



Published in final edited form as:

Womens Health Issues. 2010 ; 20(3): 211–218. doi:10.1016/j.whi.2010.02.002.

Effects of Gender Discrimination and Reported Stress on Drug Use among Racially/Ethnically Diverse Women in Northern California

Annie Ro, MPH and

University of Michigan, Department of Health Behavior and Health Education, 426 Thompson Street #2096, Ann Arbor, MI 48106, anniero@umich.edu, Phone: (510) 798-6615

Kyung -Hee Choi, PhD, MPH

University of California, San Francisco, Center for AIDS Prevention Studies, 50 Beale Street, Suite 1300, San Francisco, CA 94105, Kyung-Hee.Choi@ucsf.edu, Phone: (415) 597-9281, Fax: (415) 597-9213

Abstract

Purpose—Gender discrimination has been associated with worse health outcomes for U.S. women. Using the stress and coping process framework, we examined whether lifetime gender discrimination was associated with maladaptive coping behaviors: lifetime and recent hard drug use. We also considered if reported stress from gender discrimination mediated this relationship and if this process differed across racial/ethnic groups.

Methods—We used data from a racially/ethnically diverse convenience sample of 754 women attending family planning clinics in Northern California (11% African American, 17% Latina, 10% Asian and 62% Caucasian). To test our hypotheses, we conducted logistic regression models, controlling for sociodemographic characteristics.

Main Findings—Gender discrimination was positively associated with both lifetime and recent hard drug use. We did not find support for the mediation hypothesis, as stress was not significantly associated with either lifetime or recent hard drug use. There was evidence of some race moderation for the Latina sample. Among these respondents, gender discrimination was associated with higher odds of lifetime drug use, while stress was associated with lower odds.

Conclusions—These results suggest that experiences of gender discrimination may still activate negative coping strategies involving drug use, regardless of the stress they cause. For Latina respondents, more research is needed to better understand the stress and coping process related to gender discrimination.

Introduction and Background

Despite progression in gender equality in the United States, gender discrimination remains a key determinant of women's health outcomes. While women can experience discrimination as a result of many different characteristics, gender discrimination appears to independently impact women's mental and physical health over other non-gender specific stressors, such as major life events and daily hassles (Klonoff, Landrine, & Campbell, 2000; Landrine, Klonoff, Gibbs, Manning, & Lund, 1995). Perceived gender discrimination has been found to be

Correspondence to: Annie Ro.

There are no financial conflicts of interest involving any of the co-authors.

significantly related to higher reports of depression, anxiety and premenstrual symptoms (Klonoff et al., 2000; Landrine et al., 1995), as well as psychological distress (Moradi & Subich, 2002).

The stress and coping process is one potential mechanism by which gender discrimination can affect health. Folkman and Lazarus' model (1980) posits that as individuals are confronted with stressors, they appraise the potential threat and employ coping strategies that mitigate the emotional and physiological imbalances that stressors cause. This model suggests that the coping strategies women employ in response to gender discrimination may vary upon the extent to which they experience a discriminatory experience as stressful. In other words, women may employ coping processes more readily if they find gender discrimination experiences to be particularly stressful.

The stress and coping process has clearer health ramifications when we consider maladaptive coping strategies; research suggests that some individuals deal with stress by engaging in health-risk behaviors, such as smoking, alcohol use, drug use or overeating (Jackson & Knight, 2006). Empirical work suggests that maladaptive coping behaviors are not uncommon responses to discrimination among African American, Asian, and multiethnic samples. Higher reports of racial/ethnic discrimination have been found to be associated with higher odds of tobacco use, problem drinking, alcohol disorder, smoking and high-risk HIV sexual behaviors (Bennett, Wolin, Robinson, Fowler, & Edwards, 2005; Chae, Takeuchi, Barbeau, Bennett, Lindsey, & Krieger, 2008; Chae, Takeuchi, Barbeau, Bennett, Lindsey, Stoddard et al., 2008; Chae & Yoshikawa, 2008; Martin, Tuch, & Roman, 2003; Yen, Ragland, Greiner, & Fisher, 1999a, 1999b). One study examined the mediating effect of stress between racial/ethnic discrimination and a maladaptive coping response; Guthrie and colleagues (2002) found that reported stress from discrimination mediated the relationship between day-to-day experiences of racial/ethnic discrimination and smoking among young African American women.

