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## Assessing the Need and Receptivity for an Integrated Healthy Sexual and Dating Relationships Intervention for Community College Students

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# Assessing the Need and Receptivity for an Integrated Healthy Sexual and Dating Relationships Intervention for Community College Students

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## **INTRODUCTION**

Although the American Academy of Pediatrics defines adolescence as a period lasting up to the age of 21 years,<sup>1</sup> increasing attention has focused on 18- to 25-year-olds, referred to as “emerging adults,” because they face developmental challenges and threats to health and well-being similar to those of adolescents.<sup>2</sup> In emerging adulthood, youth often become involved in more serious romantic relationships.<sup>3</sup> However, many youth lack the skills needed to avoid an unplanned pregnancy or sexually transmitted infection (STI) and to ensure a healthy dating relationship. In 2015, young women 18 to 19 years of age accounted for 73% of teen births in the United States (40.7 per 1000 vs 22.3 per 1000 among 15- to 19-year-olds), with still higher rates (76.8 per 1000) among young women 20 to 24 years of age.<sup>4</sup> In 2015, youth 20 to 24 years of age had the highest reported rates of chlamydia and gonorrhea compared with all other age groups.<sup>5</sup> Further, 47% of female and 39% of male adult victims of intimate partner violence first experienced dating violence between the ages of 18 and 24 years.<sup>6</sup> Effective interventions in emerging adulthood may help to prevent unplanned pregnancy and STIs and to promote long-term healthy dating relationships. The current study examined the need and receptivity for an integrated healthy sexual and dating relationships intervention for community college students, an understudied subgroup of youth in emerging adulthood.

### **Sexual Behavior Among Community College Students**

Community colleges serve nearly half of all undergraduate students in the United States – more than 12.3 million students. More than half (57%) are female, 37% are age 21 or younger, 46% are members of racial/ethnic minorities, and 36% are first-generation college students.<sup>7</sup> Compared with traditional 4-year colleges, community colleges enroll more students from lower socioeconomic backgrounds and serve students at higher risk for poor health outcomes.<sup>8</sup> Studies in California and Minnesota indicate higher rates of sexual risk behavior, including sex without a condom or an effective birth control method, emergency contraception, unplanned pregnancy, and STIs among community college students than among students attending 4-year colleges.<sup>9,10</sup> These health outcomes may negatively influence students’ higher education goals. Nationally, unplanned births account for 7% of dropouts among community college students overall and for 1 in 10 dropouts among female students.<sup>11</sup> Of community college students who give birth after enrolling in college, 61% fail to complete their education – a rate almost two times higher than that of students who do not give birth during college.<sup>11</sup> Community colleges

typically have fewer resources than 4-year colleges for sexual health promotion and student health services,<sup>12</sup> indicating the need for low-cost, minimal-resource strategies to promote sexual and reproductive health in this underserved population.

### **Dating Violence in Emerging Adulthood**

Dating violence, which comprises physical (eg, hitting, kicking, or punching), psychological or emotional (eg, threatening, shaming, or name calling), and sexual (eg, physically or nonphysically forcing a partner to have sex) violence, is also a significant public health problem among emerging adults.<sup>13</sup> Cyber or electronic dating abuse (eg, texting threatening messages or posting embarrassing photos online) is related to offline dating aggression.<sup>14</sup> Dating violence has been studied extensively among 4-year college students, with estimates ranging widely by the type of dating violence and the population studied. For example, estimates of physical dating violence in the past year range from 7% to 48%,<sup>15-18</sup> for psychological dating violence from 24% to 89%,<sup>15,16,19</sup> for sexual dating violence from 17% to 33%,<sup>17</sup> and for cyber dating abuse from 50% to 92%.<sup>14,20</sup> The experience of dating violence is associated with adverse physical, behavioral, and psychological health outcomes, including unwanted pregnancy and STIs,<sup>21-23</sup> physical injury,<sup>24</sup> substance use,<sup>20,25,26</sup> depression, suicidality, and posttraumatic stress disorder.<sup>24,26,27</sup> The experience of dating violence may also negatively influence academic performance.<sup>28,29</sup> These findings point to the pervasiveness of dating violence in college students' lives and its potential to have a negative effect on overall health and well-being.

Studies among 4-year college students indicate that the prevalence of dating violence may vary by gender, race/ethnicity, and sexual identity. For example, Cercone and colleagues<sup>15</sup> found similar physical and psychological perpetration and victimization rates for male and female undergraduate students at a large southeastern university; however, female students were more likely than male students to perpetrate severe physical assault. On the other hand, a study conducted at four universities in the United States and Mexico found no significant differences between male and female students in overall prevalence of physical aggression or in the prevalence of severe attacks.<sup>30</sup> Dating violence among college students may occur in the context of a mutually violent relationship, and women's use of violence may be influenced by their experiences as victims.<sup>31,32</sup> Regarding sexual dating violence, Harned<sup>33</sup> reported that female students experience more sexual victimization than males. Studies

of cyber dating abuse indicate mixed findings, with one study of urban undergraduates reporting that male students experience more electronic victimization<sup>20</sup> and another study of undergraduates reporting no significant differences by gender.<sup>14</sup>

Research is more limited regarding the prevalence of dating violence among college students by race/ethnicity and sexual identity. Studies conducted specifically among historically black colleges or universities (HBCUs) indicate a high prevalence of physical (18%-48%) and psychological (64%) dating violence victimization among female students.<sup>16,18</sup> Felix and colleagues<sup>19</sup> found that a higher percentage of lesbian, gay, bisexual, and transgender (LGBT) students than of heterosexual students attending a large rural southeastern university experienced psychological dating violence. This is consistent with national and other data suggesting LGBT adolescents are at increased risk for partner violence.<sup>34</sup> The perpetration of physical and sexual violence among LGBT students has been associated with internalized homonegativity and identity concealment.<sup>35</sup> Understanding the differences in the experience of dating violence among student subgroups may help to inform the development of more tailored prevention strategies that are relevant and engaging.

Multiple psychosocial factors have been identified as risk and protective factors for dating violence among youth. Coping strategies may moderate the effects of stressful experiences, including experience of dating violence.<sup>36,37</sup> A greater use of positive coping strategies, such as problem-focused or emotion-focused coping, has been associated with reduced odds of physical dating violence victimization; negative coping responses, such as avoidance or disengagement, have been associated with increased odds of physical victimization.<sup>37,38</sup> Constructive conflict management skills, including compromise and negotiation, have been inversely associated with physical and psychological dating violence.<sup>39,40</sup>

Acceptability of dating violence reflects an individual's justifications, attitudes, and tolerance for violence in a dating relationship.<sup>41</sup> Acceptability of dating violence has been shown to moderate the association between dating violence and relationship satisfaction among female college students, and the association between dating violence and mental health problems among males.<sup>41</sup> College students, in particular female students, who experience dating violence often report a lower level of relationship satisfaction.<sup>41,42</sup>

Compared with the extensive literature on dating violence among 4-year college students,<sup>3,14-20</sup> very little is known about the prevalence of dating violence perpetration and victimization and its associated psychosocial factors among community college students. A 2007 survey of 4487 California community college students 18 to 24 years of age indicated that two in five students (40%) reported relationship difficulties in the past year; the nature of the difficulties was not specified. However, 41% of those reporting difficulties indicated that these relationship difficulties had adversely affected their academic performance.<sup>43</sup> Further research is needed to understand patterns of dating violence perpetration and victimization among community college students, and to examine potential differences among student subgroups, given the diverse student population that community colleges serve. Further, identifying psychosocial risk and protective factors that are modifiable through intervention may help to decrease the prevalence and effect of dating violence perpetration and victimization among community college students.

### **Need for Integrated Healthy Sexual and Dating Relationship Interventions**

Promoting responsible sexual behavior and dating violence prevention are part of the American College Health Association's Healthy Campus 2020 student objectives.<sup>44</sup> Dating violence is strongly associated with sexual risk behaviors, suggesting the need to integrate prevention strategies to address both sexual health and dating violence prevention. Female victims of dating violence are at higher risk for teen pregnancy and STI because male perpetrators may be less likely to use condoms,<sup>45</sup> and victims of dating violence may be less likely to negotiate condom use.<sup>46</sup> However, few resources exist to help community colleges meet these dual objectives. Web-based prevention approaches have proved effective at traditional 4-year colleges, particularly for reducing alcohol consumption, and have become widely disseminated across US college campuses.<sup>47</sup> Similarly, a Web-based sexual violence bystander intervention for male college students has proved effective for reducing sexual violence perpetration and positively influencing psychosocial factors related to sexual violence among males.<sup>48</sup> Recently, the National Campaign to Prevent Teen and Unplanned Pregnancy partnered with the American Association of Community Colleges to develop a Web-based portal for community college students to access sexual health information ([www.studentsexlife.org](http://www.studentsexlife.org))<sup>49</sup> and a brief contraceptive educational

intervention. Post-intervention results from a single group trial demonstrated significant increases in knowledge of contraception.<sup>50</sup> Although promising for sexual risk reduction, these interventions do not dually address dating violence prevention. However, these findings collectively indicate the potential feasibility and scalability of an integrated Web-based intervention developed to address both sexual health and dating violence prevention effectively on low-resource community college campuses.

