

Heterosexuals' Attitudes Toward Bisexual Men and Women in the United States

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Abstract

This paper examines heterosexual adults' attitudes toward bisexual men and women using data from a 1999 national RDD survey (N = 1,335). Ratings on 101-point feeling thermometers were lower (less favorable) for bisexual men and bisexual women than for all other groups assessed – including religious, racial, ethnic, and political groups – except injecting drug users. More negative attitudes toward bisexuals were associated with higher age, less education, lower annual income, residence in the South and rural areas, higher religiosity, political conservatism, traditional values concerning gender and sexual behavior, authoritarianism, and lack of contact with gay men or lesbians. White heterosexual women expressed significantly more favorable attitudes than other women and all men. A gender difference was observed in attitudes toward bisexuals and homosexuals: Heterosexual women rated bisexuals significantly less favorably than they rated homosexuals, regardless of gender, whereas heterosexual men rated male targets less favorably than female targets, regardless of whether the target was bisexual or homosexual.

Although patterns of bisexual behavior have been documented throughout history and across

cultures (e.g., Carrier, 1985; Ford & Beach, 1951; Fox, 1996; Herdt, 1990), bisexual men and women in the United States have gained recognition as a distinct sexual minority only recently. Bisexuals began to form social and political groups in the 1970s (Donaldson, 1995; Weinberg, Williams, & Pryor, 1994), but it was not until the late 1980s that an organized bisexual movement began to achieve widespread visibility in the United States (Herdt, 2001; Paul, 1983; Rust, 1995; Udis-Kessler, 1995). Around the same time, the heterosexual public became more aware of bisexual men as a group at heightened risk for HIV infection (Gelman, 1987). By the early 1990s, bisexuals were becoming an established presence in the organized gay movement, as reflected in discussions of bisexuality in the gay and lesbian press and the addition of “bisexual” to the names of many gay and lesbian organizations and events (Rust, 1995). Throughout the 1990s, the mass media frequently featured images of bisexuals (Hutchins, 1996; Leland, 1995).

Given the culture's relatively recent recognition of “the bisexual” as a category of sexual identity, it is not surprising that empirical research on heterosexuals' attitudes toward bisexuality and bisexual persons is scant. Like lesbians and gay men, bisexual women and men experience hostility, discrimination, and violence because of their sexual orientation (Ochs, 1996; Paul & Nichols, 1988; Weinberg et al., 1994). Unfortunately, the prevalence of such experiences is difficult to gauge because empirical studies of sexual minorities generally have not included bisexuals in their samples or they have combined data from bisexual and homosexual respondents in their published reports.

Some studies, however, have demonstrated that bisexuals are the targets of prejudicial

actions and attitudes. In a community-based study of bias crime, for example, Herek, Gillis, and Cogan (1999) found that 15% of bisexual women ($n = 190$) and 27% of bisexual men ($n = 191$) had experienced a crime against their person or property because of their sexual orientation. Within genders, bisexual respondents' prevalence of victimization was fairly similar to that reported by lesbians (19%, $n = 980$) and gay men (28%, $n = 898$). In a 2000 telephone survey of 405 lesbians, gay men, and bisexuals in major U.S. cities conducted by the Kaiser Family Foundation, 60% of bisexual respondents reported that they had experienced discrimination, 52% had been the target of verbal abuse, and 26% had not been accepted by their families of origin because of their sexual orientation (Kaiser Family Foundation, 2001).¹

To understand bisexuals' experiences with prejudice and discrimination, hostility directed specifically at bisexuality must be distinguished from antigay hostility. Activists have pointed out the many ways in which anti-bisexual and antigay prejudice overlap (e.g., Ochs, 1996), and bisexuals have commented that heterosexuals appear to regard them as homosexuals, which suggests that expressions of hostility toward bisexuals are often rooted in antigay attitudes (e.g., Rust, 2000; Weinberg et al., 1994). It is not surprising, therefore, that the few published studies in this area have found significant correlations between heterosexuals' attitudes toward bisexuals and their attitudes toward lesbians and gay men (Eliason, 1997; Mohr & Rochlen, 1999).

However, there are also reasons to expect heterosexuals' attitudes toward bisexuals to differ from their attitudes toward homosexual persons. On the one hand, bisexual men and women might be less denigrated than exclusively homosexual persons because they form heterosexual as well as same-sex relationships and it is the latter that are

stigmatized (Herek, 2000a). Indeed, in the Kaiser Family Foundation (2001) survey, bisexuals were less likely than gay men and lesbians to report experiences with prejudice and discrimination.

Alternatively, bisexuals might be targets of greater hostility than gay people for a variety of reasons. For example, many heterosexuals may equate bisexuality with sexual promiscuity or nonmonogamy. Bisexual men and women might be regarded as vectors of HIV infection or other sexually transmitted diseases (STDs). For some heterosexuals, bisexuals might be a source of anxiety or discomfort because they are perceived as challenging the widely accepted heterosexual-homosexual dichotomy of sexuality. (For discussion of these and other reasons, see Ochs, 1996; Ochs & Deihl, 1992; Paul, 1996; Paul & Nichols, 1988; Rust, 1996.) Consistent with these speculations, undergraduate students in at least one study rated bisexual men and women somewhat more negatively than gay men and lesbians (Eliason, 1997). Another study found that undergraduates perceived bisexuals as more likely than either heterosexuals or homosexuals to give an STD to a partner (Spalding & Peplau, 1997). Data from a 1997 national telephone survey suggested a possible gender difference in the relative evaluation of bisexuals and gay people. In that study, heterosexual women responded more negatively to a man with AIDS when he was described as bisexual than when he was described as homosexual; by contrast, heterosexual men responded more negatively when the man with AIDS was characterized as gay (Herek & Capitanio, 1999a).

