely than men and heterosexuals to report changes in their sexuality. Even though each identity category step represented a significant alteration in self-presentation, over time many gays, lesbians, and bisexuals changed their identity label (especially women and bisexuals). Summarized in Table 1 is how various identity groups changed. For example, most gay men always identified as gay; only about one-third of lesbians had always identified as lesbian. The dimensional assessments of fantasy, attraction, and behavior reflected similar trends. Even though roughly 90% of heterosexually identified individuals had a 0- or 1-point change during their lifetime, the majority of gay (52%), lesbian (80%), and bisexual (90%) identified individuals had multiple changes on the dimensional variables. Reports of sexual behavior changed more often than romantic attraction.

Two additional longitudinal data sets provide unique opportunities to assess the stability of sexual orientation measures over time. Comparing sexual attraction at two

**Table 1** Changes among identity groups over time in identification

Identity	Heterosexual (%)	Gay (%)	Lesbian (%)	Bisexual (%)	Multiple (%)
Heterosexual	97	0	0	3	1
Gay	11	61	–	19	9
Lesbian	39	–	35	10	16
Bisexual male	50	12	–	34	4
Bisexual female	63	–	6	23	8

time periods in a New Zealand birth cohort, first when participants were 21 years old and 5 years later as 26 year olds, Dickson et al. (2003) found that the proportion of young men who reported at least occasional same-sex attraction increased from 4 to 6%; among young women, from 9 to 16%. Although nearly all heterosexual men (98%) kept their opposite-sex attraction, 12% of opposite-sex attracted young women experienced at least occasional same-sex attraction. The migration among sexual orientations was bidirectional. The proportion of nonheterosexuals switching to heterosexuality was far greater than the reverse (as might be expected given their lower numbers): one-half and one-third of 21-year-old women and men, respectively, who experienced occasional same-sex attraction only had opposite-sex attraction as 26 year olds. Nearly 80% of 21-year-old men who reported exclusive same-sex attraction kept the attraction; however, 20% moved into the “occasional” same-sex attraction group 5 years later. Again, young women appeared more fluid: only 38% of exclusive same-sex attracted young women stayed in this group with the rest moving into “occasional” same-sex attraction (38%) or “exclusive” opposite-sex attraction (25%).

In the ongoing Add Health longitudinal study, romantic attraction and sexual behavior proved to be significantly stable over 6 years in three waves of data collection, largely because of the stability of opposite-sex attraction and behavior (Savin-Williams & Ream, 2007). However, youth who reported being romantically attracted to their own sex or engaging in same-sex behavior were seldom the ones who reported same-sex attraction or behavior 1 or 6 years later. For example, of the 69 Wave I boys who indicated that they had *exclusive* same-sex romantic attraction, only 11% reported exclusive same-sex attraction 1 year later (6% to both sexes); 48% had only opposite-sex attraction and 35% had no attraction to either sex (Udry & Chantala, 2005). Of the Wave 1 girls with exclusive same-sex romantic attraction, over half reported exclusive opposite-sex attraction 6 years later as 22 year olds (Savin-Williams & Ream, 2007). Yet, these Wave 1 reports of romantic attraction have been used to define “gay youth” (Russell & Joyner, 2001).

Components of same-sex sexuality are more stable among males than females and heterosexuals than nonheterosexuals. It is not possible, however, to state with confidence which sexual orientation component is more or less stable over time. In part this is due to the large variety of definitions used to encapsulate the components. It is safe to conclude that the available data indicate relatively low levels of stability across all same-sex components, especially during adolescence and young adulthood. This might have less to do with individuals’ sexuality than with our assessments of sexual orientation.

### ***Consistency***

Data documenting consistency among sexual orientation components (one predicting the others within a time period or across time periods) are rare but now less elusive, largely because recently several investigators have included more than one expression of sexual orientation in their research design. Despite this, conclusions are difficult to

reach; correlations between components within a time frame range from extremely low (0.10) to high (0.79) (Ellis et al., 2005; Eskin et al., 2005; van Griensven et al., 2004). Longitudinal consistency data – a component at one point in time predicting another component at another point in time – are largely absent. Before reviewing the adolescent/young adult literature, findings from adults are presented.

A study of Dutch adult men illustrates the discrepancies among sexual orientation components (Sandfort, 1997). More than half of the men who reported ever having physical attraction to other males never sexually acted on their attraction, less than half reported ever being in love with a man, and nearly all said they had at one time been in love with a woman. Even among the Dutch men who reported sex with another male, one-third said they were not attracted to males and just half of these same-sex behaving men identified as gay/bisexual or had ever been in love with a male. In a study of adult British women who have had a female sex partner, 96% also had a male partner; of British men, 90% had an opposite-sex partner (Wellings et al., 1994). Among US adults, only about 20% of those who were gay on one component reported being gay on the other two; 70% reported being gay on only one of the three components (Laumann, Gagnon, Michael, & Michaels, 1994).

Among adolescents and young adults, the empirical evidence is similarly inconsistent. One of the most telling was an anonymous questionnaire study conducted with a representative sample of Minnesota junior and senior high school students. The youth rarely reported agreement among their same-sex fantasy, attraction, behavior, and identity (Remafedi, Resnick, Blum, & Harris, 1992). The relationship between pairs of the components is reviewed here.

First, a substantial body of literature supports the finding that the vast majority of those who *identify* as gay also engage in same-sex *behavior*. The one exception is an Internet study which found that nearly one-third of young men and one-half of young women who self-ascribed a same-sex identity had not engaged in same-sex behavior (Kryzan, 1997). Less convincing, however, is the transposition: although a higher proportion of gay than heterosexual-identified youth engages in same-sex behavior, the sexual partners of gay youth usually identify as heterosexual. Indeed, in terms of pure numbers, similar to Pathela et al.'s (2006) study of adult men, most adolescents with a same-sex experience do not identify as gay but as heterosexual – three-quarters in the Remafedi et al. (1992) study. The reverse is also true: a heterosexual encounter is as likely or more likely to be reported by a gay- as a heterosexual-identified youth (DuRant et al., 1998; Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998). This seeming contradiction, that a majority of gay-identified youth report opposite-sex behavior, is reflected in the finding that exclusive same-sex behavior within adolescent and young adult populations is relatively rare (<1%) (D'Augelli, 1991; D'Augelli & Hershberger, 1993; Garofalo et al., 1999; Remafedi et al., 1992; Savin-Williams, 1998). These findings are supported by crosscultural data. Among Swiss adolescents, 87% of girls and 77% of boys with same-sex activity identified as heterosexual (Narring et al., 2003). Among Turkish college students, the correlation (0.36) between same-sex behavior and identity was significant but low (Eskin et al., 2005). Slightly over 4% of heterosexually identified Thai adolescents first had sex with a same-sex partner (van Griensven et al., 2004).

