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College Students' Experiences of Dating App Facilitated Sexual Violence and Associations with Mental Health Symptoms and Well-Being

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ABSTRACT

Dating app facilitated sexual violence (DAFSV) includes behaviors such as unwanted sexual comments/ harassment, unsolicited sexual photos, and gender/sexuality-based harassment – and could extend to sexual violence when meeting partners face-to-face. The effects of sexual violence on mental health are well-established; however, research on DAFSV has been limited. The goal of the current study was to understand college students' experiences of DAFSV and investigate cross-sectional associations with indicators of mental health (i.e. depression and anxiety symptoms) and well-being (i.e. self-esteem, loneliness, perceived control). Participants were college students in the United States who used dating apps ($N = 277$) and identified primarily as women (64.6%) and heterosexual/straight (74.0%). Most participants (88.4%) self-reported at least one instance of DAFSV. Women (vs. men) and sexual minority (vs. heterosexual/straight) individuals experienced more frequent DAFSV. Regression analyses indicated that DAFSV frequency was associated with higher depression and anxiety symptoms, higher loneliness, lower self-esteem, and lower perceived control. This study highlights the importance of DAFSV for a broad range of well-being indicators. Given that dating apps are one of the most common means of meeting partners, research is needed to better understand these initial interactions, prevent DAFSV from occurring, and mitigate the impact of DAFSV on health outcomes.

Introduction

Dating apps are a common way of meeting sex and dating partners (Anderson et al., 2020; Rosenfeld et al., 2019). Nationally representative surveys of adults in the United States indicate that meeting online is now the most common way in which relationships form, with 39% of heterosexual and 65% of same-sex couples reporting meeting their partner online (Rosenfeld et al., 2019). Additional research in the United States shows that lifetime use of an online dating platform is as high as 52% for never married adults, and rates are even higher among younger adults and individuals who have attended college (Anderson et al., 2020). Studies conducted in both the United States and Australia have also found that dating app use substantially increased during the COVID-19 pandemic (Coombe et al., 2021; Stunson, 2020) further prompting a need to understand individuals' dating app experiences. This is particularly important to investigate among college students, because more than half of college students use dating apps and this population is disproportionally impacted by sexual violence (Beauchamp et al., 2017; Choi et al., 2016; Scannell, 2019).

Dating apps provide important benefits for interpersonal connection such as the opportunity to vet partners before meeting, explore sexual identity, meet a larger number of geographically close partners, and control how and when individuals connect with partners (Albury & Byron, 2016; Anzani et al., 2018). These benefits have expanded during the COVID-

19 pandemic, as dating apps introduced new virtual-dating options to adhere to physical distancing guidelines (Duguay et al., 2022). However, beyond these advantages, dating apps also introduce another way in which individuals may experience sexual violence. Dating app facilitated sexual violence (DAFSV) includes behaviors such as unwanted sexual comments and harassment, unsolicited sexual photos, and gender and sexuality-based harassment, and could extend to sexual coercion or aggression when first meeting partners face-to-face after connecting through dating apps. In addition, with anonymity of users, lack of user background checks, and easily accessible online profiles, dating apps can pose risks to users' safety more broadly (Choi et al., 2018). Concerns about safety are not unwarranted, given the difficulty in keeping perpetrators of sexual violence off these apps. Although dating app companies ensure that they ban and remove individuals who harass others, perpetrators can still sign up multiple times on the same app, using different photos and/or names (Flynn et al., 2019). At the same time, using dating apps can protect individuals in other ways such as allowing for a more thorough screening of potential partners before a face-to-face interaction, and providing control when ending online interactions without an immediate risk to physical safety (Anderson et al., 2020; Beauchamp et al., 2017). Studies conducted in the United States and Australia have found that some dating app users indicate that they use specific protective strategies to enhance safety, such as limiting the disclosure of personal information

or blocking other users (Couch & Liamputtong, 2007; Gibbs et al., 2011). However, research on the perception and mitigation of these strategies across gender and sexual identity groups is limited; one recent study found that although sexual minority males perceive various risks on dating apps, they did not have clear strategies to address the risks (Jozsa et al., 2021). To enhance safety and ultimately reduce negative experiences associated with dating apps, it is important to: 1) understand individuals' experiences of DAFSV, 2) assess variations by gender identity and sexual orientation, and 3) investigate associations with indicators of mental health and well-being. Further, dating app use should not be discouraged, but rather, we should ensure the safety of dating app users by first better understanding DAFSV and risk perceptions, with the goal of understanding and mitigating the negative consequences to users' well-being.

Dating App Facilitated Sexual Violence

DAFSV is a type of sexual violence that falls under the broader umbrella of technology facilitated sexual violence (TFSV), which includes the use of all forms of communication technology, such as e-mail, social media, chat rooms, and online gaming environments – in addition to dating apps – to enact virtual and face-to-face sexually based harms (Henry & Powell, 2018; Henry, Powell, & Flynn, 2020; Patel & Roesch, 2022). Thus, DAFSV is a specific form of TFSV. Although other terms are used in the literature to describe these behaviors (e.g., digital coercive control, technology facilitated coercive control), TFSV is the most widely used and accepted term by leaders of this area of research (for an in-depth discussion of terminology challenges, see Henry, Flynn, & Powell, 2020). Other commonly used terms, such as image-based sexual abuse (DeKeseredy & Schwartz, 2016; Henry & Flynn, 2019) refer to a specific facet of TFSV that involves sharing unwanted sexual images, but it does not include other forms of abusive behaviors that occur via technology, such as gender and sexuality-based harassment or making sexual threats. It is important to note that TFSV includes both behaviors that occur online only (e.g., sending sexual videos) as well as behaviors that occur face-to-face that are facilitated by technology (e.g., using GPS features to stalk and sexually assault someone in-person; Albury & Byron, 2016). In the current study, we focused on TFSV using one communication technology: dating apps. We use the term dating app facilitated sexual violence (i.e., DAFSV) to parallel the language of technology facilitated sexual violence (i.e., TFSV). Investigations of DAFSV are limited; however, other researchers have used comparable terminology including "sexual violence facilitated by dating apps" (Dietzel, 2021) and "dating app facilitated sexual assault" (Rowse et al., 2020).