Given the fragmentary state of knowledge in this area, empirical research is needed that specifically describes heterosexuals' attitudes toward bisexual men and women, distinct from their attitudes toward gay men and lesbians.² The present study reports such data from a

¹ Of the 265 men in the sample, 10% reported they were bisexual. Of the 140 women, 41% were bisexual (Kaiser Family Foundation, 2001).

²As noted below, bisexuals also experience negative attitudes from lesbians and gay men; that aspect of attitudes toward bisexuality, however, is beyond the scope of the present study.

national probability sample of English-speaking adults in the United States. Attitudes were operationalized as the degree of positive or negative feelings expressed toward bisexual men and bisexual women. Because this is one of the first empirical studies to specifically examine heterosexuals' attitudes toward bisexuals – and apparently the only study to date based on a national probability sample³ – its four goals are mainly descriptive. First, quantitative estimates of attitudes toward bisexual men and women are presented. Second, to aid interpretation of those estimates, the same respondents' attitude ratings for a variety of other groups are reported.

Third, heterosexuals' attitudes toward bisexual men and women are compared to their attitudes toward gay men and lesbians. It was hypothesized that attitudes toward the two groups would be strongly correlated and would be characterized by gender differences similar to those documented previously for attitudes toward lesbians and gay men (Kite & Whitley, 1996): Heterosexual men were expected to express more negative attitudes than heterosexual women, especially toward bisexual men.

Fourth, the relationships between heterosexuals' attitudes toward bisexuals and various demographic, social, and psychological variables were explored. Given the absence of extensive data on which to base hypotheses about such relationships, the present study drew from the substantial body of research describing heterosexuals' attitudes toward lesbians and gay men (e.g., Herek, 1984, 1994, 2000a; Kite & Whitley, 1996, 1998). It was hypothesized that heterosexuals' prejudice against different sexual minorities (i.e., bisexuals and homosexuals) manifests similar patterns of correlations with other variables. The available data support this idea. In one of the few published empirical

³Online searches of the Roper Center for Public Opinion Research database, PsychINFO, Sociological Abstracts, and MedLine failed to identify any studies of this topic that were based on a national or regional probability sample as of March 1, 2002.

studies in this area, for example, Mohr and Rochlen (1999) found that heterosexual college students' negative attitudes toward male and female bisexuality were significantly correlated with frequent attendance at religious services, adherence to a conservative political ideology, and lack of prior contact with gay people (see also Eliason, 1997). The same patterns have been reliably observed in heterosexuals' attitudes toward gay men and lesbians (Herek, 1984, 1994).

Based on this rationale, hypotheses were formulated about the relationship of attitudes toward bisexuals with other variables in four areas:

1. *Demographic correlates*: Heterosexuals will express more negative attitudes to the extent that they are older, have less formal education, report a lower income, are married and have children, and reside in an area where culturally conservative attitudes predominate (i.e., the South, Midwest, and rural areas).

2. *Religious and political correlates*: Heterosexuals will express more negative attitudes to the extent that they are politically conservative and highly religious.

3. *Psychological correlates*: Heterosexuals will express more negative attitudes to the extent that they manifest characteristics consistent with psychological authoritarianism and hold traditional attitudes concerning gender and sexual behavior.

4. *Contact correlates*: Heterosexuals will express more negative attitudes to the extent that they lack previous contact with other sexual minorities (viz., lesbians or gay men).

Method

The data were collected in a 1999 national telephone survey that focused primarily on HIV-related stigma. It was the second of two surveys in an ongoing study of AIDS and stigma in the United States.⁴

⁴The project's main focus was to assess stigma associated with HIV and AIDS in two national telephone surveys approximately 24 months apart (for more details about the surveys, see Capitanio &

Sample

Roughly one half of the respondents ($n = 666$) had participated in a previous survey conducted in 1997 and consented to be recontacted for a follow-up interview. The remaining respondents ($n = 669$) were interviewed for the first time in the 1999 survey. For both groups, the sampling frame was the population of English-speaking adults (at least 18 years of age) residing in households with telephones in the 48 contiguous states. The two samples are described separately below. Sampling and interview procedures are described in greater detail elsewhere (Herek, 2002; Herek, Capitanio, & Widaman, 2002).

Follow-up Sample

Of the 1,197 participants in the original 1997 survey who had expressed willingness to be contacted at a later date for a follow-up interview, calls were attempted to a randomly selected subgroup of 876. Eliminating those who were deceased, unable to participate in the interview, or otherwise ineligible left 854 potential respondents. Follow-up interviews were successfully completed with 666 participants (78%). The remaining respondents were never located (11%), could not be reached at home (2%), or refused (9%). The follow-up sample was 57% female and 81% non-Hispanic White, with a mean age of 47 years (range = 20-91), a median educational level of some college (without a degree), and a median income of \$40,000 to 50,000. Comparison of the original and follow-up samples revealed that respondents in the 1997 sample had slightly lower educational and income levels and were somewhat more likely to be non-White than respondents in the 1999 sample.

New Sample

As in the 1997 survey, a list-assisted random-digit dialing (RDD) procedure was used to

Herek, 1999; Herek & Capitanio, 1999a, 1999b; Herek et al., 2002). Because the feeling thermometers were administered at the beginning of the interview (immediately after respondents' race and gender were determined), they were not influenced by any of the subsequent survey content.

create the new sample (Casady & Lepkowski, 1993). This method resulted in 1,153 eligible households. Upon reaching an adult, the interviewer enumerated the first name of each person 18 years or older living in the household. The target respondent was selected at random from the household list. Interviews were fully or substantially completed with 669 individuals, yielding a final response rate of 58% (using Response Rate Formula 2, American Association for Public Opinion Research, 1998). Demographically, the new RDD sample closely resembled the follow-up sample. It was 55% female and 82% non-Hispanic White, with a median educational level of some college and a median income of \$40,000 to 50,000. On average, respondents in the new sample were two years younger than the follow-up sample (for the new sample, $M = 45$ years, range = 18-89), reflecting the passage of time since the follow-up sample was originally recruited.

