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Does your College Campus GYT? Evaluating the Effect of a Social Marketing Campaign Designed to Raise STI Awareness and Encourage Testing

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Abstract

Background: Sexually transmitted infections (STIs) impose a considerable health and economic burden among college-aged students. College students report engaging in a number of high-risk behaviors, including having multiple sex partners, unprotected sex, and using drugs and binge drinking during sex. This pilot evaluation investigated the associations between STI testing and the GYT: *Get Yourself Tested* campaign exposure, a social marketing campaign developed to promote sexual health discussions, raise awareness around STIs/HIV, and encourage testing among youth.

Methods: During April 2011, 12 geographically dispersed colleges implemented the GYT campaign. Each implemented a brief survey and recorded STI testing data. A total of 1,386 students were surveyed. We tested for associations with GYT campaign awareness and STI testing behaviors. Chi-square and binary regression analyses tested for associations with GYT campaign awareness, STI testing behaviors, and STI test results. Hierarchical linear models accounted for students nested within schools.

Results: Students presenting for STI testing were more likely to have heard of GYT than students not doing so; campuses hosting promotional events had higher proportions of students aware of GYT. These colleges, however, did not have higher proportions of students getting tested. Chlamydia positivity averaged 3.1%, and an estimated $26,000 in direct medical costs and $24,000 in lost productivity costs were averted by STI testing and treatment.

Conclusions: Pre-packaged STI testing campaigns may serve as successful tools for colleges interested in promoting and increasing STI/HIV awareness, testing, and treatment. At the

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individual level, GYT awareness was related to testing, but the effects for school efforts need further exploration.

Keywords

Sexually transmitted infections; University health services; Chlamydia; Gonorrhea; Social marketing; Health campaigns; HIV

Introduction

Approximately 43% of the over 30 million young adults aged 18-24 years in the United States (U.S.) are currently enrolled in an institution of higher education.[1] College students report engaging in a number of high-risk behaviors including having multiple sex partners, engaging in unprotected sex, and drug use, alcohol use, and binge drinking during sex.[2] Recent estimates suggest that there are almost 20 million new sexually transmitted infections (STIs) each year at a cost of $15.6 billion, about half of which occur among 15-24 year olds.[3,4,5] Specifically, chlamydia and gonorrhea disproportionately affect youth and young adults,[5] causing serious health consequences and facilitating the acquisition and transmission of HIV.[6]

To date, there has not been a national STI testing campaign targeting youth. Instead, the rise of the HIV epidemic over the past several decades has resulted in sexual health communication campaigns overwhelmingly focused on raising awareness about HIV prevention and testing, and even open communication.[7] However, while HIV knowledge seems to be improving among college students, research suggests that students are less knowledgeable about sexual health and STIs.[8] Further evidence of this knowledge gap is confirmed by our review of the literature that revealed no relevant studies evaluating STI testing campaigns on U.S. college and university campuses. Anecdotally, we know that sexual health promotion efforts on college campuses are occurring, but there is no evidence to suggest that these efforts are being evaluated or that findings are being published.

The GYT*: Get Yourself Tested* campaign (described in further detail, below) provides colleges and universities an opportunity to meet STI and HIV-related Healthy Campus 2020 objectives by prioritizing STI awareness *and testing* on their campuses, reducing the stigma around STI testing, and providing colleges and universities with informational and promotional materials and tools to assist in promotional efforts and events. In this paper, we present a pilot evaluation of GYT on 12 college campuses. The campaign objectives were aimed at: 1) reducing STI-associated stigma by presenting it in a context that is familiar and relatable, 2) normalizing STI testing as a part of routine care and overall well-being, 3) normalizing conversations about sexual health and STI testing with peers, partners, and health care providers, and 4) connecting youth to STI testing services. The evaluation objectives were to assess the associations between GYT campaign exposure and STI testing among college students, explore STI positivity among testers at participating campuses, and assess the economic impact of the campaign.

Background

Previous STI Campaigns

The most relevant STI-focused campaign for the college setting is *Sexual Responsibility Week* (SRW),[9] promoted through the Bacchus Initiatives of NASPA: Student Affairs Administrators in Higher Education (formerly the National Association of Student Personnel Administrators).[10] NASPA is the leading association for the advancement, health, and sustainability of student affairs professionals, which has access to over 15,000 members from 2,100 institutions in 50 states, 25 countries, and 8 U.S. Territories, and oversees 15.6 million students worldwide. The Bacchus Initiatives of NASPA support college peer educators and advisors through comprehensive health and safety initiatives that actively promote student and young adult-based, campus and community-wide leadership on healthy and safe lifestyle decisions.[11] The SRW campaign adopts a holistic approach to sexual health by tackling relationship issues, sexual decision making, and alcohol use, in addition to providing information about HIV/AIDS, STIs, and condom use. The campaign website shares ideas for how schools can evaluate and report their efforts, but no success stories or case studies from other programs are featured as models.