Second, the association between same-sex *attraction* and *behavior* is also weak. Among Norwegian 17- to 18-year olds, Hegna and Larsen (2005, p. 1) found that only a minority of those with homosexual sex also had homosexual attraction, except among males when the homosexual experiences were defined as oral and anal intercourse. They concluded, "Hence, most homosexual experiences among Norwegian youth are not unequivocally tied to homosexual attractions and possible homosexual self-identity." This discrepancy was especially true for females; their same-sex behavior appeared to the authors as exploratory rather than an explicit statement about their sexuality. Another study also found this sex difference: same-sex attracted young Australian women more often engaged in exclusive sex with males than they did with females or with both sexes, whereas same-sex attracted young men were more likely to be exclusively same-sex focused (Hillier et al., 1998). Among Turkish college students, the correlation (0.24) between same-sex attraction and behavior was significant but of a low order (Eskin et al., 2005). Just over one-third of Minnesota students with homosexual sexual fantasies had a same-sex experience (Remafedi et al., 1992).

Finally, the consistency between same-sex *attraction* and *identity* is also weak, at best. Minnesota public school students were four times more likely to report same-sex attraction than a same-sex identity and only 5% of those with same-sex attraction identified as gay; the correlation between same-sex attraction and a gay identity was strikingly low, especially for girls (0.10) compared to boys (0.30) (Remafedi et al., 1992). Among Swiss adolescents, the relationship between sexual identity and attraction was generally low. For girls, 73% of those with same-sex attraction (83% of those with same-sex fantasies) identified not as lesbian/bisexual but as heterosexual. For boys, the proportions were lower but in the same direction: 71% and 61% (Narring et al., 2003). Among Turkish college students, the correlation (0.37) between same-sex attraction and a same-sex identity was significant but low (Eskin et al., 2005). Counter to these results were the correlations between sexual identity and attraction among Thai adolescents (0.79 for boys and 0.64 for girls) (van Griensven et al., 2004) and of self-descriptions of being homosexual, bisexual, or heterosexual among US college students with self-reported fantasies about same-sex romantic relationships (Schmitt & Buss, 2000).

The weak relationships among sexual orientation components are also illustrated by the Add Health longitudinal data set (Savin-Williams & Ream, 2006). For example, during Wave 3 when the average participant was 22 years old, less than 2% of the young woman who reported having exclusive same-sex romantic attraction or having exclusive same-sex behavior identified as exclusively or mostly gay; among young men, 13% and 3%, respectively. Of those who had *both* exclusive same-sex attraction and behavior, 41% of women and 82% of men identified as mostly or exclusively gay. The effect of same-sex sexual behavior was subsumed over time with the effect of same-sex romantic attraction such that past sexual behavior *only* had implications for a young adult's sexual identity if it "meant something" in terms of romantic attraction. That is, attraction plus behavior was better than either alone in predicting eventual sexual identity. Same-sex behavior per se had little predictive power for young women. Of adolescents who engaged in same-sex

behavior at Wave 1, fewer than one in 25 males and one in five females identified as nonheterosexual as Wave 3 young adults. Of those who reported exclusive same-sex romantic attraction when they were 16 years old, more reported future opposite-than same-sex behavior.

### *Summary*

Based on the available data, sexual orientation components tend to be unstable over time and inconsistent with each other. Changes can be bidirectional, multiple, and seemingly unpredictable. Individuals leave and enter nonheterosexuality, perhaps once or several times, and at different rates and times across the components. Although nearly all individuals who identify as gay also report same-sex attraction, arousal, and behavior (except for gay virgins), a relatively small minority of those with same-sex attraction, arousal, or behavior identify as gay. Considerably more adolescents report same-sex attraction than engage in same-sex behavior or identify as gay/bisexual. Whether this instability and inconsistency uniquely reflect adolescent developmental phenomena is doubtful because the same trends are also found among adult populations (Dunne et al., 2000; Laumann et al., 1994; Pathela et al., 2006; Savin-Williams & Ream, 2006, 2007; Smith et al., 2003).

Several investigations indicate that there is more of an alignment among males than females in sexual orientation components. Among young women, these inconsistencies have been interpreted as manifestations of “sexual fluidity” (Diamond, 2003a) or “erotic plasticity” (Baumeister, 2000). For example, compared to young men, young women in the Add Health data set were relatively more inconsistent in their romantic attraction and sexual behavior and in their opposite-sex attraction and sexual identity; they also expressed lower levels of stability in opposite-sex attraction, same-sex behavior, and opposite-sex behavior. One task for researchers is to explain the finding that young women who engage in exclusive sexual behavior with other women are more likely to report that they are exclusively attracted to males than to both sexes or only to females (Savin-Williams & Ream, 2006).

How or why individuals transform their sexuality or their understanding of their sexuality, or remain stable and consistent, is unknown. Yet, when considering the real-life experiences of adolescents, these instabilities and inconsistencies do not seem surprising. A young woman may be romantically attracted to women, but she does not thus necessarily give up her enjoyment of sex with men. How to identify her sexuality? Perhaps she identifies as lesbian as a means to bond with a community of women, as heterosexual to please her parents, or as unlabeled because she does not want to be pigeon-holed. A young man may have consistent and persistent longings for sex with males, falls deeply in love with a woman, has sexual experiences with both sexes, and identifies as heterosexual as a means to secure his chosen career. Developmental movements over time from assumed heterosexuality to nonheterosexuality and back to heterosexuality characterize lives in which an individual has a singular idealized, hero-worship infatuation with a coach, teacher, or older peer that is interpreted as a romantic

crush; engages in a curiosity-driven sexual experience that may be a one-time event, sporadic, or continuous; or says gay or bisexual to be “in” or to fit the image of the rebellious teen. Youth want to be “acceptable” and the moving target of popularity may motivate various sexual identifications or behaviors. Movements among heterosexuality and nonheterosexuality may also be understood as “finally” recognizing one’s true or authentic self, even if that acknowledgment is merely temporary.

