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## **Sexual and Reproductive Health Disparities in a National Sample of Hispanic and Non-Hispanic White U.S. College Students**

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### **ABSTRACT**

Hispanic students are the fastest growing minority population on U.S. college campuses. The purpose of this study was to examine differences in the sexual and reproductive health behaviors and outcomes between Hispanic and non-Hispanic White college students. Analyses utilized data from 15,518 non-married undergraduates (aged 18-24 years) responding to the Fall 2009 American College Health Association-National College Health Assessment II, a national sample of U.S. college students. Binary logistic regression analyses were used to examine disparities in sexual and reproductive health behaviors and outcomes, including sexual behavior, contraceptive and condom use, HIV testing, and STD and unintended pregnancy history, between Hispanic and non-Hispanic Whites. Hispanics had greater odds of reporting a past-year STD, although rates of reported sexual risk behaviors were no higher among Hispanics compared with non-Hispanic Whites. Compared to non-Hispanic Whites, fewer Hispanics reported using birth control pills. Hispanics were 2.5 times less likely to report using any method to prevent pregnancy, which may explain why Hispanics were more likely to report emergency contraceptive use in the past 12 months and a past-year unintended pregnancy. Important sexual health disparities exist among U.S. students, which have important

- Buhi et al.

practical implications for college health policy, practice, and intervention. Further research is warranted to understand the ethnic differences in the use of both hormonal and emergency contraceptives, particularly among college students.

**Keywords:** College Students, Sexual Behavior, Sexually Transmitted Infections, Contraception, Health Status Disparities, Hispanics

## INTRODUCTION

Individuals of Hispanic or Latin American origins represent the fastest growing demographic in the United States and account for approximately 16% of the population (Passel, Cohn, & Lopez, 2011). This heterogeneous population is disproportionately impacted by sexually transmitted diseases (STDs) and reproductive health issues such as unintended pregnancy. In 2011, the rate of new HIV infections was 19.5 (per 100,000 population) among Hispanics<sup>1</sup> compared to 7.0 (per 100,000 population) among non-Hispanic Whites (Centers for Disease Control and Prevention). In the same year, the AIDS diagnosis rate was 3 times higher for Hispanics compared to non-Hispanic Whites (Centers for Disease Control and Prevention). Similar trends have also been found in rates of chlamydia, gonorrhea, and syphilis (Centers for Disease Control and Prevention, 2012). In addition, the rate of unintended pregnancy among Hispanics aged 15-44 years is more than 2 times the rate for non-Hispanic Whites (78 per 1,000 women compared with 35 per 1,000 women, respectively) of the same age (Finer & Henshaw, 2006).

The impact of these disparities in sexual and reproductive health outcomes is particularly evident among young people and especially among Hispanic youth. In 2009, young persons aged 15-29 years accounted for 39% of all incident HIV infections, and those under 24 years of age had the highest rates of chlamydia, gonorrhea, and syphilis (Centers for Disease Control and Prevention, 2011, 2012). The rates of these infections were higher among Hispanic youth compared to their non-Hispanic White counterparts (Centers for Disease Control and Prevention, 2012). Unintended pregnancies are also a relevant issue for young Hispanic women. While the majority of unintended pregnancies are among young non-Hispanic White women, the rate of unintended pregnancy among Hispanics ages 15-19 is more than twice the rate for non-Hispanic Whites of the same age (Hamilton, Martin, & Ventura, 2010).

One of the 4 overarching goals outlined in Healthy People 2020 (U.S. Department of Health and Human Services), and proposed in Healthy Campus 2020 (Buhi, Marhefka, & Hoban, 2010) is to “achieve health equity, eliminate disparities, and improve the health of all groups.” In order to address the needs of Hispanic young people it is necessary to identify the sources of health disparities and examine sexual and reproductive behaviors. Although no national study of college students has investigated such disparities (comparing Hispanics with non-Hispanic Whites), there is some evidence to suggest that important behavioral differences do exist. For instance, Kim and colleagues (2007) revealed that, at a university in south Florida, Hispanic students were less likely to be tested for HIV than were non-Hispanic White students (43% vs. 55%, respectively). Further,

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<sup>1</sup> To follow CDC health data reporting practices and for consistency in this manuscript, we refer to all people of Spanish-speaking origin as *Hispanic*.

- Buhi et al.

Gurman and Borzekowski (2004) examined a national sample of college students and found that, among recently sexually active Hispanic college students, fewer than half reported using condoms during their last oral (5%), vaginal (41%), or anal (28%) sexual encounter. However, no comparison data related to condom use was provided for White college students.

