Source of Safe Sex Knowledge and Sexual Behavior Among University Students

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Abstract

This study was developed to determine if there is a relationship between sources of safe sex practices and individual's sexual health behavior, specifically condom use and testing for STIs. Marijuana use and self-esteem were also examined in relation to condom use and testing for STIs. A self-report survey was administered to university students in California. Regression analysis revealed that those who had never used marijuana were more likely to report always using condoms (only among females), but less likely to report having been tested for STIs. Students who received primary information about safe-sex practices from a health care provider were more likely to report having been tested for STIs, while those who received such from the Internet were less likely to have been tested for STIs. Whites were more likely to have been tested than non-Whites, while Asian/Pacific Islanders were less likely to have been tested than non-Asians.

Keywords: Source of knowledge on safe-sex, Drug use and safe-sex, Condom use, STIs, STDs

Introduction

The source of information regarding safe-sex practices may impact a recipient in a number of ways. Perhaps, for instance, the true accuracy and completeness of information may impact what is or is not done by the learner. Moreover, the nature of the source may also lead the learner to regard the information with differing levels of seriousness. Uncomfortably delivered information from a parent, for instance, may not be taken as seriously as information from a health care provider or friend.

Prior research delves into the accuracy and amount of knowledge regarding sex safe practices that individuals acquire (Fleisher, et al., 1994; Morrison, et al., 1993). However, there is relatively little work done that deals directly with the nature of the source of safe sex information as a predictor of an individual's sexual health behavior (i.e., condom use, or getting tested for STIs.). While some studies do attempt to ascertain the source of safe-sex knowledge, it is often in order to directly determine if the individual actually increases knowledge from that source, and to verify the correctness of knowledge distributed at or by that source.

A study of college Sociology students revealed that most females received their knowledge about AIDS from both newspapers and magazines; most males, however, received their knowledge about AIDS from school and television. Only 46 percent of the sample of students perceived themselves to be high in their knowledge of AIDS. The sample was comprised mostly of white Protestants, so while this study illuminates gender differences, its generalizability is limited (Lance, et al. 1998). Yi (1998) also studied knowledge about HIV/AIDS among college students. This study focused on Vietnamese-American college students. A formidable 90 percent of the sample reported that they believed using condoms would lower the risk of contracting HIV/AIDS. On the other hand, only about 54 percent of the students sampled indicated that one could not get HIV/AIDS from sitting on a toilet seat. This leaves many concerns about where and how individuals acquire knowledge about HIV and

STIs in general. The source of information regarding safe-sex practices is clearly a point of contact that needs investigation.

Other Determinants of Condom Use and Testing for STIs

In Yi's (1998) work there were significant gender differences in knowledge of HIV/AIDS. On the HIV/AIDS questionnaire administered, females scored considerably higher than males. Twenty-four percent of women responded incorrectly, while roughly 40 percent of men provided incorrect responses. While this tells us about gender differences in level of knowledge, it does not provide direct insight into source of knowledge. Steele et al. (2006) sheds light on some reasons why condom use varies between women of difference racial and ethnic backgrounds. White women are more likely to use condoms, as well as other methods of birth control, than both Latino and African-American women. Race, ethnicity, and gender impact sexual health behavior.

Self-efficacy is an important factor in the negotiation between partners concerning condom use. Research demonstrates that self-efficacy is significantly related to condom use as well as intent to not engage in illegal substance use (Goh et al., 1996). This research also illustrates that females actually show higher levels of self-efficacy than males. Self-efficacy, the belief that one is capable of performing in a certain manner to achieve a particular action affecting his or her life, is comprised generally of peer and media influences, social norms, and support (Bandura, 1982). Self-esteem, one's sense of self worth, is, of course, a critical determinant of self-efficacy when it comes to sexual health behavior. Among other things, esteem is dependent upon socialization and demographics. (Cheng & Furnham, 2003).