These real-life developmental experiences are seldom investigated by behavioral scientists who struggle to explain the stability or predictive failure of sexual orientation components. Worthy research pursuits would be to test whether different components have a different meaning or salience at various ages or for the sexes. In the Add Health data set, for example, consistency between attraction and behavior increased with age for both sexes such that by young adulthood same-sex attracted individuals were more likely to engage in behavior consistent with their attraction (Savin-Williams & Ream, 2006). This developmental trend might be the result of the greater opportunities afforded young adults in college or the work world to sexually act on their attraction or their greater realization over time about the permanence, meaning, and significance of their attraction and behavior.

An early study conducted with college women in the 1970s (Goode & Haber, 1977) provides data that guide us in understanding both the relative instability and inconsistency in sexual orientation components. Of the 160 young women in the study, 10% reported that they had sex with a woman. Nearly all these women, however, also had intercourse with a man, with many reporting that they enjoyed it. What most clearly distinguished these women from the collegiate women without same-sex contact were the details – the spectrum or continuum of same-sex sexuality. They had half as many male partners, had a narrower range of sexual activities with men, were half as likely to “almost always” have an orgasm with a man, were more likely to have had sex with a man they did not love, were half as likely to usually enjoy fellatio with a man, and were far less likely to have had their most pleasurable orgasm during intercourse with a man. Thus, rather than pursuing absolutes (e.g., women who have exclusive same-sex behavior), it was in the degree, proportion, and level of sex that most clearly distinguished the women. Yes, they had sex with men, but they had it less often, they had it later, and they enjoyed it less. These findings help us understand sexual orientation – especially prevalence rates.

## **Prevalence of Gays**

In reviewing the demographics of gay and lesbian populations over the past decade, Black, Gates, Sanders, and Taylor (2000, p. 141) noted that the “incidence rate of homosexuality varies greatly depending on how homosexuality is defined” and that the correlations between definitions are frequently lower than “one might think.” They contrasted various measures of sexual behavior and found over twice as many

women and men reported having at least one same-sex encounter since the age of 18 as having exclusive same-sex behavior during the past year. By either time frame, the proportion of those identifying as gay or bisexual was far smaller – often by a factor of at least one-half – than those engaging in same-sex behavior. Thus, which sexual orientation component is assessed and how much of a component matters are critical when reporting prevalence rates (Table 2).

### *Depends on Which Measure*

When researchers determine who is gay, they usually base their estimate on a single component of sexual orientation at one point in time. Yet, this strategy excludes many same-sex oriented individuals and misidentifies some heterosexuals as gay. If gay is defined as engaging in same-sex behavior, all virgins are omitted, heterosexuals who engage in same-sex behavior are miscounted, and gays who have only opposite-sex behavior are excluded. If gay is defined by self-identification, the much larger number of individuals who become aroused by those of the same sex, who report same-sex romantic relationships or sexual attraction, or who engage in same-sex behavior but who, for whatever reason, do not identify as gay is eliminated. If gay is defined by having same-sex attraction or a romantic relationship, then questions such as how intense do same-sex attraction or love need to be and what proportion of attraction or relationships must be same-sex oriented before counting as gay matter. Together these excluded individuals constitute a sizeable number. Clearly, individuals classified as gay in one study might not be so designated in another study that uses a different component or a different time frame. The result is differential prevalence rates.

These definitional dilemmas are not restricted to one age group or one culture. In the United States, the United Kingdom, and France, exclusive same-sex behavior rarely characterized more than 1% of the adult population (Sell, Wells, & Wypij, 1995). If the definition was broadened to include individuals who had both same- and opposite-sex behavior, who had some degree of same-sex attraction, or at least one of the two, then the proportion of gays expanded considerably – nearly one-fifth of the population of men and women (Table 3). Sell and associates, consistent with the adolescent focus groups (Friedman et al., 2004), suggested that researchers should *not* use homosexual behavior alone to define sexual orientation.

Similar conclusions characterize crosscultural research among adolescent and young adult populations. Empirical investigations consistently reveal wide variations within and across studies regarding the prevalence of sexual orientation groups based on definitional considerations (Table 2). Although it is not possible to systematically compare cohorts or cultures because of the relatively few intra-group studies, the various ways in which sexual orientation has been defined, and the multiple groupings of subjects (often within wide age ranges; sexes are separated or combined), requesting information about sexual attraction or

**Table 2** Studies assessing prevalence rates of same-sex orientation among adolescents and young adults

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1970	Fay, Turner, Klassen, and Gagnon (1989)	US Kinsey, 21–29 years old, <i>n</i> = 270 men	Sexual experience with climax (yes/no)			14% rare 8% occ/often
1974	Asayama (1976)	Japan, 16–21 years old, <i>n</i> = 2,101 women, 2,574 men	Homosexual contact (kiss, pet, mutual masturbation; yes/no)	4% yes		7% yes
1975, 1981, 1987	Diamond (1993)	Japan, 10–22 years old, <i>n</i> = 2,236 women, 2,764 men; <i>n</i> = 2,485 women, 2,505 men; <i>n</i> = ? women, 4,317 men	Homosexual body contact for 3 years (yes/no)	4% 1975 5% 1981 3% 1987		7% 1975 6% 1981 4% 1987
1986–1987	Remafedi et al. (1992)	Minnesota grades 7–12, <i>n</i> = 18,444 women, 18,077 men	Think/daydream about sex (with male/female) Attracted only, strongly, equally and sexual with same or opposite sex (5-pt. scale) Sexual experience, any kind (yes/no) Sexual identity (5-pt. scale: 100% homo, most homo, bisexual, most het, 100% het)	3% both 1% same 5% both 1% same 1% some 1% bisexual 0.5% homo	2% both 1% same 4% both 1% same 2% some 1% bisexual 1% homo	

(continued)