Hispanic students are the fastest growing minority population on college campuses across the U.S. and most recently accounted for 1.8 million (or 15%) of all young adults enrolled at 2 or 4 year colleges (Fry, 2011). Given these demographic shifts as well as the health disparities experienced by college-aged Hispanics, sexual health research focusing on this population is of increased importance. It is unknown how Hispanic college students' HIV/STD-related sexual behaviors and outcomes differ from the behaviors of their non-Hispanic White peers. Furthermore, little is known regarding gender differences in national disparities in sexual health risk behavior and outcomes between Hispanic and non-Hispanic White college students. This information is vital for shaping national program, policy, and funding priorities related to sexual health among college students. For example, the data could dictate that legislators prioritize promotion of condom use or HIV/STD screening in certain populations of college students, such as those ethnicity/gender sub-groups with the highest reported incidence of HIV, STDs, and unintended pregnancy (Council of State Governments, 2008). Furthermore, researchers who develop prevention interventions can use these data to determine areas of focus for specific populations.

Using 2007 American College Health Association National College Health Assessment (ACHA-NCHA) data, we previously examined the sexual health behaviors and outcomes among Black and White college students. In that study, we found that Whites reported more experience in oral and anal sex, were less likely to use condoms for oral, anal, and vaginal sex, and less likely to have been tested for HIV compared with Blacks. However, Blacks reported more sex partners, lower use of hormonal contraceptives, and higher rates of STDs and unintended pregnancy (Buhi, Marhefka, & Hoban, 2010). With more recently available data (2009) from the ACHA-NCHA II (American College Health Association National College Health Assessment), our purpose here was to examine the sexual health behaviors and outcomes among Hispanic and non-Hispanic White college students in an effort to identify disparities that may have important practical implications for college health policy, practice, and intervention.

## **METHODS**

### **Procedure and Participants**

- Buhi et al.

The ACHA-NCHA is conducted every year in the fall and spring semesters across public and private colleges and Universities (American College Health Association). The survey assesses a variety of health outcomes and behaviors relevant to college-aged populations. While colleges and universities self-select to participate, students or classrooms are randomly selected within each institution. Evidence in support of the reliability and validity of ACHA-NCHA data are reported elsewhere (American College Health Association, 2004).

Data from the Fall 2009 survey, which included 54 post-secondary institutions representing each region of the U.S., was utilized for the current study. The analytic sample (N = 15,518) included unmarried male and female undergraduate students aged 18-24 years who identified as Hispanic (n = 1,166) or non-Hispanic White (n = 14,352). The overall response proportion for students was 36% (American College Health Association, 2009).

#### Measures

*Sexual behavior.* Lifetime sexual experience was assessed with 3 binary variables (yes vs. no) indicating at least one instance of oral, vaginal, or anal sex. An ordinal measure was used to assess the frequency of condom use within the previous 30 days. Responses (“Never,” “Rarely,” “Sometimes,” “Most of the time,” and “Always”) were reported separately for oral, vaginal, and anal sex. Lastly, a binary variable was created distinguishing between students who reported 4 or more oral, vaginal, or anal sex partners (4 or more vs. 0-3 partners) within the previous year (Salazar et al., 2009; Sifakis et al., 2007).

*Contraceptive use.* Contraceptive use, including emergency contraception, was measured with single item indicators. Oral contraceptive use was assessed by asking if the respondent or the respondent’s partner used birth control pills (monthly or extended cycle) during the last occurrence of vaginal intercourse (yes vs. no). If respondents reported “No” to a list of birth control options, including the pill, intrauterine devices, condoms, and spermicides, among others (American College Health Association), we coded them as using no method to prevent pregnancy at last vaginal sex. Respondents also indicated if they or their partner(s) used emergency contraception (“the morning after pill”; EC) within the last 12 months. Those who responded “Don’t know” were combined with those who indicated “No” and compared to those answering “Yes.”

*Sexual health outcomes.* The ACHA-NCHA II includes a series of questions regarding HIV testing, STDs, and unintended pregnancy. Students indicated if they have ever been tested for HIV infection. Those answering “yes” were compared to those answering “no” or “don’t know.” They were also coded as ever having an STD if they responded “yes” to being diagnosed or treated by a professional for any of the following STDs (with the last 12 months): genital herpes, genital warts/Human Papillomavirus (HPV), Gonorrhea, or Hepatitis B or C. Unintended pregnancy was assessed by the question: “Within the last 12

- Buhi et al.

months, have you or your partner(s) become pregnant?” with “Yes, unintentionally” as a response option.

#### Analysis

Basic descriptive statistics were calculated using IBM SPSS Statistics 21 (<http://www.spss.com/>), and additional analyses were conducted as outlined below. To assess differences on demographic characteristics, one independent samples t-test (assessing age differences between Hispanic and non-Hispanic White undergraduate students) and 4 binary logistic regression analyses (assessing gender, fraternity/sorority membership, international status, and sexual orientation differences) were conducted. To understand the sexual health behavior and outcome disparities between Hispanic and non-Hispanic White undergraduate students, 10 separate logistic regression analyses were conducted, controlling for the demographic variables listed above as potential confounders. Odds ratios (OR) and their corresponding 95% confidence intervals (CIs) were reported. Lastly, 3 Independent Samples Mann-Whitney U Tests were conducted to examine differences in last 30-day condom use frequency between Hispanic and non-Hispanic White students.