Although other communication technologies used to perpetrate TFSV are important to understand, a narrowed focus on DAFSV is essential for a few reasons. First, many investigations of TFSV exclude interactions between individuals for whom an intimate relationship may never form or has not yet formed. Much of this research focuses on individuals in established sexual or romantic relationships, and includes behaviors such as nonconsensual sharing of sexual images/

videos or "revenge porn," pressuring partners for sex, and demanding partners send nude or sexual photos of themselves (for a review, see Fernet et al., 2019). TFSV in relationships also encompasses non-sexual abusive behaviors such as online monitoring, stalking, and insults or humiliation – often referred to as intimate partner cyber abuse or cyber dating abuse (Borrajo et al., 2015; Fernet et al., 2019; Klettke et al., 2019). Assessments of experiences with current or previous romantic, dating, or sexual partners do not necessarily capture experiences that occur on dating apps, despite the fact that problematic interactions that occur on these dating platforms may negatively impact mental health and well-being (Cama, 2021). From a practical standpoint, this also means that some dating app behaviors are not captured by many violence screeners in healthcare settings because they do not consider non-partners, and this presents a potential challenge in treatment access (Beauchamp et al., 2017; Stevens & Sheaffer, 2007; Sutherland et al., 2016). This focus on dating apps is also important because many individuals normalize DAFSV experiences, don't recognize these incidents as abuse, and are unlikely to seek support (Dietzel, 2021; Gaspar et al., 2021). It should be noted though that individuals on dating apps sometimes do initiate sexual and romantic relationships: because dating apps are the first point of contact between partners, they represent an important platform for potential violence prevention and intervention (Beauchamp et al., 2017).

These early interactions on dating apps may be overlooked because some experiences of DAFSV may not meet legal definitions for violence or lead to in-person meetings. However, because online platforms many times do facilitate an offline interaction, they may also facilitate face-to-face sexual behaviors that are unwanted. Indeed, several studies indicate that in-person sexual violence frequently occurs during initial face-to-face interactions with partners met through dating apps (Cama, 2021; National Crime Agency, 2016; Noorishad & Trottier, 2022; Powell & Henry, 2017; Rowse et al., 2020). One study found that 10.5% of participants experienced sexual aggression in-person with someone they met online or through a dating app (Powell & Henry, 2019). Previous research suggests that dating app users (vs. dating app non-users) may be more likely to experience sexual violence for various reasons, including expectations for sexual activity based on norms of dating apps and a quick progression of relationships initiated by dating apps (Choi et al., 2018). Individuals who use dating apps also tend to have more sexual partners and are more likely to engage in unprotected sex, which may also increase risk for nonconsensual sexual experiences (Lehmiller et al., 2014; Rendina et al., 2014). Furthermore, online and offline forms of violence have common risk factors, and these forms of violence also tend to co-occur (Borrajo et al., 2015; Temple et al., 2016). Many survivors report that their experiences of DAFSV that occur only online are distressing, and emerging research has shown that various forms of TFSV (including DAFSV) may be linked to negative mental health outcomes (e.g., Patel & Roesch, 2022; Stevens et al., 2021). It is possible that DAFSV can be a precursor to and therefore an early intervention point for a broader range of sexually violent acts.

DAFSV, Mental Health, and Well-Being

An extensive body of research has documented associations between sexual violence (in general, not specific to dating apps) and mental health symptoms and well-being (Campbell et al., 2009; Nickerson et al., 2013). Individuals who have experienced sexual violence report increased symptoms of depression and anxiety, as well as decreased self-esteem and perceived control (Bryant-Davis et al., 2009; Frazier, 2003; Jina & Thomas, 2013; Neville et al., 2004; O'Neill & Kerig, 2000). These well-being outcomes are important, because self-esteem and perceived control can predict trauma resilience and recovery (O'Neill & Kerig, 2000).

Existing research also indicates that TFSV across a range of communication technologies is associated with increased symptoms of depression and anxiety and other mental health indicators (for reviews, see: Patel & Roesch, 2020; Stevens et al., 2021). One systematic review indicated that 42 of 43 studies evaluated found that cyber stalking and harassment was associated with detrimental mental health consequences such as depression, anxiety, suicidal ideation, and panic attacks, although it should be noted that not all of these studies evaluated were specific to sexual violence (Stevens et al., 2021). Another review that was focused on TFSV (Snaychuk & O'Neill, 2020) found that 8 of the 9 studies evaluated yielded significant associations between TFSV victimization and mental health symptoms including depression, anxiety, PTSD, as well as other indicators of well-being, including stress, self-esteem, and somatic symptoms (Bates, 2017; Cripps, 2016; Klettke et al., 2019; Pashang et al., 2019; Patel & Roesch, 2020; Ruvalcaba & Eaton, 2020; Short et al., 2017). For example, one study that investigated TFSV among college students found a prevalence of 88% for women and 74.3% for men, and the frequency of these TFSV experiences was significantly associated with higher depression symptoms and lower self-esteem and perceived control: (Snaychuk & O'Neill, 2020). Another study focused on college women in Canada found that individuals who experienced TFSV had higher levels of PTSD, depression, and anxiety symptoms, regardless of women's experiences of disclosure and disclosure helpfulness (Cripps & Stermac, 2018; Cripps, 2016). It should again be noted that many of these studies do not focus on dating apps specifically, although some of these studies consider dating apps together with other communication technologies (Patel & Roesch, 2020). Some emerging research suggests that DAFSV specifically may also result in these outcomes (Gillett, 2018; Hess & Flores, 2018; Mandau, 2020; Salerno-Ferraro et al., 2021; Thompson, 2018); however, quantitative investigations of these associations remain limited.

In the current study, we considered two indicators of mental health: depression and anxiety symptoms, chosen because they are the most frequently screened mental health symptoms in healthcare settings, are the most common mental health diagnoses in the United States, and are commonly assessed in other research allowing for potential comparisons across studies (Blenkiron & Goldsmith, 2019; Kroenke et al., 2010; National Alliance for the Mentally Ill, U.S, 2022). We also considered three indicators of well-being: self-esteem, loneliness, and perceived control. These were chosen not only due to their potential relevance to DAFSV, but also because they may be precursors to anxiety and depression and therefore theoretically relevant mediators that could be considered in future research that assesses temporal associations (Bajaj et al., 2016; Beutel et al., 2017; Erzen & Çikrikci, 2018; Gallagher et al., 2014). It is important to consider the possibility that associations between DAFSV and indicators of mental health and well-being are likely reciprocal. It could be that loneliness, for example, leads to more frequent dating app use to enhance interpersonal connection, in turn resulting in an increased likelihood of DAFSV. Although we were not able to evaluate these possibilities or make conclusions about directionality in the current study due to the cross-sectional design, evaluating the co-occurrence of DAFSV, mental health, and well-being is important regardless, given these intersecting potential vulnerabilities.