Interview Procedure

Interviews were conducted by the staff of the Survey Research Center at the University of California at Berkeley between September 1998 and May 1999, using their computer-assisted telephone interviewing system. No limit was set on the number of recontact attempts for each telephone number. The median duration of the interview was 44 minutes.

Measures

Attitudes Toward Bisexual Men and Women

Attitudes toward bisexual men and women were measured with 101-point feeling thermometers, which have been widely used in survey research (e.g., Herek & Capitanio, 1999b; Sapiro, Rosenstone, Miller, & the National Election Studies, 1998). Higher ratings (maximum = 100) indicate warmer, more favorable feelings toward the target whereas lower ratings (minimum = 0) indicate colder, more negative feelings. The instructions for the feeling thermometers were: "These next questions are about some of the different groups in the United States. I'll read the name of a group and ask you to rate the group on a thermometer that runs from zero (0) to one hundred (100). The

higher the number, the warmer or more favorable you feel toward that group. The lower the number, the colder or less favorable you feel. If you feel neither warm nor cold toward them, rate that group a fifty (50)."

Attitudes Toward Other Groups

The thermometers for bisexuals were embedded in a longer series of feeling thermometers that were grouped by topic in the following order: (a) religious groups ("Protestants," "Catholics," "Jews"); (b) gay people ("men who are homosexual," "women who are lesbian or homosexual"); (c) "people who inject illegal drugs"; (d) "people with AIDS"; (e) racial, ethnic, and national groups ("Blacks," "Mexican Americans," "Puerto Ricans," "Whites," "Haitians"); (f) bisexuals ("bisexual men," "bisexual women"); and (g) groups defined by their stance on abortion rights ("people who call themselves pro-life and are opposed to abortion," "people who call themselves pro-choice and support abortion rights").

For the racial/ethnic thermometers, respondents rated their own group after they rated the other racial and ethnic groups. Within the gay, bisexual, and abortion thermometer groups, item order was randomized (e.g., one half of respondents rated "bisexual women" first and the remainder rated "bisexual men" first). Randomization was independent across groups (e.g., the order of thermometers in the gay series was unrelated to the order of the bisexual series). Responses to the bisexual thermometers did not vary by order of administration.

Demographic, Social, and Psychological Correlates

Respondents were asked their age, educational level, marital status, number of children, current employment status, and household income for the previous year. As detailed below, the survey also included questions about area of residence, political and religious variables, gender and sexual attitudes, and personal contact with lesbians and gay men.

Residence. Respondents were categorized into five geographic regions based on their residence in the 48 contiguous states: Northeast (New

England and Mid-Atlantic states), South (Southeastern and Southern states), Midwest (Midwestern and Plains states), Mountain (Rocky Mountain and Southwestern states), and Pacific Coast (California, Oregon, and Washington). Respondents were also asked to characterize their current residence location as a large city, small city, suburban area, small town, or rural area.

Political and religious variables. Respondents were asked whether they usually think of themselves as a political liberal, conservative, moderate, or something else. They were also asked whether they usually think of themselves as a Democrat, Republican, Independent, or something else. Religiosity was assessed by asking how often respondents had attended religious services of any kind in the past 12 months and by asking about the importance of religion in their life: whether it is "very important," "somewhat important," "not too important," or "not at all important."

Gender and sexual attitudes. Attitudes toward traditional gender roles were assessed with two questions: (a) "Which qualities would you say are more important for a boy to have – strength and toughness, or sensitivity and caring for others?" and (b) "Which goal would you say should be more strongly encouraged in girls – to have a job and a good income, or to have a family and a good marriage?" For both items, order of the response alternatives was randomized across respondents. "Strength and toughness" and "a family and a good marriage" were coded as expressing traditional gender attitudes.⁵

Sexual attitudes were assessed with two items. Respondents were asked whether they

⁵A third item in this series was also included in the interview: "Which qualities would you say are more important for a girl to have – ambition and intelligence, or personality and good looks?" It was not used in the analyses, however, because virtually all respondents (94%) selected "ambition and intelligence" over "personality and good looks" as the more important qualities for a girl to have.

believed that sex is acceptable (a) only for two people who are married, (b) for two people who are not married provided that they are in love, or (c) for two people who are not married even if they are not in love with each other. The response that sex is acceptable only for married people was coded as expressing traditional sexual morality. Respondents were also asked whether they agreed or disagreed with the statement “The main purpose of sex should be for having a baby.” Agreement was coded as expressing traditional sexual morality.

Psychological authoritarianism. Attitudes toward homosexuality correlate strongly with authoritarianism (Altemeyer, 1996; Herek, 1984). Although a formal measure of authoritarianism was not included in the survey, three items tapped attitudes associated with this construct. Respondents were presented with pairs of traits and asked to indicate which trait was more important for a child to have. The pairs were: (a) “respect for elders” versus “independence,” (b) “obedience” versus “self-reliance,” and (c) “good manners” versus “curiosity.” Order of presentation within each pair was randomized across respondents. An authoritarianism score was computed by assigning respondents one point each if they selected “respect for elders,” “obedience,” or “good manners.” This procedure yielded scale scores ranging from 0 to 3 ($M = 1.79$, $sd = 1.11$, $\alpha = .65$). Higher scores reflect beliefs more consistent with authoritarianism.

Contact with lesbians and gay men. The survey did not include a question about respondents’ personal interactions with bisexual people. Using an item developed by Herek and Capitano (1996), however, respondents were asked whether they have ever had any male or female friends, relatives, or close acquaintances who are gay or homosexual. It was assumed that respondents answering in the affirmative would be generally more likely to have had contact with bisexuals.