## RESULTS

Most respondents were enrolled in a 4-year college or university; only 2% were enrolled in 2-year institutions. More than half of students (62%) were enrolled in public institutions and 12% attended religious-affiliated colleges. The average student was 19.7 years of age ( $SD = 1.54$ ), female (65%), heterosexual (95%), and enrolled full-time (97%). Slightly less than half of all students reported living in a campus residence hall (46%). The majority of respondents identified as being an international student (95%) and a member of a social fraternity or sorority (88%).

Hispanic and non-Hispanic White undergraduate students differed on a number of demographic and other characteristics (Table 1). For instance, compared with non-Hispanic White students, Hispanic students were younger and had greater odds of being female, being an international student, and identifying as gay, lesbian, bisexual, or unsure. Hispanic students had lower odds of being in a social fraternity or sorority, compared with non-Hispanic White students (Table 1).

<b>Characteristic</b>	<b>Non-Hispanic White Students Mean (SD)</b>	<b>Hispanic Students Mean (SD)</b>	<b>Test Statistic t(15516) =</b>
<b>Age in Years, Mean (SD)</b>	19.7 (1.54)	19.5 (1.52)	4.73***
<b>Gender</b>	<b>N (% Valid)</b>	<b>N (% Valid)</b>	<b>OR (95% CI)</b>
Female	9274 (64.6)	816 (70.0)	1.28 (CI: 1.12-
Male	5078 (35.4)	350 (30.0)	1.45)***
<b>Member of Social Fraternity/Sorority</b>			
No	12383 (87.1)	1074 (92.7)	0.53 (CI: 0.43-
Yes	1840 (12.9)	85 (7.3)	0.67)***
<b>International Student</b>			
No	13563 (95.0)	1063 (91.6)	1.77 (CI: 1.42-
Yes	708 (5.0)	98 (8.4)	2.20)***
<b>Sexual Orientation</b>			
Heterosexual	13507 (94.7)	1073 (93.1)	1.32 (CI: 1.04-
Gay, Lesbian, Bisexual, Unsure	756 (5.3)	79 (6.9)	1.67)*

**Note.** \*p<.05, \*\*\*p<.001

*Sexual behavior.* Among those who responded to the sexual behavior questions (approximately 99% of all respondents), most reported *ever having had oral sex* (66%), followed by those *ever having had vaginal sex* (61%), and those *ever having had anal sex* (18%). More than two-thirds of students (69%) reported *ever having had oral, vaginal, or anal sex* (any sex).

Compared to Hispanics, non-Hispanic Whites had greater odds of reporting *ever having oral sex*, even after controlling for covariates of age, gender, fraternity/sorority membership, international status, and sexual orientation (Table 2). There were no other statistically significant differences in the proportions of students reporting any vaginal or anal sex behaviors between Hispanic and non-Hispanic White students (Table 2).

<b>Table 2. Undergraduate Students, Both Sexes: Sexual Health Differences Among Hispanic and Non-Hispanic Whites</b>			
	<b>Non-Hispanic White Students <u>N (%)</u></b>	<b>Hispanic Students <u>N (%)</u></b>	<b><u>OR (95% CI)</u><sup>1</sup></b>
<b><u>Sexual Health Behavior</u></b>			
<b>Ever had Oral Sex</b>			
No	4828 (33.9)	437 (37.9)	1.14 (CI: 1.01-
Yes	9419 (66.1)	715 (62.1)	1.30)*
<b>Ever had Vaginal Sex</b>			
No	5521 (38.8)	450 (39.2)	0.96 (CI: 0.85-
Yes	8696 (61.2)	698 (60.8)	1.09)
<b>Ever had Anal Sex</b>			
No	11616 (82.1)	937 (82.0)	0.96 (CI: 0.81-
Yes	2539 (17.9)	206 (18.0)	1.13)
<b>Had 4 or more sex partners in the past 12 months?</b>			
No	13035 (91.6)	1072 (93.3)	1.19 (CI: 0.94-
Yes	1196 (8.4)	77 (6.7)	1.52)
<b>Ever been tested for HIV?</b>			
No	11112 (81.1)	895 (79.6)	0.87 (CI: 0.74-
Yes	2596 (18.9)	229 (20.4)	1.01)
<b>Used the Pill to prevent pregnancy at last vaginal sex?</b>			
No	2362 (31.3)	273 (52.7)	2.37 (CI: 1.97-
Yes	5173 (68.7)	245 (47.3)	2.84)***
<b>Used any method to prevent pregnancy at last vaginal sex?</b>			
No	1157 (13.4)	197 (28.9)	2.59 (CI: 2.16-
Yes	7495 (86.6)	485 (71.1)	3.11)***
<b>Used or partner used emergency contraception in the past 12 months?</b>			
No	6985 (83.7)	517 (76.5)	0.63 (CI: 0.52-
Yes	1358 (16.3)	159 (23.5)	0.76)***
<b><u>Sexual Health Outcome</u></b>			
<b>Had an STD in the past 12 months?</b>			
No	13642 (97.4)	1087 (95.8)	0.60 (CI: 0.44-
Yes	370 (2.6)	48 (4.2)	0.82)***
<b>Unintentionally became pregnant or gotten someone pregnant in the past 12 months?</b>			