One must have the positive self-esteem (e.g., confidence, assertiveness) needed to be able to bring up condom use with a partner, while remaining prepared and able to handle any negative responses the introduction of the condom. Similarly, one must be able to respond to stress every step of the way from condom purchase to usage (Gabler, 2004). Self-esteem might also deter an individual from getting tested for STIs. Low self-esteem has been correlated with negative self-image and failure to seek adequate health care in general, even in addition to reduced condom self-efficacy (Brafford & Beck, 1991). Low self-esteem is associated with risky behavior (e.g., alcoholism.). In work conducted by Steffenhagen and Steffenhagen (1985), low self-esteem was determined to be a cause of alcoholism, via depression. Leigh (1993) found that respondents were more likely to engage in high-risk behaviors, such as unprotected sex, when they are under the influence of drugs or alcohol. One risky behavior can often lead to or be associated with another. Moreover, people who smoke and drink alcohol are less knowledgeable about HIV/AIDS than non-smokers and those who do not drink alcohol, according to work by Yi (1998). Furthermore, those studied who use marijuana have less knowledge than those individuals who never use marijuana.

Research Purpose

Does the source of knowledge regarding safe sex practices impact sexual health behavior? In this study sexual health behavior is measured by these two proxies: condom use and being tested for STIs. We know from prior research that knowledge about STIs and condoms can play a role in condom use and STI testing (Fliesher et al., 1994; Morrison et al., 1993), but from where do people get their primary information? The accuracy, believability, and comfort with the source may impact the transfer of that knowledge into individual condom use and testing practices. This study proposes that the source of information regarding safe-sex practices can be a predictor of sexual health behavior, measured by (a) condom use rates among those who are sexually active and not in long-term, committed, monogamous relation-ships, and (b) likelihood of being tested for STIs.

Methodology

The data for this analysis come from a survey administered at a large public urban university in California during the 2009 summer term. While generally a convenience sample, there were

efforts made to obtain respondents (N = 541) enrolled in classes in different departments and colleges and at various levels across this large urban university. These classes were selected by quota sampling to insure representation of each of the schools within the University as well as classes at the lower-division, upper-division, and graduate levels. Permission was obtained from instructors prior to administration of the survey in any classroom. Informed consent was obtained from each respondent immediately prior to the administration of the questionnaire, which took respondents between 10 and 15 minutes in total to complete. While not random, when compared with actual percentages for this large urban university population, the sample attributes do fall within acceptable quotas, particularly with regard to race/ethnicity and gender. Table 1 illustrates the comparison between the sample and the target population. As such, the sample is representative of the student population at this university.

Table 1
Demographics of Sample and Population

N	541	36,208
	Sample (%)	**Population (%)**
Gender		
Male	35.6	41.9
Female (sample: gender N=523)	64.4	58.1
Race		
White	39.5	31.0
Black	8.2	8.3
Asian/Pacific Islander	20.8	12.2
Latino	25.8	28.6
Other (sample: race N=534)	5.6	19.7

Predictor Variables

Predictor variables for this analysis include gender, race/ethnicity, self-esteem, source of safe-sex knowledge, and substance use (risky behavior). Survey respondents' gender was directly measured from the questionnaire. Race/ethnicity was transformed into dummy variables. In this study, "risky behavior" was operationalized through substance use, marijuana use in particular. The coding scheme utilized for marijuana use was a dichotomous 'never/ever.' The distribution revealed a roughly 60/40 split, upon examination of these data.

The source of respondent's knowledge regarding safe-sex practices was taken directly from the dichotomies in the list of possible sources of information in the survey instrument. These non-exclusive variables include getting knowledge from: television/media, the Internet, a health care provider, a parent, a friend, a sex partner, school, other, and none.

A scale was used to measure the concept of self-esteem in this analysis (Rosenberg, 1965). The scale includes ten questions from series in the questionnaire to measure such, combined together (reverse-ordered where appropriate.). Cronbach's alpha, a measure of inter-item reliability, for the ten individual variables is calculated at 0.828, indicative of a well-devised scale.