Gender and Sexual Identity

Although dating apps are used by many adults in the United States, negative experiences, including DAFSV, are more common among women and sexual minority populations compared to men and heterosexual/straight individuals. Regarding gender, data from the Pew Research Center (2020) indicates that women are more likely to experience DAFSV compared to men. Specifically, 48% of women (vs. 27% of men) reported that someone has continued to contact them after they said they were not interested, and 46% of women (vs. 26% of men) indicated that they were sent a sexually explicit message or image they did not request (Anderson et al., 2020). Further, 11% of women (vs. 6% of men) reported that someone threatened to physically harm them, and 33% of women (vs. 22% of men) were called an offensive name. Other studies have also found that DAFSV/TFSV experiences are more commonly reported by women compared to men (Powell & Henry, 2019; Snaychuk & O'Neill, 2020).

Regarding sexual identity, individuals who are gay, lesbian, or bisexual are significantly more likely (56%) to report receiving a sexually explicit image or message they did not request compared to heterosexual/straight individuals (32%; Anderson et al., 2020). Likewise, sexual minority individuals are more likely to report that someone threatened to physically harm them compared to heterosexual individuals (17% vs. 7%), called them an offensive name (41% vs. 25%), and continued to contact them after indicating they were no longer interested (48% vs. 35%). Several other studies indicate that these experiences are common among sexual minority populations and that they are linked to negative mental health symptoms such as depression and anxiety symptoms (Hess & Flores, 2018; Lauckner et al., 2019; Thompson, 2018).

The Current Study

In the current study, we aimed to replicate and extend existing research in a college student population in the United States by focusing on DAFSV victimization and safety perceptions, including experiences both occurring directly in the apps as well as during initial in-person meetings. Specifically, we aimed to: 1) provide descriptive information about college students'

experiences using dating apps, including perceptions of safety; 2) assess differences in DAFSV based on gender identity and sexual orientation; and 3) investigate cross-sectional associations between DAFSV victimization and symptoms of depression, anxiety, self-esteem, loneliness, and perceived control. Results from this study will provide insight into the feelings of safety and the mental health and well-being correlates of DAFSV, which have the potential to inform prevention efforts that enhance dating app user safety, and possibly enhance interventions that address mental health symptoms and well-being associated with these experiences.

Method

Procedure

Data collection took place via an online self-report survey in 2021 as part of a study titled "Dating App Experiences and Health." Participants were undergraduate students 18 years of age or older at a large southeastern university in the United States recruited from the Psychology department's research participation system (Sona) and were compensated with one research credit. Individuals were eligible to participate regardless of whether they had ever used dating apps or had ever experienced any form of sexual violence. Interested participants were directed to the survey hosted on Qualtrics and were provided with an IRB approved explanation of research, and if they consented to participate, proceeded with the study. Participants were asked to report their experiences using dating apps, including sexual violence experienced on dating apps. All participants responded to questions about sexual violence in general (i.e., separate from dating apps) as well as mental health symptoms and well-being indicators, regardless of their history using dating apps. To ensure that participants were paying attention and reading the questions carefully, attention check questions were scattered throughout the survey (e.g., "please choose strongly agree for this question") and participants who missed two or more attention check questions were excluded from analyses. To ensure the safety and well-being of study participants, a list of mental health and sexual violence resources was included in both the consent form at the beginning of the survey and a second time at the end of the survey.

Participants

A total of 502 participants began the survey. Four individuals did not respond to any questions, and 32 participants failed multiple attention checks and were therefore excluded from analyses, resulting in a sample size of $N = 466$. Due to our focus on DAFSV, the analyses for this manuscript only include the 277 participants (59.4% of the total sample) who reported current or past dating app use. Participants included in these analyses were between 18 and 54 years of age ($M = 21.02$, $Sd = 5.02$). Regarding gender, 64.6% of participants ($n = 179$) were women, 33.6% ($n = 93$) were men, and 1.8% ($n = 5$) identified another way (genderfluid, nonbinary, or questioning). The majority of participants were heterosexual ($n = 205$, 74.0%), 14.4% ($n = 40$) were bisexual, 6.1% ($n = 17$) were homosexual, gay, or lesbian, 2.9% ($n = 8$) were pansexual, 0.4% ($n = 1$) were

asexual, and 2.2% ($n = 6$) reported another sexual orientation (queer, questioning, or "I don't pick"). For analysis purposes, we compared heterosexual participants to all other sexual orientation groups combined, which we labeled sexual minority participants (26.0%; $n = 72$). Participants' self-reported race and ethnicity was as follows: 66.1% ($n = 183$) White, 31.0% ($n = 86$) Hispanic or Latino/a/x, 12.3% ($n = 34$) Black or African American, 8.3% ($n = 23$) Asian, 0.7% ($n = 2$) Pacific Islander, 0.7% ($n = 2$) Native American, and 1.1% ($n = 3$) identified another way. Participants were able to select multiple options for race and ethnicity such that percentages do not add up to 100%. For analysis purposes (i.e., covariate in regression models), Asian, Pacific Islander, Native American, and another identity responses ($n = 7$) were combined into one race/ethnicity variable, "another identity." Most participants were full-time students ($n = 245$, 88.4%) and most were single or casually dating ($n = 192$, 69.8%).

Measures

Demographics

Participants self-reported their age, gender identity, sexual orientation, race, and ethnicity which were included as covariates in the regression analyses.

Dating App Use

Participants were first asked about their use of dating apps with the following question: "Have you used any dating app(s) while in college? (e.g., Tinder, Grindr, Bumble, Hinge, etc.) Participants responded by indicating whether they were: 1) currently using, 2) have used before but not currently, or 3) have never used dating apps. Participants who indicated they were currently using dating apps or had used them in the past were asked to report their frequency of use (ranging from less than once a month to every day), their purpose for using apps (to find friends, a casual relationship, a long-term relationship, casual dating, sex, or other), the gender (men, women, both) of partners they sought, whether they exchanged messages with anyone (yes/no), and whether they had ever met up in person with someone from a dating app (yes/no). They were also asked a series of seven questions, six of which related to their perceptions of safety and harassment (yes/no) when using dating apps (e.g., expected something bad or uncomfortable to happen, think unwanted sexual advances are common on dating apps), and one question focused on perceived appropriateness of these sexual advances with response options ranging from not appropriate at all (0) to always appropriate (5). These items were developed for the current study and were based on common safety concerns acknowledged in previous research on dating app use (Beauchamp et al., 2017).