- Buhi et al.

No	8339 (98.5)	668 (96.8)	0.45 (CI: 0.28-
Yes	131 (1.5)	22 (3.2)	0.71***)
<b>Note.</b> <sup>1</sup> Controlling for age, gender, fraternity/sorority membership, international status, and sexual orientation; *p<.05, ***p<.001			

*Condom use.* Condom use varied widely across the 3 sexual behaviors assessed. Across all respondents, condom use was infrequent during oral sex. Of all students reporting oral sex in the previous 30 days, just 4% reported *always using a condom* and 88% indicated *never using a condom* during those encounters. Condom use during anal sex was also infrequent. Among students reporting anal sex in the previous 30 days, 24% reported *always using a condom* and 55% reported *never using a condom*. Of all students reporting vaginal sex in the previous 30 days, condom use was more common; 41% reported *always using a condom* for vaginal sex and only 20% reported *never using a condom*. Condom use was similar between Hispanic and non-Hispanic White students with the exception of condom use for oral sex—which was more common, though still infrequent, among Hispanic students (Table 3). Two-thirds (68%) of students reported male condom use at last vaginal sex; no differences were observed between Hispanic and non-Hispanic White students.

- Buhi et al.

<b>Table 3. Last 30-Day Condom Use Frequency for Oral, Vaginal, and Anal Sex (Hispanic vs. Non-Hispanic White Undergraduate Students), Independent Samples Mann-Whitney U Test</b>							
<b>Within the last 30 days, how often did you or your partner(s) use a condom or other protective barrier (e.g., male condom, female condom, glove) during:</b>	<b>Percentages</b>					<b>Mean (SD)</b>	<b><i>p</i>-value</b>
	<b>Never (0)</b>	<b>Rarely (1)</b>	<b>Sometimes (2)</b>	<b>Mostly (3)</b>	<b>Always (4)</b>		
<b>Oral sex?</b>							
Hispanic students (n=487)	79.2%	7.1%	3.1%	2.4%	8.2%	0.51 (1.18)	<.001
Non-Hispanic White students (n=6293)	88.9	4.1	2.2	1.1	3.8	0.27 (0.87)	
<b>Vaginal intercourse?</b>							
Hispanic students (n=520)	22.4	7.2	12.6	18.3	39.5	2.46 (1.59)	0.31
Non-Hispanic White students (n=6391)	19.5	9.3	11.0	19.1	41.1	2.53 (1.56)	
<b>Anal intercourse?</b>							
Hispanic students (n=113)	53.4	6.0	4.3	8.6	27.6	1.55 (1.79)	0.35
Non-Hispanic White students (n=1129)	55.6	5.4	7.4	7.9	23.7	1.38 (1.71)	

- Buhi et al.

*Number of sexual partners.* Respondents had a mean of 1.35 oral, vaginal, or anal sex partners within the last school year ( $SD = 2.8$ ). Of the 15,380 students responding, 8% reported having 4 or more sex partners within the last school year. No differences in having 4 or more sex partners were observed between Hispanic and non-Hispanic White students.

*HIV testing and STDs.* Of the 14,832 students responding, 19% reported that they had ever been tested for HIV infection. No differences in HIV testing were observed between Hispanic and non-Hispanic White students. Of the 15,147 students responding, 3% reported having been diagnosed or treated by a professional for an STD within the last 12 months. Compared with non-Hispanic students, Hispanic students had greater odds of reporting having had an STD in the past 12 months. This difference remained statistically significant, even after controlling for covariates of age, gender, fraternity/sorority membership, international status, and sexual orientation (Table 2).

*Contraceptive use and unintended pregnancy.* Of the sexually active students, 67% reported that they or their partner used birth control pills to prevent pregnancy and 15% reported using *no method* of contraception at last vaginal sex. Almost 4 out of every 5 students with vaginal sex experience (79%) reported dual method use—using condoms and some other method to prevent pregnancy at last vaginal sex. Seventeen percent of all students reported that they or their partner had used EC in the past 12 months. Of the 9,160 students eligible to respond, 2% reported they or their partner had an unintended pregnancy in the past 12 months.