The majority of empirical work on maladaptive coping behaviors and discrimination has been conducted on racial/ethnic discrimination; it is not fully apparent that gender discrimination should display similar patterns. Researchers have delineated racial/ethnic and gender discrimination as two distinct types of discrimination that have their own, unique processes that affect health (Krieger, 1990; Ro & Choi, 2009; Watson, Scarinci, Klesges, Slawson, & Beech, 2002). The ideology that upholds the differential and disadvantageous treatment of certain racial groups is racism, while the ideology that perpetuates gender discrimination is sexism (Kreiger, 2000). However, like racial/ethnic discrimination, gender discrimination has also been identified as a stressor (Krieger, 1990), making the stress and coping framework a plausible mechanism to health outcomes. This pathway has empirically supported to a limited extent (Zucker & Landry, 2007), but additional empirical evidence would help expand the scope of the stress and coping framework to include gender discrimination.

The use of maladaptive responses may also vary across different populations, as the stress and coping process can be influenced by factors that affect exposure to the stressor, appraisal, or coping responses (Thoits, 1995). One characteristic of interest is race/ethnicity; existing literature suggests that racial and ethnic groups report gender discrimination differentially and that the effects of gender discrimination may be more deleterious for some groups than others. For example, Ro and Choi (2009) found that Caucasian women were significantly more likely to report gender discrimination than Asian and Latina women. Landrine et al. (1995) found that gender discrimination contributed to a significant proportion of variation for their model predicting psychiatric symptoms for women of color, but not for Caucasian women. Kreiger (1990) found gender discrimination to be associated with higher odds for hypertension for African American women, but not Caucasian women. Racial/ethnic differences have not yet

been explored in the existing literature on gender discrimination and maladaptive coping, as previous studies have not had sufficiently diverse samples (Zucker & Landry, 2007).

In light of the existing empirical literature, this analysis utilized the stress and coping framework to explore three important aspects of the relationship between gender discrimination and health outcomes. First, we tested whether there was a relationship between gender discrimination and drug use in a racially and ethnically diverse sample of women who attended family planning clinics in Northern California. We hypothesized that respondents with increased reports of gender discrimination would have higher odds for drug use. Secondly, we examined whether this relationship was mediated by reported stress level from the discriminatory events. We hypothesized that gender discrimination would be positively associated with stress, which in turn would be positively associated with drug use. Finally, we explored whether the relationship among gender discrimination, reported stress and maladaptive coping outcomes varied across four racial/ethnic groups: Caucasians, African Americans, Latinas and Asians. We hypothesized that the magnitude of the relationships between gender discrimination, stress and drug use would differ across the four racial/ethnic groups.

Methods

Participants

Data for the study came from 754 women who completed baseline surveys for the Female Condom Intervention Trial (FEMIT), which evaluated the efficacy of female condom skills training in increasing female condom use. Details of the intervention have been described elsewhere (Choi et al., 2008). Participants were recruited between 2003 and 2004 from family planning clinics in four San Francisco Bay Area cities (Concord, Mountain View, Santa Cruz, San Francisco). These family planning clinics were open to the public and were funded from a combination of public and private funds. During the recruitment period, flyers were posted at the clinics and three trained female recruiters approached women in the waiting areas at the study sites and screened them in private areas of the clinic. Women qualified for the study if they self-identified as African American, Asian, Latina, or Caucasian; were 18–39 years of age; had more than one male sex partner in the previous year; had no known allergies to polyurethane, latex, or lubricants; were self-reported to be HIV negative; had no plan to get pregnant within the subsequent 6 months; and were English speakers. The study's eligibility rate was 30%; of the 4071 women who were approached to participate, 1057 met the eligibility requirements. Of those eligible, 71% agreed to participate, bringing the study sample total to 754. During the screening, recruiters described the purpose of the study and acquired written informed consent from eligible women who agreed to participate. The consented participants completed a standardized baseline questionnaire using an audio computer-assisted self-administered interview (ACASI) system and received \$10 in cash immediately following the survey. The recruiting procedures and baseline survey were conducted in English. The Committee for Human Research of the University of California, San Francisco approved the study procedures.

Measures

Dependent Variables—There were two outcomes of interest in our analyses: lifetime hard drug use and recent hard drug use. Lifetime hard drug use was a binary measure derived from a series of questions on the lifetime use of marijuana, crack, cocaine, heroin, speed, other opiates, LSD, ecstasy, tranquilizers and “other drugs”. Those who reported using “other drugs” were asked to specify the drug. We defined hard drug use with Ellickson and Morton's classification scheme (1999): cocaine, uppers (e.g. amphetamines), downers (e.g., valium, Quaaludes), psychedelics, heroin, morphine, codeine or opium. Those who answered “yes” to

using such drugs in the specific drug questions or denoted the use of hard drugs in the “other drugs” category were coded as 1. All others were coded as 0. Recent hard drug use was a binary measure derived in a similar fashion as lifetime use, except the use of specific drugs was asked within the timeframe of the past three months. Respondents were asked if they ever used marijuana, crack, cocaine, heroin, speed, other opiates, LSD, ecstasy, tranquilizers and “other drugs” in the past three months. Although respondents were not asked to specify “other drugs” in the recent use measure, we still coded an affirmative response to “other drug” use as hard drug use. We reasoned that the majority of “other drug” use was hard drugs, as nearly 90% of the written responses of “other drugs” in lifetime use were hard drugs.

