



College Student Experiences Regarding the Impact of the COVID-19 Pandemic on Their Sexual Lives

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Accepted: 20 August 2022 / Published online: 3 September 2022

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Abstract

The COVID 19 pandemic has impacted sexual health in a variety of ways. The purpose of this research was to examine the ways in which college students (attending a university providing primarily online curriculum during fall 2020 and spring 2021 semesters) perceive the pandemic influencing their sexual health and lives. Participants were undergraduate students ($N=66$) at a mid-sized Western university recruited during the beginning of the spring 2021 semester. Participants completed an anonymous online survey. A Thematic Analysis of responses to two open-ended questions asking about the impact of the COVID-19 pandemic on their sexual health and lives was conducted. Several important themes were identified during this analysis: (1) Sexual activity and quality, (2) Relationship dynamics, (3) Self-focus, (4) New partners, (5) Sexual healthcare, (6) No change. Findings have implications for promoting sexual health for students during times when the majority of instruction is conducted online.

Keywords Pandemic · Sexual health · College students · Sexuality

Introduction

In March of 2020, the World Health Organization (WHO, 2020a) declared a global pandemic in response to the worldwide spreading of the COVID-19 virus. The pandemic resulted in government-mandated stay-at-home orders, social distancing measures, limited non-essential transportation, closure of businesses and schools, and avoidance of large group gatherings to slow the spread of the virus (Kates et al.,

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2020). This caused a disruption of regular university operations, with approximately 1102 United States (US) college institutions closing campuses and moving to online learning (Hess, 2020). Additionally, more than 50% of public screening programs world-wide were postponed (WHO, 2020b). These changes made in response to the pandemic affected over 14 million college students in the US due to campus closures; a study of 725 college students indicated 95% were sheltered in place at home by April of 2020 (Cohen et al., 2020; Hess, 2020). Recent research indicates that these changes have influenced health in a variety of ways for college students (Cohen et al., 2020; Coughenour et al., 2020). However, overall sexual health has not been examined. Given that young adulthood is a time in which sexual exploration often occurs (Alexander et al., 2015) and adolescents and young adults represent nearly half of all new sexually transmitted infections (STIs) in the United States (Center for Disease Control and Prevention [CDC], 2021), college students are a unique and important population for further research in this area. Therefore, the aim of the current study was to explore the experiences of college students in terms of the ways in which the COVID-19 pandemic influenced their sexual lives.

Impact of COVID-19 Pandemic on College Students

The literature on college students and health during the COVID-19 pandemic has examined the effects on a number of health outcomes including food insecurity, housing insecurity, financial stability, exercise, emotional wellness, and professional and personal interactions with others (Copeland et al., 2021; Lederer et al., 2020; Mialki et al., 2021). However, the majority of the literature thus far has focused on mental health with results indicating that students are experiencing negative mental health outcomes due to the pandemic, such as heightened levels of anxiety and worsened depression (Coughenour et al., 2020; Till Hoyt et al., 2020). College students are being affected by educational, economic, and environmental stressors attributed to the pandemic that are influencing their mental health in a negative way (Till Hoyt et al., 2020).

This literature has given special attention to investigating mental health among lesbian, gay, bisexual, transgender and queer (LGBTQ) college students (e.g., Gonzales et al., 2020; Kamal et al., 2021; Salerno et al., 2020; Till Hoyt et al., 2020). Findings from Gonzales et al. (2020) highlight associations between negative mental health outcomes during the pandemic and a lack of sexual orientation-supportive immediate family for LGBTQ students. While this research provides insight into mental health among college students and a possible need for additional targeted services, it does not address changes in sexuality or sexual health needs or influences linked to the pandemic. Researchers posit that, based on the sexual and reproductive health outcomes associated with other major societal disruptions (the 2008 recession), the pandemic will have a significant impact on the sexual health of young adults (Lindberg et al., 2020). However, the COVID-19 pandemic presents new and unique challenges that the United States has not faced before. For example, in a study comparing outcomes for students in the United States prior to the pandemic closures (January/February 2020) and post-pandemic closures (April/

May 2020), 2.6% of students reported living at home before the pandemic and 71% reported living at home after the pandemic began and universities closed (Herbenick et al., 2022). This information indicates a significant shift in the lives of college students due to the pandemic and some researchers believe that they may be a unique population experiencing these shifts in living situations compared to older, more professionally established adults (Herbenick et al., 2022).