Compared to non-Hispanic White students (69%), statistically significantly fewer Hispanic students (47%) reported using birth control pills to prevent pregnancy at last vaginal sex (Table 2). Similarly, a statistically significantly greater proportion of Hispanic students (29%) compared to non-Hispanic Whites (13%) reported using *no method* to prevent pregnancy at last vaginal sex; however, reporting of EC use in the past 12 months was statistically significantly greater among Hispanic students (24%) than among non-Hispanic White students (16%). Hispanic students (3%) had greater odds of reporting an unintended pregnancy compared with non-Hispanic White students (2%). These differences remained statistically significant, even after controlling for covariates of age, gender, fraternity/sorority membership, international status, and sexual orientation (Table 2).

## DISCUSSION

This study examined sexual and reproductive health disparities between Hispanic and non-Hispanic White college students in the U.S., and generally demonstrates that differences between these groups of college students mirror those among high school students and adults in the U.S. (Baldwin et al., 2008; Solorio, Yu, Brown, Becerro, & Gelberg, 2004), with few exceptions. For

- Buhi et al.

instance, despite engaging in vaginal intercourse and using condoms at similar rates to their non-Hispanic counterparts, Hispanic students had lower odds of reporting birth control pill use or use of other contraceptive methods (excluding the use of EC). Other studies have demonstrated lower rates of contraceptive use among Hispanic high school students (Santelli, Morrow, Anderson, & Lindberg, 2006) and young Hispanic women (Santelli, Lindberg, Finer, & Singh, 2007). Lower use of long-term hormonal contraceptive methods may partially explain the higher rate of unintended pregnancy reported by Hispanics in the current study as well in previous research (Welti, Wildsmith, & Manlove, 2011).

It has been posited that Hispanic/non-Hispanic White differences in contraceptive use may be due to several factors, including influences of the Hispanic culture and its patriarchal system (Gonzalez, Sable, Campbell, & Dannerbeck, 2010; Sangi-Haghpeykar, Ali, Posner, & Poindexter, 2006), traditional views of women in Hispanic culture (*Marianismo*) (Gilliam, Warden, & Tapia, 2004), acculturation (Gilliam, Warden, & Tapia, 2004; Sangi-Haghpeykar, et al., 2006; Venkat et al., 2008), desire for larger families (Sangi-Haghpeykar, et al., 2006), lack of access to healthcare services (Rew, 1998), inconvenience of obtaining a prescription for birth control (Landau, Tapias, & McGhee, 2006), lack of information on contraception (Gilliam, Warden, & Tapia, 2004), reduced social support for and self-efficacy in using contraception (Sangi-Haghpeykar, et al., 2006), language barriers (Derose & Baker, 2000), religious views and stigma (Gilliam, Warden, & Tapia, 2004; Sangi-Haghpeykar, et al., 2006), and misinformation and safety concerns about contraception (Gilliam, Warden, Goldstein, & Tapia, 2004; Guendelman, Denny, Mauldon, & Chetkovich, 2000; Sangi-Haghpeykar, et al., 2006; Venkat, et al., 2008); see Lescano et al. (2009) for a comprehensive review of some of these factors in relation to Hispanic sexual health). Further research is warranted to understand such differences in the use of contraceptives and in unintended pregnancy, particularly among college students who may be more acculturated and have more consistent access to low-cost reproductive healthcare than women in the general population (Meston, Trapnell, & Gorzalka, 1998). In contrast to the overall lower rate of hormonal contraception use among Hispanics in this study, they were more likely than non-Hispanic Whites to report using EC in the past 12 months. This is similar to findings of a study of California women and teens (Baldwin, et al., 2008), which showed that a greater percentage of Hispanic females reported using EC compared with non-Hispanic White females. EC use could be higher among Hispanics in the current study because nearly half of Hispanic students reported not using the birth control pill (compared to 31% of non-Hispanic Whites) and nearly 29% reported using *no method* for pregnancy prevention at last sex (compared to 13% non-Hispanic Whites). Some Hispanic women may prefer not to use daily administered oral contraceptives due to concerns about inability to

- Buhi et al.

conceal oral contraceptive use and related judgment by friends and family (Gibson & Lanz, 1991), and may be more comfortable with EC use because it could be taken discretely over a short period of time. These hypotheses warrant investigation in future research.

It is noteworthy that Hispanic students had lower odds engaging in oral sex than non-Hispanic White students and more likely to use condoms at last oral sex. This result has important STD implications. One major concern is that of oral HPV, which can enter the mouth during oral sex; several research studies have implicated HPV in a number of oropharyngeal cancers (D'Souza et al., 2007; Worden et al., 2008). Since condom use for oral sex is infrequent and inconsistent, educational campaigns and behavioral interventions regarding oral sex and HPV/cancer risk reduction are warranted (Buhi, et al., 2010).