**Table 2** (continued)

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1987, 1989, 1991, 1993	Breakwell and Fife-Schaw (1992)	United Kingdom schools, <i>n</i> = 1,315 women, 856 men (four cohorts, age range = 16–20)	Deep kissing	2%		1%
				1%		3%
				2%		2%
				2%		3%
			Stimulating genitals	1%		2%
				1%		7%
				1%		3%
			Oral sex	1%		3%
				1%		1%
				1%		4%
				2%		3%
				0.4%		2%
			Anal sex	-		0%
				-		1%
				-		1%
				-		2%
1988, 1989	Rogers and Turner (1991)	Combined US NORC General Social Surveys, <i>n</i> = 486, 21–29 year old men	Same-sex partners since age 18 (yes/no)			6% yes
1989	Rogers and Turner (1991)	Dallas County, TX survey, <i>n</i> = 265, 21–29 year old men	Same-sex partners since 11 years ago			7% yes

1990?	Wellings et al. (1994)	National survey of Britain, 16-24 years old, $n = 2,246$ women, 1,984 men	Sexually attracted, interview (5-pt. scale, only females to only males) Sexual experience, interview (kiss, touch, intercourse, other on 5-pt. scale, only females to only males) Sexual experience or contact with same sex booklet Genital contact with same sex, booklet	5% any att. 2% any exp. 3% any exp. 1% any contact	7% any att. 5% any exp. 4% any exp. 2% any contact
1991	Billy, Tanfer, Grady, and Klepinger (1993)	US National Survey of Men, $n = 3,321$ , two groups: 20-24 & 25-29 year olds	Homosexual partner, at least 1, booklet	1% ever 1% last 5 years 1% last 2 years 1% last year	3% ever 2% last 5 years 1% last 2 years 1% last year
1992?	Papadopoulos, Stamboulides, and Triantafyllou (2000)	Greece university students, 17-23 + age range, $n = 2,275$ women, 1,309 men	Sexual interest Sexual experiences	8% 3%	3% any act. 2% homo

(continued)

Table 2 (continued)

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1991–1997	Ellis et al. (2005)	US, Canada college students, mean age = 22, $n = 5,253$ women, 2,653 men	Sexual attractions to same and opposite sex, 100-pt. scale	8% 1–10% 4% 11–50% 1% 51–99% 1% 100%		6% 1–10% 3% 11–50% 1% 51–99% 1% 100%
			Sexual fantasies during sexual interactions to same and opposite sex, 100-pt. scale	10% 1–10% 3% 11–50% 4% 51–99% 7% 100%		8% 1–10% 2% 11–50% 3% 51–99% 9% 100%
			Intimate sexual interactions if had sex (intercourse or to climax with portion of same to opposite sex)	1% 1–10% 6% 11–50% >1% 51–99% 1% 100%		1% 1–10% 9% 11–50% >1% 51–99% 1% 100%
			Describe sexual orientation	1% bisexual 1% homosexual 1% homosexual		1% bisexual 1% homosexual 1% homo-sexual
				1% uncertain		1% uncertain

1992, 1994	Orenstein (2001)	Massachusetts high schools <i>n</i> = 2,946	Sexual thoughts/romantic feelings (yes/ no) (sexes combined)	7% yes 3% not sure
			Sexual experiences	2% yes 1% not sure
			Identity label	2% bisexual 1% homo- sexual 4% not sure 4% some- times/ seldom
			Worry being gay	2% always/ often 4% some- times/ seldom
			Worry treated differently because gay or bisexual	2% always/ often 1 = 11% 2 = 3% 3 = 2% 4 = 1% 5 = 0.5%
			Percentage who have the above 5 indicators	

(continued)

Table 2 (continued)

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1992, 1994, 1999	Wichstrøm & Hegna (2003)	Norway schools, grades 7–12, $n = 2,924$	Sexually interested, attracted to, sexual fantasies (7-pt. scale; scale; only, predominantly, equally men/women)	21% some	3% bisexual/homo 1% exclusive homo	9% some
1993	Bagley & Tremblay (1998)	Calgary, Canada community survey, 18–27 age range, $n = 750$ men	Sexual contact since 12 (yes/no)	7% yes		6% yes
1993–1994	Lock & Steiner (1999)	California high school, $n = 841$ women, 914 men	Sexual identity (7-pt. scale; exclusively hetero to gay)	14% nonhet	5% bisexual/homo 1% exclusive homo	9% nonhet
1993, 1995	Berg-Kelly (1995)	Sweden schools, grades 9 & 11, $n = 886$ , 477 women, 854, 413 men	Sexual identity (homo, bi) and/or sexual activity (in last 6 months)	17% freq/some 6% know 2% 1%		11% homo/bi 9% behavior 15% id/beh 9% freq/some 6% know 1% 2%
1994	Caldwell et al. (1998)	Four Southeast US high schools, $n = 1,488$ women, 1,268 men	Wonder might be gay/bi (frequent, sometimes, no, know I am) Definitely or possibly homosexual Sexual feelings (yes, no, both, none, not sure)	2% 1% 1% both 0.5% same 2% unsure 2% none		1% both 2% same 2% unsure 2% none

1994–1995	Savin-Williams & Ream (2007)	US Add Health, mean 16 years, $n = 20,747$	Romantic attraction (male/female)	4% both 1% same 1% both 0.5% same	6% both 1% same 1% both 0.5% same
1995–1996	Narring et al. (2003)	Switzerland students, 17 years old, $n = 2,075$ women, 2,208 men	Sexual activities (intercourse, partners)	1% both sexes 2% only/strong	1% both sexes 3% only/strong
			Sexual attraction (5-pt. scale; only own sex and be sexual to own sex to opposite sex; also not sure)	1% not sure 5% both sexes	1% not sure 3% both
			Sexual fantasies, daydreams (males, females, both)	0.4% same sex 2% yes	1% same sex 3% yes
			First same-sex experience (sexual = kiss, caress, physical or sexual intimacy, intercourse)		
			Sexual self identification (5-pt. scale, hetero to homo, & not sure)	1% bisexual 0.3% homo	1% bisexual 1% homo
1996	Savin-Williams & Ream (2007)	US Add Health, mean 17 years, $n = 14,738$	Romantic attraction (male/female)	4% not sure 4% both	2% not sure 3% both
			Sexual activities (intercourse, partners)	1% same 1% both 1% same	1% same 1% both 1% same

(continued)

Table 2 (continued)