### **The Present Study**

We present findings from formative research to assess the need and receptivity for a Web-based, integrated healthy sexual and dating relationships intervention among community college students in South Central Texas. Texas ranks third highest among U.S. states in its overall teen birth rate; 69% of those births are among females 18 to 19 years of age.<sup>51</sup> Texas also ranks No. 1 among U.S. states in its repeat teen pregnancy rate,<sup>52</sup> reflecting the need for effective pregnancy and dating violence prevention among young adults. The goals of this study were the following: (1) examine patterns of sexual behaviors, dating violence, and related psychosocial factors among students attending community colleges in South Central Texas; (2) examine differences in patterns of specific types of dating violence perpetration and victimization by gender, race/ethnicity, and sexual identity; (3) examine associations between psychosocial factors and dating violence perpetration and victimization; and (4) assess the usability and short-term psychosocial outcomes of activities from a Web-based healthy sexual and dating relationships intervention. Collectively, these findings will inform the development of an integrated Web-based healthy sexual and dating relationship intervention that is acceptable and engaging, and potentially scalable for use in community college settings.

## **METHOD**

### **Participants**

In the spring of 2016, we invited five community colleges in South Central Texas to participate in a pilot study about healthy sexual and dating relationships. The study comprised an online survey of students' behavior related to sexual and dating relationships, in addition to usability testing of activities from an integrated, Web-based healthy sexual and dating relationships intervention. Three colleges agreed to participate, collectively serving more than 170,000 credit students. Previous community college studies indicate that a combination of in-person recruitment and online survey administration yields the highest participation rates with minimal

classroom interruption.<sup>8</sup> College administrators identified courses with a high level of enrollment of students 18 to 25 years old (eg, General Psychology). Faculty for these courses received information about the online survey to share with students. Additional recruitment was conducted through on-campus activities (eg, information table at a blood drive) and flyers posted on campus. One college provided email addresses for students 18 to 25 years old, which allowed recruitment via direct e-mail. Recruitment continued from August to December 2016, until an a priori defined sample of 300 students was achieved. This sample size was similar to that of a previous study conducted among 4-year college students, powered to detect gender differences in dating violence,<sup>42</sup> and previous sexual health studies conducted among community college students.<sup>53-55</sup> Students who completed the online survey were eligible to participate in the usability testing. The study was approved by the University of Texas Health Science Center at Houston (UTHealth) Institutional Review Board (IRB) and by the IRBs of the participating community colleges.

### **Procedures**

*Online survey.* Students accessed the online survey via their own personal computers or online devices outside class time. Upon accessing the URL Web link, students viewed an online consent form, which informed them about the voluntary nature of the study and their ability to stop taking the survey at any time without negative consequence. Students who agreed to participate were directed to the survey, which took about 20 minutes to complete. No names were associated with the survey. Upon completion, students were directed to a separate database to provide an e-mail address to receive a \$10 e-gift certificate. The survey was programmed in Qualtrics and hosted on a secure server at UTHealth.

*Usability testing.* In usability testing, a product is evaluated by testing it with representative users. The goal is to assess participants' satisfaction and ability to complete specified tasks, and to identify changes required to improve performance or satisfaction.<sup>56</sup> Approximately one-quarter of the students (n=85, 28%) who provided e-mail addresses after completing the online survey received an e-mail invitation to participate in the usability testing, which was conducted on campus at one participating college. There were 14 students who agreed to participate. Reasons for not participating included inconvenient location, time conflict, and lack of interest. A single-group, pretest/posttest study was conducted to assess usability and the short-term psychosocial outcomes of viewing 10

interactive, Web-based activities related to healthy sexual and dating relationships.

The Web-based activities were originally developed for middle and high school students as part of three theory-based interventions designed to reduce sexual risk and dating violence behaviors in these younger age groups.<sup>57-60</sup> Based in social cognitive and social influence models,<sup>61,62</sup> the activities included interactive quizzes, skills training, modeling, and peer video to address psychosocial factors, including self-efficacy and perceived importance for selecting an effective birth control method, negotiating condom and birth control use with a partner, using condoms and birth control correctly, accessing sexual and reproductive health care services, recognizing healthy and unhealthy dating relationships, and getting out of an unhealthy relationship (**Figure 1**).

Consenting students accessed activities on laptop computers equipped with headphones for privacy. Laptops were arranged so that screens were not visible to others. Students viewed 10 activities, providing standardized feedback on usability parameters. Students completed pre-test/post-test surveys to assess effect on psychosocial factors. Usability testing took approximately 90 minutes to complete; students received a \$50 gift card as compensation for their time.

### **Measures**

*Online survey.* The online survey comprised items to assess students' sexual behavior, experience of dating violence perpetration and victimization, psychosocial factors associated with healthy/unhealthy dating relationships, awareness of community resources, and preferred topics and delivery mode for a healthy relationships intervention. Demographic items assessed age, race/ethnicity, current gender identity,<sup>63</sup> sexual identity, relationship status, enrollment status, and typical academic grades.



**Figure 1.** Screen captures from selected Web-based activities. a. Interactive quiz on effective birth control methods. b. Skills training on condom negotiation. c. Skills training on correct condom use. d. Modeling how to access health care services. e. Peer video on healthy and unhealthy dating relationships. f. Skills-training on how to get out of an unhealthy relationship.

SEXUAL BEHAVIOR. Lifetime experience, number of partners in the past year, and frequency of condom use in the past 30 days (never, rarely, sometimes, most of the time, always) were assessed for vaginal intercourse and anal intercourse, respectively, with items adapted from the National College Health Assessment (NCHA).<sup>64</sup> Type(s) of birth control used at last vaginal intercourse, use of emergency contraception in the past year, and lifetime number of pregnancies were also assessed with NCHA items.

DATING VIOLENCE PERPETRATION AND VICTIMIZATION in the past year were assessed with the Conflict in Adolescent Dating Relationships Inventory.<sup>65</sup> Eight subscales were created: physical perpetration (four items, eg, “I pushed, shoved, or shook him/her”) and victimization (four items, eg, “He/she kicked, hit, or punched me”); threatening perpetration (four items, eg, “I threatened to hurt him/her”) and victimization (four items, eg, “He/she tried to frighten me on purpose”); psychological perpetration (13 items, eg, “I spread rumors about him/her”) and victimization (13 items, eg, “He/she insulted me with put-downs”), and sexual perpetration (four items, eg, “I forced him/her to have sex when he/she didn’t want to”) and victimization (four items, eg, “He/she kissed me when I didn’t want him/her to”). Cyber dating abuse perpetration (11 items, eg, “I sent threatening text messages to him/her”) and victimization (11 items, eg, “He/she pressured me to send a sexual or naked photo of myself”) in the past year were assessed with items from Peskin and colleagues.<sup>66</sup> Each subscale of dating violence was dichotomized so that any positive response meant any experience within the subscale.<sup>67</sup> To avoid over-representing students’ involvement in psychological abuse, given its frequency in youth relationships,<sup>67,68</sup> participants had to endorse four or more (of 13) items to be considered perpetrators/victims of psychological abuse.

PSYCHOSOCIAL FACTORS. Coping strategies were assessed with items from the Brief COPE scale.<sup>36</sup> The frequency of *positive* coping strategies (12 items, eg, “I think hard about what steps to take,”  $\alpha=.80$ ) and the frequency of *negative* coping strategies (10 items, eg, “I criticize myself,”  $\alpha=.77$ ) in the face of difficulties were assessed on a 5-point Likert scale ranging from “never” to “most of the time.” Corresponding items were summed to form composite scores, with higher scores reflecting more frequent use of positive and negative coping strategies.

Constructive conflict management skills were assessed with eight items from the Adolescent Interpersonal Competence Questionnaire.<sup>69</sup> Students

responded to the following prompt: “How good are you at ...?” Example items included “resolving disagreements in ways that make things better instead of worse” and “resolving disagreements in ways so neither person feels hurt or resentful.” Participants rated items on a 5-point Likert scale ranging from “poor at this” to “extremely good at this.” Item responses were averaged to form a composite score ( $\alpha=.85$ ), with a higher score reflecting a greater ability to use constructive conflict management skills.

Acceptability of dating violence was assessed with the five-item Acceptance of General Dating Violence subscale from The Acceptance of Couple Violence Questionnaire.<sup>70</sup> Example items included “Violence between dating partners can improve the relationship” and “Sometimes violence is the only way to express your feelings.” Participants rated items on a 4-point Likert response scale ranging from “strongly disagree” to “strongly agree.” Item responses were averaged to form a composite score ( $\alpha=.83$ ), with a higher score reflecting greater acceptance of dating abuse.