It is also important to note that this sample of college students reported inconsistent condom use for vaginal and anal sex. Only approximately 2 out of every 5 students who engaged in vaginal sex within the last 30 days reported always using a condom for vaginal sex within the last 30 days, and less than one-quarter of students who engaged in anal sex within the last 30 days reported always using condoms when they had anal sex in the past 30 days. Thus, it appears that condom use promotion efforts may need to focus specifically on consistent use of condoms, as well as the importance of using condoms for high-risk sexual activities such as anal sex.

#### Limitations

Although the Fall 2009 ACHA-NCHA II was administered on 54 college campuses, reflecting responses from 15,518 participants in the current analysis, our findings may not be fully generalizable to all undergraduate students in the U.S. For instance, Hispanic undergraduate students are underrepresented in these data. While Hispanics comprise 14% of the total U.S. undergraduate student population (The Chronicle of Higher Education, 2009), they represent only 8% of respondents in this sample. Further, students attending 2-year colleges are also underrepresented in this sample. Readers are cautioned to also consider practical importance when interpreting the sexual and reproductive health differences reported here; while there were several statistically significant findings in this analysis, it should be noted that all are accompanied by relatively low effect sizes. Because these analyses were conducted with students' survey data, self-report bias also remains a concern. Additionally, since the sample was not randomly drawn from the population of U.S. postsecondary institutions, self-selection of institutions into the ACHA-NCHA II also remains a concern. However, previous formative research indicates that the ACHA-NCHA is somewhat comparable to other large national health risk behavior surveys (American College Health Association, 2004). The ACHA-NCHA II does not collect data on socioeconomic status or income; therefore, we were unable to examine the relationship between

- Buhi et al.

these factors and sexual health disparities. Lastly, it is clear that self-identified Hispanics do not represent a homogenous group, but encompass a diverse set of ethnic and racial identities and, consequently, suffer from a range of sexual and reproductive health outcomes (Espinoza, Hall, Selik, & Hu, 2008). Additional research is needed to examine differences across Hispanic subgroups as well as differences related to acculturation and national origin.

## **CONCLUSION**

This study has several notable strengths, which allow it to fill a critical gap in the literature related to sexual health disparities between Hispanic and non-Hispanic White college students. As noted above, the dataset contains a large national—although not nationally representative—sample of undergraduate students enrolled in 54 colleges (both 2- and 4-year), in every region of the U.S. To date, we have identified no other large studies of sexual and reproductive health disparities between Hispanic and non-Hispanic White college students. Also, this sample allows for analyses of a range of sexual behaviors—including oral, anal, and vaginal sex, condom usage for each sexual activity, and contraceptive use behaviors—and outcomes—including HIV testing, STD history, and unintended pregnancy; thus, it is unparalleled by other college student surveys. Given the findings from this study, important areas for sexual health disparities research remain. For one, as discussed in detail above, further research is warranted to understand the ethnic differences in the use of both hormonal contraceptives and EC, particularly among college students.

The finding that undergraduate Hispanics are at greater risk of unintended pregnancies is concerning, as unintended pregnancies can lead to emotional, social, or financial difficulties that may inhibit higher educational progress and limit future possibilities (Lleras-Muney, 2005). In turn, such difficulties may contribute to further ethnic disparities in morbidity and mortality (Lleras-Muney, 2005). A potential solution is to employ interventions designed to increase family planning counseling among Hispanic students, as they appear less likely than non-Hispanic White students to use family planning services before becoming pregnant (Solorio, et al., 2004). College campuses present a unique opportunity for focused interventions to increase contraceptive use among this disparate group.

There is a clear need for theory-driven and targeted campus sexual health promotion interventions. Poobalan et al. (2009) provide a comprehensive overview of characteristics of effective interventions for improving sexual health. They rightfully recognize, however, that cultural fit is an important factor and that more work is required in this area. For Hispanic students, culturally sensitive and culturally specific interventions that focus on promoting the use of hormonal contraceptives may be especially effective. Interventions should also focus on

- Buhi et al.

increasing STD and HIV testing among all students. Further, health promotion efforts should continue to place a priority on promoting consistent condom/barrier use for all sex acts among all groups, while remaining sensitive to ethnic or cultural differences.