Outcome Variables

The outcome variables for this analysis were STI testing and condom use. STI testing was measured using a question that asks if the respondent had been tested for STDs. Those respondents selecting "not sure" were coded as missing, since we have no information to infer whether their response should have been coded as either yes or no.

The measurement of condom use employed questions asking how regularly the respondent uses condoms when engaging in sexual behavior. Those who responded that they were not sexually active were coded as missing. Those who chose "always" were coded yes, the rest were coded no. Therefore, this dichotomous variable measured whether the respondent always uses a condom or not. Those who said never, but later mentioned being married, having a long-term monogamous partner, having a pregnancy, etc., were not considered at risk for getting an STI, and therefore were coded as missing; 28 of the total sample of 541 respondents fit into this condition. As an aside, those who reported being married in the

demographics section, but did not mention it as a reason in the condom use question were not coded as missing; marriage provides no guarantee of exception from risk, particularly if it was not offered as the reason for 'not always using a condom' when asked.

Results

Source of Knowledge Regarding Safe-Sex Practices

The relationship between source of knowledge regarding safe-sex practices (health care provider, sexual partner, school, parents, Internet, friend, other, none) and the outcome variables (condom use, STI testing) was examined first, as the primary research question of this study. The results of cross-tabulation outcome statistics are produced in Table 2. The Fisher exact test significance level is provided, along with the Somers' d value and significance level.

Table 2
Source of Knowledge about Safe-Sex Practices

	Condom Use (N=513)		*STI testing (N=307)*	
	Fisher Exact Sig.	Somers' d Value / Sig.	Fisher Exact Sig.	Somers' d Value / Sig.
Friend	0.418	-0.018 / 0.746	0.159	-0.048 / 0.275
Health Care Provider	0.334	0.034 / 0.581	0.000	0.167 / 0.000
Internet	0.393	-0.032 / 0.661	0.002	-0.179 / 0.002
Parents	0.400	0.023 / 0.706	0.018	0.102 / 0.027
School	0.061	0.100 / 0.088	0.069	0.078 / 0.114
Sex Partner	0.511	-0.006 / 0.918	0.209	0.045 / 0.361
TV/media	0.400	0.023 / 0.706	0.085	-0.069 / 0.143
Other	0.405	0.080 / 0.606	0.584	-0.002 / 0.986
None	0.615	0.122 / 0.739	0.272	-0.280 / 0.278

*sample sizes differ since there were more valid cases for condom use than STI testing

For condom use none of the source of knowledge variables emerged as statistically significant. Although not significant ($p \leq 0.062$), the Somers' d statistic (0.100), indicated that there was a trend to use condoms among those who obtained their information through school.

STI testing yielded statistically significant results for health care provider ($p \leq 0.000$). Those who got their knowledge from a health care provider (Somers' $d = 0.167$; $p \leq 0.000$) or their parents (Somers' $d = 0.102$; $p \leq 0.027$) were more likely to be tested. On the other hand, those who obtained their knowledge from the Internet ($p \leq 0.002$) were less likely to be tested for STIs ($d = -0.179$).

Demographics and Sexual Health Behavior

Gender is not a predictor of either condom use or being tested for STIs. This was evidenced by a lack of statistical significance in cross-tabulations for the Fisher Exact Test as well as Somers' d. Race/ethnicity did, however, produce statistically significant results. The racial/ethnic differences across STI testing were statistically significant ($\chi 2 = 34.041$; $p \leq 0.000$), while the association between race/ethnicity and condom use was not statistically significant. The cross-tabulated data revealed that the group with the lowest frequency of STI testing was the Asian/Pacific Islander category (29.5%), while

the highest frequency was exhibited by whites, at 63.8%.