Relationship satisfaction was assessed with seven items from the Relationship Assessments Scale.<sup>71</sup> Five items were positively valenced (eg, “How well does your partner meet your needs?”); two items were negatively valenced (eg, “How many problems are there in your relationship?”). Participants rated items on a 5-point Likert scale ranging from “low” to “high.” Negatively valenced items were reverse coded. Item responses were averaged ( $\alpha=.89$ ), with a higher score reflecting greater relationship satisfaction.

**AWARENESS OF COMMUNITY RESOURCES.** One item asked students about their awareness of community services or resources for victims or perpetrators of dating or intimate partner violence.<sup>72</sup>

**PREFERRED TOPICS AND DELIVERY MODE.** Participants were asked to identify topics that would be helpful to include in a healthy relationships intervention for community college students. Nine topics (eg, love and relationships, money matters) were identified from a review of existing healthy marriage and relationship education programs,<sup>73</sup> along with an “other” option for write-in responses. Participants identified their preferred delivery mode(s) for a healthy relationships intervention for community college students by selecting from five responses: mobile phone application, text messages, optional online modules, mandatory online modules, and “other” (with a write-in response).

*Usability testing.* Usability parameters, including ease of use, credibility, understandability, acceptability, motivation, and perceived effect, were assessed with Likert scale ratings adapted from pre-existing usability assessment instruments.<sup>74,75</sup> Pre-use and post-use ratings were obtained on psychosocial outcomes, including the *importance* of sexual risk reduction skills (eg, explaining to a partner how to use condom, going to a clinic with your partner to discuss contraception) and healthy relationships skills (eg, effectively resolving a disagreement, getting out of an unhealthy dating relationship) and *self-efficacy* in performing these skills. Participants rated the importance of items on a 10-point Likert scale ranging from “not important” to “very important,” and self-efficacy items on a 4-point Likert scale ranging from “I definitely could not” to “I definitely could.” Open-ended questions asked participants for recommendations on how to make activities more relevant for people their age. Usability pre-test and post-test surveys were administered via paper-and-pencil questionnaires.

### **Analysis**

*Online survey.* The online survey was initiated in 300 students; 19 were dropped from analysis because they are age ineligible and 10 were dropped because of minimal survey completion, leaving an analytical sample of  $n = 271$ . All analyses were conducted with SAS analytic software, version 9.4. Frequencies, means, and standard deviations were used to describe the sample by demographic characteristics, sexual behaviors, and psychosocial factors. Each dating violence outcome measure was coded as either 0 or 1, in which 0 denoted the absence of the specific type of dating violence and 1 denoted the presence of that specific type of dating violence in the past year. Students who did not report having a boyfriend/girlfriend/partner in the past 12 months were coded as 0 (ie, not participating in dating violence behaviors). The prevalence of specific types of dating violence perpetration and victimization (physical, threatening, psychological, sexual, and cyber) and of *any* dating violence perpetration or victimization in the past year was calculated for the total sample, and by gender, race/ethnicity, and sexual identity with chi-square and Fisher exact tests. For race/ethnicity, when the initial  $P$  value was  $<.05$ , additional post hoc chi-square and/or Fisher exact tests were conducted to identify statistically significant differences between categories. Independent  $t$  tests were used to assess associations between psychosocial factors and experience of any dating violence perpetration or victimization in the past year.

*Usability testing.* Usability ratings and short-term effect on psychosocial outcomes were analyzed with descriptive statistics and the Wilcoxon signed rank test.

## RESULTS

### Online Survey

The participants in the analytical sample ( $n=271$ ) were 70% female, 38% Hispanic, 24% White, 17% Black, 16% Asian, and 4% other race/ethnicity. Mean age was 20.8 years (standard deviation [SD]=2.05). More than three-quarters (78%) of participants self-identified as heterosexual, 10% as gay or lesbian, 9% as bisexual, and 2% as another sexual identity. Just under half (47%) were single; 30% were in a dating relationship but not living together, and 21% were in a dating relationship and living with their partner. Most participants (71%) were full-time students, typically receiving A and B grades (63%) (**Table 1**).

*Sexual behavior.* Regarding sexual behavior, 163 (64%) participants had experienced vaginal intercourse, 37% of whom had had two or more vaginal intercourse partners in the past year. Of those who had had vaginal intercourse in the past 30 days, just over one in four (26%) reported using condoms “most of the time” or “always”. Among those who had ever had vaginal intercourse, birth control methods used at last vaginal intercourse included male condoms (35%); withdrawal (31%); birth control pills (25%); birth control shot, patch, or ring (12%); and an intrauterine device (IUD) or implant (10%). One in five (22%) had not used a birth control method at last vaginal intercourse. One in ten (10%) had used dual protection (a condom and effective birth control method) at last vaginal intercourse. One-quarter (25%) of participants had used emergency contraception in the past year, and 21% had been pregnant or made their partner pregnant. Approximately one-quarter (26%) of participants had experienced anal intercourse, 11% of whom had had two or more anal intercourse partners in the past year. Of those who had had anal intercourse in the past 30 days, 30% reported using condoms “most of the time” or “always” (**Table 1**).

*Psychosocial factors.* Overall, participants reported a low to moderate frequency of using positive (mean [ $M$ ]=22.6,  $SD=3.37$ ) and negative ( $M=14.9$ ,  $SD=3.28$ ) coping strategies when dealing with problems, and moderate to good use of constructive conflict management skills ( $M=3.4$ ,  $SD=0.76$ ). Most participants reported low acceptance of dating abuse

( $M=1.3$ ,  $SD=0.49$ ), and relatively high relationship satisfaction was reported by those who were currently dating ( $M=4.1$ ,  $SD=0.79$ ) (**Table 1**).

*Dating violence perpetration.* Overall, two-thirds of participants ( $n=167$ , 66%) reported perpetrating any type of dating violence in the past year. Almost one in four reported perpetrating physical (24%), threatening (23%), or cyber (23%) dating violence, specifically. Close to one-third (32%) reported perpetrating sexual dating violence, and just under two-thirds (60%) reported perpetrating psychological dating violence in the past year (**Table 2**).

Regarding gender, female participants were significantly more likely than males to report perpetrating any dating violence in the past year (71% vs 54%) and to report perpetrating physical (28% vs 14%), threatening (27% vs 15%), and psychological (66% vs 42%) dating violence perpetration, specifically. No statistically significant differences were reported by gender for sexual and cyber dating violence perpetration.

**Table 1. Characteristics of Community College Students Who Participated in the Online Survey, by Demographics, Sexual Behavior, and Psychosocial Factors (N=271)**

Variable	n <sup>a</sup>	Valid % or Mean (SD)
<b>Demographics</b>		
Current gender identity		
Female	1897	70.0
Male	1	26.3
Something else <sup>b</sup>	9	3.3
Age	271	20.8 (2.05)
Race/ethnicity		
Hispanic	102	37.6
Black	47	17.3
White, non-Hispanic	64	23.6
Asian	44	16.2
Something else <sup>c</sup>	12	4.4
Sexual identity		
Straight/heterosexual	211	78.2
Gay/lesbian	27	10.0
Bisexual	23	8.5
Something else <sup>d</sup>	4	1.5

Relationship status		
Single	127	47.2
In a relationship, not living together	80	29.7
In a relationship, living together	56	20.8
Enrollment status		
Full-time student	190	70.6
Part-time student	77	28.6
Typical grades		
Mostly A's and B's	168	62.5
Mostly B's and C's	93	34.6
<b>Sexual behavior</b>		
Ever had vaginal intercourse	163	63.9
2+ vaginal intercourse partners in past year <sup>e</sup>	60	36.8
Condom use for vaginal intercourse in past 30 days <sup>e</sup>		
Most of the time/always	40	25.5
Birth control method at last vaginal intercourse		
Birth control pills	39	25.0
Birth control shot, patch, or ring	19	12.2
Intrauterine device (IUD) or implant	16	10.3
Male condom	55	35.3
Withdrawal	48	30.8
Did not use a birth control method	34	21.8
Used both a condom <i>and</i> birth control pills, shot, patch, ring, IUD or implant	15	9.6
Used emergency contraception in past year <sup>e</sup>	39	24.8
Ever been pregnant or made partner pregnant <sup>e</sup>	34	20.5
Ever had anal intercourse	65	25.5
2+ anal intercourse partners in past year <sup>f</sup>	7	10.8
Condom use for anal intercourse in past 30 days <sup>f</sup>		
Most of the time/always	13	29.5
<b>Psychosocial factors<sup>g</sup> (possible range)</b>	<b>Mean (SD)</b>	<b>Reported range</b>
Positive coping strategies (12-60)	22.6 (3.37)	12.5-30.0
Negative coping strategies (10-50)	14.9 (3.28)	6.5-25.0
Conflict management skills (1-5)	3.4 (0.76)	1.1-5.0

Acceptability of dating violence (1-4)	1.3 (0.49)	1.0-3.0
Relationship satisfaction <sup>h</sup> (1-5)	4.1 (0.79)	1.3-5.0

SD, standard deviation.