Respondent Sexual Orientation

Respondents’ sexual orientation was assessed with the following item: “Now I’ll read a list of terms people sometimes use to describe themselves: ‘heterosexual or straight’;

‘homosexual, gay, lesbian’ [‘lesbian’ included for women respondents only]; and ‘bisexual.’ As I read the list again, please stop me when I get to the term that best describes how you think of yourself.” Self-identified bisexuals were not included in the analyses because attitudes toward bisexual men and women are conceptualized here as intergroup attitudes. The number of self-identified gay men and lesbians in the sample was too small to permit meaningful analysis of their attitudes toward bisexuals. Consequently, only self-identified heterosexuals ($n = 1,283$) were included in the analyses.

Results

In preliminary comparisons, the follow-up and new RDD samples did not differ significantly in their feeling thermometer scores. Data from the two samples were combined, therefore, for subsequent analyses.

Mean thermometer scores for bisexual men and women were 43.4 and 45.8, respectively, and were strongly correlated, $r(1273) = .90$, $p < .001$. As shown in Table 1, feelings toward bisexuals were colder (less favorable) than toward any other group except injecting drug users. The sample’s generally negative attitudes toward bisexuals were also evident in the number of respondents giving the lowest and highest possible ratings. Compared to most other groups, bisexual men and women received a rating of zero more often and a rating of 100 less often. Approximately 11% of respondents ($n = 140$) gave the lowest possible thermometer score for bisexual men, and 9% ($n = 116$) gave a zero rating for bisexual women. All but one of the respondents who gave a zero rating for bisexual women also gave a zero rating for bisexual men.

Insert Table 1 about here

Thermometer scores for bisexuals and homosexuals were highly correlated. For the bisexual male thermometer, $r(1271) = .79$ with the thermometer for gay men and $r(1272) = .76$ with the lesbian thermometer. For the bisexual female thermometer, the correlations were $r(1272) = .73$ with gay men and $r(1272) = .79$

with lesbians ($p < .001$ for all correlations). Bisexual thermometers were compared with those for lesbians and gay men using a 2 (Respondent Sex) \times 2 (Target Sexual Orientation: Bisexual vs. Homosexual) \times 2 (Target Sex) ANOVA with Target Sexual Orientation and Target Sex treated as repeated measures. This analysis yielded significant main effects for: Respondent Sex, $F(1, 1269) = 12.89$, $p < .001$, Effect Size or partial η^2 (hereafter ES) = .010; Target Sex, $F(1, 1269) = 68.18$, $p < .001$, ES = .051; and Target Sexual Orientation, $F(1, 1269) = 16.36$, $p < .001$, ES = .013. Heterosexual women gave generally higher ratings than men, female targets were rated higher than male targets, and homosexual targets were rated higher than bisexual targets.

These main effects were qualified by the interactions, all of which were significant. Men's ratings of male targets were significantly lower than their ratings of female targets whereas women's ratings did not differ by target sex; for the Respondent Sex \times Target Sex interaction, $F(1, 1269) = 77.72$, $p < .001$, ES = .058. Women's ratings of bisexuals were significantly lower than their ratings of homosexuals whereas men's ratings did not differ by target sexual orientation; for the Respondent Sex \times Target Sexual Orientation interaction, $F(1, 1269) = 48.91$, $p < .001$, ES = .037. Overall ratings of lesbians were significantly higher than overall ratings of bisexual men; for the Target Sex \times Target Sexual Orientation interaction, $F(1, 1269) = 8.25$, $p < .01$, ES = .006.

Finally, these effects were qualified by the significant 3-way interaction, $F(1, 1269) = 5.78$, $p < .05$, ES = .005, which revealed an underlying gender difference in attitudes toward sexual minorities. Heterosexual men's thermometer scores were significantly lower for male targets, regardless of whether the target was bisexual (means = 41.3 for bisexual males vs. 45.9 for bisexual females) or homosexual (40.1 for gay males vs. 44.5 for lesbians). By contrast, heterosexual women's thermometer ratings were significantly lower for bisexuals (means = 45.0 for bisexual males, 45.7 for bisexual females) than for homosexuals (50.8

for gay males, 49.8 for lesbians), regardless of gender. In short, women's attitudes differed primarily according to the target's sexual orientation (bisexual vs. homosexual) whereas men's attitudes differed mainly according to the target's gender (male vs. female).

Insert Table 2 about here

Correlates of Attitudes Toward Bisexuals

Table 2 reports the mean thermometer scores for bisexual men and women for categories within the demographic, social, psychological, and contact variables. Univariate F values are based on MANOVAs for the bisexual male and bisexual female thermometers conducted for each variable. Comparisons for independent variables with three or more categories were made using the Student Newman Keuls test ($p < .05$). Because of the significant effects observed for respondent and target gender in the analyses reported above, additional ANOVAs were conducted for each variable in Table 2. They included respondent gender and thermometer scores (bisexual men, bisexual women), the latter as a within-subjects variable. Four of these analyses (for race, income, religious attendance, and political party) yielded significant interaction terms that are reported below. Follow-up univariate ANOVAs were conducted to aid in interpreting these interactions.

Demographic Correlates

The main effect for race was statistically significant but, as shown in Table 2, Student Newman Keuls tests did not reveal significant differences between any of the three groups. Moreover, when educational level (which was correlated with race) was entered as a covariate, the effect for race was no longer significant. By contrast, in the repeated measures ANOVA that included respondent sex and target sex, the interaction of Race \times Respondent Sex was significant, $F(2, 1253) = 5.5$, $p < .01$, ES = .009, and remained significant when education was included as a covariate. Follow-up univariate ANOVAs revealed that White women's thermometer scores were significantly higher than those of other women and all men.