Dating App Facilitated Sexual Violence

To assess participants' experiences of sexual violence on dating apps, an adapted version of the Technology Facilitated Sexual Violence Victimization (TFSV-V) scale was administered (Powell & Henry, 2019). Because the TFSV-V scale was developed to capture TFSV generally and not sexual violence specific to dating apps, four questions specific to virtual world and gaming platforms were removed, and 10 questions

developed by our study team were added to assess dating-app specific experiences (e.g., were sent constant messages after rejecting the other person's advances, coerced into sending nude images on a dating app) and sexual coercion when initially meeting up with someone from a dating app. Specifically, participants were asked to report the frequency of incidents "that occurred between you and somebody that you met, matched with, messaged, or dated specifically via a dating app." (The full list of items and subscales are provided as a supplemental file). Participants reported how many times each experience occurred with the following response options: 0, 1, 2, or 3 + . Scores were averaged to create a total score ($\alpha = .91$; 27 items), as well as a score for each subscale. The four subscales from the original TFSV-V were retained: digital sexual harassment ($\alpha = .77$; 9 items) defined as unwanted behaviors that explicitly communicate sexual intentions toward another person (Powell & Henry, 2019), image based sexual abuse ($\alpha = .71$; 4 items) which includes taking or sharing sexual photos without permission, sexual aggression and/or coercion ($\alpha = .85$; 10 items) which includes nonphysical coercion as well as using digital technologies to perpetrate a contact sexual offense or extending the harm of a sexual assault (Powell & Henry, 2019), and gender/sexuality-based harassment ($\alpha = .82$; 4 items) defined as unwanted comments that insult a person based on their gender or sexuality. If participants answered "yes" to any of the 27 items, they were asked to report how distressing these incidents were when they occurred, with response options ranging from 1 (not at all) to 4 (extremely distressing).

Sexual Violence

To provide more comprehensive descriptive information about participants' sexual victimization, the Sexual Experiences Survey-Short Form Victimization (SES-SFV) scale was administered. The SES-SFV measures participants' sexual violence victimization from the age of 14 to the present time (Koss et al., 2007), and assesses the frequency (0, 1, 2, or 3+) of eight incidents, including sexual contact, coercion, attempted rape, and completed rape. Because some items were only applicable to women and not men (e.g., "inserted fingers or objects into my vagina without consent"), resulting in a different number of questions for men and women, victimization experiences were dichotomized such that 0 = the absence of any form of sexual violence and 1 = the presence of any form of sexual violence. Dichotomous scoring is a common and acceptable way of coding the SES-SFV, and one recent psychometric investigation found that dichotomous scoring was the most reliable scoring method (Anderson et al., 2018).

Depression Symptoms

Depression symptoms were assessed with the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). Participants reported the frequency of nine symptoms: not at all, several days, over half the days, or nearly every day. Participants reported the frequency of these experiences over the past month to allow for the same retrospective period across all mental health and well-being measures. The nine items were averaged such that higher scores indicate greater frequency of depression symptoms ($\alpha = .90$).

Anxiety Symptoms

Participants' anxiety symptoms over the past month were assessed with the Generalized Anxiety Disorder-7 (GAD-7) scale (Spitzer et al., 2006). Participants reported the frequency of each symptom: not at all, several days, over half the days, or nearly every day. All items were averaged such that higher scores indicate greater frequency of anxiety symptoms ($\alpha = .93$).

Self-Esteem

Self-esteem was assessed with the Rosenberg Self-Esteem scale (Rosenberg, 1965). Participants rated their agreement with 10 statements on a scale from 1 (strongly agree) to 4 (strongly disagree). Five negatively worded items were reverse coded, and all items were averaged such that higher scores represent higher levels of self-esteem ($\alpha = .92$).

Loneliness

Participants' loneliness over the past month was assessed with the 20-item UCLA Loneliness scale (Russell, 1996). Participants were asked to report the frequency of each item using the following response options: often, sometimes, rarely, never. All items were averaged such that higher scores indicate more loneliness ($\alpha = .97$).

Perceived Control

The Pearlin Self-Mastery scale was used in this survey to assess participants' feelings of perceived control (Pearlin & Schooler, 1978) which includes seven items and assesses helplessness, one's perceived control over life problems, perceived control over one's future, and confidence. Participants were asked to report their agreement with each statement on a scale from 1 (strongly agree) to 7 (strongly disagree), and items were averaged such that higher scores indicate higher perceived control ($\alpha = .84$).

Data Analysis

As an initial step, frequency of participants' dating app use behaviors, perceptions of safety using dating apps, and occurrence of DAFSV were evaluated in this sample. Bivariate correlations were assessed between study variables. One-way ANOVAs were conducted to compare DAFSV frequency and distress from DAFSV, mental health symptoms, and well-being indicators based on gender (women vs. men) and sexual orientation (sexual minority vs. heterosexual individuals). Regression analyses were conducted to evaluate associations between DAFSV frequency and mental health (i.e., depression symptoms and anxiety symptoms) and well-being (i.e., self-esteem, loneliness, and perceived control). These regression analyses controlled for age, gender (0 = woman, 1 = man), sexual orientation (0 = heterosexual, 1 = sexual minority), race/ethnicity (four dummy coded variables for White, Black, Hispanic/Latinx, and another identity, respectively), dating app use (0 = previous only, 1 = current use) and dating app frequency. Finally, as an exploratory analysis, gender identity and sexual orientation were evaluated as potential moderators

between DAFSV frequency and mental health and well-being. Statistical significance for all analyses was determined using a .05 threshold.

Results

Dating App Use

We first assessed the frequency of participants' dating app use: $n = 80$ (28.9%) participants indicated using dating apps every day, $n = 119$ (43.0%) reported using dating apps a couple of times per week, $n = 43$ (15.5%) indicated a couple of times per month, and $n = 35$ (12.6%) indicated less than once per month. The majority of participants (96.8%, $n = 268$) had exchanged messages with someone through a dating app and 65.3% ($n = 181$) had met up in person with someone from a dating app. More information about dating app behaviors is included in Table 1.

Perceptions of Safety Using Dating Apps

Participants also responded to a series of seven questions about their perceptions of safety using dating apps to provide descriptive information aimed at characterizing the experiences of dating app users. Six of these questions were assessed with a yes/no response option. The majority (63.2%, $n = 175$) reported that they had ever felt uncomfortable messaging or interacting with someone from a dating app, 26.0% ($n = 72$) indicated that they had ever felt unsafe messaging someone from an app, and 35.4% ($n = 64$) of the participants who met someone in person from a dating app in person ($n = 181$) indicated that they had ever felt unsafe during these in-person meetings. Regarding expectations of using dating apps, the majority (91.3%, $n = 253$) thought unwanted sexual advances are common on dating apps, 55.2% ($n = 153$) expected something bad or uncomfortable to occur when starting to use dating apps, and 42.6% ($n = 118$) expected to experience sexual harassment when starting to use dating apps. Finally, one question assessed participants' perceived appropriateness of these sexual advances. Most participants (66.4%, $n = 184$) indicated that these are not appropriate at all, 22.4% ($n = 62$) indicated that they are slightly appropriate, and 11.2% ($n = 31$) indicated that they are moderately, very, or always appropriate for dating apps. Differences by gender identity and sexual orientation are presented in Table 2 and generally indicate greater perceived risk among women (compared to men) and sexual minority (compared to heterosexual) participants.