Independent Variable—Gender discrimination was measured with a scale derived from Klonoff and Landrine’s Schedule of Sexist Events (SSE) (1995). The scale consisted of 13 items asking participants to report how often they experienced gender discrimination in their lifetimes in various settings: “never”, “rarely” “sometimes” or “often”. It included measures as, “As a woman, how often have you been treated unfairly by your family?”, “As a woman, how often have you been denied a raise, promotion, a job, or something at work that you deserved?” A value for gender discrimination was derived from the average for the 13 items; the scale ranged from one (never) to four (often). The internal consistency of our discrimination scale was high for the whole sample (Cronbach’s alpha = 0.89) and across the different racial/ethnic groups (Cronbach’s alpha=0.85–0.90). In the multivariate analyses, we used the standardized value to offer better interpretation of the average value calculated from the gender discrimination scale.

Mediating Variable—Stress from gender discrimination was measured from a single item that appeared after the discrimination scale: “How stressful have these experiences of being treated unfairly because of your gender been?” Respondents rated the discriminatory events as being “not stressful”, “a little stressful”, “stressful” or “very stressful”. We included three categories in our analysis; we combined the final two categories due to the small number who reported “very stressful”. The categories for stress were “not stressful” coded as 0, “a little stressful” coded as 1 and “stressful/very stressful” coded as 2.

Covariates—We included additional variables for age, education, financial difficulty and race/ethnicity in our analyses. Participants identified their own race/ethnicity and age. There were four racial/ethnic groups in our sample: African American, Caucasian, Latina/Hispanic and Asian American. In the analysis, age was entered as a continuous variable. Financial difficulty was a binary variable based on participants’ responses from a seven-item scale modified from Bauman’s measure of economic well-being (1998). The scale asked participants whether they had been in various situations of financial hardship within the past three months (e.g., unable to pay bills, accept public assistance). If participants answered “yes” to any of the seven items, they were coded as 1 for financial difficulty. Educational attainment was measured as an ordinal variable: less than High School, High School Diploma/GED, some college or vocational school and college degree or higher.

Analysis

To test our research hypotheses, we used the steps for mediation detailed by Baron and Kenny (1986). According to this approach, stress, the mediating variable, should be significantly associated with both 1) gender discrimination and 2) drug use and 3) when included with gender discrimination in a model predicting the outcomes, should reduce or eliminate the significance of the coefficient for gender discrimination compared to a model that excludes stress.

We used logistic regression models for both of our outcomes. Model 1 regressed the lifetime or recent hard drug use outcomes onto gender discrimination. The coefficient for gender

discrimination in this model represents the *total effect* of gender discrimination on the outcomes. This coefficient should be significant, as this step determines whether there is an effect to be mediated. Model 2 regressed stress on gender discrimination using an ordinal logistic model, as reported stress was a categorical variable. We tested the ordinal model fit using the proportional odds assumption. Model 3, the final model, regressed the drug use outcomes onto both the gender discrimination and stress variables. The coefficient for gender discrimination in the final model represents the *direct effect* of gender discrimination. If stress is a significant mediator, the coefficient for gender discrimination should significantly decrease or become non-significant from Model 1 to Model 3. We tested for a significant decrease by comparing the coefficients of the regression models in a test similar to the Sobel-test that compares the change in the coefficients' *t*-statistics (Preacher, 2003). In each of the models, we controlled for age, race/ethnicity, education and financial difficulty.

To explore differences across race/ethnicity, we ran an additional model that included interaction terms to Model 3: racial/ethnic group by discrimination and racial/ethnic group by stress. For those racial/ethnic groups with significant interaction terms, we conducted stratified analyses to explore the nature of the moderating effect.

Results

There were 752 women in our analysis; two women were dropped because of missing data. Table 1 displays the sample's demographic characteristics. Age ranged from 18 to 39 years and the mean was 22 years. The racial/ethnic breakdown of the sample was 465 Caucasians (62%), 127 Latinas (17%), 86 African Americans (11%), and 76 Asians (10%). Over one-third of the sample had some college or vocational training (36%). The majority reported having financial difficulty (76%).

Sixty-four percent of respondents reported having used hard drugs in their lifetime. Fewer reported recent hard drug use; less than one-third (31%) reported having used hard drugs in the past three months.