Compounding the demographic analysis and retaining race/ethnicity as an independent variable, the analyses were stratified by gender. There was no statistically significant difference by gender for condom use. However, both males and females exhibited statistical significance for STI testing. For males, $\chi 2 = 29.010$ ($p \leq 0.000$), and for females, $\chi 2 = 14.128$ ($p \leq 0.007$). Since it is not possible to ascertain direction from a nominal variable with more than two attributes, like the race/ethnicity variable, we turned to the cross-tabulated percentages for the effects. The group with the lowest level of STI testing for both males and females was Asian/Pacific Islanders (males: 11.8%; females: 37.9%). The highest level of STI testing for males was found among blacks at 76.9%, and for females the highest level was among whites at 66.1%. In the examination of demographic variables' effects on self-esteem, a one-way ANOVA was performed using race/ethnicity, but no statistical significance was uncovered (Scheffe and Bonferroni). The same held true in the OLS (ordinary least squares) multiple linear regression model.

In order to demonstrate the effect of self-esteem independently, a linear regression analysis for self-esteem was used as a predictor of both condom use and STI testing. It became evident that self-esteem emerged as statistically significant for both condom use ($p \leq 0.031$) and STI testing ($p \leq 0.041$). However, coefficients were very small (0.013 and 0.01, respectively) and r-square values revealed that just 1.6% of the variation in condom use was explained by the variation in self-esteem, and that only 0.8% of the variation in STI testing was explained by the variation in self-esteem.

Marijuana Use

Marijuana use, a direct proxy for substance use and also a very loose proxy for engagement in risky behavior, was examined in conjunction with condom use and STI testing. Here, we saw that marijuana use was significantly associated with both condom use ($p \leq 0.010$) and STI testing ($p \leq 0.015$). The direction of the relationship, however, was different for each. The negative value of Somers' d indicated that those who used marijuana were less likely to always use condoms. The positive value of Somers' d indicated that those who used marijuana were more likely to have been tested for STIs.

Table 3
Prediction of Marijuana Use by Condom Use/STI testing (by Gender)

	Males			*Females*		
	Fisher Exact Sig.	Somers' d Value / Sig.	N	Fisher Exact Sig.	Somers' d Value / Sig.	N
Condom Use	0.435	-0.034 / 0.719	114	0.007	-0.192 / 0.007	179
STI Testing	0.099	0.111 / 0.147	177	0.013	0.140 / 0.018	320

Next, as shown in Table 3, marijuana use by both condom use and STI testing while controlling for gender was examined. Note that the inclusion of gender revealed that the associations between marijuana with condom use and with STI testing are both conditional, based upon gender. Among males, both prior associations failed to achieve statistical significance. Among females, the association between marijuana use and condom use was significant and in the negative direction. For females, marijuana use was associated with not always using condoms. Females also exhibited a statistically significant relationship between marijuana use and STI testing. This relationship was positive, indicating that females who use

marijuana were more likely to have been tested for STIs than those females who had not used marijuana.

Logitisic Regression: Predictors of Condom Use & STI Testing

The overall saturated logistic regression model for condom use produced no significance for any of the predictor variables. Conditional models, produced forward and backward do yield findings that were statistically significant. Table 4 reveals that marijuana use was the only statistically significant predictor of condom use. Those who had never used marijuana were 1.79 times as likely to always have used condoms than those who had used marijuana. Two other variables that remained in the model, but were not significant provide trend information. The self-esteem odds ratio (1.051; $p \leq 0.056$) suggested that higher levels of self-esteem, as measured by the ten-question scale in this survey, provided higher likelihoods of always having used condoms. Further, when an individual reported receiving information from school about safe-sex practices, s/he may have been more likely to always have used a condom. Table 4 also sheds light on predictors of STI. testing. Results indicated that those who used

Table 4
Logistic Regression with Condom Use and STI Testing

	Condom Use		*STI Testing*	
	Odds Ratios	*p-value*	*Odds Ratios*	*p-value*
Marijuana Use	0.558	0.016	1.618	0.017
Sex Info from HC Provider			2.433	0.000
Sex Info from Internet			0.459	0.003
Asian/Pacific Islander			0.416	0.001
White			1.684	0.016
Self-esteem	1.051	0.056		
Sex Info from School	1.573	0.095		
r Square (Nagelkerke)	0.060		0.151	
N	301		484	
df	3		5	
Chi-square	13.544	0.004	58.112	0.000