Sexual Violence

Prevalence of DAFSV was high, with 88.4% ($n = 245$) of dating app users reporting at least one incident. Digital sexual harassment (87.4%; $n = 242$) was the most commonly endorsed type of DAFSV. Unwanted sexual images were reported by 41.5% ($n = 115$) of participants, sexual aggression and/or coercion was reported by 44.8% ($n = 124$), and gender/sexuality-based harassment was reported by 54.5% ($n = 151$). Correlations

between each form of DAFSV and means and standard deviations for the frequency of each type are presented in Table 3.

To provide more detailed information about participants' experiences of sexual violence in general, we included a measure of sexual violence (SES-SFV) that assessed experiences not specific to dating apps for descriptive purposes. Results indicated that 48.4% ($n = 134$) reported at least one SES-SFV incident, and 46.6% ($n = 129$) reported both DAFSV and sexual violence experiences not specific to dating apps. Although this sexual violence measure provides more comprehensive information about participants' unwanted sexual experiences, it is important to note that this measure is likely capturing some of the same incidents reported in the DAFSV measure in which in-person sexual violence occurred when meeting a partner face to face from a dating app. Therefore, we only use this sexual violence measure to describe the sample.

Differences by Gender and Sexual Orientation

One-way ANOVAs were conducted to determine whether there were differences in DAFSV frequency and distress ratings, mental health symptoms, and well-being indicators based on gender and sexual orientation. First, we assessed gender differences by comparing men and women. The four nonbinary or genderfluid participants were excluded from this analysis due to the small group size. Findings indicated that, compared to men, women experienced significantly more total DAFSV ($p < .001$), more sexual violence across all four subscales (i.e., digital sexual harassment, image-based sexual abuse, sexual aggression and/or coercion, and gender/sexuality-based harassment; $p < .001$), and rated these experiences as more distressing ($p < .001$). Women also reported more severe mental health symptoms and lower well-being ($p < .05$). Full results are provided in Table 4. Next, we compared heterosexual participants to sexual minority participants. Results indicated that sexual minority participants experienced significantly more total DAFSV ($p < .001$), more sexual violence on three of the four DAFSV subscales (digital sexual harassment, $p < .001$; sexual aggression and/or coercion, $p = .002$; and gender/sexuality-based harassment, $p < .001$), and rated these experiences as significantly more distressing ($p = .001$) compared to heterosexual participants. Sexual minority individuals also reported more severe mental health symptoms and lower well-being ($p < .05$; see Table 4).

Associations with Mental Health and Well-Being

Next, regression analyses were conducted to assess the relationships between DAFSV and mental health symptoms and well-being indicators. Specifically, we tested whether DAFSV frequency was associated with mental health symptoms (i.e., symptoms of depression and anxiety) and well-being indicators (i.e., self-esteem, loneliness, and perceived control) while controlling for age, gender, sexual orientation, dating app use, and dating app frequency (see Table 5).

Table 1. Dating App Use Behaviors ($N = 277$).

	n (%)
Use dating apps	
Yes, currently using	84 (30.3%)
Yes, have used before but not currently using	193 (69.7%)
Dating apps used	
Tinder	250 (90.3%)
Bumble	150 (54.2%)
Hinge	63 (22.7%)
Grindr	7 (2.5%)
Other (e.g., BLK, OkCupid, Scruff)	26 (9.4%)
How long used/have been using apps	
Less than a week	33 (11.9%)
A couple of weeks	65 (23.5%)
A couple of months	100 (36.1%)
A year	34 (12.3%)
Over a year	44 (15.9%)
Dating app use frequency	
Every day	80 (28.9%)
Couple times a week	119 (43.0%)
Couple times a month	43 (15.5%)
Less than once a month	35 (12.6^)
Dating app use motivations	
To find friends	105 (37.9%)
To find a casual relationship	163 (58.8%)
To find a long-term relationship	128 (46.2%)
Casual dating	139 (50.2%)
Sex	85 (30.7%)
Other (e.g., boredom, curiosity)	16 (5.8%)
Gender preference for dating apps	
Men	133 (48.0%)
Women	95 (34.3%)
Both men and women	49 (17.7%)
Ever exchanged messages with someone on a dating app	
Yes	268 (96.8%)
No	9 (3.2%)
Ever met up in person with someone from a dating app	
Yes	181 (65.3%)
No	96 (34.7%)

Overall model tests revealed significance across all dependent variables: depression ($F[11, 271] = 5.99$, $p < .001$, $R^2 = 0.187$), anxiety ($F[11, 271] = 6.18$, $p < .001$, $R^2 = 0.192$), self-esteem ($F[11, 271] = 3.64$, $p = .0001$, $R^2 = 0.123$), loneliness ($F[11, 271] = 3.74$, $p = .0001$, $R^2 = 0.126$), and perceived control ($F[11, 271] = 5.41$, $p < .001$, $R^2 = 0.172$). Consistent with what we expected, DAFSV frequency was associated with increased symptoms of depression ($b = 0.42$, $p < .001$, 95% CI [0.23, 0.60]), anxiety ($b = 0.46$, $p = .001$, 95% CI [0.23, 0.68]), and loneliness ($b = 0.35$, $p = .002$, 95% CI [0.13, 0.57]). More frequent DAFSV was also associated with lower self-esteem ($b = -0.28$, $p = .001$, 95% CI [−0.45, −0.11]) and lower perceived control ($b = -0.41$, $p = 0.010$, 95% CI [−0.72, −0.10]).

Associations with the covariates were observed. For gender, being a man (vs. woman) was associated with lower symptoms of anxiety ($b = -0.35$, $p = .003$) and higher perceived control ($b = 0.33$, $p = .039$). For sexual orientation, identifying as a sexual minority (vs. heterosexual) was associated with higher symptoms of depression ($b = 0.29$, $p = .003$) and lower perceived control ($b = -0.51$, $p = .002$). Finally, current dating app use (vs. previous only) was associated with lower perceived control ($b = -0.33$, $p = .023$). Age, race/ethnicity, and dating app use frequency were not significant in these models.

As an exploratory analysis, we assessed whether gender identity and sexual orientation moderated the association between DAFSV and mental health and well-being indicators. None of the interaction terms were statistically significant ($p < .05$) indicating that the strength of these associations did not vary based on gender or sexual orientation. We therefore do not discuss these results further.