<sup>a</sup> Numbers vary because of missing data.

<sup>b</sup> Includes students who self-identify as trans man, trans woman, gender queer, agender, or something else.

<sup>c</sup> Includes students who self-identify as American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or multiracial.

<sup>d</sup> Includes students who self-identify as queer, asexual, pansexual, or something else.

<sup>e</sup> Of those students who reported ever having had vaginal sex.

<sup>f</sup> Of those students who reported ever having had anal sex.

<sup>g</sup> Higher scores indicate greater endorsement of the variable (eg, more frequent use of positive coping skills).

<sup>h</sup> Of those students who reported having a current boyfriend/girlfriend/partner.

Regarding race/ethnicity, the only statistically significant difference noted for perpetration was in psychological dating violence. Post hoc analyses indicated that Hispanic participants were significantly more likely than those of “other” race/ethnicity (students who self-identified as Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or multiracial) (66% vs 46%) to report psychological perpetration. Black participants were also significantly more likely than white non-Hispanic (72% vs 53%) participants and those of “other” race/ethnicity (72% vs 46%) to report psychological perpetration. No statistically significant differences in dating violence perpetration in the past year were noted by sexual identity<sup>15</sup>

*Dating violence victimization.* Overall, two-thirds of participants (n=164, 66%) reported having been the victim of any type of dating violence in the past year. One in four, or just over, reported experiencing physical (25%), threatening (28%), sexual (30%), or cyber (28%) dating violence victimization, specifically. More than half (56%) reported experiencing psychological dating violence in the past year (**Table 2**).

Regarding gender, female participants were significantly more likely than males to report experiencing in the past year any dating violence victimization (70% vs 56%) and psychological victimization specifically (62% vs 39%). No statistically significant differences by gender were reported for physical, threatening, sexual, and cyber dating violence victimization in the past year.

Regarding race/ethnicity, the only statistically significant difference noted for victimization was in psychological dating violence. Post hoc analyses indicated that Hispanic participants were significantly more likely than white non-Hispanic (67% vs 48%) participants and those of “other” race/ethnicity (67% vs 39%) to report psychological victimization. Black participants were also significantly more likely than participants of “other” race/ethnicity (64% vs 39%) to report psychological victimization. No statistically significant differences in dating violence victimization in the past year were noted by sexual identity.

*Associations between psychosocial factors and dating violence.*

Participants who experienced any dating violence perpetration or victimization in the past year reported significantly lower relationship satisfaction compared with those who did not experience dating violence (both  $P < .05$ ). Conversely, participants who did not experience dating violence victimization or perpetration reported significantly higher constructive conflict management skills compared with those who experienced violence ( $P < .05$ ). No statistically significant associations were noted between positive and negative coping strategies, or acceptability of dating violence, with dating violence perpetration or victimization in the past year (**Table 3**).

*Awareness of community resources.* Among the participants, 41% reported being aware of community services or resources for victims and perpetrators of dating or intimate partner violence; 37% were not aware of such services, and 22% were not sure if they knew of such resources.

*Preferred topics and delivery mode.* Participants endorsed multiple topics for a healthy relationships intervention for community college students: love and relationships (90%), birth control (68%), managing conflict (66%), STI/HIV prevention (64%), surviving a breakup (60%), sexual assault (50%), money matters (47%), career opportunities (47%), sexual pleasure (45%), and LGBTQ issues (39%). Additional topics suggested by participants included coping with cheating, communication skills, recognizing emotional control in relationships, handling stress and anxiety, study habits, and mental and physical health. Preferred delivery modes for community college students were mobile phone application (55%), optional online modules (45%), mandatory online modules (44%), and text messages (43%). Additional delivery modes suggested by participants included in-person classes, e-mail, face time, group events, and a billboard poster campaign.

**Table 2. Prevalence of Dating Violence Perpetration and Victimization in the Past Year Among Community College Students for the Total Sample and by Gender, Race/Ethnicity, and Sexual Identity (N=271).**

	<b>Type of Dating Violence (DV) Perpetration Experienced in Past Year</b>					
	<b>Physical</b> n <sup>a</sup> (%)	<b>Threatening</b> n <sup>a</sup> (%)	<b>Psychological</b> n <sup>a</sup> (%)	<b>Sexual</b> n <sup>a</sup> (%)	<b>Cyber</b> n <sup>a</sup> (%)	<b>Any DV</b> n <sup>a</sup> (%)
<b>Total</b>	60 (23.9)	59 (23.3)	150 (59.8)	82 (32.4)	58 (22.9)	167 (66.3)
<b>Gender</b>						
Female	50 (28.1)*	49 (27.4)*	118 (66.3)**	60 (33.5)	46 (25.6)	127 (71.4)*
Male	9 (13.9)	10 (15.4)	27 (42.2)	21 (32.3)	11 (17.2)	35 (53.9)
<b>Race/ethnicity</b>						
Hispanic	28 (29.5)	22 (23.2)	63 (66.3)* §	33 (34.7)	24 (25.3)	68 (71.6)
Black	11 (26.2)	14 (32.6)	31 (72.1) ¶ //	17 (39.5)	11 (25.0)	32 (74.4)
White <sup>b</sup>	9 (15.0)	9 (14.8)	31 (52.5)	13 (21.7)	8 (13.3)	36 (61.0)
Other <sup>c</sup>	12 (22.2)	14 (25.9)	25 (46.3)	19 (34.6)	15 (27.8)	31 (56.4)
<b>Sexual identity</b>						
Heterosexual	44 (22.2)	43 (21.6)	120 (60.9)	64 (32.2)	40 (20.1)	134 (67.7)
Gay, lesbian, bisexual, or something else <sup>d</sup>	15 (30.6)	14 (28.0)	27 (54)	17 (34.0)	16 (32.0)	30 (60.0)

	<b>Type of Dating Violence (DV) Victimization Experienced in Past Year</b>					
	<b>Physical</b>	<b>Threatening</b>	<b>Psychological</b>	<b>Sexual</b>	<b>Cyber</b>	<b>Any DV</b>
	<b>n<sup>a</sup> (%)</b>	<b>n<sup>a</sup> (%)</b>	<b>n<sup>a</sup> (%)</b>	<b>n<sup>a</sup> (%)</b>	<b>n<sup>a</sup> (%)</b>	<b>n<sup>a</sup> (%)</b>
<b>Total</b>	61 (24.5)	70 (28.0)	138 (55.9)	74 (29.8)	67 (27.5)	164 (65.6)
<b>Gender</b>						
Female	40 (22.6)	51 (28.7)	109 (61.6)*	52 (29.6)	48 (27.8)	124 (69.7)*
Male	20 (31.8)	18 (28.6)	24 (39.3)	18 (28.6)	16 (25.9)	35 (55.6)
<b>Race/ethnicity</b>						
Hispanic	28 (30.1)	33 (35.1)	61 (67.0)** # §§	26 (28.3)	26 (28.3)	69 (73.4)
Black	9 (20.5)	14 (32.6)	28 (63.6)//	16 (36.4)	13 (31.7)	30 (68.2)
White <sup>b</sup>	13 (22.4)	13 (22.4)	28 (48.3)	13 (22.4)	14 (24.6)	34 (59.7)
Other <sup>c</sup>	11 (20.4)	10 (18.2)	21 (38.9)	19 (35.2)	14 (25.9)	31 (56.4)
<b>Sexual identity</b>						
Heterosexual	43 (21.9)	55 (27.8)	108 (55.7)	54 (27.7)	49 (25.4)	130 (66.0)
Gay, lesbian, bisexual, or something else <sup>d</sup>	17 (34.7)	15 (31.3)	28 (57.1)	19 (38.8)	16 (34.0)	32 (65.3)

<sup>a</sup> Numbers vary because of missing data; percentages are calculated as (positive responses)/(total responses).

<sup>b</sup> Non-Hispanic.

<sup>c</sup> Includes students who self-identify as Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or multiracial.

<sup>d</sup> Includes students who self-identify as queer, asexual, pansexual, or something else.

\* $P < .05$ ; \*\* $P < .01$ .

§ Significant difference between Hispanic and other race/ethnicity students ( $P < .05$ ).

¶ Significant difference between Black and White students ( $P < .05$ ).

// Significant difference between Black and other race/ethnicity students ( $P < .05$ ).

# Significant difference between Hispanic and White students ( $P < .05$ ).

§§ Significant difference between Hispanic and other race/ethnicity students ( $P < .001$ ).