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1993	Paul, Fitzjohn, Eberhart-Phillips, Herbison, and Dickson (2000)	New Zealand birth cohort, 21 years old, $n = 453$ women, 470 men	Sexually attracted to (5-pt. scale; opposite to same sex), current and ever	7%, 9% most het 1%, 1% equal 1%, 1% most homo 0.4%, 0.2% homo 2%, 2% no one		3%, 5% most het 0.2%, 1% equal 0.4%, 0.2% most homo 0.4%, 1% homo 1%, 0.2% no one
1998	Dickson et al. (2003)	New Zealand birth cohort, 26 years old, $n = 473$ women, 485 men	Same-sex sexual contact (oral, anal, or other) Sexually attracted to (5-pt. scale; opposite to same sex), current and ever	3% last year 10% ever 14%, 23% more het 1%, 1% equal 0.4%, 1% more homo 1%, 0% homo 0.2%, 1% no one		4% last year 9% ever 4%, 9% more het 0.2%, 0.4% equal 0.2%, 1% more homo 1%, 1% homo 0%, 0% no one
	Lippa (2000)	California college students, $n = 434$ women, 287 men	Same-sex sexual contact (oral, anal, or other) Sexually attracted male/female (7-pt. scale; strongly agree/ strongly disagree)	3% last year 10% ever 24% "any" (2-7 response) 12% "mostly" (4-7 response)		4% last year 9% ever 19% "any" (2-7 response) 10% "mostly" (4-7 response)
			Identity label	2% bisexual 1% lesbian		3% bisexual 2% gay

1998	Fergusson et al. (2005)	New Zealand birth cohort, mean = 21 and 25 years, n = 498 women, 469 men	Sexual attractions (age 25 yrs.) (5-pt. scale; only attracted to and sexual with opp. sex to only attracted to and sexual with same sex)	12% strg opp 1% equal att 1% strg same 1% only same 3% yes	4% strg opp 0.2% equal att 1% strg same 1% only same 2% yes
			Sexual relationship same sex (21 years) (yes/no)	4% yes	1% yes
			Sexual relationship same sex (25 years) (yes/no)	4% yes	1% yes
			Nominate sexual orientation (age 21 years)	0.4% homo/lesbian 1% bisexual	0.2% homo/gay 2% bisexual
			Nominate sexual orientation (age 25 years) (5-pt. scale; 100% hetero to 100% homo)	12% most het 1% bisexual 1% most homo	5% most het 0.2% bisexual 1% most homo
				1% homo/lesbian	0.2% homo/gay
1999	van Griensven et al. (2004)	Thailand vocational students, mean = 18 years, n = 832 women, 893 men	Sexual feelings (females only, males only, both)	7% both 3% females	4% both 4% males
			Sexual identity group (heterosexual, bisexual, homosexual)	5% bisexual 3% homosexual	3% bisexual 5% homo-sexual

(continued)

Table 2 (continued)

Data collected	Source	Sample characteristics	Measure	Female	Both	Male
1999–2002	Williams, Connolly, Pepler, and Craig (2005)	Canada high schools, urban area, $m = 16$ years, $n = 814$ women, 784 men	Describe sexual orientation	4% questioning		3% questioning
2001–2002	Savin-Williams & Ream (2007)	US Add Health, mean 22 years, $n = 15,170$	Romantic attraction (male/female) Sexual relations (intercourse, oral, anal)	3% bisexual 0.1% lesbian 12% both 1% same 3% both 1% same 11% most het 3% bisexual 1% most homo		2% bisexual 1% gay 4% both 1% same 1% both 1% same 3% most het 1% bisexual 1% most
2001–2002	Smith et al. (2003)	Australia national sample, $n = 9134$ women, 10,173 men, two groups: 16–19 and 20–29 years old	Sexual identity: 100%, mostly, equal hetero/gay (5-pt.scale)  Sexually attracted (5-pt. scale, only opp. sex, more often opp. sex with at least one same sex, equal, etc.)	1% homo 4%, 3% het att, homo exp 7%, 11% homo		1% homo 1% homo 1%, 1% het att, homo exp 2%, 3%
2002	Eskin et al. (2005)	Turkey university students, mean 21 years, $n = 683$ women, 579 men	Sexual experience (5-pt. scale, same as above)  Sexual identity, think of self: hetero, homo, bisexual, queer, not sure, something other  Sexual desire same sex (yes/no); ever/now  Intimate with sexual arousal (yes/no) Relationship with orgasm (yes/no) Consider self-sexually attracted (hetero, bisexual, homo) Overall: one of above	att, het exp 10%, 10% homo att, homo exp 0.3%, 3% bi 0%, 0.3% homo  3% current 7% ever  4% yes 1% yes 2% bisexual 0.1% homo		homo att, het exp 1%, 6% homo att, homo exp 0.2%, 1% bi 1%, 2% homo 3% current 6% ever  5% yes 3% yes 1% bisexual 1% homo

10% yes

2002	Mosher et al. (2005)	US national survey, $n =$ 12,571, three age grps: 18–19, 20–24, 25–29 years Old	Sexual attraction (5-pt. scale, only, mostly, equal, mostly, only females/ males)	13%, 13%, 14% most males	3%, 5%, 4%, most females
				5%, 2%, 2% equal	2%, 1%, 1% equal
				0%, 0%, 1% most females	0%, 1%, 1% most males
				0%, 1%, 1% females	0%, 1%, 1% males
			Sexual behavior (females: any kind; males: oral/anal)	11%, 14%, 14%	5%, 5%, 6%
			Sex identity (think of self, bi, homo, something else)	7%, 4%, 3% bi	1%, 2%, 1% bi
				1%, 1%, 2% homo	2%, 2%, 3% homo
				6%, 4%, 3% SE	4%, 4%, 6% SE

**Table 3** Proportion of men and women in three countries with exclusive and some same-sex behavior, same-sex attraction, and either same-sex behavior or attraction

Measure	Men			Women		
	US	United Kingdom	France	US	United Kingdom	France
Exclusive same-sex behavior	<1%	1%	<1%	<1%	<1%	<1%
Some same-sex behavior	6%	5%	11%	4%	2%	3%
Same-sex attraction	9%	8%	9%	11%	9%	12%
Same-sex behavior or attraction	21%	16%	19%	18%	19%	18%

romantic desires nearly always elicits the greatest prevalence rate of same-sex sexuality across multiple cultures. It can double or triple the number of individuals who report same-sex behavior or a gay/bisexual identity. For example, among US youth a prevalence rate of 9% was calculated if counting same-sex romantic attraction, but 3% if counting same-sex behavior and 4% if counting a bisexual or gay identity (Savin-Williams & Ream, 2007). In one high school, 11% of students self-ascribed one or more attributes of a same-sex sexuality; however, congruent with the overall trend, fewer than 3% identified as gay (Orenstein, 2001).