Discussion

The purpose of this study was to understand college students' experiences of DAFSV, to determine whether there are differences by gender or sexual identity, and to evaluate associations with indicators of mental health and well-being. Results indicate that the majority of college students who use dating apps (88.4%) have experienced at least one incident of DAFSV. This result is consistent with the prevalence of DAFSV and TFSV found by other researchers (e.g., Powell & Henry, 2019). Although there is variation in the frequency and severity of these experiences, this prevalence rate in our sample is alarming and suggests that some forms of DAFSV are nearly universal. In the safety perceptions questions, 42.6% of participants indicated that they expected some form of sexual

Table 2. Differences in dating app safety perceptions by gender identity and sexual orientation ($N = 277$).

	Gender % (n)				Sexual Orientation % (n)			
	Men (n = 93)	Women (n = 179)	χ^2	p	Heterosexual (n = 205)	Sexual Minority (n = 72)	χ^2	p
Uncomfortable messaging	43 (46.2%)	127 (70.9%)	19.59	<.001**	117 (57.1%)	58 (80.6%)	13.28	<.001**
Unsafe messaging	15 (16.1%)	55 (30.7%)	11.16	<.001**	43 (21.0%)	29 (40.3%)	11.91	<.001**
Unsafe meeting (n = 181)	13 (24.1%)	49 (39.5%)	3.93	.047*	35 (26.9%)	29 (56.9%)	14.29	<.001**
Expect something bad	39 (41.9%)	112 (62.6%)	10.51	.001**	104 (50.7%)	49 (68.1%)	6.44	.011*
Expect sexual harassment	13 (14.0%)	102 (57.0%)	46.21	<.001**	73 (36%)	45 (62.5%)	15.70	<.001**
Unwanted advances common	80 (86.0%)	169 (94.4%)	5.55	.019*	185 (90.2%)	68 (94.4%)	1.18	.277
	M (Sd)		F	p	M (Sd)		F	p
Unwanted sexual advances appropriate (1–5)	1.67 (0.95)	1.41 (0.77)	5.64	.018*	1.50 (0.81)	1.47 (0.90)	0.07	.793

*$p < .05$, **$p < .01$.

Table 3. Bivariate Correlations and Descriptive Statistics ($N = 277$).

	1	2	3	4	5	6	7	8	9	10	11	12
1. DAFSV – Total	-											
2. DAFSV – Digital harassment	.90**	-										
3. DAFSV – Image-based	.77**	.59**	-									
4. DAFSV – Aggression/Coercion	.83**	.60**	.64**	-								
5. DAFSV – Gender/Sexuality-based	.80**	.63**	.50**	.51**	-							
6. Distress from DAFSV	.60**	.59**	.43**	.44**	.49**	-						
7. SES-V	.56**	.52**	.38**	.46**	.45**	.51**	-					
8. Depression Symptoms	.32**	.26**	.21**	.32**	.26**	.20**	.28**	-				
9. Anxiety Symptoms	.33**	.29**	.21**	.28**	.28**	.19**	.28**	.76**	-			
10. Self-Esteem	−.24**	−.18**	−.17**	−.26**	−.19**	−.17**	−.27**	−.60**	−.51**	-		
11. Loneliness	.22**	.16**	.19**	.23**	.17**	.10	.19**	.52**	.43**	−.61**	-	
12. Perceived Control	−.24**	−.18**	−.17**	−.24**	−.21**	−.11	−.23**	−.56**	−.50**	.73**	−.68**	-
Mean	1.51	1.81	1.34	1.23	1.68	2.41	0.48	1.83	2.02	2.90	2.16	4.89
Sd	0.48	0.62	0.56	0.40	0.87	1.03	0.50	0.71	0.87	0.62	0.81	1.17

Note. AFSV = dating app facilitated sexual violence, SES-V = sexual experiences survey-victimization. *$p < .05$, **$p < .01$.

harassment to occur when using a dating app, which suggests that many people perceive DAFSV as a typical element of navigating dating and sexual relationship initiation. This is in line with past research which has shown that individuals sometimes normalize experiences of unwanted sex, particularly sexual minorities; for example, Gaspar et al. (2021) discussed in their paper, "You're Gay, It's Just What Happens," the idea that many gay and bisexual men in particular expect experiences of unwanted sex (whether online or offline). Although we did not ask participants in the current study about why some of them no longer use dating apps, it is likely that some stopped using them due to their DAFSV experiences. Given the benefits that dating apps can provide for interpersonal connection (Albury & Byron, 2016; Anzani et al., 2018), it is important that future research and policy aim to make dating apps safer and free of violence, rather than discourage their use entirely.

In terms of the patterns of DAFSV participants experienced, digital sexual harassment was the most reported form (of the four types assessed), which includes behaviors such as sexual harassment via dating apps, receiving repeated and/or unwanted sexual requests or messages, and someone showing up to someone's home or place of work after meeting, messaging, or matching. Further, almost half of the sample (46.6%) reported that they experienced both DAFSV and unwanted sexual experiences in general (i.e., not specific to dating apps) denoting these individuals as a potential high-risk population

warranting further attention in research. Indeed, some recent research suggests individuals who experience online forms of sexual violence are also more likely to experience in-person violence (Choi et al., 2018; Rowse et al., 2020), indicating that these intersections warrant further attention, including consideration of whether DAFSV is a promising early risk factor for or indicator of in-person sexual violence.

Results also show that DAFSV frequency was associated with increased symptoms of depression and anxiety, lower self-esteem and perceived control, and higher loneliness. These findings are again consistent with past research on general sexual violence victimization (Patel & Roesch, 2020; Snaychuk & O'Neill, 2020), and extend this work by specifically evaluating experiences that occurred within the context of dating apps. Although these associations are cross-sectional which preclude conclusions about causality, we did assess distress associated with participants' DAFSV. Descriptive analyses indicate that mean ratings of distress were above the scale midpoint for women, heterosexual participants, and sexual minority participants, which indicates DAFSV elicits distress at levels that are not negligible. Likewise, many participants indicated that they felt unsafe messaging (26.0%) or meeting in person (35.4%) with someone from a dating app. Future research is needed to disentangle these associations; for example, it is possible that fear/distress associated with DAFSV is predictive of mental health and well-being outcomes, or that

Table 4. Differences in dating app facilitated sexual violence (DAFSV) frequency, mental health symptoms, and well-being by gender and sexual orientation (N = 277).