Given the literature gap on STI campaigns targeting youth, it is not surprising that data regarding testing practices of STIs and HIV in the college population are also limited.[12] College health has historically been left out of the national STI discussion,[13] focusing more on issues such as influenza and alcohol consumption.[14] However, in recent years there has been a push for college and university health services to commit more resources to STI prevention and treatment. Consequently, STIs and HIV are cited in the American College Health Association's (ACHA) Healthy Campus 2020 topics and objectives as a major public health concern affecting college students.[15] Of the 58 Healthy Campus 2020 health objectives, 18 are related to sexual health. Two major objectives specifically focus on reducing the number of positive chlamydia cases and increasing HIV testing among students (Objectives STD-1 and HIV-14). Two other objectives also highlight the need for increased routine chlamydia screening, specifically among females younger than 26 years (Objective STD-4), and increased condom use among sexually active students, during vaginal and anal sex (Objectives HIV-17a; HIV-17B). Complementary to these four objectives is a recommended health communication objective for increasing the proportion of students who report receiving information on STI prevention from their college (Objective ECBP-7.8).

Overview of the GYT: Get Yourself Tested Campaign

The concept underlying the GYT: Get Yourself Tested campaign is a youth-focused and empowerment-based approach to discussing sexual health and getting tested for STIs.[16] It is the first national-level social marketing campaign of its kind that seeks to encourage STI testing as an act of pride among youth and young adults 25 years and younger. GYT presents the idea of testing in three easy letters that are reminiscent of the way youth communicate in text messages and social media (eg, LOL, BRB…GYT). GYT encourages testing as an act of pride, not shame, and promotes an open dialogue about STIs by encouraging young people to get themselves tested and spread the word about the campaign.

Theoretical framework.—Campaign messages are developed using constructs from the Health Belief Model and the Theory of Planned Behavior, and are informed by formative research.[17-19] Messages are refreshed annually and seek to: a) encourage testing by raising awareness and increasing perceived risk; b) promote open communication about sexual health with health care providers and sex partners; and c) reduce stigma and fear associated with STI testing. GYT's messaging is not targeted by audience, racial/ethnic groups, income, gender, or sexual orientation. Rather than stigmatize potentially "high-risk" subgroups, the goal is to normalize testing for all youth; hence, the ability to implement the campaign in the college setting.

Instead of perpetuating a fear of testing through the stigmatization of STIs, the campaign uses positive framing to correct misconceptions and engender discussions of sexual health.[20,21] Rather than frighten youth with scary images of STIs, fixated on the consequences of STI transmission, or emphasizing negative stereotypes of individuals who acquire STIs, GYT is an empowering call to action that normalizes the act of testing and discussions about STIs and sexual health. The campaign seeks to minimize perceived barriers, and facilitates access to STI testing and treatment services (eg, *"STDs are more common than you think… Yes, it's easy. No, it doesn't hurt. Get Yourself Talking. Get Yourself Tested."*). For the purpose of this evaluation, the campaign was implemented on college campuses, targeting students, without further audience segmentation.

Social marketing components.—On a national level (including a year-round campaign with emphasis at special times such as *National STD Awareness Month* in April), the campaign uses platforms such as television, print, web, and social media in combination with on-the-ground outreach efforts such as testing events and concert series. The core of the campaign is its website, www.GYTNOW.org, which provides information, tools (testing locator), resources, and features (games, videos, quizzes, etc.) for youth, as well as for public health partners and health care providers. The website hosts a digital toolkit, comprised of promotional materials (posters, flyers, t-shirts), allowing for customization.

The campaign was developed as part of *It's Your (Sex) Life,* a longstanding public information partnership between MTV and the Kaiser Family Foundation. GYT is supported by the Planned Parenthood Federation of America. The U.S. Centers for Disease Control and Prevention provided technical assistance to ensure scientific accuracy of GYT's health information and evaluation support and expertise.

GYT is also supported by state and local partners through media, marketing, events, promotions, and coordinating STI-testing/community outreach efforts. GYT community "kits", including promotional and informational materials, are distributed free-of-charge to partners to help facilitate localized efforts. The digital toolkit offers customizable posters, iron-on t-shirt transfers, videos, flyers, banner ads, logos, downloadable wallpaper, and evaluation tools (eg, surveys, data collection instruments, and evaluation strategies). Physical toolkits consist of posters, stickers, buttons, brochures, and a GYT t-shirt.

GYT-ACHA partnership.—Starting in 2010, the American College Health Association's (ACHA) Sexual Health Education and Clinical Care Coalition(SHECC) joined as a partner

to spearhead the introduction of the GYT campaign to academic institutions nationwide and assisted with the coordination, assessment, and development of the university campus-focused campaign and marketing materials. To date, more than 300 colleges and universities across the country have received GYT kits via the ACHA-GYT partnership and have accessed the online kit. On many participating campuses, the student health services uses the GYT campaign as an opportunity to offer free or reduced cost STI testing to students (see Figure 1).