Impact of COVID-19 Pandemic on Sexual Health

Several studies have investigated the impact of the pandemic on the sexual lives and health of adults around the world (Cito et al., 2020; Fuchs et al., 2020; Li et al., 2020; Lopes et al., 2020; Luetke et al., 2020; Schiavi et al., 2020). Those studies have indicated an overall decrease in the amount of sexual intercourse people are having due to the pandemic (Cito et al., 2020; Li et al., 2020; Schiavi et al., 2020). There has also been a decrease in desire, arousal, lubrication, orgasm, and sexual satisfaction amongst Polish and Italian adult women (most in romantic relationships) in response to the COVID-19 pandemic (Fuchs et al., 2020; Schiavi et al., 2020). The pandemic is associated with changes in romantic and sexual relationships with decreased sexual behavior, increased conflict, and increased break-ups or partner separation for those in relationships (Herbenick et al., 2022; Luetke et al., 2020). It has also been reported that sexually active individuals experienced lower levels of depression and anxiety during the COVID-19 pandemic compared to individuals who were not sexually active, indicating potential positive benefits of sexual activity (Mollaioli et al., 2021). Given that research has demonstrated a decrease in the mental health of college students during the pandemic (Coughenour et al., 2020; Till Hoyt et al., 2020), investigating the sexual experiences during the COVID-19 pandemic may be an important additional area of exploration with potential overlap in these other areas of health.

A study prior to the pandemic reported that use of on-campus sexual healthcare services could be encouraged through more visibility and increased normalization that sexual health is important (Cassidy et al., 2018). Additionally, college students have reported desires and expectations for sexual health resources to be provided by their colleges and universities, and they predict that school-provided access to sexual health services or referrals will result in improved health outcomes (Lechner et al., 2013). Regardless of campus access to sexual healthcare services, prior to the pandemic, college students report facing barriers to utilizing these services such as limited knowledge of sexual health, difficulty finding sexual health services, and shame surrounding sexuality (Cassidy et al., 2018). These outcomes for college students may be due to the culture and societal structures in the United States in which many adolescents receive abstinence-only sexuality education (Guttmacher Institute, 2017). For example, nearly half of adolescents report not receiving information on contraception in their formal sex education (Guttmacher Institute, 2017) and may be entering college at an educational deficit. The COVID-19 pandemic likely offers unique challenges to accessing sexual health resources in addition to sex education. For example, Reports in New York City (community sample) and the Southern

region of the US (sample of MSM; Men who have sex with men) provide evidence of significant reductions in the availability of sexual health services and resources during the pandemic (Nagendra et al., 2020; Pampati et al., 2021). However, there are no reports about the availability of these services for college students.

To date, there are still few studies examining associations between the pandemic and sexuality among college students. Findings indicate that many students report decreases in sexual activity (especially partnered sex; Firkey et al., 2021; Herbenick et al., 2022). However, one study reported increases in sexting behaviors (Herbenick et al., 2022). If students were in a relationship prior to the pandemic, 14.5% of them broke up and 25.3% continued their relationship with partners in separate geographic locations (Herbenick et al., 2022). Students also reported that if they had partnered sex post-pandemic, the experience was linked with more emotional connection and likely occurred between partners living together (Herbenick et al., 2022). While this information is helpful in adding to our understanding of changes in sexual activity, relational configurations, and intimacy among partnered students due to the pandemic, it does not provide information from the students' perspectives about their unique experiences with their own sexuality during this unique cultural time in history.