*parameters were not estimated in blank cells as a byproduct of forward conditional covariate inclusion

marijuana were 1.618 times as likely ($p \leq 0.017$) to have been tested for STIs as those who had not used marijuana. Those who obtained safe-sex information from a health care provider were 2.433 times as likely ($p \leq 0.000$) to have been tested for STIs that those who did not. Individuals who obtained safe-sex knowledge from the Internet were only 46% as likely ($p \leq 0.003$) to have been tested for STIs than those who did not get that information from the Internet. Race/ethnicity also produced significant effects. Asian/Pacific Islanders were only 41.6% as likely ($p \leq 0.001$) as other races/ethnicities to have been tested for STIs, while whites were 1.684 times as likely as others ($p \leq 0.016$). Although gender was not a significant predictor, it did predicate a conditional relationship in marijuana use, the two variables were excluded and the interaction variable was included in the following logistic regression model. Table 5 details the analysis, which also includes the saturated model,

showing the variables that were not statistically significant.

Table 5
Logistic Regression with STI Testing

	Odds Ratios	*p-value*	*Odds Ratios*	*p-value*
Gender * Marijuana Use	1.880	0.011	1.941	0.009
Sex Info from HC Provider	2.355	0.000	2.342	0.000
Sex Info from Internet	0.467	0.004	0.517	0.019
Sex Info from friend			0.857	0.478
Sex Info from parent			1.136	0.556
Sex Info from school			1.335	0.196
Sex Info from sex partner			1.224	0.397
Sex Info from TV/media			0.778	0.268
Asian/Pacific Islander	0.419	0.001	0.532	0.170
White	1.749	0.010	2.082	0.084
Black			1.883	0.220
Hispanic/Latino			1.092	0.840
Self-Esteem			1.023	0.278
r Square (Nagelkerke)	0.153		0.171	
N	484		484	
df	5		13	
Chi-square	58.950	0.000	66.419	0.000

*parameters were not estimated in blank cells as a byproduct of forward conditional covariate inclusion

The results are quite similar, but slightly improved in terms of significance and determination (+ 0.2%) from the first model that excluded the interaction coefficient. Here, females who had used marijuana were 1.88 times as likely ($p \leq 0.011$) as others to have been tested for STIs. Those who reported getting safe-sex information from a health care provider were 2.355 times as likely ($p \leq 0.000$) to have been tested than those who did not. Individuals who obtained safe-sex knowledge from the Internet were only 47% as likely ($p \leq 0.004$) to have been tested for STIs than those who did not get that information from the Internet. Race/ethnicity also continued to produce significant effects. Asian/Pacific Islanders were only 41.9% as likely ($p \leq 0.001$) as other races/ethnicities to have been tested for STIs, while whites were 1.749 times as likely as others ($p \leq 0.010$).

Discussion

The main focus of this study was to determine if the source of one's knowledge regarding safe-sex knowledge is related to condom use as well as STI testing. Having obtained information about safe-sex from a health care provider was not statistically significant with regard to condom use, but it was significant in predicting having been tested for STIs. In fact, according to the odds ratios from the logistic regression model, this variable has the largest effect with those getting information from the health care

provider being 2.355 times as likely as those who did not.

The only other information source that played a statistically significant role in a multivariate model was the Internet. Those who obtained information about safe-sex practices from the Internet were actually less likely to have been tested for STIs. This variable had no significance in the logistic regression models for condom use. We do not know where on the Internet these individuals are getting their information. The possibilities are endless, ranging from legitimate medical web sites, to chat rooms, to web logs (blogs), to a variety of unregulated sources of information.

All other sources of safe-sex information failed to produce statistically significant results. One source, school, had "borderline" significance for predicting condom use. As would be expected, the trend was that those obtaining safe-sex information from school would be more likely to always use condoms.