This pilot evaluation assessed the associations between STI testing and GYT campaign exposure on 12 colleges volunteering to implement GYT during April 2011. We hypothesized that implementation of GYT on these campuses would lead to an increased awareness of the GYT campaign and an increase in STI testing during the month of April, *National STD Awareness Month.* Thinking about this intervention in a "product, price, and place" marketing framework, STI information and test seeking served as the product as well as a forum to engage in open and honest discussion about STIs and safer sex behaviors. The price for STI testing was free or low cost. College health clinics and/or testing events functioned as the place, along with the GYT website, for health information seeking. GYT promotions included campaign materials, activities or events hosted by student health or campus organizations not limited to flyers, posters, t-shirts, stickers, buttons, bus wrapping, watch events (where students watched an STI/HIV-related program and had a discussion afterwards), and/or STI testing events. This research has the potential to demonstrate how college health and public health can work as STI prevention partners and how pre-packaged STI testing campaigns may serve as a tool for colleges and universities committed to improving their students' sexual health care.

Methods

Sample & Sample Recruitment

ACHA recruited a convenience sample of academic institutions from its individual members and institutional representatives (approximately 2,800 individual college health professionals representing about 900 colleges and universities) who subscribed to either their health promotion or sexual health e-mail listservs. An e-mail was sent to both listservs (n = 1,184 individuals; the number of duplicate subscribers was unknown) describing the pilot study and requirements for participation. In order to participate, the school had to be willing to: 1) promote GYT using the GYT toolkits provided; 2) implement a short, cross-sectional student-based questionnaire assessing GYT during the month of April 2011; 3) submit chlamydia testing data stratified by females and males (including positivity numbers) for April 2011; and 4) provide basic institutional-level demographic information. Gonorrhea and HIV testing numbers were optional as was submitting comparison data from a relevant time interval (eg, STI testing data from the month prior or after). Twelve academic institutions volunteered to participate. As an incentive for participation, institutions were offered up to 20 additional GYT kits to help with their April promotional efforts.

GYT implementation and student recruitment to participate in STI testing during April 2011 occurred differently on each campus, primarily based on the types of GYT activities being implemented on each campus. Colleges were encouraged to promote GYT (using their

toolkits) by hosting a campus event. All campuses with the exception of 4 reported hosting a GYT event. Combined across all campuses during the study interval, a total of n = 1,386 students completed a self-report questionnaire, but not all of those students were necessarily tested and vice versa. A total of n = 2,834 students received STI testing for chlamydia, n = 2,263 were tested for gonorrhea, and n = 1,283 for HIV; an unknown number of those tested completed the self-report survey.

Measures

The measures consisted of student completion of a self-report questionnaire, school-level variables, and STI testing numbers/positivity.

Student self-report data.—Students currently enrolled at each institution who presented at the student health center for testing (or for other reasons) or at an STI testing event were asked to complete a one-page questionnaire assessing basic demographics and the following information: “Did you come here today to get tested for STIs?”; “Is this your first time to be tested for STIs?”; “Have you seen or heard of the GYT: Get Yourself Tested campaign?”; “If you are here for STI testing, did you come in because of the GYT campaign?” Additional questions assessed where they had seen or heard about GYT on campus, who they may have talked to about STI testing or sexual health because they were aware of GYT, and basic demographics (eg, age, gender, race, sexual orientation).

STI testing data.—All 12 participating academic institutions agreed to submit their chlamydia testing data for April 2011 as part of the pilot evaluation, including the number of sexually transmitted infection tests performed and the number of positive test results. Gonorrhea and HIV testing data, and comparison month data were optional (either April 2010 or March 2011); nine institutions provided gonorrhea numbers and eight provided HIV testing data. A total of n = 9 institutions provided comparison month data.

School-level data.—Participating schools were classified based upon various characteristics; by type (4-year public vs private), by region, setting, student body size. Information on campus-sponsored GYT promotional activities was also collected. Hosting an event was defined to include a variety of campus promotional activities such as testing events, free or reduced cost testing at a student health center, informational tabling events by health educators, watch parties, and/or speakers. Basic promotions such as posters or flyers without any sort of event attached to them were considered non-events.

Data Collection

Data were collected in uncontrolled settings under different circumstances by each institution. Whereas data at one institution may have been collected at a GYT event (eg, mass testing event in a student commons or gymnasium), data from another institution may have been collected primarily in the student health services clinic setting; other institutions may have collected data from both settings. Time periods for data collection also differed across institutions. Survey data were collected via paper and pencil questionnaires or personal digital assistant and all survey data were submitted to ACHA through an electronic data source (eg, Vovici). Testing data were collected by each institution through their own

record systems and submitted via an Excel template. Individual academic institutions received IRB approvals or exemptions according to their institutional requirements. Results were used to provide student health centers with information they could use to improve quality of GYT outreach and services.

Data Analysis

Because data were collected under varied conditions reflecting the diverse approaches to implementing GYT, the analyses represent an effort to detect a "signal" for GYT campaign exposure in the uncontrolled environment (rather than the effect in a controlled experimental setting). Simple frequency counts were performed for basic univariate descriptive purposes to describe school and student characteristics. Using the student self-report questionnaire data (n = 1,386) we used chi-squared tests, odds ratios, and bivariate correlations (Spearman's *r* or contingency coefficients if data were non-normal or categorical) to test associations between GYT campaign awareness, hosting a GYT testing event, and seeking STI testing at the individual and school levels, using SAS version 9.3 and SPSS v20.