	Gender M (Sd)				Sexual Orientation M (Sd)			
	Men (n = 93)	Women (n = 179)	F	p	Heterosexual (n = 205)	Sexual Minority (n = 72)	F	p
DAFSV								
Total DAFSV	1.24 (0.26)	1.65 (0.50)	54.42	<.001**	1.43 (0.42)	1.71 (0.55)	18.91	<.001**
Digital harassment	1.42 (0.43)	2.01 (0.62)	68.17	<.001**	1.72 (0.60)	2.06 (0.62)	16.26	<.001**
Image-based	1.16 (0.29)	1.43 (0.64)	14.76	<.001**	1.30 (0.50)	1.45 (0.71)	3.81	.052
Aggression/Coercion	1.08 (0.18)	1.31 (0.46)	19.92	<.001**	1.18 (0.33)	1.36 (0.55)	10.19	.002**
Gender/Sexuality-based	1.26 (0.53)	1.88 (0.91)	35.84	<.001**	1.55 (0.75)	2.06 (1.06)	19.91	<.001**
Distress from DAFSV	1.85 (0.91)	2.68 (0.97)	43.46	<.001**	2.29 (1.05)	2.76 (0.91)	10.67	.001**
Mental health								
Depression symptoms	1.59 (0.52)	1.95 (0.77)	16.37	<.001**	1.73 (0.65)	2.14 (0.79)	18.98	<.001**
Anxiety symptoms	1.53 (0.61)	2.22 (0.92)	31.01	<.001**	1.91 (0.81)	2.33 (0.93)	12.96	<.001**
Well-being								
Self-esteem	3.07 (0.57)	2.82 (0.63)	10.36	.001**	2.97 (0.61)	2.70 (0.61)	10.35	.001**
Loneliness	1.99 (0.76)	2.25 (0.83)	6.56	.011*	2.07 (0.79)	2.40 (0.83)	9.11	.003**
Perceived control	5.26 (1.11)	4.69 (1.16)	14.91	<.001**	5.08 (1.11)	4.36 (1.16)	21.35	<.001**

*p < .05, **p < .01.

perhaps the well-being indicators (i.e., loneliness, self-esteem, perceived control) mediate the association between DAFSV and mental health symptoms.

Importantly, results indicated that women (compared to men) and sexual minority (compared to heterosexual/straight) individuals experienced more frequent DAFSV. This is consistent with research on sexual violence victimization more generally (Anderson et al., 2020; Powell & Henry, 2019) as well as that specific to online forms of sexual violence. For example, studies conducted with Canadian and US samples show that sexual minority individuals who use dating apps are more than twice as likely to experience TFSV compared to heterosexual individuals, and 1 in 3 report past year unwanted online sexual behavior (Jaffray, 2020; Powell et al., 2020; Waldman, 2019). This also further highlights the importance of identifying risk factors and protective measures that are unique to different gender and sexual identity populations. Although digital harassment was the most common form of DAFSV for participants regardless of identity group, gender/sexuality-based DAFSV was the next most frequently occurring for women and sexual minorities, whereas this was lowest for men and heterosexual participants, suggesting that a "one size fits all" approach to addressing DAFSV may not be appropriate and these efforts should be tailored to consider qualitative differences in experiences. However, neither gender identity nor sexual orientation moderated the association between DAFSV frequency and any of the mental health and well-being indicators, suggesting that although women (vs. men) and sexual minority (vs. heterosexual) participants experienced more frequent DAFSV, more severe mental health symptoms, and lower well-being – indicating greater global risk – the magnitude of the relationships between DAFSV and these mental health and well-being indicators did not vary as a function of gender or sexual orientation.

Strengths, Limitations, and Suggestions for Future Research

One of the strengths of this study was the focus on evaluating experiences of sexual violence that were specific to dating apps,

which is important given the high prevalence of dating app use in the United States coupled with the dearth of quantitative research evaluating DAFSV. In addition, questions about perceived safety and dating app use expectations enhanced the assessment of DAFSV. Further, while many studies assessing health correlates focus more narrowly on depression and anxiety symptoms, we also assessed self-esteem, loneliness, and perceived control which represents a more comprehensive investigation of well-being. These research questions were also examined in a sample of college students, a group known to be more likely to use dating apps and experience more sexual violence compared to other populations (Anderson et al., 2020; Fedina et al., 2018; Scannell, 2019).

The primary limitation of this study was the cross-sectional design. Although results show that DAFSV co-occurs with indicators of mental health and well-being, we are not able to ascertain its causal impact, nor the extent to which these well-being indicators drive dating app use, thus resulting in higher potential for DAFSV. However, results of the current study provide important, yet preliminary, insight into these associations. Future studies that employ longitudinal or event-level designs are needed to evaluate temporal, and potentially reciprocal, associations. Such designs could also assess distress associated with each instance of DAFSV, rather than distress associated with DAFSV overall. To this point, these methodological approaches will also afford a better understanding of relationships between DAFSV and other/offline forms of sexual violence. Although extant research indicates that DAFSV and sexual violence more generally have common predictors (Borrajo et al., 2015), particularly given their overlap when in-person violence occurs during initial meetings with dating app partners, additional research is still needed to identify unique risk factors, protective factors, and sequalae of DAFSV specifically. Another limitation to this study was the recruitment of participants from a psychology department participant pool. Using multiple recruitment methods in the future could help reach a larger and more diverse college student sample. We did not include any exclusion criteria based on age; the sample included 16 participants 30 years of age or older (highest = 54) which is not typical for traditional college samples. Although

Table 5. Regression analysis with DAFSV predicting mental health and well-being, controlling for demographic characteristics, and dating app use (N = 277).