**Table 3. Associations Between Psychosocial Factors and Experience of any Dating Violence Perpetration and Victimization in the Past Year Among Community College Students (N=271)**

Psychosocial Factor <sup>a</sup>	Experienced Any Dating Violence in Past Year				
	No		Yes		<i>t</i>
	<i>n</i> <sup>b</sup> (%)	<i>M</i> (SD)	<i>n</i> <sup>b</sup> (%)	<i>M</i> (SD)	
<b>Dating violence perpetration<sup>c</sup></b>					
Positive coping strategies	82 (34.5)	22.7 (3.54)	156 (65.5)	22.4 (3.27)	0.54
Negative coping strategies	83 (34.6)	15.2 (3.34)	157 (65.4)	14.7 (3.08)	1.20
Conflict management skills	83 (33.7)	3.5 (0.67)	163 (66.3)	3.3 (0.79)	1.89
Acceptability of dating violence	85 (34.4)	1.3 (0.45)	162 (65.6)	1.3 (0.50)	-0.89
Relationship satisfaction <sup>d</sup>	22 (16.8)	4.3 (0.56)	109 (83.2)	4.0 (0.82)	2.29*
<b>Dating violence victimization<sup>e</sup></b>					
Positive coping strategies	83 (35.2)	22.9 (3.81)	153 (64.8)	22.4 (3.12)	1.16
Negative coping strategies	83 (34.9)	15.3 (3.25)	155 (65.1)	14.7 (3.25)	1.52
Conflict management skills	83 (34.0)	3.5 (0.66)	161 (66.0)	3.3 (0.80)	2.46*
Acceptability of dating violence	85 (34.7)	1.3 (0.46)	160 (65.3)	1.3 (0.50)	-0.19
Relationship satisfaction <sup>d</sup>	27 (20.1)	4.4 (0.78)	102 (79.1)	4.0 (0.77)	2.35*

*M*, mean; *SD*, standard deviation.

<sup>a</sup> Higher scores indicate greater endorsement of the variable (e.g., more frequent use of positive coping skills).

<sup>b</sup> Numbers vary due to missing data.

<sup>c</sup> Includes any experience of physical, threatening, psychological, sexual, or cyber dating violence perpetration in the past year.

<sup>d</sup> Of those students who reported having a current boyfriend/girlfriend/partner.

<sup>e</sup> Includes any experience of physical, threatening, psychological, sexual, or cyber dating violence victimization in the past year.

\* $P < .05$ ; \*\* $P < .01$ .

### Usability Testing

Participants (N=14) were 86% female, 42% Hispanic, 50% Asian or Pacific Islander, 14% Black, and 7% White. Mean age was 20.7 years (SD=1.64; range, 19-24), and 71% were sexually experienced. Overall, usability parameters were well rated. The Web-based sexual risk reduction and healthy relationship activities were rated as likeable (77%-100%), easy to use (92%-100%), and acceptably paced (62%-93%). Most participants rated the lessons as credible (86%-100%) and helpful for making healthy choices (85%-100%). Many indicated they would recommend the activities to a friend (71%-100%) (**Table 4**). Open-ended responses suggested overall satisfaction with the activities (eg, “This activity is just great!”; “Overall, I think the content is spot-on”; “Very useful, especially for people who are unaware of how to put on a condom”), along with recommendations to enhance their appeal for community college students (eg, “Include situations that college students would relate to more”; “Speed up the audio”; “Make the answers less obvious”; “More graphics! [of types of birth control methods]”; “Include how to use a female condom also”; and “Add a list of Web sites where we can find clinics near us”).

**Table 4. Usability Ratings for Computer-Based Healthy Relationships Activities (N=14)**

Usability Parameters	Gradient	Range of Agreement Across Activities (%) <sup>a</sup>
Likeability	“A lot” or “a little”	77-100
Ease of use	“Very easy” or “kind of easy”	92-100
Acceptability	“Pace of activity just right”	62-93
Credibility	“Information correct”	86-100
	“Information trustworthy”	86-100
Motivational appeal	“Would tell a friend to try this activity”	71-100
Perceived effect	“Information will help me have healthier dating relationship”	85-100

<sup>a</sup> A range of agreement across activities is presented. For example, for “Likeability,” participants’ agreement that they liked a lesson (“a little” or “a lot”) ranged from 77% for the lowest rating to 100% for the highest rating among students who viewed the activity.

*Short-term outcomes.* Significant increases in self-efficacy to use a condom correctly (or explain to your partner how to use a condom

correctly) and in self-efficacy to visit a clinic with a partner to discuss effective birth control were observed at post-test ( $P < .01$ ). A significant increase in the importance of resolving disagreements so that neither person felt hurt or resentful was also observed at post-test ( $P < .05$ ). For two items (self-efficacy to tell your partner you want to start using condoms and importance of using condoms to help prevent STIs and pregnancy), a ceiling effect was noted, as mean scores at pre-test reflected the maximum possible score with no room for improvement at post-test. No statistically significant differences were observed at post-test for other self-efficacy and importance items (**Table 5**).

### **Discussion**

The goal of the current study was to assess the need and receptivity for an integrated healthy sexual and dating relationships intervention among community college students in South Central Texas. Quantitative data from the online survey align with findings from previous studies among community college students, indicating high rates of sexual risk behavior, including sex without a condom or an effective birth control method.<sup>9,10,53</sup> Current findings also corroborated limited use of long-acting reversible contraception such as IUDs and implants, frequent use of emergency contraception, and limited use of dual protection to prevent pregnancy and STIs.<sup>9,43</sup> Qualitative studies among community college students indicate that although most students do not feel emotionally or financially ready to be a parent, many are not using effective birth control methods or do not use them consistently.<sup>49,76</sup> Reasons for lack of use or inconsistent use include misperceptions about pregnancy and STI risk, misinformation about the effectiveness of birth control methods or concerns about side effects, and changes in relationship status – either breaking up or becoming involved in a more serious long-term relationship.<sup>49,76</sup> These findings indicate the need to increase education about preventing unplanned pregnancy and STIs among community college students that addresses myths and misconceptions and that enhances communication skills to make shared sexual health decisions. Although many students may receive sexual health education in middle or high school,<sup>77</sup> a booster session in emerging adulthood would provide up-to-date information on sexual risk reduction strategies that is more relevant to the students' current relationship status.<sup>43</sup>

**Table 5. Short-term Effect of Computer-Based Healthy Dating Relationship Activities on Psychosocial Outcomes (N = 14).**

<b>Psychosocial Outcomes</b>	<b>Pre-test Mean Score (SD)</b>	<b>Post-test Mean Score (SD)</b>	<b>P Value<sup>a</sup></b>
<b>Self-efficacy to ...<sup>b</sup></b>			
Resolve a disagreement in ways that make things better instead of worse	3.8 (0.43)	3.9 (0.36)	1.00
Resolve a disagreement so that neither person feels hurt or resentful	3.6 (0.51)	3.7 (0.47)	0.63
Get out on unhealthy dating relationship	3.6 (0.63)	3.7 (0.61)	1.00
Tell your partner you want to start using condoms	4.0 (0.00)	4.0 (0.00)	–
Use, or explain to your partner how to use, a condom correctly	3.2 (0.90)	3.9 (0.23)	<0.01**
Have a condom with you when you need it	2.8 (1.14)	3.5 (0.85)	0.09
Tell your partner you want to start using an effective birth control method	3.8 (0.38)	4.0 (0.00)	0.50
Go to a clinic with your partner to discuss effective birth control methods	3.2 (0.60)	3.9 (0.27)	<0.01**
<b>Importance of ...<sup>c</sup></b>			
Resolving a disagreement in ways that make things better instead of worse	9.8 (0.58)	9.9 (0.53)	1.00
Resolving a disagreement so that neither person feels hurt or resentful	8.9 (1.35)	9.7 (0.61)	0.03*
Using condoms to help prevent STIs and pregnancy	9.9 (0.27)	9.9 (0.27)	–
Using effective birth control methods to help prevent pregnancy	9.9 (0.23)	10.0 (0.00)	1.0

SD, standard deviation.

\*  $P < .05$ ; \*\*  $P < .01$ .

<sup>a</sup> Wilcoxon signed rank test.

<sup>b</sup> Range of possible scores, 1-4.

<sup>c</sup> Range of possible scores, 1-10.

Our study is one of the first to examine patterns of dating violence perpetration and victimization among community college students. Overall, two-thirds of the students who participated in the online survey reported perpetrating, or being the victim of, dating violence in the past year. Frequencies of physical, threatening, psychological, and sexual dating violence perpetration and victimization fell within ranges previously reported among 4-year college students.<sup>15-18,20</sup> Frequencies of cyber dating abuse were lower than those previously reported; 28% of participants in the current study reported being victims of cyber dating abuse, compared with 50% to 92% of participants in previous studies of 4-year college students.<sup>14,20</sup> This discrepancy may be due to measurement differences – we omitted an item about sending frequent text messages to check on a dating partner because of it's being considered normative among youth.<sup>66,78</sup> The previous studies included an item about electronic checking or monitoring, with a high rate of student endorsement, which may have increased overall reporting of cyber dating abuse.<sup>14,20</sup> Overall, the current findings reiterate the pervasiveness of dating violence in young people's lives and the need to provide effective intervention for community college students to help them achieve healthier dating relationships.