We first conducted bivariate comparisons to determine whether GYT awareness was associated with hosting a GYT event or seeking STI testing. Next, we conducted bivariate comparisons to determine whether various school-level characteristics (eg, region, type of school, etc. including hosting a GYT event) were associated with awareness or seeking STI testing. To account for possible correlated effects of students clustered within schools, we ran a 2-level hierarchical linear model with students nested within schools (SPSS v20). For this model, we used student GYT awareness as the individual-level predictor and whether the school hosted a specific GYT event as the school-level predictor. The outcome variable in the model was students seeking STI testing.

In a separate sample provided by the academic institutions, we used the STI testing data to calculate the percent of chlamydia, gonorrhea, and HIV test positive cases detected among students tested. Finally, using the chlamydia testing/positivity data, we estimated the health and economic impact of STI testing at the 12 participating academic institutions. To do so, we applied published formulas of the health and economic impact of STI prevention activities.[22] These formulas allow for the estimation of 1) the benefits to persons treated for chlamydia and gonorrhea (prevention of pelvic inflammatory disease (PID) in treated women and epididymitis in treated men) and 2) the benefits of interrupting chlamydia and gonorrhea transmission in the population (prevention of new cases of chlamydia, gonorrhea, and HIV attributable to these STIs).

Results

Sample Characteristics

The 12 academic institutions included a mix of 4-year, private (n = 4; $\bar{x}$= 100.5 respondents) and public (n = 8; $\bar{x}$ = 123.0 respondents) institutions that were geographically dispersed across rural (n = 2), suburban (n = 2), and urban settings (n = 8). Most (n = 9) institutions hosted a GYT testing event during the interval. Four schools were located in the Northeast ($\bar{x}$ = 120.3 respondents), 3 in the Midwest ($\bar{x}$ = 81.3 respondents, 2 in the Southeast ($\bar{x}$ = 82.5

respondents), 2 in the Southwest ($\bar{x}$ = 167 respondents), and 1 in the Pacific (162 respondents). Across the 12 schools, the mean number of survey respondents was 115.5, with a range of 23-206 respondents (see Table 1).

As shown in Table 1, there were 1,386 respondents who completed a GYT student self-report questionnaire across the 12 institutions. The average age of the survey participants was 21.8 (SD = 4.6; range 18-90) years. The sample primarily consisted of female participants (63.8% vs. 33.5%) with a few students identifying as transgender (1.8%). Just over half (52.3%) reported being non-Hispanic white, 23.5% were Hispanic or Latino/a, 9.1% non-Hispanic black, 8.9% Asian or Pacific Islander, and 6.1% identified as another race/ethnicity. Most students identified as heterosexual (88.1%), followed by gay or lesbian (5.7%), bisexual (4.3%), and other (1.9%).

Of the 1,386 respondents, 82.3% sought STI testing at their health center (76.2% came to be tested and 6.1% came for other health reasons, but decided to get tested). Of the students visiting their health center for STI testing, almost half (46.0%) reported the visit as their first time being tested for STIs (data not shown). The mean age of first time testers was 20.6 years, while repeat testers had a slightly older mean age of 22.3 years. Overall, 55.6% of the sample had heard of GYT.

Campaign Events, Awareness, & STI Testing

Associations between GYT campaign awareness, campaign events, and STI test seeking were assessed using data from the student questionnaire and the campus characteristics.

Individual-level comparisons.—Comparisons between GYT awareness, hosting a GYT event, and getting STI tested are presented in Table 2. Survey respondents on campuses that hosted a GYT event were significantly more likely to have heard of the GYT campaign than students on campuses that did not host an event (59.1% vs. 43.2%; χ^2 = 24.1, P < 0.0001; OR = 1.90, 95% CI = 1.46-2.48). Respondents seeking STI testing were also significantly more likely to have heard of the GYT campaign than those who were not tested (59.2% vs. 39.2%; χ^2 = 32.2, P < 0.0001; OR = 2.3, 95% CI =1.7-3.0).

First time testers were no more likely to be aware of GYT than repeat testers, however, more first time testers attributed their reason for seeking testing to GYT than did repeat testers (P = .02, Fisher's exact test). Most students (53.3%) had seen or heard about GYT through print media (eg, posters and flyers), followed by electronic-media (29.2%), campus outreach events (29.0%), friends or word of mouth (26.0%), and student health services (24.2%). Among the survey participants who had heard of GYT and sought testing, 62.4% (n = 469) reported being influenced by GYT. Among those who were aware of GYT (n = 766), 57.8% reported discussing sexual health as a result of the campaign with most having discussions with a friend (40.1%), followed by partners (17.9%), health care providers (13.4%), or roommates (13.2%).