The mean of lifetime gender discrimination was 2.19, which was between "rarely" and "sometimes". There was little variation across the racial/ethnic groups; Caucasians had the highest average at 2.27 and Asians the lowest at 1.96. The gender discrimination experiences appeared to generate stress; half of the women (50%) reported that their experiences of gender discrimination were "a little stressful" and over a quarter (30%) reported that they were "stressful/very stressful". Latinas had the highest proportion that reported "stressful/very stressful" (32%) and Asians had the lowest (17%).

Lifetime Hard Drug Use

We used the progression of logistic regression models detailed in the Analysis section to test our mediation hypotheses (Models 1, 2, 3). Figure 1 illustrates the results of the series of logistic regression models with lifetime hard drug use as the outcome. There is a significant total effect of gender discrimination on lifetime hard drug use such that higher reports of gender discrimination are associated with higher odds for lifetime drug use (OR=1.34, $p<.05$). Gender discrimination is also highly positively associated with the mediating variable, reported stress (OR=4.14, $p<.001$). The proportional odds assumption was not violated, indicating that the ordinal logistic model was a good fit. After adding stress in to the model predicting lifetime hard drug use, however, we did not see a mediation effect. Stress was not significantly associated with lifetime hard drug use. Gender discrimination remained significantly associated with lifetime hard drug use (OR=1.29, $p<.05$).

Recent Hard Drug Use

Figure 2 illustrates the results of the series of logistic regression models predicting recent drug use. The results were similar to those for lifetime use. Gender discrimination was positively associated with higher odds of recent use drug (OR=1.35, $p<.001$) and higher reports of stress (OR=4.14, $p<.001$). When reported stress was included in the model, it was not significantly associated with recent drug use and the effect of gender discrimination remained nearly the same (OR=1.33, $p<.001$).

Race Moderation

Our model with the interaction terms indicated that race/ethnicity significantly moderated the effects of discrimination and stress only for Latinas on lifetime hard drug use (not shown). For the Latinas in our sample, the interaction between race/ethnicity and gender discrimination significantly exacerbated the overall effect of gender discrimination on lifetime hard drug use compared to Caucasian ($\beta=0.72$, $p<.05$). The interaction between race/ethnicity and reported stress had the opposite effect; the coefficient of this interaction was significantly negative ($\beta=-1.05$, $p<.05$), making the overall effect of stress on lifetime hard drug use negative for Latinas. In other words, gender discrimination was associated with higher odds of lifetime drug use while reported stress was associated with lower odds. These findings were confirmed in a stratified analysis for the Latina sample. For Latinas, gender discrimination was initially associated with an increased odds of lifetime drug use (OR=1.75, 95% Confidence Interval [CI] =1.16–2.63, $p<.001$). After including reported stress into the model, the odds for gender discrimination increased (OR=2.35, 95% CI=1.41–3.91, $p<.001$) while reported stress was associated with lower odds (OR=0.48, 95% CI=0.25– 0.93, $p<.05$).

Conclusions and Discussion

To our knowledge, our study is the first to have examined the influence of gender discrimination on drug use and additionally consider racial/ethnic differences in this relationship. We found significant associations between gender discrimination and maladaptive coping; after controlling for age, race/ethnicity, education and financial difficulty, there were significantly higher odds for lifetime and recent drug use if respondents reported more gender discrimination. This finding corresponds to previous research that has found racial/ethnic discrimination to be associated with negative health behaviors (Bennett et al., 2005; Chae, Takeuchi, Barbeau, Bennett, Lindsey, & Krieger, 2008; Chae, Takeuchi, Barbeau, Bennett, Lindsey, Stoddard et al., 2008; Chae & Yoshikawa, 2008; Guthrie et al., 2002; Landrine et al., 1995; Martin et al., 2003) and suggests that the stress and maladaptive coping framework is a plausible pathway between gender discrimination and health.

We did not find support for a mediation effect of reported stress; stress from gender discrimination did not have a significant relationship with either lifetime or recent hard drug use. This differs from another study we located that used a similar framework, which found support for mediation in binge drinking and smoking (Zucker & Landry, 2007). In our findings, it appears that greater frequency of gender discrimination is more likely to activate maladaptive coping strategies, regardless of the level of stress that the experiences cause. The strong positive association between experiences of gender discrimination and reported stress suggested that respondents did indeed perceive gender discrimination to be a stressor, which is a necessary prerequisite to coping (Burchfield, 1979). The appraisal of the events, however, appears to have little bearing on whether respondents engaged in drug use. For example, our results suggest that respondents with comparable exposure to gender discrimination but differing levels of stress would have similar likelihoods of lifetime or recent hard drug use.