It should be noted that respondents were given the option to select as many or as few sources of safe-sex information as they wished. Moreover, while we do know the sources of the safe-sex information, we do not know whether the information was correct, perceived as correct by the respondent, or the time period during which the information was acquired (e.g. recent versus foundational learning). These confounding variables suggest careful consideration be taken while generalizing these specific findings, and also offer directions for future research to fill those gaps in the literature.

Demographic factors can impact sexual health behavior, as well, as is consistent with prior work in this area. In this study, gender by itself was not a predictor of sexual health behavior, as measured by both condom use and STI testing. With regard to race/ethnicity, there were no significant results in association with condom use. There was, however, a significant chi-square association between race/ethnicity and having been tested for STIs. Asian/Pacific Islanders were most likely not to be tested and whites were the least likely to not be tested for STIs. This result holds in the multivariate logistic regression model, too. When adding a layer (or splitting the file) by gender, the race/ethnic association held for STI testing for males and females. An association did not materialize for either males or females on the significance tests for condom use.

By itself, self-esteem is a statistically significant predictor of both condom use and STI testing in bivariate OLS regression models. This is consistent with the literature on the role of self-esteem in condom self-efficacy. They are very small effects in both prediction models, though, which may explain why they fall out in both multivariate models. Self-esteem does remain with "borderline" significance ($p=0.056$) in the condom use multivariate logistic regression model. In order for the small effect to be recognized in multivariate models with higher degrees of freedom, a larger sample size would be required. This is a matter for future research.

Marijuana use is a significant predictor of both measures of sexual health behavior in this study, condom use and STI testing. The statistical significance holds in the bivariate test, as well as in the multivariate logistic regression model. First, note the direction of the relationship. Those who have used marijuana are less likely to always use condoms, but are more likely to have been tested for an STI. This runs counter to expectations about risky behavior from the literature. What we do not know here that might make a difference in the ultimate predictive power of marijuana use is frequency of use and amount per use. Data concerning frequency and amount should be collected in future research to help determine the nature of these relationships. Second, observe the interaction with gender. When separated by gender, we see that the relationship is a conditional one: it only holds for females in both cases. Females who have used marijuana are less likely to always use condoms, and are more likely to have been tested for STIs. Results are not statistically significant for males. Marijuana use holds up as a predictor of sexual health behavior in models for both condom use and STI testing. In fact, it is the only significant predictor of condom use. In the logistic regression model, the interaction

effect gender by marijuana use slightly improves components of the model.

Conclusion

The primary research question of this study was affirmed. Source of knowledge about safe-sex practices does impact sexual health behavior. We know from this study that the Internet as a source of safe-sex information reduces the likelihood of being tested for STIs. Future research should seek to clarify where on the Internet people get their information about safe-sex practices. Being able to evaluate the accuracy of the Internet source would shed light on the mechanism that leads those individuals to not be tested for STIs. One future hypothesis might be that people are getting false information from certain types of Internet sites and this could be having negative impacts on sexual health behavior. Furthermore, we have learned in this study that getting information about safe-sex practices from a health care provider greatly increased the likelihood of having been tested. Socio-economic status is likely to play a role, here, too. Income/asset/social class data was not collected as part of this survey, so we cannot test for the role of SES, though prior research shows that lower SES is often associated with less access to health care as well as underutilization of available care.

In addition to source of knowledge, there are other factors that influence sexual health behavior. Race/ethnicity plays a role: whites are more likely than others to have healthy sexual behavior, while Asian/Pacific Islanders are least likely. There is some support that higher self-esteem contributes positively to sexual health behavior. The verdict is mixed with regard to marijuana use. On one hand, females who have used marijuana are more likely to have been tested for STIs, but less likely to always use condoms. Marijuana use seems to be involved with sexual health behavior, but in conflicting ways. The decision to be tested for STIs can be made at any time, but the decision to use or not use condoms happens before or during sex. Perhaps this finding is a result of females using marijuana before and/or during sex. The survey did not identify specific timing and quantity of marijuana used. The issue of marijuana and sexual health behavior is certainly worthy of future research, particularly given the recent attention that medical marijuana in California and other states has garnered, as well as the recent relaxing of Federal crackdowns on such. Also, as marijuana use here is also a proxy for risky behaviors, it might benefit future research to emulate prior work where other risky behaviors are examined, as well.