Patterns of dating violence by gender indicated that a greater percentage of female community college students reported perpetrating physical dating violence than of males, a finding previously reported among 4-year college students.<sup>15</sup> However, in the current sample, female students also reported perpetrating more threatening and psychological dating violence than males, as well as experiencing greater psychological victimization. Although these findings may be due in part to reporting bias (females may be more open to reporting dating violence perpetration and victimization than males),<sup>79,80</sup> they underscore the need for interventions to address psychosocial factors that reduce perpetration and victimization among both male and female students, and that address the dynamics of relationships characterized by mutual violence.<sup>31</sup> They also reiterate the need to include a variety of scenarios when depictions of dating violence are represented to avoid reinforcing traditional gender stereotypes of aggressive behavior.<sup>81</sup>

Regarding patterns of dating violence by race/ethnicity, for psychological dating violence perpetration and victimization only, the current findings indicate significant differences between Hispanic or Black students and White students or students of other race/ethnicity.. Patterns of physical, threatening, and sexual dating violence, and of cyber dating abuse, were

not significantly different across racial/ethnic groups. These findings stand in contrast to those from previous studies among adolescents and young adults<sup>82,83</sup> and may in part reflect the greater diversity of racial/ethnic minorities attending community colleges and the greater parity in low socioeconomic status among community college students, regardless of racial/ethnic background. Interventions that address dating violence prevention and healthy dating relationships need to reflect the racial/ethnic diversity that is present on community college campuses.

Few studies among community college students have specifically addressed issues related to LGBT youth. In fact, most sexual health studies among community college students have been specifically restricted to youth who either self-identified as heterosexual<sup>9</sup> or did not report data on sexual identity.<sup>10,53</sup> In contrast, the current study asked participants specifically about their current gender identity and sexual identity, contributing to the limited literature in this area.<sup>84</sup> Overall, 3% of the online survey sample self-identified as trans man, trans woman, gender queer, agender, or another identity; 20% self-identified as gay, lesbian, bisexual, queer, asexual, pansexual, or another identity. These findings highlight the diversity of students attending community colleges in South Central Texas. However, in contrast to previous studies among 4-year college students and adolescents, which consistently reported greater experience of dating violence among LBGTQ students than among heterosexual students,<sup>19,85,86</sup> we did not observe any statistically significant differences in dating violence perpetration or victimization by sexual identity. Although the study was sufficiently powered to detect significant differences by gender, it may have been underpowered to detect significant differences by sexual identity. Additionally, to maximize power, all sexual minority individuals were combined into a single category, obscuring potential differences in dating violence by gender, sexuality, and partner type.<sup>87</sup> Qualitative inquiry among LBGTQ community college students indicates a high rate of homonegativity and identity concealment,<sup>84</sup> both of which are associated with an increased risk for dating violence victimization,<sup>35</sup> and a high rate of heteronormativity in curricular programming.<sup>84</sup> These findings suggest that further research is needed among LBGTQ community college students to better understand their experience of dating violence perpetration and victimization, and to inform more culturally relevant sexual health and healthy dating relationship interventions for sexual gender minority students.

Overall, participants in the online survey reported relatively low to moderate use of positive and negative coping strategies, and moderate ability to use constructive conflict management skills. This indicates room for improvement in relationship skills to enhance healthy dating relationships, especially as students who reported greater conflict management skills also reported less experience of dating violence victimization. In alignment with previous studies among 4-year college students, community college students who had experienced dating violence perpetration or victimization in the past year also reported poorer relationship satisfaction.<sup>41,42</sup> Furthermore, 59% of participants were unsure or unaware of community resources for victims and perpetrators of dating or intimate partner violence. Collectively, these findings indicate a critical need to provide community college students with relationship skills training and resources to prevent and mitigate the potential negative outcomes of dating violence.

Usability study data indicated a high level of receptivity and acceptability for an integrated Web-based healthy sexual and dating relationships intervention. Overall, tested activities were highly rated in terms of usability parameters, and they positively influenced specific short-term psychosocial outcomes related to condom use, access to contraceptive health services, and constructive conflict resolution. Given that the activities were originally developed for a younger audience, participants provided salient recommendations to make content and delivery more relevant and engaging for students of community college age. Their input will inform adaptations to the intervention for this older age group. These findings are promising because Web-based interventions have multiple advantages over face-to-face interventions. They are easier and less expensive to implement and disseminate because they do not require trained facilitators, scheduling, or allocation of space and time.<sup>47</sup> Further, they afford the opportunity to tailor intervention messages to user characteristics and provide a multimedia experience, including videos, interactive feedback, and personalized messaging.<sup>88</sup> These attributes are particularly important when a diverse youth population such as community college students is targeted.

Overall, the study findings point to potential policy implications for community college administrators. Given the effect of unplanned pregnancy on academic outcomes, community colleges may consider incorporating sexual health education modules into student orientation, first-year experience success courses, or academic courses, and

providing resources (eg, [www.studentsexlife.org](http://www.studentsexlife.org)<sup>49</sup>) and links to community health care services on college Web sites.<sup>89</sup> Given the prevalence of different types of dating violence reported by students besides sexual violence, administrators may also consider expanding Title IX education initiatives to encompass the prevention of physical, threatening, and psychological dating violence and cyber abuse, and providing links to community services or resources for victims and perpetrators of dating or intimate partner violence on college Web sites. Such strategies would help to provide students with the education and resources they need to make healthier decisions in their sexual and dating relationships.

As with all studies, several limitations should be considered when these findings are interpreted. The small sample size for the online survey may have reduced power to detect statistically significant differences in dating violence by subgroups; however, the sample size was similar to that of previous published studies conducted among 4-year college and community college students.<sup>42,53-55</sup> Further, the use of nonprobabilistic sampling may limit the generalizability of the findings beyond the three participating community colleges, and the cross-sectional study design precludes conclusions about directionality or causality. Similarly, although the usability study was underpowered to examine statistical differences, the sample size was consistent with previous usability testing protocols that do not require statistical significance to determine major usability problems.<sup>90-92</sup> Reasons for students' nonparticipation in the usability study reiterate the need to provide interventions at a time and place that are convenient for community college students.

Despite these limitations, the current study makes an important contribution to the limited literature on sexual health and dating violence among community college students. Specifically, these findings expand our understanding of the patterns of dating violence perpetration and victimization among community college students and highlight the diversity and needs of LGBTQ students on community college campuses. Further, they highlight the potential of an integrated Web-based healthy sexual and dating relationship intervention to provide a scalable, low-cost prevention approach for resource-limited community colleges.<sup>47,12</sup>

## **CONCLUSION**

The current study underscores a high degree of need and receptivity for an integrated healthy sexual and dating relationship Web-based intervention among community college students. Web-based interventions

are inexpensive and highly scalable. Community college students account for nearly half of all undergraduate students in the United States, making them an underutilized setting in which to positively influence sexual health and dating relationships among youth in emerging adulthood.

## References

1. Cooley WC, Sagerman PJ; American Academy of Pediatrics; American Academy of Family Physicians; American College of Physicians; Transitions Clinical Report Authoring Group. Supporting the health care transition from adolescence to adulthood in the medical home. *Pediatrics*. 2011;128(1):182–200
2. Arnett JJ. Emerging adulthood: a theory of development from the late teens through the twenties. *Am Psychol*. 2000;55(5):469-480.
3. Kaukinen C. Dating violence among college students: the risk and protective factors. *Trauma Violence Abuse*. 2014;15(4):283-296.
4. Martin JS, Hamilton BE, Osterman MJK, Driscoll AK, Mathews TJ. Births: final data for 2015. *Natl Vital Stat Rep*. 2017;66(1):1-70.
5. Centers for Disease Control and Prevention. Reported STDs in the United States. 2015 National data for chlamydia, gonorrhea, and syphilis. <https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/std-trends-508.pdf>. Published October 2016. Accessed September 18, 2017.
6. Breiding MJ, Chen J, Black MC. Intimate partner violence in the United States – 2010. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. [https://www.cdc.gov/violenceprevention/pdf/cdc\\_nisvs\\_ipv\\_report\\_2013\\_v17\\_single\\_a.pdf](https://www.cdc.gov/violenceprevention/pdf/cdc_nisvs_ipv_report_2013_v17_single_a.pdf). Published 2014. Accessed September 18, 2017.
7. American Association of Community Colleges. 2016 Fact sheet: a national look at community colleges and the students they serve. <http://www.aacc.nche.edu/AboutCC/Documents/AACCFactSheetsR2.pdf>. Published February 2016. Accessed September 18, 2017.
8. Pokhrel P, Little MA, Herzog TA. Current methods in health behavior research among US community college students: a review of the literature. *Eval Health Prof*. 2014;37(2):178-202.
9. Trieu SL, Bratton S, Marshak HH. Sexual and reproductive health behaviors of California community college students. *J Am Coll Health*. 2011;59(8):744-750.
10. Eisenberg ME, Lust KA, Garcia M. Differences in sexual behaviors among unmarried sexually active students at 2- and 4-year colleges. *Res Nurs Health*. 2014;37:128-134.
11. The National Campaign to Prevent Teen and Unplanned Pregnancy. Briefly: unplanned pregnancy among college students and strategies to address it. <https://thenationalcampaign.org/resource/briefly-unplanned-pregnancy-among-college-students>. Published July 2015. Accessed September 18, 2017.