	Coefficient	SE	p	95% CI [LL, UL]	
Depression Symptoms					
DAFSV	0.42	0.10	<.001**	0.23	0.60
Age	−0.01	0.01	.487	−0.02	0.01
Gender: Men	−0.13	0.10	.187	−0.32	0.06
Sexual Orientation: Sexual Minority	0.29	0.10	.003**	0.10	0.48
Race/Ethnicity: White	0.00	0.12	.987	−0.23	0.23
Race/Ethnicity: Black	0.26	0.14	.065	−0.02	0.54
Race/Ethnicity: Hispanic	−0.05	0.11	.671	−0.26	0.17
Race/Ethnicity: Another Identity	0.24	9.15	.123	−0.06	0.54
Dating App Use: Current	−0.00	0.09	.974	−0.18	0.17
Dating App Frequency	−0.06	0.04	.156	−0.14	0.02
Constant	1.14	0.30	<.001**	0.56	1.73
Anxiety Symptoms					
DAFSV	0.46	0.12	<.001**	0.23	0.68
Age	−0.01	0.01	.437	−0.03	0.01
Gender: Men	−0.35	0.12	.003**	−0.58	−0.12
Sexual Orientation: Sexual Minority	0.21	0.12	.072	−0.02	0.45
Race/Ethnicity: White	0.05	0.14	.725	−0.23	0.33
Race/Ethnicity: Black	0.30	0.17	.085	−0.04	0.64
Race/Ethnicity: Hispanic	0.11	0.13	.409	−0.15	0.36
Race/Ethnicity: Another Identity	0.14	0.19	.465	−0.23	0.50
Dating App Use	0.14	0.11	.205	−0.08	0.35
Dating App Frequency	−0.05	0.05	.287	−0.16	0.05
Constant	1.36	0.36	<.001**	0.65	2.07
Self-Esteem					
DAFSV	−0.28	0.09	<.001**	−0.45	−0.11
Age	0.01	0.01	.151	−0.00	0.03
Gender: Men	0.11	0.09	.212	−0.06	0.28
Sexual Orientation: Sexual Minority	−0.12	0.09	.158	−0.30	0.05
Race/Ethnicity: White	0.08	0.11	.442	−0.13	0.29
Race/Ethnicity: Black	−0.22	0.13	.093	−0.47	0.04
Race/Ethnicity: Hispanic	0.04	0.10	.712	−0.15	0.23
Race/Ethnicity: Another Identity	−0.05	0.14	.713	−0.32	0.22
Dating App Use: Current	−0.15	0.08	.061	−0.31	0.01
Dating App Frequency	−0.00	0.04	.938	−0.08	0.07
Constant	3.23	0.27	<.001**	2.70	3.76
Loneliness					
DAFSV	0.35	0.11	.002*	0.13	0.57
Age	−0.01	0.01	.186	−0.03	0.01
Gender: Men	−0.08	0.11	.464	−0.30	0.14
Sexual Orientation: Sexual Minority	0.22	0.11	.056	−0.01	0.44
Race/Ethnicity: White	−0.09	0.14	.509	−0.36	0.18
Race/Ethnicity: Black	0.33	0.17	.051	−0.00	0.66
Race/Ethnicity: Hispanic	−0.07	0.13	.590	−0.32	0.18
Race/Ethnicity: Another Identity	0.16	0.18	.366	−0.19	0.52
Dating App Use: Current	0.20	0.10	.054	−0.00	0.41
Dating App Frequency	0.04	0.05	.378	−0.05	0.14
Constant	1.51	0.35	<.001**	0.82	2.20
Perceived Control					
DAFSV	−0.41	0.16	.010*	−0.72	−0.10
Age	0.03	0.01	.051	−0.00	0.06
Gender: Men	0.33	0.16	.039*	0.02	0.64
Sexual Orientation: Sexual Minority	−0.51	0.16	.002*	−0.83	−0.20
Race/Ethnicity: White	0.32	0.19	.098	−0.06	0.70
Race/Ethnicity: Black	−0.06	0.24	.800	−0.52	0.40
Race/Ethnicity: Hispanic	0.17	0.18	.331	−0.18	0.52
Race/Ethnicity: Another Identity	−0.27	0.25	.279	−0.77	−0.22
Dating App Use: Current	−0.33	0.15	.023*	−0.62	−0.05
Dating App Frequency	−0.03	0.07	.664	−0.17	0.11
Constant	5.41	0.49	<.001**	4.44	6.38

*p < .05, **p < .01.

this variability in age can be interpreted as a strength, dating app behaviors may vary across the lifespan and therefore these developmental differences should be considered in future research (beyond statistically controlling for age, as we did in the current study). Finally, although we were able to explore differences in DAFSV frequency by gender and sexual identity, we did not have enough sexual minority individuals in the current sample to investigate heterogeneity between different

sexual minority identities, such as gay, lesbian, bisexual, pansexual, asexual, etc. Follow-up studies should actively recruit these groups and seek to understand experiences that are unique to each sexual identity. For example, gay and bisexual men use dating apps more than any sexual identity group and experience violence in qualitatively distinct ways (Badal et al., 2018; Callan et al., 2021) and bisexual women disproportionately experience sexual violence compared to heterosexual

and lesbian women (Canan et al., 2021). In addition, more research is needed to assess *perpetration* in addition to victimization of DAFSV, including how these patterns vary based on gender and sexual identity. Existing research has shown that sexual violence perpetration in general is more commonly perpetrated by men compared to women (Ybarra & Mitchell, 2013), and although this might also extend to DAFSV perpetration, this is a question that must be addressed empirically.

Implications and Conclusion

These findings have important implications for college students' recovery and connection to support services following DAFSV victimization. One study that surveyed college women about their dating app experiences found that 88.69% did not think their university provided adequate professional or peer-led resources to them to discuss their negative dating app experiences (Beauchamp et al., 2017). These experiences may have other underexplored consequences. For example, one study found that, after experiencing TFSV, the majority of college women participants reported that they felt discomfort or anxiety using technology in general (Cripps, 2016). Other research suggests that DAFSV may affect individuals' social and professional well-being, such that DAFSV victims may experience withdrawal or disengagement from school, job loss, or distress due to lack of anonymity when sexual content is distributed within the community (Citron & Franks, 2014; Patel & Roesch, 2020). As a result, research on DAFSV is needed to validate the experiences of victims and acknowledge that these behaviors are harmful. Because many DAFSV behaviors do not meet legal definitions for sexual assault or domestic violence, and many individuals may not identify their experiences as such, this type of victimization may go undetected in clinical care settings despite its association with various indicators of mental health (i.e., depression and anxiety symptoms) and well-being (i.e., self-esteem, loneliness, perceived control). Further, given the online context of DAFSV, web-based prevention and intervention may be particularly accessible and effective for victims and could concurrently be used to address intersecting health concerns such as heavy drinking (Gulati et al., 2021; Stappenbeck et al., 2021).

In summary, results of this study indicate that DAFSV is common among college students in the United States, especially women and sexual minority groups. More frequent DAFSV is associated with higher symptoms of depression and anxiety, greater loneliness, lower self-esteem, and decreased perceived control. Even though some dating apps include features that prevent some violent behaviors from occurring on their platform (Flynn et al., 2019), many individuals find other ways to perpetrate DAFSV (e.g., new fake profile) or perpetrate sexual harms in other ways, such as via text messaging and in person. Thus, it is important to identify strategies that mitigate DAFSV, given that this occurs during the initial interaction individuals have with partners, as well as strategies that mitigate related forms of sexual violence. Ultimately, it is important that people feel safe using dating apps and can message and meet partners without fearing or experiencing violence. Dating apps are and will continue to be a common way for individuals to connect with potential sex and dating partners, and therefore, it is essential that we deepen our understanding of the types of negative interactions individual experience on dating apps, risk and protective factors for sexual violence, and prevention and intervention strategies that promote safety and reduce detrimental health effects of DAFSV.

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