These findings also hold among adults, with two exceptions. First, there is a greater prevalence among adults than adolescents of same-sex behavior, perhaps because of the greater length of time in which they have to experience such an event (Sell et al., 1995). In a national, representative survey of US adults, 8% percent reported attraction for others of their sex, 7% had same-sex behavior since puberty, and 2% identified as gay/bisexual (Laumann et al., 1994). Of Dutch men, nearly the same proportion reported feeling physical attraction toward men and having sex with a man; however, less than half as many, 6%, identified as gay/bisexual (Sandfort, 1997).

The second difference between adult and adolescent populations is the much greater tendency of young vs. adult women to report same-sex romantic or sexual attraction. For example, 21% of Norwegian adolescent girls were interested in, attracted to, or had fantasies about other girls (Wichstrøm & Hegna (2003); 23% of New Zealand young women was sexually attracted to other women (Dickson et al., 2003); 12% of US college women were mostly sexually attracted to other females (Lippa, 2000); and 13–14% of US young adult women reported having some sexual attraction to other females (Mosher, Chandra, & Jones, 2005). Adult women and adult and adolescent men seldom report such high prevalence rates of sexual and romantic interest or attraction to same-sex others.

One of the most revealing studies of same-sex sexuality distinguished sexual orientation components in a national sample of adult Australian twins (Dunne

et al., 2000). Eight groups were identified based on yes/no answers to questions about attraction, sexual behavior, and sexual identity. As might be expected, the vast majority (80%) of adults was opposite-sex oriented on all three components and 95% of the total population identified as heterosexual – but this still left a significant percentage of twins who had either same-sex attraction (16%) or same-sex behavior (men: 16%; women: 8%). Only 6% of men and 3% of women were same-sex oriented on all three components. Nearly two-thirds of individuals who reported same-sex behavior identified not as gay or bisexual but as heterosexual; many men (46%) and most women (70%) with same-sex attraction identified as heterosexual. Men were more likely than women to have same-sex behavior in the absence of same-sex attraction or identity; women, to have same-sex attraction but without same-sex behavior or identity. The disjuncture between attraction and behavior is more prevalent among women than men (Smith et al., 2003; Wellings et al., 1994). These studies suggest that it is the identification of oneself as gay/bisexual rather than its practice or the feeling of it per se that is avoided.

Prevalence rates are also affected by the cohort assessed, with modern increases in reports of same-sex sexuality (Savin-Williams, 2005). For example, Berg-Kelly (2003) noted that the number of Swedish adolescents who responded positively to the question, “Have you had thoughts about being homosexual?” went from 2% in 1994 to more than double in 1998 for girls and somewhat less so for boys. In addition, 14% of the 1998 17-year-old Swedes reported same-sex experiences, a substantial increase from previous studies. The number of Thai male adolescents self-identifying as homosexual/bisexual or reporting same-sex attraction was threefold greater than in a study conducted a decade earlier; the proportion reporting same-sex behavior, however, was comparable to previous cohorts (van Griensven et al., 2004).

### *Depends on Degree of Measure*

Decisions about “how much” of a same-sex component is necessary to count as gay can affect prevalence rates. Kinsey et al. (1948) argued against a dichotomous construction of sexual orientation, demonstrating that sexuality existed along a continuum. Several large data sets encourage a sexual dimensionality approach (Dunne et al., 2000; Johnson, Wadsworth, Wellings, Field, & Bradshaw, 1994; Laumann et al., 1994; Savin-Williams & Ream, 2007; Sell et al., 1995). Dunne et al. (2000, p. 556) concluded from their data that there was “little evidence for true bipolarity in sexual orientation.” Although most sexologists articulate a Kinsey-like dimensionality perspective, at least in regard to sexual and romantic attraction, and easily acknowledge a sexual continuum as evidently true, implicit in the resolutions they implement in assembling research participants into sexual orientation groups is the assumption of the alternative categorical perspective. In large part this is due to constraints of data analysis – the low frequencies of same-sex sexuality

impose a need, they believe, for a categorical approach. However, unresolved issues remain regarding how even that pie should be sliced to create categorical sexual orientation groupings. The relevant research questions raised by Sell et al. (1995, p. 245) are, "How frequent should sexual behavior with one or the other sex be, and/or how strong or frequent should sexual attraction to one or the other sex be in order to classify a respondent as homosexual, bisexual, or heterosexual?" They might also have added that which sexual identity terms qualify as homosexual or bisexual is also an important question – do bi-curious, unlabeled, and questioning labels count as nonheterosexual? In most studies they do not.

Although individuals with a significant amount of homosexuality (however defined) are usually treated as belonging to the class identified as gay, the critical consideration is, does having "any" same-sex sexuality the sine qua non to qualify one as belonging to the gay club? Does being attracted to one same-sex peer, falling in love once with a same-sex other, or engaging in one same-sex encounter sufficient to tip the scales from a heterosexual to a homosexual sexual orientation? Research about sexuality usually omits individuals who have "a little bit" of same-sex attraction, behavior, or identity; they are neither heterosexual nor homosexual, just deleted. Subjects who are "bisexual leaning toward the heterosexual side" are nearly always excluded from the sample (e.g., D'Augelli et al., 2001), while a "bisexual leaning toward the homosexual side" is nearly always considered gay. Hence, Cochran and associates (Cochran & Mays, 2000; Cochran, Sullivan, & Mays, 2003) combined bisexuals and homosexuals, whether defined by their sexual behavior or their self-description. Two groups were created: an "any same-gender partner reported" and the remainder (heterosexual) (Cochran & Mays, 2000, p. 519).