Another explanation for the null relationship between stress and drug use may be methodological. Given the suppressor effect of stress on lifetime drug use for Latinas, the effect of stress on the total sample may have been underestimated, as Latinas were the second-largest racial/ethnic group.

We found that race/ethnicity moderates the relationship between gender discrimination, stress and lifetime drug use for Latinas only. Stress had a significantly *negative* relationship with lifetime drug use for the Latina sample. Further, the positive relationship between gender discrimination and lifetime drug use among the Latina sample became stronger after reported stress was added to the model. There are several potential explanations for these results. First, the findings may indicate the influence of variables that were not accounted for. Social support and ethnic identity are important factors in the stress and coping process among Latinos (Finch & Vega, 2003), but were not included in our analysis. Another explanation may be related to strong Latino group norms that can stigmatize drug abuse among women in particular (Amaro, Arevalo, Gonzalez, Szapocznik, & Iguchi, 2006; Mora, 1998). The direction of the gender discrimination and drug use relationship among Latinas may be counter to our hypothesis; perhaps drug use leads to more gender discrimination because of group norms that especially malign Latina women's substance use. This would explain the strongly positive relationship between gender discrimination and drug use. These norms can also account for the negative relationship between stress from gender discrimination and drug use; they may deter drug use as a coping strategy for Latinas who would not otherwise use drugs.

While there did not appear to be moderation for Caucasians, African Americans or Asians, we acknowledge that the relationship between health, race/ethnicity and gender discrimination is a complex one that is compounded by racial/ethnic discrimination. Racial/ethnic discrimination may not be fully disentangled from gender discrimination, especially among women of color, as their racial/ethnic and gender identities are simultaneously experienced (Moradi & Subich, 2003). This intersectional framework is key to understanding the "double burden" of women of color (Crenshaw, 1989) but remains difficult to study given our standard quantitative methodology (McCall, 2005). Our analysis did not directly explore the effect of racial/ethnic discrimination, which may have overlooked the embedded nature of race/ethnicity and discrimination in our sample. Further, the broad racial/ethnic categories may have concealed heterogeneity and contributed to null results. Different ethnic subgroups within larger racial/ethnic categories (i.e., Chinese, Filipino) are socioeconomically and culturally distinct (Srinivasan & Guillermo, 2000) and likely have unique patterns of stress and coping. We were not able to consider intra-group heterogeneity, as we did not have information on respondents' specific ethnicities.

Our study had additional limitations. First, we did not have a random sample. The women in our study were concentrated in a specific geographical area and recruited for an intervention program with eligibility criteria. Our sample may also have been subject to selection bias, as not all women who were approached by recruiters and eligible for the study participated. We do not have information about women who refused to participate, so potential differences between responders and non-responders are unknown. These non-random and selectivity biases make the findings of our study hard to generalize to the broader population. Another form of bias may have entered our results through social desirability bias, which occurs when individuals do not accurately report on certain measures in order to preserve a positive sense of self or provide a response they think is "correct" (Fisher, 1993). For a sensitive measure such as gender discrimination, social desirability bias may have led respondents to underreport their experiences in order to avoid accepting their marginalized status or portraying themselves as victims. This bias may also have led to underreporting of drug use.

Another limitation is our inability to infer temporal ordering, as our data were cross-sectional. We hypothesized that gender discrimination led to appraisal (reports of stress), which led to drug outcomes, yet there are other plausible orderings, such as those discussed for the Latina results. In another example, the reported stress for gender discrimination may have already been mitigated by coping responses, leading to an underestimation of the relationship between stress and our outcomes.

Finally, we did not have information on respondents' frequency, severity or additional circumstances of drug use (e.g., peer use, partner violence or other childhood trauma, community violence). Future studies should collect data on such factors to obtain a more complete picture of the context surrounding use, as they can either moderate or confound the stress and coping relationship.

The public health implications of our findings suggest the need for comprehensive drug abuse treatment. Such programs do not merely educate women about addiction, but consider the entire context from which drug use emerges, including women's roles in a gender-imbalanced society, family influences, and the changing lives of bicultural women (Amaro, Nieves, Johannes, & Labault Cabeza, 1999; Goldberg, 1995; Mora, 1998). Programs could consider how these behaviors may be a response to discrimination and promote less harmful coping behaviors, such as challenging discrimination or confronting the aggressor when appropriate. These active coping responses have been shown to mitigate the health effects of racial/ethnic discrimination, particularly among non-Caucasian women (Kreiger & Sidney, 1996; Noh & Avison, 1999); they may have a similar impact on gender discrimination. Programs could also help develop psychosocial responses that deflect the internalization of discrimination, such as self-esteem or self-efficacy. Our data indicate that gender discrimination plays a role in the drug use behavior of women of all races; programs that overlook its influence risk ignoring a crucial aspect of their participants' lived experiences. Likewise, screening tools could incorporate drug use as a potential maladaptive coping response. While screening tools are primarily used in clinical settings, questions that probe a broader array of circumstances of use may better identify individuals with potentially risky coping behaviors. In the realm of public health research, future research should consider additional mediators of the stress process for separate racial/ethnic groups, as groups do not appear to respond to gender discrimination and stress in the same way.