For age, Table 2 shows that older respondents (over 60 years) expressed significantly less favorable attitudes compared to younger respondents. Significantly colder feelings also were expressed by respondents with no college education and those whose annual household income was less than \$30,000. Follow-up analyses revealed that the effect for income resulted from women's responses (for the Income \times Respondent Sex interaction, $F(3, 1205) = 2.74, p < .05, ES = .007$). Attitudes also varied according to geographic residence, with the most negative attitudes expressed in the South and the most positive attitudes in the Northeast. Residents of small towns and rural areas expressed significantly more negative attitudes than residents of larger urban centers and suburban locales. Thermometer scores did not differ significantly according to respondents' marital status or number of children (not shown in Table 2).

Religious and Political Correlates

Highly religious respondents – those who attended services on a weekly basis or reported that religion is very important to their lives – expressed significantly colder feelings than other respondents. For religious attendance, a significant 3-way interaction (Attendance \times Respondent Sex \times Target Sex) revealed somewhat different patterns for male and female respondents for each thermometer, $F(4, 1251) = 2.80, p < .05, ES = .009$. In brief, males who reported monthly attendance generally gave the highest thermometer scores whereas females who reported weekly attendance generally gave the lowest scores.

Self-identified political conservatives expressed more negative attitudes than moderates or liberals. Overall, thermometer scores did not differ significantly by political party but there was a significant Party \times Respondent Sex interaction, $F(2, 1199) = 4.60, p = .01, ES = .008$. This effect was further qualified by a significant 3-way interaction of Party \times Respondent Sex \times Target Sex, $F(2, 1199) = 3.06, p < .05, ES = .005$. Univariate ANOVAs with Student Newman Keuls tests

revealed that party differences were significant only for male respondents, with male Democrats scoring significantly higher than Republicans and Independents. Among female respondents, Independents gave higher thermometer ratings than either Democrats or Republicans but the difference was not significant ($p = .07$).

Psychological Correlates

Sexual and gender attitudes were associated with thermometer scores in the expected direction. Respondents low in sexual permissiveness – i.e., those who believed that sex is acceptable only for married people and that the main purpose of sex is procreation – expressed significantly more negative attitudes than their more permissive counterparts. Similarly, those who endorsed traditional gender beliefs – that boys should be strong and tough whereas girls should strive for a family and a good marriage – expressed more negative attitudes than respondents with nontraditional gender beliefs.

Scores on the authoritarianism measure were significantly correlated with thermometer ratings of both bisexual men, $r(1241) = -.20$, and bisexual women, $r(1241) = -.19$ (for both, $p < .001$). As shown in Table 2, respondents who did not endorse any of the qualities characteristic of authoritarianism expressed significantly more favorable attitudes than those who endorsed one or two authoritarian choices, who in turn expressed more favorable attitudes than those who endorsed three authoritarian choices.

Contact with Lesbians or Gay Men

Respondents with at least one gay or lesbian friend or relative expressed significantly more favorable attitudes than those reporting no such relationships with a gay person.

Predictors of Attitudes Toward Bisexuals

Ordinary least squares regression analyses were conducted to assess the relative predictive power of the variables listed in Table 2, as well as the extent to which they might be differentially related to attitudes toward bisexual men versus women. In preliminary analyses, variables that explained a minimum amount of

the variance in at least one thermometer score (arbitrarily set at 0.2%) were identified. Age and authoritarianism were treated as continuous variables; all other variables were categorical. For variables with three or more response categories, various coding strategies were explored to identify the most interpretable one. Multiplicative interaction terms were created for the four variables that had demonstrated significant interactions with respondent sex (race, income, religious attendance, and political party). When two variables were expected to share a substantial portion of variance, which might dilute the individual predictive power of each (e.g., religious attendance and self-rated importance of religion), exploratory analyses were conducted in which only one variable of the pair was entered with the remaining independent variables.

Variables that did not account for at least 0.2% of the variance in one thermometer score were dropped from the analyses. The remaining variables were included in two new regression equations, one for each thermometer. Based on findings from the preliminary analyses, these variables were dummy coded to facilitate interpretation of the regression outcomes. A new dummy variable was created that combined respondent sex and race (1 = White females, 0 = all others). The other variables entered in the final equations were educational level (1 = any college, 0 = no college), annual income (1 = \$30,000 or less, 0 = more than \$30,000), geographic residence (1 = South, 0 = elsewhere), political ideology (1 = conservative, 0 = liberal or moderate), religious attendance (1 = weekly, 0 = less frequently), attitudes toward male gender roles (1 = traditional, 0 = nontraditional), sexual conservatism (1 = belief that sex is acceptable only in marriage, 0 = belief that sex can be acceptable outside marriage), and contact with gay men or lesbians (1 = any gay or lesbian friends or family, 0 = no contact).

The results are presented in Table 3, with independent variables listed in descending order according to the amount of variance they individually explained in thermometer scores. Some differences were observed between the

equations for bisexual male and female thermometers. The combined race-sex variable accounted for substantially more variance in the bisexual male thermometers than in the bisexual female thermometers (12% vs. 3%). In addition, traditional attitudes toward male gender roles accounted for somewhat more variance in bisexual male thermometers (11% vs. 7%), whereas residence in the South accounted for somewhat more variance in bisexual female thermometers (9% vs. 5%). In other respects, however, the relative contributions made by the predictor variables did not differ dramatically between the two thermometers.

Insert Table 3 about here

Perhaps the more noteworthy pattern in Table 3 is that the analysis did not identify one or two variables that predicted most of the variance in thermometer scores. Most of the variables in the equation explained at least 0.5% of the variance, but neither equation accounted for more than 14%, suggesting that additional explanatory variables should be identified in future analyses.

Discussion

Respondents' attitudes toward bisexual men and women were more negative than for all other groups except injecting drug users. In addition, overall ratings for bisexual men were somewhat lower than for bisexual women, and this difference is more interpretable when respondent gender and thermometer scores for lesbian and gay male targets are also considered. Heterosexual women felt less favorable toward bisexuals than toward homosexuals, regardless of gender. By contrast, heterosexual men felt less favorable toward sexual minority males (whether bisexual or gay) than females (whether bisexual or lesbian). Regardless of the target's sexual orientation, the most negative ratings were those of heterosexual men for male sexual minorities.