One consequence is that a unique bisexual orientation grouping is often omitted in investigations. This has been justified for statistical power reasons or because initial analyses revealed no differences between bisexual and homosexual populations on variables of interest (e.g., Sandfort et al., 2003) – how they might differ on other variables is left to the imagination. The fact that relatively little is known about bisexuals (the work of Rodríguez Rust, 2000, 2002, is a notable exception) is thus not surprising. One is gay or not gay, perhaps bisexual, but, if so, then grouped with gays to form an LGB group. Even more recently and intriguing is the possibility of a new nonheterosexual group, the "mostly straight" (Thompson & Morgan, 2008; see also, Busseri, Willoughby, Chalmers, & Bogaert, 2008; Savin-Williams, 2006). These individuals frequently reject a sexual identity label because they do not view themselves as totally heterosexual; they have real but not overwhelming same-sex attraction

The repercussions of these decisions are readily apparent when considering prevalence rates for homosexuality. In several investigations, the proportion of nonheterosexual participants dropped steeply as the inclusion criteria became more singularly same-sex focused. The 16% of Norwegian youth who reported some attraction to the same sex was reduced to 5% if only those with bisexual and same-sex attraction were included and to 1% if only those with exclusive same-sex attraction was the criterion. Similarly, in terms of identity, the proportion dropped from 11% to 3% to 0.5% if the criteria were "not exclusively heterosexual," "bisexual or

homosexual identity,” and “exclusive homosexual identity,” respectively (Wichstrøm & Hegna, 2003). Two percent of New Zealander adults were classified as “persistent major same-sex attraction” because of their equal or only attraction to the same sex (Skegg et al., 2003). A second group, individuals with “minor same-sex attraction” (primarily attracted to the opposite sex but with some same-sex attraction), was considerably larger: 11% among men and 26% among women.

Another study with New Zealander adults (Fergusson et al., 2005, p. 978) similarly concluded that the construction of same-sex groups depended on “the stringency of the criteria applied” (a spectrum model of sexual orientation). Especially noteworthy was the finding that women were far more likely than men to be included in the nonheterosexual groups: 14% vs. 5% in the predominantly heterosexual group and 4% vs. 2% in the predominantly homosexual group. Nearly 20% of women had some same-sex inclination or experience compared to 6% of men. Among Australian adults, when sexual attraction and behavior were placed on a 5-point continuum, significant relationships between the two and sexual identity were reported for both sexes (Smith et al., 2003). Considering the 3–5 points on the continuum for attraction and behavior, both sexes averaged 1% for each point. It was at the number 2 location (“mostly heterosexual”) at which women were twice as prevalent as men: 11% vs. 5% (attraction) and 8% vs. 4% (behavior). This sex difference – women more likely than men to report minor degrees of same-sex sexuality – is a common finding (see Table 2). US young women had a greater likelihood than men of selecting the midpoints of identity (“mostly heterosexual” or “bisexual”) (Savin-Williams & Ream, 2007) – a finding replicated among Thai adolescents for both sexual attraction and identity (van Griensven et al., 2004). When Lippa (2000) asked college students about their sexual identity, 5% of men and 3% of women described themselves as gay/bisexual. When asked if they were “sexually attracted to men/women” on a 7-point scale from strongly agree to strongly disagree, twice as many men (10%) and four times as many women (12%) were classified as “mostly attracted” to the same sex. If classified as showing “any attraction” to same-sex others (from disagree to strongly agree), the proportions increase to 19% of college men and 24% of college women.

Lippa’s (2000) results emphasize that at what point along an opposite- to same-sex attraction continuum an individual is counted as “no longer heterosexual” is a critical one. What is someone if she is “neutral” or does not “disagree strongly” regarding being sexually attracted to same-sex others? As with current attitudes toward race, is a “little bit” of same-sex attraction or arousal sufficient to make one gay? Indeed, most individuals with same-sex attraction report equal or predominant attraction to the other sex (McConaghy, 1999). Is intensity of attraction or arousal important? On the penile plethysmography, what percentage of change in the circumference of the penis is necessary to make one gay? Or, what are individuals who “frequently or sometimes wonder whether I am homosexual,” as did 13% of high school students in one study (Lock & Steiner, 1999)? Should these youth, a significant proportion of the whole, be considered heterosexual or nonheterosexual?

In terms of sexual behavior, what is the appropriate ratio of opposite- to same-sex partners necessary to tip the balance to “gay” or as no longer heterosexual?

Omitting the issue of what constitutes sex (see review in Savin-Williams & Diamond, 2004), the vast majority of same-sex oriented individuals have had sex with opposite-sex members. How should they be classified – perhaps as bisexual because they have had sex with both sexes? Can one have sex exclusively with opposite-sex partners and still be gay? Can one be a gay virgin? That is, if one forsakes sexual behavior does one thus forsake a sexual orientation (Sell et al., 1995). Because investigators often use some version of the sexual behavior question stem “during the past 12 months” or “since the age of puberty,” what if an individual has a “dry spell?” Is this person no longer gay? Why is it only sex after puberty or age 16 or 18 that counts, and what are the assumptions made about pre-pubertal sexual activities (i.e., they do not indicate sexual orientation)? Perhaps of greater importance than the number or ratio of sexual partners is how much one enjoyed the sexual encounters. Yet, this pleasure or delight in sex is seldom assessed by behavioral scientists. It is the count and not the experience that is registered. If two women have sex with each other and for one the sex is just “okay” and for the other it was absolutely erotic, are both equally “gay” (both, after all, had same-sex behavior)? Finally, if 7% of Americans report that they would like to have sex with someone of their biologic sex (Euro RSCG, cited in Fetto, 2002), should they be counted as gay?

Regarding another component of sexual orientation, I have previously discussed the problem that many same-sex oriented individuals have with designating their sexuality with a label (Savin-Williams, 2005). This has become increasingly acute during the past few years because current cohorts of same-sex oriented teenagers are resisting identifying themselves with sexual terms, for personal, political, and philosophical reasons. Some identify as gay and have no same-sex attraction or behavior, while others have only same-sex attraction and behavior and do not identify as gay because the concept does not fit their experience.

Questions posed in this section are largely uninvestigated yet highly significant. McConaghy (1999, p. 300) argued that most research is not about “homosexuality but identification as homosexual... The majority of men and women with homosexual feelings are aware of predominant heterosexual feelings and those with homosexual experience have predominant heterosexual experience.” The percentage of a country’s population with less than 100% heterosexuality is certainly large, often exceeding by several-fold those who identify as homosexual or bisexual.