12. Eisenberg ME, Lechner KE, Frerich EA, Lust KA, Garcia CM. Characterizing sexual health resources on college campuses. *J Community Health*. 2012;37:940-948.
13. National Center for Injury and Prevention, Division of Violence Prevention, Centers for Disease Control and Prevention. Understanding teen dating violence. Fact sheet 2016. <https://www.cdc.gov/violenceprevention/pdf/teen-dating-violence-factsheet-a.pdf>. Accessed September 18, 2017.
14. Borrajo E, Gámez-Guadix M, Calvete E. Cyber dating abuse: prevalence, context, and relationship with offline dating aggression. *Psychol Rep*. 2015;116(2):565-585.
15. Cercone JJ, Beach SRH, Arias I. Gender symmetry in dating intimate partner violence: does similar behavior imply similar constructs? *Violence Vict*. 2005;20(2):207-218.
16. Barrick K, Krebs CP, Lindquist CH. Intimate partner violence victimization among undergraduate women at historically black colleges and universities (HBCUs). *Violence Against Women*. 2013;19(8):1014-1033.
17. Smith LA, White JW, Holland LJ. A longitudinal perspective on dating violence among adolescent and college-age women. *Am J Public Health*. 2003;93:1104-1109.
18. Amar AF, Gennaro S. Dating violence in college women: associated physical injury, healthcare usage, and mental health symptoms. *Nurs Res*. 2005;54(4):235-242.
19. Felix S, Policastro C, Agnich L, Gould LA. Psychological victimization among college students. *Violence Gend*. 2016;3(1):42-48.
20. Bennett DC, Guran EL, Ramos MC, Margolin G. College students' electronic victimization in friendships and dating relationships: anticipated distress and associations with risky behaviors. *Violence Vict*. 2011;26(4):410-429.
21. Coker AL. Does physical intimate partner violence affect sexual health?: a systematic review. *Trauma Violence Abuse*. 2007;8:149-177.
22. Miller E, Jordan B, Levenson R, Silverman JG. Reproductive coercion: connecting the dots between partner violence and unintended pregnancy. *Contraception*. 2010;81(6):457-459.
23. Buelna C, Ulloa EC, Ulibarri MD. Sexual relationship power as a mediator between dating violence and sexually transmitted infections among college women. *J Interpers Violence*. 2009;24(8):1338-1357.

24. Amanor-Boadu Y, Stith SM, Miller MS, Cook J, Allen L, Gorzek M. Impact of dating violence on male and female college students. *Partner Abuse*. 2011;2(3):323-343.
25. Temple JR, Freeman DH, Jr. Dating violence and substance use among ethnically diverse adolescents. *J Interpers Violence*. 2011;26(4):701-718.
26. Haynie DL, Farhat T, Brooks-Russell A, Wang J, Barbieri B, Iannotti RJ. Dating violence perpetration and victimization among U.S. adolescents: prevalence, patterns, and associations with health complaints and substance use. *J Adolesc Health*. 2013;53:194-201.
27. Wolitzky-Taylor KB, Ruggiero KJ, Danielson CK, et al. Prevalence and correlates of dating violence in a national sample of adolescents. *J Am Acad Child Adolesc Psychiatry*. 2008;47(7):755-762.
28. Jordan CE, Combs JL, Smith GT. An exploration of sexual victimization and academic performance among college women. *Trauma Violence Abuse*. 2014;15(3):191-200.
29. Banyard VL, Cross C. Consequences of teen dating violence: understanding intervening variables in ecological context. *Violence Against Women*. 2008;14(9):998-1013.
30. Straus MA, Ramirez IL. Gender symmetry in prevalence, severity, and chronicity of physical aggression against dating partners by university students in Mexico and USA. *Aggress Behav*. 2007; 33: 281-290.
31. Kaukinen, C. Gover AR, Hartman JL. College women's experiences of dating violence in casual and exclusive relationships. *Am J Crim Justice*. 2012;37:146-162.
32. Herrera VM, Wiersma JD, Harrington Cleveland H. The influence of individual and partner characteristics on the perpetration of intimate partner violence in young adult relationships. *J Youth Adolesc*. 2008;37:284-296.
33. Harned M. Abused women or abused men? An examination of the context and outcomes of dating violence. *Violence Vict*. 2001;16(3):269-285.
34. Edwards KM, Sylaska KM, Neal AM. Intimate partner violence among sexual minority populations: a critical review of the literature and agenda for future research. *Psychol Violence*. 2015;5(2):112-121.
35. Edwards KM, Sylaska KM. The perpetration of intimate partner violence among LGBTQ college youth: the role of minority stress. *J Youth Adolesc*. 2013;42:1721-1731.
36. Carver CS. You want to measure coping but your protocol's too long: consider the Brief COPE. *Int J Behav Med*. 1997;4(1):92-100.

37. Coffey P, Leitenberg H, Henning K, Bennet RT, Jankowski MK. Dating violence: the association between methods of coping and women's psychological adjustment. *Violence Vict.* 1996;11(3):227-238.
38. Bonar EE, Bohnert ASB, Ilgen MA, Sanborn ML, Chermack ST. Physical assault victimization and coping among adults in residential substance use disorder treatment. *Violence Vict.* 2013;28(5):849-864.
39. Feldman S, Gowan L. Conflict negotiation tactics in romantic relationships in high school students. *J Youth Adolesc.* 1998;27:691-706.
40. Antonio T, Hokada A. Gender variations in dating violence and positive conflict resolution among Mexican adolescents. *Violence Vict.* 2009;24(4):533-545.
41. Kaura S, Lohman BJ. Dating violence victimization, relationship satisfaction, mental health problems, and acceptability of violence: a comparison of men and women. *J Fam Violence.* 2007;22:367-381.
42. Katz J, Kuffel SW, Coblenz A. Are there gender differences in sustaining dating violence? An examination of frequency, severity, and relationship satisfaction. *J Fam Violence.* 2002;17(3):247-271.
43. The National Campaign to Prevent Teen and Unplanned Pregnancy. Science says #46: the sexual behavior of California community college students.. <https://thenationalcampaign.org/resource/science-says-46>. Published December 2010. Accessed September 18, 2017.
44. American College Health Association. Healthy campus 2020. Student objectives. [https://www.acha.org/HealthyCampus/Objectives/Student\\_Objectives/HealthyCampus/Student\\_Objectives.aspx?hkey=a9f191de-243b-41c6-b913-c012961ecab9](https://www.acha.org/HealthyCampus/Objectives/Student_Objectives/HealthyCampus/Student_Objectives.aspx?hkey=a9f191de-243b-41c6-b913-c012961ecab9). Published 2016. Accessed September 18, 2017.
45. Raj A, Reed E, Miller E, Decker MR, Rothman EF, Silverman JG. Contexts of condom use and non-condom use among young adolescent male perpetrators of dating violence. *AIDS Care.* 2007;19(8):970-973.
46. Wingood G, DiClemente RJ, McCree DH, Harrington K, Davies SL. Dating violence and the sexual health of black adolescent females. *Pediatrics.* 2001;107(5):e72.
47. Walters ST, Neighbors C. College prevention: a view of present (and future) web-based approaches. *Alcohol Res Health.* 2011;34(2):222-224.
48. Salazar LF, Vivolo-Kantor A, Harding J, Berkowitz A. A web-based sexual violence bystander intervention for male college students: randomized controlled trial. *J Med Internet Res.* 2014;16(9):e203.