Acknowledgments

Supported by funding from the National Institute of Child Health and Human Development grant R01 HD39118. The authors would like to thank Drs. Hortensia Amaro, Steven Gregorich and Josie Lehrer for their helpful comments on earlier drafts of the manuscript.

References

1. Amaro H, Arevalo S, Gonzalez G, Szapocznik J, Iguchi MY. Needs and scientific opportunities for research on substance abuse treatment among Hispanic adults. *Drug Alcohol Depend* 2006;84:S64–S75. [PubMed: 16766137]
2. Amaro H, Nieves R, Johannes SW, Labault Cabeza NM. Substance abuse treatment: critical issues and challenges in the treatment of Latina women. *Hispanic journal of behavioral sciences* 1999;21(3): 266.
3. Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology* 1986;51(6):1173. [PubMed: 3806354]
4. Bauman K. Direct measures of poverty as indicators of economic need: evidence from the Survey of Income and Program Participation: US Census Bureau. Population Division Technical Working Paper. 1998

5. Bennett GG, Wolin KY, Robinson EL, Fowler S, Edwards CL. Perceived Racial/Ethnic Harassment and Tobacco Use Among African American Young Adults. *Am J Public Health* 2005;95(2):238–240. [PubMed: 15671457]
6. Burchfield SR. The stress response: a new perspective. *Psychosom Med* 1979;41(8):661–672. [PubMed: 397498]
7. Chae DH, Takeuchi DT, Barbeau EM, Bennett GG, Lindsey J, Krieger N. Unfair treatment, racial/ethnic discrimination, ethnic identification, and smoking among Asian Americans in the National Latino and Asian American Study. *Am J Public Health* 2008;98(3):485–492. [PubMed: 18235073]
8. Chae DH, Takeuchi DT, Barbeau EM, Bennett GG, Lindsey JC, Stoddard AM, et al. Alcohol disorders among Asian Americans: associations with unfair treatment, racial/ethnic discrimination, and ethnic identification (the national Latino and Asian Americans study, 2002–2003). *J Epidemiol Community Health* 2008;62(11):973–979. [PubMed: 18854501]
9. Chae DH, Yoshikawa H. Perceived group devaluation, depression, and HIV-risk behavior among Asian gay men. *Health Psychol* 2008;27(2):140–148. [PubMed: 18377132]
10. Choi KH, Hoff C, Gregorich SE, Grinstead O, Gomez C, Hussey W. The efficacy of female condom skills training in HIV risk reduction among women: a randomized controlled trial. *Am J Public Health* 2008;98(10):1841–1848. [PubMed: 18703460]
11. Crenshaw K. Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum* 1989:139–167.
12. Ellickson PL, Morton SC. Identifying adolescents at risk for hard drug use: racial/ethnic variations. *J Adolesc Health* 1999;25(6):382–395. [PubMed: 10608578]
13. Finch BK, Vega WA. Acculturation Stress, Social Support, and Self-Rated Health Among Latinos in California. *Journal of Immigrant Health* 2003;5(3):109–117. [PubMed: 14512765]
14. Fisher RJ. Social Desirability Bias and the Validity of Indirect Questioning. *The Journal of Consumer Research* 1993;20(2):303–315.
15. Folkman S, Lazarus RS. An analysis of coping in a middle-aged community sample. *J Health Soc Behav* 1980;21(3):219–239. [PubMed: 7410799]
16. Goldberg ME. Substance-Abusing Women: False Stereotypes and Real Needs. *Social Work* 1995;40(6):789. [PubMed: 8629044]
17. Guthrie BJ, Young AM, Williams DR, Boyd CJ, Kintner EK. African American Girls' Smoking Habits and Day-to-Day Experiences With Racial Discrimination. *Nursing Research* 2002;51(3):183–190. [PubMed: 12063417]
18. Jackson, JS.; Knight, K. Race and Self-Regulatory Health Behaviors: The Role of the Stress Response and the HPA Axis in Physical and Mental Health Disparities. In: Schaie, KW.; Carstensen, LL., editors. *Social Structures, Aging, and Self-Regulation in the Elderly*. New York, NY: Springer Publishing; 2006.
19. Klonoff EA, Landrine H, Campbell R. Sexist discrimination may account for well-known gender differences in psychiatric symptoms. *Psychology of Women Quarterly* 2000;24(1):93–99.
20. Kreiger, N. Discrimination and Health. In: Berkman, L.; Kawachi, I., editors. *Social Epidemiology*. New York: Oxford University Press; 2000. p. 36-75.
21. Krieger N. Racial and gender discrimination: risk factors for high blood pressure? *Soc Sci Med* 1990;30(12):1273–1281. [PubMed: 2367873]
22. Landrine H, Klonoff EA, Gibbs J, Manning V, Lund M. Physical and Psychiatric Correlates of Gender Discrimination - an Application of the Schedule of Sexist Events. *Psychology of Women Quarterly* 1995;19(4):473–492.
23. Martin JK, Tuch SA, Roman PM. Problem Drinking Patterns among African Americans: The Impacts of Reports of Discrimination, Perceptions of Prejudice, and "Risky" Coping Strategies. *Journal of Health and Social Behavior* 2003;44(3):408–425. [PubMed: 14582316]
24. McCall L. The Complexity of Intersectionality. *Signs: Journal of Women in Culture and Society* 2005;30(3):1771–1800.
25. Mora J. The Treatment of Alcohol Dependency Among Latinas. *Alcoholism treatment quarterly* 1998;16(1):163.