School-level comparisons.—Schools differed in the proportion of students who had heard of GYT and who sought testing (see Table 3). Student awareness of GYT was significantly associated with all school-level characteristics shown in Table 3; by region,

urbanicity, public/private status, including whether the school hosted an event (consistent with Table 2). Awareness of GYT was highest among students attending schools in the Northeast, Pacific and Southwest (67%, 60%, and 56% respectively) compared to students attending schools in the Midwest and Southeast (43% and 37%) and in public versus private institutions (69.3% vs 50.2%). Awareness in urban versus suburban and rural settings was quite similar (55.6% vs 58.9% and 53.8%), although students attending college in maller urban settings with a population < 100,000 had higher GYT awareness (66.1%) than those in cities between 100,000 and 1 million (29.2%), and cities with 1 million or more residents (49.5%).

In contrast, getting STI tested was significantly associated with all school-level variables, except whether the school hosted an event (which was not tested in Table 2). Students attending schools in the Northeast (97.3%) and Pacific (86.6%) regions had high rates of testing, as well as awareness. Schools in two other regions reported high testing rates, the Midwest (97.5%) and Southeast (72.8%), but had the lowest awareness levels. Conversely, fewer students in the Southwest reported seeking testing (54.4%), but had high awareness levels. Of students in private schools, 98.2% reported testing versus 76.5% in public schools. Reported test rates were quite similar by urban, suburban, and rural settings (> 90%), except that only 45.8% of students in cities with 1 million or more residents were tested. Moreover, schools with higher proportions of students who had heard of GYT also had higher proportions of students seeking STI testing, Spearman's $r = 0.64$, $P = .03$ (data not presented in tables). Results for first time testing followed the same pattern for both awareness of GYT and STI testing, but were weaker in magnitude. And, whether or not a school hosted an event was closely associated with other school-level variables (data not shown in tables): for region, χ^2 ($df = 3$) = 339.91, phi = .44, for setting, χ^2 ($df = 4$) = 210.36, phi = .36, and for public versus private, $\chi^2 = 252.97$ ($df = 1$), phi = .39, all $P < .001$.

Mixed individual- and school-level model.—Both the individual-level and school-level associations between GYT awareness and STI test seeking were substantial, raising the possibility that they were correlated with each other. A simple 2-level model (generalized linear model with a binary logit link function) with individuals nested within school to predict STI testing showed that to be the case. The individual-level measure of GYT awareness was no longer a significant predictor of STI testing after controlling for the school-level effect of hosting an event ($P = 0.46$, compared to $P < .0001$ in Table 3 for the individual-level effect). The school-level measure, hosting an event, remained non-significant ($P = 0.11$ versus $P = 0.41$ in Table 3).

STI Test Results, Positivity, & Impacts

STI testing and positivity.—A total of n = 2,834 students were tested for chlamydia, n = 2,263 were tested for gonorrhea, and n = 1,283 for HIV. Among the 12 institutions, chlamydia positivity rates averaged 3.1%, ranging from 0%-7.2%; with higher positivity in males (4.2% male, 2.5% female) in the 9 institutions providing data by gender (see Table 4). Gonorrhea positivity ranged from 0%-4.9% with an average of 0.3% (0.5% male, 0.2% female). Not all colleges submitted both male and female testing data, so the estimates from

the gender data are not as stable as the overall positivity numbers. No positive HIV tests were reported.

All colleges that shared comparison data from a previous month or year (n = 9; 6 of which hosted a GYT event) reported an increase in testing during the month of April. Increases in chlamydia testing during April 2011 compared to the previous month or year ranged from 2% up to 316%. Five of the nine institutions reported increases in positive cases detected, as well. When looking at STI positivity by region of the university or college, morbidity mimicked U.S. morbidity patterns with more disease detected in the southern U.S.

Health and economic benefits.—Based on the number of chlamydia and gonorrhea cases detected, an estimated 5 cases of PID and 1 case of epididymitis were prevented. Approximately 44 cases of chlamydia, 4 cases of gonorrhea, and 0.02 cases of STI-attributable HIV were prevented in the population. This translated into averting an estimated $26,000 in direct medical costs and $24,000 in lost productivity costs, for a combined total of $50,000 (see Table 5).

Discussion

These findings suggest the GYT campaign reached college students and raised their awareness around sexual health across varying school sizes, locations, and demographics. Almost half of the sample reported this was their first time to be tested for STIs. More than half of respondents had heard of the GYT campaign and students presenting for testing were more likely to be aware of GYT (an effect found in spite of very high proportions of all students surveyed coming in for STI testing). More than half of the respondents who were aware of GYT reported they had discussed sexual health with friends, partners, and health care providers.

The correlation between GYT awareness and testing appeared to be attributable primarily to which school the participants attended, given the individual-level correlation was reduced in size, when controlling for whether or not the school hosted an event. However, within schools, the measured school-level intervention (ie, hosting a GYT testing event) did not affect testing rates. Instead, schools with higher reported rates of student awareness of GYT had higher rates of students seeking STI testing.Therefore, the most effective means of promoting STI testing through GYT is likely through exposure at the individual level. Hosting an event may have played an indirect role by contributing to increasing awareness, but hosting a one-off event as defined in this analysis did not necessarily increase exposure. Schools did not rely only on hosting events to promote GYT, so the overall effects may also have been due to differential availability of GYT promotional materials on campus.