## REFERENCES

- American College Health Association. (2004). National College Health Assessment: Reliability and Validity Analyses, 2000. Baltimore, MD: American College Health Association.
- American College Health Association. (2009). American College Health Association-National College Health Assessment II: Reference Group Executive Summary Fall 2009. Linthicum, MD: American College Health Association.
- American College Health Association. (2011). National College Health Assessment II Retrieved March 7, 2013, from <http://www.achancha.org/docs/ACHA-NCHAI sample.pdf>
- American College Health Association. (2013). Participation History Retrieved March 7, 2013, from [http://www.acha-ncha.org/partic\\_history.html](http://www.acha-ncha.org/partic_history.html)
- American College Health Association National College Health Assessment. (2013) Retrieved March 7, 2013, from <http://www.acha-ncha.org/>
- Baldwin, S. B., Solorio, R., Washington, D. L., Yu, H., Huang, Y. C., & Brown, E. R. (2008). Who is using emergency contraception? Awareness and use of emergency contraception among California women and teens. *Womens Health Issues, 18*(5), 360-368. doi: S1049-3867(08)00095-9 [pii] 10.1016/j.whi.2008.06.005
- Buhi, E. R., Marhefka, S. L., & Hoban, M. T. (2010). The state of the union: Sexual health disparities in a national sample of US college students. *Journal of American College Health, 58*(4), 337-346. doi: K3T62276KQ6U1V18 [pii] 10.1080/07448480903501780
- Centers for Disease Control and Prevention. (2011). HIV among Youth Retrieved March 7, 2013, from <http://www.cdc.gov/hiv/youth/>
- Centers for Disease Control and Prevention. (2012). Sexually Transmitted Disease Surveillance 2011. Atlanta: U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention. (2013). HIV Surveillance Report, 2011 Retrieved March 7, 2013, from <http://www.cdc.gov/hiv/surveillance/resources/reports/2011report/index.htm>
- Council of State Governments. (2008). State Policy Guide: Using Research in Public Health Policymaking Retrieved March 7, 2013, from <http://www.healthystates.csg.org/>

- Buhi et al.

- D'Souza, G., Kreimer, A. R., Viscidi, R., Pawlita, M., Fakhry, C., Koch, W. M., . . . Gillison, M. L. (2007). Case-control study of human papillomavirus and oropharyngeal cancer. [Article]. *New England Journal of Medicine*, 356(19), 1944-1956.
- Derose, K. P., & Baker, D. W. (2000). Limited English proficiency and Latinos' use of physician services. *Medical Care Research and Review*, 57(1), 76-91.
- Espinoza, L., Hall, H. I., Selik, R. M., & Hu, X. (2008). Characteristics of HIV infection among Hispanics, United States 2003-2006. *Journal of Acquired Immune Deficiency Syndromes*, 49(1), 94-101. doi: 10.1097/QAI.0b013e3181820129
- Finer, L. B., & Henshaw, S. K. (2006). Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health*, 38(2), 90-96. doi: 3809006 [pii] 10.1363/psrh.38.090.06
- Fry, R. (2011). Hispanic College Enrollment Spikes, Narrowing Gaps with Other Groups: 24% Growth from 2009 to 2010, from <http://www.pewhispanic.org/files/2011/08/146.pdf>
- Gibson, J., & Lanz, J. (1991). Factors associated with Hispanic teenagers' attitude toward the importance of birth control. *Child & Adolescent Social Work Journal*, 8(5), 399-415.
- Gilliam, M. L., Warden, M., Goldstein, C., & Tapia, B. (2004). Concerns about contraceptive side effects among young Latinas: a focus-group approach. *Contraception*, 70(4), 299-305. doi: 10.1016/j.contraception.2004.04.013 S0010782404001337 [pii]
- Gilliam, M. L., Warden, M. M., & Tapia, B. (2004). Young Latinas recall contraceptive use before and after pregnancy: A focus group study. *Journal of Pediatric and Adolescent Gynecology*, 17(4), 279-287. doi: 10.1016/j.jpag.2004.05.003 S1083318804001202 [pii]
- Gonzalez, E. U., Sable, M. R., Campbell, J. D., & Dannerbeck, A. (2010). The influence of patriarchal behavior on birth control access and use among recent Hispanic immigrants. *Journal of Immigrant and Minority Health*, 12(4), 551-558. doi: 10.1007/s10903-009-9272-5
- Guendelman, S., Denny, C., Mauldon, J., & Chetkovich, C. (2000). Perceptions of hormonal contraceptive safety and side effects among low-income Latina and non-Latina women. *Maternal and Child Health Journal*, 4(4), 233-239.
- Gurman, T., & Borzekowski, D. L. (2004). Condom use among Latino college students. *Journal of American College Health*, 52(4), 169-178.



- Buhi et al.