26. Moradi B, Subich LM. Perceived sexist events and feminist identity development attitudes: Links to women's psychological distress. *Counseling Psychologist* 2002;30(1):44–65.
27. Moradi B, Subich LM. A Concomitant Examination of the Relations of Perceived Racist and Sexist Events to Psychological Distress for African American Women. *The Counseling Psychologist* 2003;31(4):451–469.
28. Preacher, K. Calculation for the Sobel Test: An interactive calculation tool for mediation tests. 2003 [Retrieved July 7, 2009]. 2009, from <http://www.people.ku.edu/~preacher/sobel/sobel.htm>
29. Ro A, Choi KH. Social Status Correlates of Reporting Gender Discrimination and Racial Discrimination among Racially Diverse Women. *Women and Health* 2009;49(1):1–15.
30. Srinivasan S, Guillermo T. Toward improved health: disaggregating Asian American and Native Hawaiian/Pacific Islander data. *Am J Public Health* 2000;90(11):1731–1734. [PubMed: 11076241]
31. Thoits PA. Stress C, Coping, and Social Support Processes: Where Are We? What Next? *Journal of Health and Social Behavior* 1995;35:53–79. [PubMed: 7560850]
32. Watson JM, Scarinci IC, Klesges RC, Slawson D, Beech BM. Race, Socioeconomic Status, and Perceived Discrimination among Healthy Women. *Journal of Women's Health & Gender-Based Medicine* 2002;11(5):441–451.
33. Yen IH, Ragland DR, Greiner BA, Fisher JM. Racial discrimination and alcohol-related behavior in urban transit operators: findings from the San Francisco Muni Health and Safety Study. *Public Health Reports* 1999a;114(5):448–458. [PubMed: 10590767]
34. Yen IH, Ragland DR, Greiner BA, Fisher JM. Workplace discrimination and alcohol consumption: findings from the San Francisco Muni Health and Safety Study. *Ethn Dis* 1999b;9(1):70–80. [PubMed: 10355476]
35. Zucker A, Landry L. Embodied Discrimination: The Relation of Sexism and Distress to Women's Drinking and Smoking Behaviors. *Sex Roles* 2007;56(3):193–203.

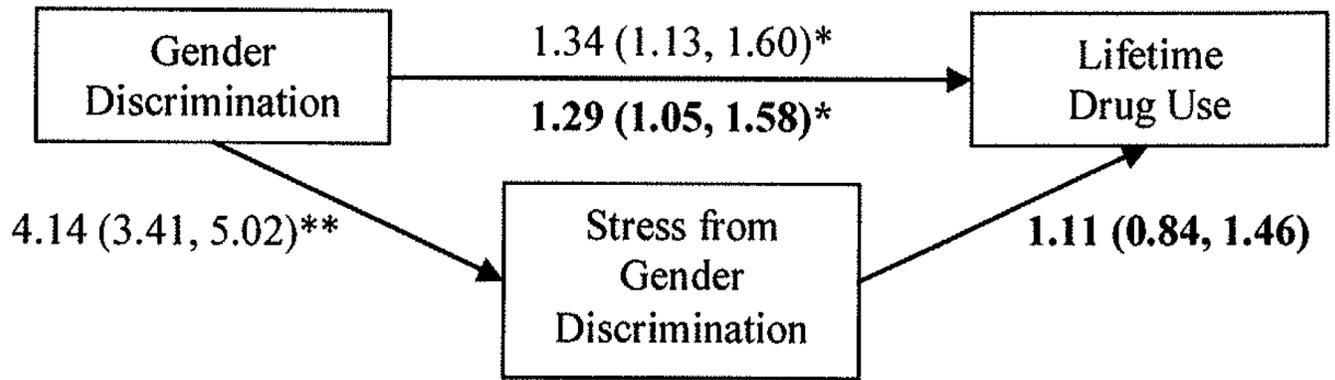


Figure 1. Mediation Model of Gender Discrimination and Stress on Lifetime Hard Drug Use, Odds Ratios (95% CI)