A mean age of 20.6 years among first time testers (46% of the sample in this study) suggests that students were getting tested for the first time in their sophomore or junior year of college, which may be too late given that 61% of 18 year-olds and 71% of 19-year olds have had sex.[23] Although a limitation of this study is that we were unable to link survey data to testing data, this finding suggests that student sexual health could be enhanced if STI testing took place earlier in the college experience following CDC-recommended sexual history

taking, STI testing, and treatment guidelines.[24,25] Future adaptations and evaluation of GYT could be tailored to stimulate earlier interest in STI/HIV testing among sexually active youth.

During this evaluation, 2,834 chlamydia tests, 2,263 gonorrhea tests, and 1,283 HIV tests were performed. Although we found cases of chlamydia and gonorrhea, none of the participating academic institutions detected any HIV, supporting previous findings on HIV seroprevalence in the college aged population, which has been estimated at 0.2%.[26] Despite detecting no HIV cases, anecdotal reports from college administrators and health care providers suggested that health departments and community-based organizations are more willing to support college-based testing events with free HIV testing than free chlamydia and gonorrhea testing. As a result, HIV testing kits are typically easier and cheaper to obtain, use, and safely dispose of, whereas chlamydia and gonorrhea tests require a private space, refrigeration, and the labs require more expensive instrumentation to attain results. Positivity rates from this evaluation suggest that it is not just the worried-well seeking testing and that there is value in offering STI testing on college campuses. Further exploration and consideration is needed into how student health centers can sustain chlamydia and gonorrhea testing when outside funding is not available to support or subsidize their efforts.

As discussed earlier, national STI testing campaigns targeted at youth have been nonexistent. GYT is a pre-packaged, readily-available STI testing campaign. All the materials needed to implement the campaign are available online and physical materials are offered at no-cost throughout the year. Likewise, the GYT campaign offers evaluation strategies and tools such as surveys and spreadsheets for data collection and evaluation. Case study examples are featured on the website and technical assistance is offered by ACHA and the GYT partners to institutions interested in implementing the campaign. Similar to our college-level findings, an evaluation of the national GYT campaign showed promising evidence that the campaign had the ability to reach youth aged 25 or younger, prompt dialogue about sexual health and testing, and was associated with increased STI testing at select testing locations across the country.[27] Results from the current study also demonstrated examples of how colleges can meet their Healthy Campus objectives. GYT helped colleges raise awareness about testing, get students in for STI/HIV testing (particularly females), and the early detection and treatment of cases prevented transmission of future STIs on campuses. This evidence should assist colleges and universities in need of administrative buy-in to support implementation of the GYT campaign.

Limitations & Lessons Learned

The survey limitations are closely connected to the need to collect data in uncontrolled settings from academic institutions with varying needs and challenges regarding funding, test availability, staffing, and data collection. In particular, one school was unable to report age data, and not all colleges were able to report their STI testing data by gender. Although participants were recruited from across the U.S., the sample was not random nor a representative sample of all college or university students. Institutions used varied sampling strategies to recruit students into testing (eg, random clinic samples versus concentrating on students presenting for testing) and to take the questionnaire, which may have biased

estimates of the proportion presenting for testing upwards. Our study was also flawed in that schools were not asked to link their survey data to testing data, nor did we explore demographic differences between students seeking testing to those not seeking testing which could have affected some of our findings. Likewise, hosting a GYT event may not have been a sufficient enough measure to reflect the extent of GYT campus activities. Additionally, it is possible that there may have been a lagged effect on testing with students seeking testing in May as a result of April implementation efforts. However, many schools end their spring semester by early-to mid-May, so it is not an ideal time for students to be getting tested with the stress of final exams and papers or for clinics to be collecting data. To the extent that GYT materials were visible during testing events, they may have primed attribution of testing to GYT and increased reports of campaign awareness upwards. Such biases, however, generally reduce power to detect differences, especially in school-level variables. Finally, we do not know if common STI testing barriers, such as confidentiality and fear of STI testing, were issues on any of the participating campuses; it is possible that GYT awareness prompted some students to seek STI testing at off-campus sites which were unable to be measured during the study.

Implications for Future Research & Practice

The applications of this research to sexual health promotion on college campuses are considerable. These findings can guide future college assessments to measure GYT participation, reach, and its effect on STI testing and case-finding. Colleges already implementing SRW may consider incorporating GYT as a subcomponent of SRW. In fact, we are aware of some colleges already doing this and generally, have received positive feedback from student health administrators, providers, and students about GYT messaging and materials, as well as reports of high turnout for testing events and demand for more free or reduced cost testing.[28] More schools could adopt this approach rather than starting from scratch or abandoning a campaign that is already working. Although GYT was implemented only during April 2011 in this study, in theory, it could be launched any time during the academic year.