This difference between male and female respondents raises interesting questions about the cognitive organization of heterosexuals' attitudes and the motives underlying those attitudes. If gender is the central organizing

factor in heterosexual men's attitudes toward homosexuals and bisexuals alike, perhaps those attitudes are psychologically linked primarily with concerns about gender, sexuality, and masculine identity (Herek, 1986; Kimmel, 1997). If heterosexual women are more likely than heterosexual men to express different attitudes toward bisexuals and homosexuals, perhaps they regard the two targets as distinct minority groups (Herek, 2000b). Their attitudes toward each group might have different motivations. These observations suggest promising avenues for future research.

Attitudes toward bisexuals showed a pattern of correlations with demographic, social, psychological, and contact variables similar to that observed for heterosexuals' attitudes toward lesbians and gay men. These correlations suggest a variety of influences on heterosexuals' attitudes. For some heterosexuals, negative attitudes toward bisexuals are probably part of a general belief system that includes a high level of religiosity and traditionalism regarding gender and sexuality. Since the 1980s, such ideologies have become an important basis for the social identities of many individuals who identify themselves as cultural conservatives (e.g., Herman, 1997). Others' attitudes may be influenced primarily by their social milieu, with more negative attitudes fostered in settings where such attitudes are the norm (e.g., rural areas, the South) and more positive attitudes fostered in settings where social norms favor acceptance of diversity in general and sexual minorities in particular (e.g., urban areas, college campuses).

Similarly, the correlation of age with attitudes probably reflects the different experiences and norms of different generations. Respondents who were over 60 when the survey was conducted were over 30 in the late 1960s. Many probably still hold attitudes consistent with cultural norms prior to the rise of feminism and the gay and bisexual movements. Younger respondents, by contrast, grew up in an era characterized by increasingly greater tolerance for sexual minorities (Herdt, 2001). Related to this point, the attitudes of

some respondents may be related to their opportunities (or lack of opportunities) to interact personally with bisexual men or women. Such contact appears to lead to more favorable attitudes toward lesbians and gay men (Herek & Capitanio, 1996) and the same may be true for attitudes toward bisexual men and women. Respondents who live in small towns and have not attended college are probably less likely to have opportunities for contact, whereas those with lesbian or gay friends or relatives probably are more likely to have it.

No single variable – nor even a small number of variables in combination – emerged as the primary predictors of heterosexuals' attitudes toward bisexuals. Indeed, all of the social, demographic, and attitudinal variables in combination accounted for only about one seventh of the variance in attitudes, suggesting that some key correlates of heterosexuals' attitudes were not assessed in the present study. Future research should attempt to identify such variables.

In addition, research is needed to describe in qualitative terms how heterosexuals understand bisexuality. Although the present study provides quantitative estimates of the heterosexual public's degree of positive and negative feelings toward bisexual persons, it does not explain how heterosexuals conceptualize bisexuality or bisexual persons. Many Americans – especially those removed from large urban centers, college campuses, and gay, lesbian, and feminist communities – probably have only recently begun to articulate their attitudes toward bisexual people. It seems likely that multiple patterns of beliefs and assumptions about bisexuals exist among heterosexuals (Eliason, 1997; Rust, 1995). Future research should describe these patterns and assess how they are related to acceptance or rejection of bisexual people.

Related to this point, research is also needed on how gay men and lesbians understand bisexuality. Many bisexuals experience hostility not only from heterosexuals but also from gay people (Blumstein & Schwartz, 1977; Herdt, 2001; Ochs, 1996; Paul & Nichols, 1988; Weinberg et al., 1994). Most likely, many of the

underlying motivations for anti-bisexual attitudes are probably different for gay men and lesbians than for heterosexuals. For example, some gay people may regard bisexuals as fence-straddlers who are trying to avoid the full brunt of antigay stigma. Some lesbian feminists may suspect bisexual women of betraying feminist or lesbian values. Research is needed that explores gay men and lesbians' attitudes toward bisexuals (for examples of work in this area, see Mohr & Rochlen, 1999; Rust, 1995).

The present research has important limitations. Attitudes were assessed with a single item for bisexuals of each gender, a method that is inherently less reliable than multiple-item measures. Existing multiple-item scales for assessing attitudes toward bisexual men and women (e.g., Mohr & Rochlen, 1999) are likely to be more reliable than the feeling thermometers but are too lengthy to be practical for administration in a national telephone survey. An important goal for future research, therefore, will be to develop brief valid measures, such as those already available for assessing heterosexuals' attitudes toward lesbians and gay men (e.g., Herek, 1994). Such measures can then be used to replicate and extend the findings reported here.

Another limitation of the feeling thermometers is that they assess only affective responses. That this feeling dimension represents only one facet of attitudes can be demonstrated with data from the present study. As reported above, correlations between the bisexual male and gay male thermometers and between the bisexual female and lesbian thermometers were very high, indicating that the two measures shared roughly 60% of their variance (approximately $r = .79$). However, correlations of the bisexual thermometers with multi-item measures of attitudes toward gay people – the 3-item Attitudes Toward Gay Men (ATG) and Attitudes Toward Lesbians (ATL) scales (Herek, 1994), which were also administered in the survey – were much lower, sharing only about 20% of their variance (approximately $r = -.45$). Thus a considerable amount of variance in the multi-item measures is not shared with the single-item feeling

thermometer. Correlations between the gay male and lesbian thermometers and their ATL/ATG counterparts were only slightly higher, indicating that they shared about 25% of their variance: $r(1245) = -.50$ between the gay male thermometer and ATG scores; $r(1248) = -.48$ between the lesbian thermometer and the ATL scores ($p < .001$ for both).