A mediation model for lifetime hard drug use: result of multivariate analyses. Odds ratios obtained from Model 1 (total effects of gender discrimination on lifetime drug use) or Model 2 in normal type, whereas those from Model 3 (direct effects of gender discrimination and stress from gender discrimination on lifetime drug use) are bolded. All models controlled for age, race, education and financial difficulty. *p<0.05, **p<0.001

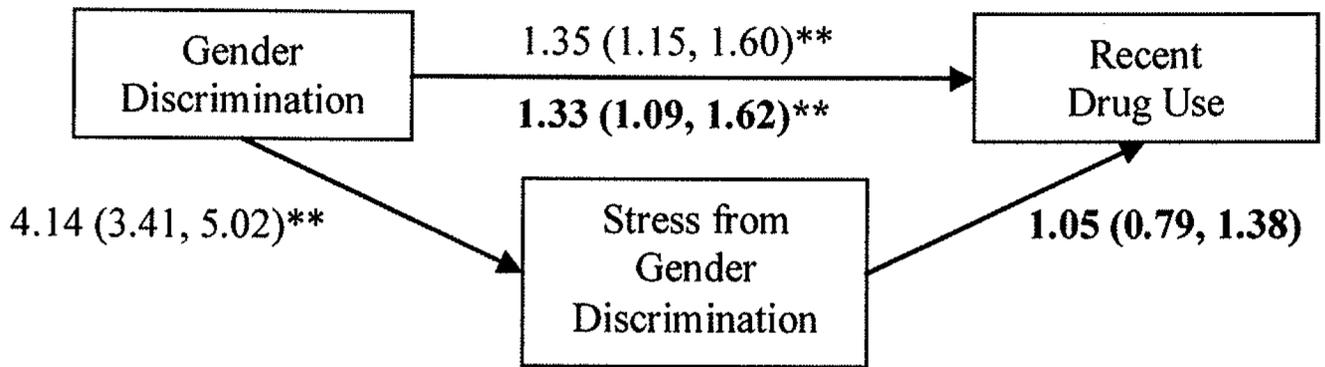


Figure 2. Mediation Model of Gender Discrimination and Stress on Recent Hard Drug Use, Odds Ratios (95% CI)

A mediation model for recent drug use: result of multivariate analyses. Odds ratios obtained from Model 1 (total effects of gender discrimination on recent drug use) or Model 2 in normal type, whereas those from Model 3 (direct effects of gender discrimination and stress from gender discrimination on recent drug use) are bolded. All models controlled for age, education and financial difficulty. *p<0.05, **p<0.001

Table 1

Sample Characteristics (N=754)

	Total	African American	Asian	Latina	Caucasian
N	754	86 (11%)	76 (10%)	127 (17%)	465 (62%)
Mean Age	22	23	21	23	23
Education Level					
Less than HS	56 7%	8 9%	4 5%	11 9%	33 7%
High School Grad/GED	314 42%	42 49%	39 51%	56 44%	177 38%
Some college or vocational	272 36%	28 33%	25 33%	43 34%	176 38%
College plus	111 15%	8 9%	8 11%	16 13%	79 17%
Financial Difficulty					
Yes	569 76%	70 83%	50 66%	98 77%	350 75%
No	185 25%	15 17%	26 34%	29 23%	115 25%
Mean Gender Discrimination(se)	2.19 (.02)	2.14 (.06)	1.96 (.06)	2.06 (.05)	2.27 (.03)
Stress from Gender Discrimination					
Not stressful at all	151 20%	23 27%	26 34%	27 21%	75 16%
A little stressful	378 50%	39 45%	37 49%	59 47%	243 52%
Stressful/Very Stressfull	225 30%	24 28%	13 17%	41 32%	147 32%
Lifetime Hard Drug Use					
Yes	482 64%	27 31%	45 59%	60 47%	350 75%
No	272 36%	59 69%	31 41%	67 53%	115 25%
Recent Hard Drug Use					
Yes	231 31%	14 16%	19 25%	33 26%	165 36%
No	523 69%	72 84%	57 75%	94 74%	300 65%