Moreover, GYT does offer a linkage to local sexual health care services component (although, not a component of this research), which could be useful to colleges without student health services. For example, many non-traditional college settings like community colleges typically do not have a health center on-site. Future adaptations of GYT could explore the feasibility of using the testing locator to assist with linkages to STI/HIV services elsewhere in the community along with uptake of those services. Through its offerings of new and creative ways for mobilizing youth for the promotion of sexual health, the GYT campaign may serve as an innovative model for raising awareness around STIs, implementing STI testing in the college setting, and helping institutions reach their Healthy Campus objectives.

Conclusions

Even given the largely uncontrolled settings and minimal resources, this pilot evaluation is an example of how public health and college health professionals can work as partners. This analysis demonstrated that pre-packaged STI testing campaigns, such as GYT, may serve as

an important tool for colleges and universities in improving their students' sexual health care. The GYT campaign offers creative and innovative strategies for the promotion of sexual health with empowering messages and materials that can be easily repurposed, replicated, and used by campuses of varying sizes, locations and student demographics. The GYT experience suggests that positively-framed, youth-oriented health communication and social marketing, coupled with linkages to testing services and on-the-ground promotions, can yield positive results for individual-level likelihood of test seeking and collegiate STI awareness efforts. Future efforts will incorporate more detail on school-level variables, campaign implementation variation, and better ability to link school-level actions to individual-level actions. If results are favorable, GYT can be part of a low-cost college STI prevention program.

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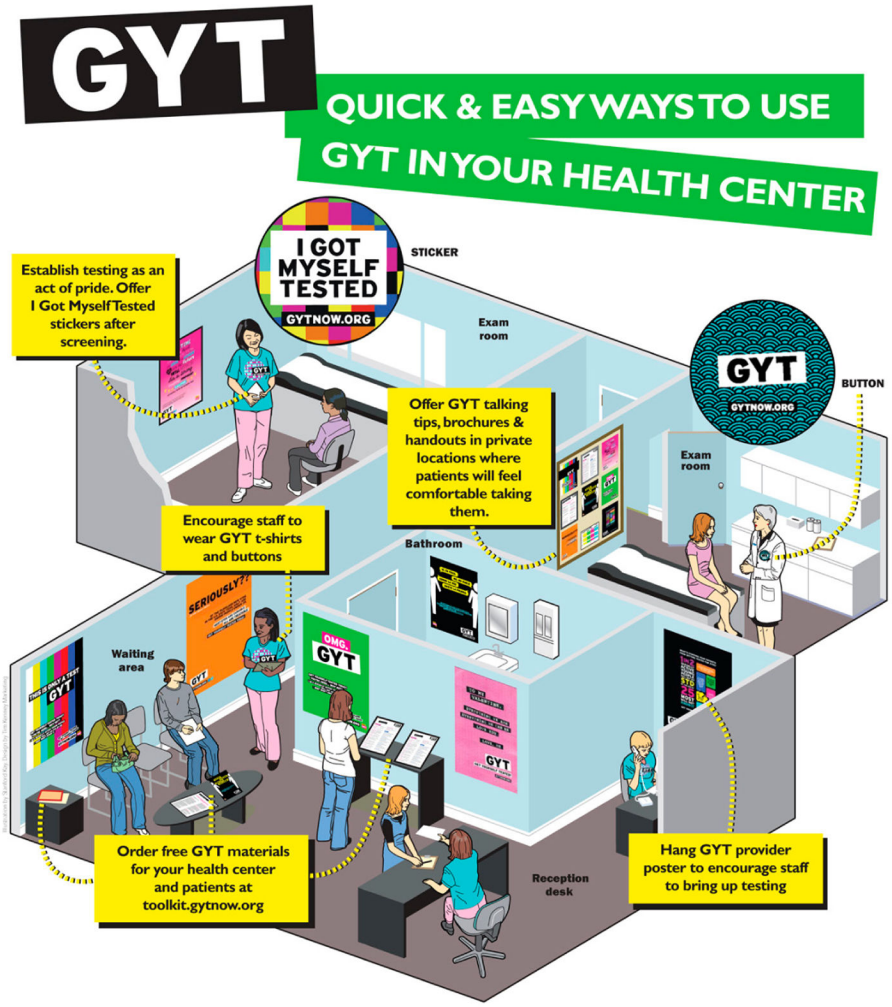

Figure 1.
Quick and Easy Ways to Use GYT in Your Health Center (2011 Campaign Materials).

Table 1.

College and Student Characteristics from the GYT: Get Yourself Tested Campaign Survey, 2011.