An important strength of the present study is its use of a national probability sample. Research on attitudes toward sexual minorities has often relied on convenience samples recruited on college campuses (Kite & Whitley, 1996). Such samples are inherently restricted on variables such as age and educational level, which are important correlates of sexual attitudes (Herek, 1984, 2000a). They also differ from the general population in other important respects. Compared with older adults, for example, college students are likely to have less crystallized attitudes, a less formulated sense of self, stronger cognitive skills, stronger tendencies to comply with authority, and more unstable peer group relationships (Sears, 1986). These characteristics make it likely that studies of students' attitudes will yield different findings – including different patterns of associations among variables – compared to studies with nonstudent samples. By contrast, the demographic composition of the present sample generally corresponds to that of the English-speaking adult population of the United States. In addition, because it is a probability sample, the present findings can be generalized to the larger population.

Heterosexuals' attitudes toward bisexual men and women have only recently become the object of scientific research. In pointing to the importance of recognizing prejudice against bisexuals, some activists and researchers have labeled it *biphobia*, a term adapted from *homophobia* (e.g., Eliason, 1997; Farrel-Kaahumanu, 1982; Fox, 1996; Ochs, 1996; Paul & Nichols, 1988). Homophobia, however, has been criticized for a variety of reasons, including its suggestion that antigay attitudes are motivated primarily by fear (Herek, 2000a). Just as heterosexuals' attitudes toward homosexuals and bisexuals are psychologically similar in

important respects, the scientific study of both is likely to be facilitated by more rigorous terminology. Heterosexuals' negative attitudes toward homosexuals and bisexuals might best be understood as different aspects of sexual prejudice, that is, negative attitudes toward an individual because of her or his sexual orientation (Herek, 2000a). Conceptualizing heterosexuals' negative attitudes toward bisexuality as a form of sexual prejudice has the important advantage of avoiding a priori assumptions about their origins, dynamics, and underlying motivations.

As bisexual men and women become increasingly visible in American society, the heterosexual public's attitudes toward them will continue to evolve. As such attitudes crystallize, expressions of prejudice, discrimination, and violence against bisexuals may become even more common. It is important, therefore, that empirical research be conducted to illuminate the nature of heterosexuals' attitudes toward bisexual women and men, to track changes in such attitudes over time, and to identify effective strategies for overcoming sexual prejudice directed at bisexuals.

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Table 1.
Comparison of Thermometer Scores For Different Targets

Thermometer Target (<i>N</i>)	Mean	Std. Error	# Extreme Scores	
			0 (coldest)	100 (warmest)
Bisexual women (1,274)	45.8	0.71	116	57
Bisexual men (1,273)	43.4	0.72	140	54
Whites (1,275)	70.4	0.58	1	223
Catholics (1,276)	67.7	0.63	2	230
Blacks (1,277)	66.8	0.60	4	190
Protestants (1,269)	66.5	0.60	3	210
Mexican Americans (1,276)	64.9	0.60	5	167
Jews (1,277)	64.8	0.58	3	167
Puerto Ricans (1,275)	63.5	0.59	7	162
Haitians (1,270)	60.5	0.58	8	143
People who are pro-life (1,277)	56.3	0.77	54	146
People with AIDS (1,273)	55.6	0.65	48	96
People who are pro-choice (1,276)	53.3	0.81	116	117
Homosexual women (1,277)	47.5	0.73	116	57
Homosexual men (1,276)	46.1	0.75	134	63
People who inject illegal drugs (1,277)	21.0	0.65	414	19

Table 2.
Mean Thermometer Scores by Demographic Groups

Group (<i>n</i>)	Bisexual Men	Bisexual Women
Entire sample	43.4 (25.9)	45.8 (25.4)
Race		
White (1,040)	44.3 (26.0)	46.6 (25.3)
Black (128)	39.2 (26.0)	42.6 (26.3)
Other (91)	40.0 (24.3)	41.3 (24.5)
F (2, 1256)	3.06* (.005)	3.01* (.005)
Age		
18-29 (196)	45.6 (25.2) _a	47.9 (25.1) _a
30-39 (310)	42.6 (26.1) _{ab}	46.7 (24.6) _a
40-49 (300)	45.8 (25.9) _a	47.8 (25.1) _a
50-59 (204)	45.8 (25.0) _a	47.3 (25.1) _a
60 and older (263)	38.3 (26.1) _b	39.8 (26.4) _b
F (4, 1268)	4.10** (.013)	4.78*** (.015)
Education		
High school or less (473)	37.2 (27.1) _a	39.8 (26.5) _a
Some college (366)	44.3 (24.6) _b	47.0 (24.3) _b
College degree or higher (423)	50.1 (23.6) _c	52.0 (23.3) _c
F (2, 1259)	29.55*** (.045)	27.57*** (.042)
Income		
< \$30,000 (345)	38.0 (27.3) _a	40.4 (26.7) _a
\$30-50,000 (330)	43.4 (26.2) _b	46.2 (25.7) _b
\$50-70,000 (238)	45.7 (25.8) _{bc}	48.0 (25.9) _b
+ \$70,000 (300)	48.9 (22.7) _c	50.9 (21.8) _b
F (3, 1209)	10.22*** (.025)	10.01*** (.024)
Geographic region		
South (397)	39.5 (26.7) _a	41.3 (26.7) _a
Midwest (338)	42.0 (24.6) _a	44.8 (23.8) _{ab}
Mountain (87)	45.9 (26.4) _{ab}	45.5 (25.8) _{ab}
Pacific Coast (178)	45.5 (24.1) _{ab}	48.9 (23.4) _{bc}
Northeast (273)	48.9 (26.1) _b	51.7 (25.3) _c
F (4, 1268)	6.19*** (.019)	7.66*** (.024)