## Conclusions

Perhaps most helpful in calculating the prevalence rate of homosexuality are investigations that assess the dimensionality of sexuality and that resist translating the reported dimensionality into groupings – to maintain its true state. In data that I am currently collecting among college students, when given the opportunity to rate themselves on both heterosexuality and homosexuality scales, a number of both sexes report that they are neither exclusively one nor the other, but some of both – as they are with femininity

and masculinity. Individuals consider themselves low or high on both; others as high on one and low on the other; and, of course, some rate themselves as high on one and nonexistent on the other. Deciding whether and, if so, how to distribute these individuals might well determine the outcome of many investigations.

Indeed, Sell (1997) critiqued the tendency to treat sexual orientation as a single dichotomous dimension (heterosexual or homosexual) rather than as a multidimensional, continuous construct. Subjects are typically given one question with an unclear reference as to which component of sexual orientation is being measured. Even investigators who use multiple measures of sexual orientation seldom report how they are related to each other, presenting instead a composite measure that sums responses to various measures. The Self Scale includes not only which sex one is attracted to and has sex with but also how often the attraction/behavior occurs and the degree of attraction/behavior. Sexual identity is assessed using not culturally loaded singular terms such as gay or straight but a continuum for *both* homosexuality and heterosexuality. Of particular significance is the unique possibility that asexuality (without a sexual orientation) can be ascertained. However, this ideal solution, multiple measures with permutations of sexual orientation dimensions, is seldom incorporated by behavioral scientists in their assessment of sexual orientation.

The other extreme, an inclusive definition that rules out youth without all three components, would admit few individuals as qualified to be same-sex oriented. Four studies provide the available data – the proportion of individuals who report one, two, or three components of a same-sex sexuality (Dunne et al., 2000; Laumann et al., 1994; Savin-Williams & Ream, 2007; Smith et al., 2003). Of the seven combination possibilities, three rarely occurred (about 1% of the same-sex population):

- Same-sex behavior and gay/bisexual identity without same-sex attraction
- Gay/bisexual identity without same-sex attraction or same-sex behavior
- Gay/bisexual identity and same-sex attraction without same-sex behavior (more prevalent among adolescent than adult populations)

The most common groupings were the following:

1. Same-sex attraction alone without same-sex behavior or gay/bisexual identity (women: over half; men: one-third)
2. All three components (women: one-eighth; men: about one-quarter)
3. Same-sex attraction and same-sex behavior without gay/bisexual identity (women: one-fifth; men: one-eighth)
4. Same-sex behavior without same-sex attraction or gay/bisexual identity (women: one-tenth; men: one-fifth)

The other extreme, defining a same-sex population based solely on assessing one component of sexual orientation at one point in time, is clearly problematic and results in widely disparate estimates of “gayness” across time, cultures, and genders. It could be as low as 1% if counting exclusive same-sex behavior or as high as 24% if counting young adult women with any sexual attraction to other females.

These patterns present a dilemma for researchers who portray same-sex sexuality as a stable trait of individuals or assume consistency among sexual orientation components. Consistency is weakest between sexual attraction and sexual identification or behavior (many with same-sex attraction do not identify as gay or engage in same-sex behavior) and between sexual behavior and attraction or identity (many with same-sex behavior do not report same-sex attraction or identity) and strongest between sexual identity and attraction or behavior (most of those with a gay identity have same-sex attraction and engage in same-sex behavior) (Savin-Williams, 2005).

It must also be recognized that measures of sexual orientation can elicit characteristics of individuals that are merely temporary. Same-sex behavior may result from a spur of the moment event or thought, a gay label may be refused as a reaction against being reduced to a category, and words to describe sexual orientation might be vague or off-putting. A woman might not say "I'm gay" if she is only in love with a particular woman or "Yes, I've had same-sex intercourse" if she does not know what that implies. Gayness may also be fluid or plastic for some individuals – lesbian in college, bisexual until marriage, straight in career. Thus, depending on the way in which individuals are asked about their sexuality, a different conclusion can be drawn about their representation in the population, perhaps by a factor of three or four.

Researchers would be best assured of a primarily same-sex oriented young adult sample if they included youth with same-sex attraction and behavior over multiple times who also seldom or weakly report opposite-sex attraction and behavior – that is, individuals who consistently and reliably report multiple aspects of a same-sex orientation. There is a problem, however, with this approach: few data sets offer these amenities. One exception is the Add Health data set that provides information about romantic attraction and sexual behavior over two waves; unfortunately, only once the youth graduated from high school was sexual identity assessed. Another approach is to forsake the general notion of sexual orientation altogether and assess only those components relevant for the research question. For example, to assess HIV transmission, measure sexual behavior; to assess interpersonal attachments, measure sexual/romantic attraction; and to assess political ideology, measure sexual identity.

The largest task, however, may be convincing researchers to believe their own data and to move away from positing either same-sex behavior or identity as the only meaningful measures of sexual orientation. For example, a recent study used the now typical self-description of orientation as the standard (Ellis et al., 2005). Although considerable inconsistencies were apparent in the data – heterosexually identified students claiming same-sex attraction, fantasy, or behavior – the data were not framed as indicating a continuum of sexuality. Instead, the discrepancy among the 200 males and 400 females who identified as heterosexual yet nevertheless reported that over 90% of their sexual fantasies were same-sex oriented was explained as an indication that inconsistencies in reports of sexuality are not uncommon, that the fantasy reports were referencing as "ever having" rather than as "pre-dominant," and that the length of the questionnaire generated errors. Another option, not taken, would be to believe the reports: heterosexually identified individuals with same-sex fantasies exist.

The instability and inconsistency of sexual orientation components do not imply that adolescents should not be asked about their sexual orientation – merely that as researchers we need to ask better questions and to ask them more frequently. We need to better explain our terms, listen to youth about how they define terms, allow sexuality to be dimensional and not categorical, and assess multiple and not singular components. Depending on the way in which adolescents are asked about their sexuality, different conclusions can be drawn about their sexuality – and hence the prevalence rate of nonheterosexual adolescents and young adults in the general population.

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Contemporary Perspectives on Lesbian, Gay, and  
Bisexual Identities

Hope, D.A. (Ed.)

2009, IX, 200 p., Hardcover

ISBN: 978-0-387-09555-4