- Hamilton, B., Martin, J., & Ventura, S. (2010). Births: Preliminary data for 2009 *National Vital Statistics Reports* (Vol. 59): National Center for Health Statistics.
- Kim, S., De La Rosa, M., Trepka, M. J., & Kelley, M. (2007). Condom use among unmarried students in a Hispanic-serving university. *AIDS Education and Prevention*, 19(5), 448-461. doi: 10.1521/aeap.2007.19.5.448
- Landau, S. C., Tapias, M. P., & McGhee, B. T. (2006). Birth control within reach: a national survey on women's attitudes toward and interest in pharmacy access to hormonal contraception. *Contraception*, 74(6), 463-470. doi: S0010-7824(06)00311-8 [pii] 10.1016/j.contraception.2006.07.006
- Lescano, C. M., Brown, L. K., Raffaelli, M., & Lima, L. A. (2009). Cultural factors and family-based HIV prevention intervention for Latino youth. *Journal of Pediatric Psychology*, 34(10), 1041-1052. doi: DOI 10.1093/jpepsy/jsn146
- Lleras-Muney, A. (2005). The relationship between education and adult mortality in the United States. *Review of Economic Studies*, 72(1), 189-221.
- Meston, C. M., Trapnell, P. D., & Gorzalka, B. B. (1998). Ethnic, gender, and length-of-residency influences on sexual knowledge and attitudes. *Journal of Sex Research*, 35(2), 176-188.
- Passel, J. S., Cohn, D., & Lopez, M. H. (2011). Census 2010: 50 Million Latinos, Hispanics Account for More Than Half of Nation's Growth in Past Decade Retrieved March 7, 2013, from <http://pewhispanic.org/>
- Poobalana, A., Pitchforthb, E., Imamura, M., Tuckerd, J., Philipe, K., Spratte, J., . . . van Teijlingeng, E. (2009). Characteristics of effective interventions in improving young people's sexual health: A review of reviews. *Sex Education*, 9(3), 319-336.
- Rew, L. (1998). Access to health care for Latina adolescents: a critical review. *Journal of Adolescent Health*, 23(4), 194-204. doi: S1054-139X(97)00202-4 [pii]
- Salazar, L. F., Crosby, R. A., DiClemente, R. J., Wingood, G. M., Rose, E., McDermott-Sales, J., & Caliendo, A. M. (2009). African-American Female Adolescents Who Engage in Oral, Vaginal and Anal Sex: "Doing It All" as a Significant Marker for Risk of Sexually Transmitted Infection. *AIDS and Behavior*, 13, 85-93.
- Sangi-Haghpeykar, H., Ali, N., Posner, S., & Poindexter, A. N. (2006). Disparities in contraceptive knowledge, attitude and use between Hispanic and non-Hispanic whites. *Contraception*, 74(2), 125-132. doi: S0010-7824(06)00076-X [pii] 10.1016/j.contraception.2006.02.010
- Santelli, J. S., Lindberg, L. D., Finer, L. B., & Singh, S. (2007). Explaining recent declines in adolescent pregnancy in the United States: the contribution of

- Buhi et al.

- abstinence and improved contraceptive use. *American Journal of Public Health*, 97(1), 150-156. doi: AJP.H.2006.089169 [pii] 10.2105/AJP.H.2006.089169
- Santelli, J. S., Morrow, B., Anderson, J. E., & Lindberg, L. D. (2006). Contraceptive use and pregnancy risk among U.S. high school students, 1991-2003. *Perspectives on Sexual and Reproductive Health*, 38(2), 106-111. doi: 3810606 [pii] 10.1363/psrh.38.106.06
- Sifakis, F., Hylton, J. B., Flynn, C., Solomon, L., MacKellar, D. A., Valleroy, L. A., & Celentano, D. D. (2007). Racial disparities in HIV incidence among young men who have sex with men: The Baltimore young men's survey. *Journal of Acquired Immune Deficiency Syndromes*, 46(3), 343.
- Solorio, M. R., Yu, H. J., Brown, E. R., Becerro, L., & Gelberg, L. (2004). A comparison of Hispanic and white adolescent females' use of family planning services in California. *Perspectives on Sexual and Reproductive Health*, 36(4), 157-161.
- The Chronicle of Higher Education. (2009). Almanac of Higher Education, Profile of Undergraduate Students, 2007-8 Retrieved March 7, 2013, from <http://chronicle.com/article/Profile-of-Undergraduate/48078/>
- U.S. Department of Health and Human Services. (2013). HealthyPeople.gov Retrieved March 7, 2013, from <http://healthypeople.gov/2020/>
- Venkat, P., Masch, R., Ng, E., Cremer, M., Richman, S., & Arslan, A. (2008). Knowledge and beliefs about contraception in urban Latina women. *Journal of Community Health*, 33(5), 357-362. doi: 10.1007/s10900-008-9100-1
- Welti, K., Wildsmith, E., & Manlove, J. (2011). Trends and Recent Estimates: Contraceptive Use Among U.S. Teens and Young Adults Washington, DC: Child Trends.
- Worden, F. P., Kumar, B., Lee, J. S., Wolf, G. T., Cordell, K. G., Taylor, J. M. G., . . . Carey, T. E. (2008). Chemoselection as a strategy for organ preservation in advanced oropharynx cancer: Response and survival positively associated with HPV16 copy number. [Proceedings Paper]. *Journal of Clinical Oncology*, 26(19), 3138-3146.