49. The National Campaign to Prevent Teen and Unplanned Pregnancy. Briefly: relationships and contraceptive use among college students. <https://thenationalcampaign.org/resource/briefly%C2%A0relationships-and-contraceptive-use-among-community-college-students>. Published February 2011. Accessed September 18, 2017.
50. Harper C, Schroeder R, Blum M, Swaider L, McCulloch C. An educational intervention on contraception among community college students. *Contraception*. 2016;94(4):427.
51. The National Campaign to Prevent Teen and Unplanned Pregnancy. Texas data. <https://thenationalcampaign.org/data/state/texas>. Accessed September 18, 2017.
52. Gavin L, O'Neil ME, Marshall C, Hastings PA, Harrison AT, Barfield W. Vital signs: repeat births among teens – United States, 2007–2010. *MMWR Morb Mortal Wkly Rep*. 2013;62(13):249-255.
53. Bird Y, Solis LH, Mbonu CA. Sexual attitudes, norms, condom use, and adherence of Hispanic and non-Hispanic undergraduate students: a cross-sectional study of three community colleges in southwestern US. *Patient Prefer Adherence*. 2016;10:1501-1508.
54. Marchand E, Glenn BA, Bastani R. HPV vaccination and sexual behavior in a community college sample. *J Community Health*. 2013;38:1010-1014.
55. Smith LA. Partner influence on noncondom use: gender and ethnic differences. *J Sex Res*. 2003;40:346-350.
56. Usability.gov. Usability testing. <https://www.usability.gov/how-to-and-tools/methods/usability-testing.html>. Accessed September 18, 2017.
57. Tortolero S, Markham CM, Peskin MF, et al. It's Your Game: Keep It Real: delaying sexual behavior with an effective middle school program. *J Adolesc Health*. 2010;46(2):169-179.
58. Peskin MF, Markham CM, Shegog R, Baumler ER, Addy RC, Tortolero SR. Effects of the It's Your Game ... Keep It Real program on dating violence in ethnic-minority middle school youths: a group randomized trial. *Am J Public Health*. 2014;104(8):1471-1477.
59. Peskin MF, Temple J, Hernandez BF, et al. Short-term outcomes from Me and You: a healthy relationships curriculum for middle school students. Charlotte, NC: Society for Public Health Education; 2016.
60. Markham C, Peskin M, Shegog R, et al. Your Game, Your Life: using intervention mapping to adapt an effective middle school sexual health education curriculum to ethnic-minority high school students. Under review – JARC special issue.
61. Bandura A. *Social Foundations of Thought and Action: a Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall; 1986.

62. McGuire W. Social psychology. In: Dodwell PC, ed. *New Horizons in Psychology*. Middlesex, England: Penguin Books; 1972:219-242.
63. The GenIUSS Group, The Williams Institute. Gender-related measures overview. <https://williamsinstitute.law.ucla.edu/wp-content/uploads/GenIUSS-Gender-related-Question-Overview.pdf>. Published February 2013. Accessed September 18, 2017.
64. American College Health Association National College Health Assessment II. Undergraduate students. Reference group data report spring 2014. [http://www.acha-ncha.org/docs/NCHA-II\\_WEB-PAPER\\_SPRING2014\\_UNDERGRAD\\_REFERENCEGROUP\\_DATAREPORT.pdf](http://www.acha-ncha.org/docs/NCHA-II_WEB-PAPER_SPRING2014_UNDERGRAD_REFERENCEGROUP_DATAREPORT.pdf). Published 2014. Accessed September 18, 2017.
65. Wolfe DA, Scott K, Reitsel-Jaffe D, Wekerle C, Grasley C, Straatman A-L. Development and validation of the conflict in adolescent dating relationships inventory. *Psychol Assess*. 2001;13(2):277-293.
66. Peskin MF, Markham CM, Shegog R, et al. Prevalence and correlates of the perpetration of cyber dating abuse among early adolescents. *J Youth Adolesc*. 2017;46(2):358-375.
67. Choi HJ, Weston R, Temple JR. A three-step latent class analysis to identify how different patterns of teen dating violence and psychosocial factors influence mental health. *J Youth Adolesc*. 2017;46(4):854-866.
68. Follingstad DR. Rethinking current approaches to psychological abuse: conceptual and methodological issues. *Aggress Violent Behav*. 2007;12:439-458.
69. Chow CM, Ruhl H, Burhmester D. The mediating role of interpersonal competence between adolescents' empathy and friendship quality: a dyadic approach *J Adolesc*. 2013;36(1):191-200.
70. Dahlberg LL, Toal SB, Swahn M, Berens CB. Measuring violence-related attitudes, behaviors, and influences among youths: a compendium of assessment tools. 2nd ed. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. [https://www.cdc.gov/violenceprevention/pdf/yv\\_compendium.pdf](https://www.cdc.gov/violenceprevention/pdf/yv_compendium.pdf). Published 2005. Accessed September 18, 2017.
71. Zimmer-Gembeck MJ, Arnhold V, Connolly J. Intercorrelations of intimacy and identity dating goals with relationship behaviors and satisfaction among young heterosexual couples. *Soc Sci*. 2014;3:44-59.
72. Foshee VA, Bauman KE, Arriaga XB, Helms RW, Koch GG, Fletcher Linder G. An evaluation of Safe Dates, an adolescent dating violence prevention program. *Am J Public Health*. 1998;88(1):45-50.
73. Scott ME, Karberg E, Child Trends. A snapshot of healthy marriage and relationship education programs for youth. OPRE Report #2015-

96. Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.  
[https://www.dibbleinstitute.org/NEWDOCS/reports/years\\_fact\\_sheet\\_v51\\_clean\\_b508.pdf](https://www.dibbleinstitute.org/NEWDOCS/reports/years_fact_sheet_v51_clean_b508.pdf). Published October 2015. Accessed September 18, 2017.
74. Shegog R, Markham CM, Peskin M, Dancel M, Coton C, Tortolero S. "It's your game": an innovative multimedia virtual world to prevent HIV/STI and pregnancy in middle school youth. *Stud Health Technol Inform.* 2007;129(Pt 2):983-987.
75. Markham CM, Craig Rushing S, Jessen C, et al. Internet-based delivery of evidence-based health promotion programs among American Indian and Alaska Native youth: a case study. *JMIR Res Protoc.* 2016;5(4):e225.
76. Reed J, England P, Littlejohn K, Conroy Bass B, Caudillo ML. Consistent and inconsistent contraception among young women: insights from qualitative interviews. *Fam Relations.* 2014;63:244-258.
77. Lindberg LD, Maddow-Zimet I, Boonstra H. Changes in adolescents' receipt of sex education, 2006-2013. *J Adolesc Health.* 2016;58(6):621-627.
78. Temple JR, Choi HJ, Brem M, Wolford-Clevenger C, Stuart GL, Peskin MF. The temporal association between traditional and cyber dating abuse among adolescents. *J Youth Adolesc.* 2016;45:340-349.
79. Hamby S, Turner H. Measuring teen dating violence in males and females: insights from the National Survey of Children's Exposure to Violence. *Psychol Violence.* 2013;3(4):323-339.
80. Zweig JM, Dank M, Yahner J, Lachman P. The rate of cyber dating abuse among teens and how it relates to other forms of teen dating violence. *J Youth Adolesc.* 2013;42:1063-1077.
81. Foshee, VA, Bauman, KE. Gender stereotyping and adolescent sexual behavior: a test of temporal order. *J Appl Soc Psychol.* 1992;22(20):1561-1579.
82. Foshee VA, Karriker-Jaffe KJ, Reyes HLM, et al. What accounts for demographic differences in trajectories of adolescent dating violence? An examination of intrapersonal and contextual mediators. *J Adolesc Health.* 2008;42:596-604.
83. Halpern CT, Spriggs AL, Martin SL, Kupper LL. Patterns of intimate partner violence victimization from adolescence to young adulthood in a nationally representative sample. *J Adolesc Health.* 2009;45(5):508-516.

84. Zamani-Gallaher EM, Choudhuri DD. Tracing LGBTQ community college students' experiences. *New Dir Community Coll.* 2016;174:47-63.
85. Kann L, Olsen EO, McManus T, et al. Sexual identity, sex of sexual contacts, and health-related behaviors among students in grades 9-12 – United States and selected sites, 2015. *Morb Mortal Wkly Rep Surveill Summ.* 2016;65(9):1-202.
86. Luo F, Stone DM, Tharp AT. Physical dating violence victimization among sexual minority youth. *Am J Public Health.* 2014;104(10):e66-e73.
87. Martin-Storey A. Prevalence of dating violence among sexual minority youth: Variation across gender, sexual minority identity and gender of sexual partners. *J Youth Adolesc.* 2015;44(1):211-224.
88. Lustria MLA, Cortese J, Noar SM, Glueckauf RL. Computer-tailored health interventions delivered over the web: review and analysis of key components. *Patient Educ Counsel.* 2009;74:156-173.
89. The National Campaign to Prevent Teen and Unplanned Pregnancy. Briefly ... Unplanned pregnancy among college students and strategies to address it. [http://thenationalcampaign.org/sites/default/files/resource-primary-download/briefly-\\_unplanned\\_pregnancy\\_college.pdf](http://thenationalcampaign.org/sites/default/files/resource-primary-download/briefly-_unplanned_pregnancy_college.pdf). Published July 2015. Accessed September 18, 2017.
90. Nielsen J. *Usability Engineering*. San Francisco, CA: Morgan Kaufmann; 1993.
91. Faulkner L. Beyond the five-user assumption: benefits of increased sample sizes in usability testing. *Behav Res Methods Instrum Comput.* 2003;35:379-383.
92. Shegog R, Markham CM, Leonard A, Bui T, Paul, M. "+CLICK": pilot of a web-based training program to enhance ART adherence among HIV-positive youth. *AIDS Care.* 2011;24:310-318.