Implications for Policy Issues and Health Education

The findings in this study provide useful information that may be used to promote policy matters as well as health education. For instance, we have established that the source of knowledge regarding safe-sex practices does play a role in STI testing (there may also be a trend for one source, school, with regard to condom use).

Since we know that individuals who report having obtained safe-sex knowledge from a health care provider are considerably more likely to have been tested for STIs, it is clearly a benefit that (a) people have access to health care providers, (b) make use of their access to health care providers, and (c) those providers are functioning to inform patients about safe-sex practices. Since socio-economic status is likely to influence access to health care and how people use what access they might have, policies might target low-income populations for interventions such as free or reduced cost care, or reminders and/or encouragement about services that are available. Culture may also influence care use, so special attention should be given to populations who tend to utilize health care less than others.

This has local policy implications, too. For example, college students can be offered services through the campus health center, a center generally supported by mandatory student fees. The Center, as a matter of policy, could provide personal counseling, as well as make available brochures and other literature from reliable sources, such as the CDC (Centers for Disease Control and Prevention), and condoms. While this particular variable was not a

statistically significant predictor of condom use, all dimensions of information and resources related to sexual health behavior should be employed.

This study revealed that those who obtained safe-sex knowledge from the Internet were less likely to have been tested for STIs. While it is difficult to identify what information people actually get from the Internet, it is reasonable to make sure people have the tools with which to assess the credibility of that information, whatever the Internet source. This is why it is critical, through outreach efforts, to put access to correct information (with Internet links) in the hands of these individuals. Community outreach is important, since those who are already getting information from their health care provider are already more likely to engage in healthy sexual behavior (i.e., have been tested for STIs.) This outreach could involve information or programming at local events, campus activities or events, media campaigns (e.g., television, radio, local advertising) or even announcements by e-mail about information and other resources. Programming might involve more than just information about STI testing, but also about the spread of STIs and prevention, which might include distribution of condoms, as well.

There emerged a trend that information about safe-sex practices obtained from school increased the likelihood that the respondent always used condoms. It seems clear that correct and complete information, as well as access to condoms, should be provided in schools wherever and whenever possible. Students in schools where information or resources are denied as a matter of policy might be at a disadvantage without the knowledge or materials to engage in healthy sexual behavior. When not possible or feasible, then that population should be targeted through advertising or other methods to provide access to information leading to resources and information about sexual health behavior. As a matter of policy, schools ought to be a place where access to the best scientific knowledge is made available to students, as well as the tools to make healthy decisions. Policy makers at schools and on governing bodies would benefit from efforts to inform about information regarding healthy sexual behavior.

Along lines of race/ethnicity, whites in this study engaged in more healthy sexual behavior than other groups. Asian/Pacific Islanders displayed the least healthy sexual behavior. To the extent possible, one might model cultural and institutional patterns of whites that provide knowledge and support for healthy sexual behavior to other groups, particularly those who are Asian or Pacific Islanders. While this may not always be feasible, it is useful to examine the success of one group in efforts to transfer that success to another. Understandably, cultural barriers may prevent that transfer to varying degrees. Knowledge about the cultural difference is critical prior to engaging those groups. Again, however, information and access are key themes to make a difference.

Marijuana use exhibited a mixed outcome in terms of sexual health behavior. Interestingly, there was no significant result for males who used marijuana. Females who had used marijuana were more likely to have been tested, but less likely to always use condoms than those females who had not used marijuana. Policies affecting medical marijuana and changing dimensions of the law should carefully reflect any impact that marijuana use has on sexual health behavior. Marijuana dispensaries should be equipped with condoms as well as information about prevention and STI testing. Furthermore, females in particular should be targeted for advertising or event programming to get information about the intermixing of marijuana and sexual health behavior with a focus condom use, as well as to provide access to condoms.

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