Characteristics	n	Percent (%)[a]
College characteristics (n = 12)		
Type of institution		
Public, 4-year	8	66.7%
Private, 4-year	4	33.3%
Region in the United States		
Northeast	4	33.3%
Midwest	3	25.0%
Southeast	2	16.7%
Southwest	2	16.7%
Pacific	1	8.3%
Setting		
Rural	2	16.7%
Suburban	2	16.7%
Urban < 100k	3	25.0%
Urban 100k – 1 million	3	25.0%
Urban > 1 million	2	16.7%
Student body size		
< 10k	2	16.7%
10k – 19k	3	25.0%
20k >	7	58.3%
College hosted a *GYT* testing event		
Yes	9	75.0%
No	3	25.0%
Student characteristics (n = 1,386)		
Age (18-90 years)[b]	1,160	
Mean (standard deviation)		21.8 (4.6)
Median		21
Mode		21
Gender	1,365	
Male	457	33.5%
Female	871	63.8%
Transgender	24	1.8%
Did not want to identify	13	1.0%
Race/ethnicity	1,257	
White, non-Hispanic	658	52.3%
Hispanic or Latino(a)	295	23.5%
Black, non-Hispanic	115	9.1%
Asian or Pacific Islander	112	8.9%

Characteristics	n	Percent (%)[a]
Other	77	6.1%
Sexual orientation	1,321	
Heterosexual	1,164	88.1%
Gay/Lesbian	75	5.7%
Bisexual	57	4.3%
Other	25	1.9%

[a] Percentages are presented unless otherwise specified.

[b] Age data are missing for all respondents from one institution (n = 181).

Table 2.

Individual-level Comparisons of Student GYT: Get Yourself Tested Campaign Awareness, Whether the School Hosted an Event, and Seeking STI Testing, 2011 (n = 1,386).

	Aware of GYT n (row %)	Unaware of GYT n (row %)	χ^2 (*P*-value)
Overall GYT campaign awareness (n=1,377)	766 (55.6)	611 (44.4)	--
Institution hosted GYT event (n=1,377)			24.1[a] (< 0.0001)
Yes	636 (59.1)	440 (40.9)	
No	130 (43.2)	171 (56.8)	
Seeking STI Testing (n=1,375)			32.2[b] (< 0.0001)
Yes	672 (59.2)	463 (40.8)	
No	94 (39.2)	146 (60.8)	

[a]The chi-square test estimates the association between an institutional GYT event and student awareness of the GYT campaign.

[b]The chi-square test estimates the association between student STI testing and GYT campaign awareness.

Table 3.

School-level Comparisons of Student GYT: Get Yourself Tested Campaign Awareness and Seeking STI Testing, 2011 (n = 1,377).

GYT Awareness & STI Testing	χ^2 (*df*)[a]	*P*-value	Φ[b]
Student aware of GYT	208.4 (11)	< 0.001	0.36
By school region	64.6 (4)	< 0.001	0.21
By school setting	85.0 (5)	< 0.001	0.24
By public/private status	41.5 (1)	< 0.001	0.17
By school hosting an event	69.3 (1)	< 0.001	0.21
Student seeking STI testing	849.2 (11)	< 0.001	0.62
By school region	310.0 (4)	< 0.001	0.43
By school setting	395.4 (5)	< 0.001	0.47
By public/private status	94.4 (1)	< 0.001	0.25
By school hosting an event	0.6 (1)	0.410	0.02

[a]The top χ^2 statistic for each variable tests for overall differences among the 12 schools.

[b]Phi represents the effect size associated with the chi-squared test and is equivalent to the correlation coefficient *r*.

Table 4.

Number of Students Tested, Cases Detected, and Positivity (%) of Chlamydia, Gonorrhea, and HIV, 2011.

STI Testing, Cases, and Positivity	Chlamydia	Gonorrhea	HIV
Total			
Number tested (n)	2,834	2,263	1,283
Number of cases detected (n)	87	7	0
Positivity (%)	3.1%	0.3%	0.0%
Females [a]			
Number tested (n)	1,905	1,490	743
Number of cases detected (n)	48	3	0
Positivity (%)	2.5%	0.2%	0.0%
Males [a]			
Number tested (n)	929	773	540
Number of cases detected (n)	39	4	0
Positivity (%)	4.2%	0.5%	0.0%

[a]Nine of 12 institutions submitted gender-specific testing results. Table 4 positivity assumes the gender distribution is the same for institutions that submitted gender data compared to institutions that did not. For those 9, the chlamydia prevalence was 2.5% (1.9% females, 4.0% males) and gonorrhea prevalence was 0.3% (0.2% females, 0.6% males).

Table 5.

Estimated Health and Economic Impact of Chlamydia and Gonorrhea Testing, 2011[a].

Health and Economic Impacts	Cases Prevented	Costs Saved
Benefits to persons treated for chlamydia and gonorrhea		
Pelvic inflammatory disease prevented	5.21	$11,998
Epididymitis prevented	0.83	$264
Benefits of interrupting chlamydia and gonorrhea transmission in the population		
Chlamydia prevented	43.50	$8,570
Gonorrhea prevented	3.50	$754
STI-attributable HIV cases averted	0.02	$4,300
Total cost savings		
Direct medical costs saved (total)		$25,885
Indirect costs (lost productivity) saved (total)		$24,042
Total costs saved (direct and indirect)		$49,927

[a]Assumes that all cases of gonorrhea and chlamydia detected through screening were treated.