Table continues

Table 2 continued

Group (n)	Bisexual Men	Bisexual Women
Current residence		
Large city (281)	45.2 (25.8)	48.8 (25.4) _a
Suburb (269)	46.0 (23.7)	48.2 (23.7) _a
Small city (245)	45.1 (25.0)	46.0 (24.4) _{ab}
Small town/rural (462)	40.6 (27.1)	43.2 (26.4) _b
F (3, 1253)	3.48 (.008)	3.65* (.009)
How important is religion?		
Very important (621)	39.9 (27.0) _a	41.7 (27.1) _a
Somewhat/not too/ not at all important (641)	47.1 (24.0) _b	50.2 (22.7) _b
F (1, 1260)	25.04*** (.019)	36.42*** (.028)
Religious attendance in past year		
Never (220)	44.0 (24.9) _a	47.5 (23.2) _a
Once, few times (336)	46.0 (24.4) _a	49.4 (23.7) _a
Monthly (113)	49.0 (24.5) _a	50.8 (24.6) _a
2-3 times per month (209)	46.2 (26.7) _a	47.8 (25.5) _a
Weekly or more often (383)	38.3 (26.6) _b	39.8 (26.9) _b
F (4, 1256)	6.77*** (.021)	8.96*** (.028)
Political ideology		
Conservative (404)	38.9 (25.7) _a	40.9 (25.1) _a
Moderate (378)	46.0 (24.4) _b	48.0 (23.5) _b
Liberal (333)	48.5 (25.6) _b	51.0 (24.9) _b
F (2, 1112)	14.58*** (.026)	16.90*** (.030)
When is sex acceptable?		
Only for married people (409)	36.8 (26.3) _a	38.1 (26.3) _a
For unmarried people in love (596)	45.3 (25.1) _b	47.4 (23.9) _b
For unmarried people, not in love (249)	50.4 (24.1) _c	55.0 (23.0) _c
F (2, 1251)	25.16*** (.039)	38.90*** (.059)

Table continues

Table 2 continued

Group (n)	Bisexual Men	Bisexual Women
Sex is mainly for procreation		
Agree (176)	37.2 (27.7) _a	38.6 (27.1) _a
Disagree (1,085)	44.6 (25.4) _b	47.1 (24.9) _b
F (1, 1259)	12.41 ^{***} (.01)	17.59 ^{***} (.014)
More important qualities for boy		
Sensitivity and caring (1,028)	44.8 (25.7) _a	46.7 (25.3) _a
Strength and toughness (217)	36.9 (25.7) _b	41.8 (25.7) _b
F (1, 1243)	16.55 ^{***} (.013)	6.52 ^{**} (.005)
More important goals for girl		
Job and good income (586)	46.1 (24.5) _a	48.0 (23.9) _a
Family and good marriage (633)	40.9 (26.7) _b	43.5 (26.4) _b
F (1, 1217)	12.38 ^{***} (.010)	10.03 ^{**} (.008)
Authoritarianism (number of authoritarian responses)		
None (216)	52.1 (21.0) _a	53.8 (20.4) _a
1 (272)	45.9 (24.3) _b	48.2 (23.8) _b
2 (313)	43.7 (25.0) _b	46.6 (24.2) _b
3 (440)	37.6 (28.2) _c	40.2 (28.1) _c
F (3, 1237)	16.85 ^{***} (.039)	15.77 ^{***} (.037)
Number of lesbian/gay friends or family members		
None (345)	34.7 (25.3) _a	36.7 (24.8) _a
One or more (917)	46.9 (25.2) _b	49.4 (24.7) _b
F (1, 1260)	58.69 ^{***} (.045)	65.42 ^{***} (.049)

Note: Table reports mean thermometer scores and (in parentheses) standard deviations. Higher thermometer scores indicate warmer (more positive) feelings toward gay men and lesbians. All F statistics are based on univariate analyses of variance (ANOVA); univariate Fs are reported only when multivariate F (using the two thermometer scores as the dependent variable) was significant. Figures in parentheses following F values are effect sizes (partial η^2). Within variables, means having the same subscript are not significantly different at $p < .05$ by the Student Newman Keuls comparison. Thermometer scores were not significantly different within categories of marital status, number of children, and political party and are not reported in the table. Because of missing data for some independent variables, the number of cases differs slightly according to variables.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3.
Regression Coefficients for Predictors of Feeling Thermometer Scores By Target Gender

Variable	R^2	B	β	t
Thermometer Target: Bisexual Men ^a				
Any college	.015	6.72	.13	4.21***
Gay/lesbian friends or family	.013	6.79	.12	3.89***
White female	.012	5.65	.11	3.71***
Traditional male gender attitudes	.011	-7.23	-.11	-3.59***
Politically conservative	.009	-5.43	-.10	-3.37***
Sexual permissiveness	.006	-4.89	-.09	-2.61**
Income < \$30,000	.007	-4.84	-.08	-2.81**
Resides in South	.005	-4.02	-.07	-2.47*
Weekly religious attendance	.003	-3.66	-.07	-2.02*
Thermometer Target: Bisexual Women ^b				
Gay/lesbian friends or family	.015	7.27	.13	4.30***
Any college	.015	6.67	.12	4.31***
Politically conservative	.011	-5.58	-.11	-3.58***
Resides in South	.009	-5.17	-.10	-3.27***
Sexual permissiveness	.007	-5.37	-.10	-2.96**
Traditional male gender attitudes	.007	-5.83	-.09	-2.98**
Income < \$30,000	.006	-4.40	-.08	-2.64**
Weekly religious attendance	.005	-4.39	-.08	-2.49*
White female	.003	3.00	.06	2.03*

Note. For each independent variable, the table reports the percentage of variance explained by it (R^2), and its unstandardized regression coefficient (B), standardized regression coefficient ($\hat{\alpha}$), and associated t value.

^a For bisexual men, R^2 (adj) = .126, $F(9, 1038) = 17.84$ ($p < .001$). ^b For bisexual women, R^2 (adj) = .139, $F(9, 1038) = 18.61$ ($p < .001$).

* $p < .05$. ** $p < .01$. *** $p < .001$.