The Current Study

There are several studies examining the relationships between mental health and COVID-19 among college students (Coughenour et al., 2020; Gonzales et al., 2020; Till Hoyt et al., 2020), and there are several studies investigating the impact of the pandemic on the sexual lives and health of individuals (Cito et al., 2020; Fuchs et al., 2020; Li et al., 2020; Luetke et al., 2020; Schiavi et al., 2020). A few studies have begun to examine the impact of the pandemic on college students' sexual health and have reported important findings (Firkey et al., 2021; Herbenick et al., 2022). However, there is likely additional nuanced information that has not been captured about the impact of the COVID-19 pandemic on the sexual lives of college students. Investigating the students' experiences related to their sexual lives during the pandemic can provide insight into the sexual health needs of students during times when universities are primarily online due to cultural public health crises. The purpose of the current study was to explore these experiences by addressing the following research question:

What are the experiences of college students in terms of how the COVID-19 pandemic influenced their sexual lives at a university that was conducting curriculum primarily online?

Methods

Participants

This study included college students from a mid-sized Western university campus in the US. The criteria for participation included enrollment in a human sexuality course at the university during the spring semester of 2021 in which curriculum was provided in an online format. We included these criteria to remove the confounding variable of having some students receiving online-only instruction and others receiving in-person instruction. All participants ($N=66$) were 18 years of age or older. The majority identified as women (87.9%); 10.6% identified as men and 1.5% identified as gender non-conforming. The majority of this sample identified as heterosexual/straight (73%), 21% of the students identified as bisexual or pansexual, and 6% identified as gay or lesbian. Students reported various relationship status' including in a committed sexual relationship (45.5%), in a casual sexual relationship (18.2%), in a sexual relationship with multiple partners (4.5%), and in no current sexual relationship (30.8%). The human sexuality class (3 sections of 39–40 students each during the spring 2021 semester) consisted of freshman (6.7%), sophomores (26%), juniors (27%) and seniors (40.3%) and was a general education undergraduate course.

We did not collect information about race/ethnicity. However, the student body at the university in which this study was conducted includes 43.33% white students, 36.34% Hispanic/Latinx students, 5.65% Asian students, 5.25% multi-racial students, 2.71% Black/African American students, 0.45% Native American/Alaska Native, 0.24% Native Pacific Islander students, and 3.86% of students with an unknown race/ethnicity. Additionally, 44% of students identify as first-generation college students (California State University, Chico, 2022).

Procedure

The university campus was operating in an exclusively online format for the majority of instruction during the spring 2021 semester and participants enrolled in the human sexuality course attended asynchronous and/or via zoom (depending on the section). Students were sent a link to the informed consent form and survey via email. Participants were told that the survey was a part of the general course instruction about sex research (past and present) and that participation was anonymous and optional. The survey was on Google Forms and took approximately 10 min to complete. The two authors that teach the Human Sexuality course, have been distributing this survey every semester to their students since 2018. The survey asked questions about the students' sexual behaviors, sexual satisfaction, romantic partnerships, body satisfaction, and STI testing behaviors. During the COVID 19 pandemic, we added two open-ended questions about students' perceptions related to their sexual health during the pandemic. Participants were not offered any incentives or compensation. Completing the survey was a part of a lesson for the class in sex research. Participation was anonymous, voluntary, and optional for the students. Students were told that the professors would not know who completed the survey and who did not. Anonymous results were presented to the class in a manner so

that no student information could be identified. This gave the students an idea about the sexual behaviors and preferences of their classmates and could be viewed as an incentive for them to participate. All study protocols were approved by the university Institutional Review Board (IRB). The data were stored in a password protected, online location with no identifying information. Of the 119 students invited to participate, 66 completed the survey (55% response rate).

Measures

Participants were asked the following two open-ended questions about the impact of the COVID-19 pandemic on their sexual lives: (1) How have you been navigating your sexual health since the beginning of the COVID-19 pandemic? and (2) In what way has the COVID-19 pandemic influenced your sexual life?

Data Analysis

The current study utilized a qualitative research design to gain a better understanding of students' experiences regarding the impact of the COVID 19 pandemic on their sexuality and sexual lives. This design was the most appropriate given that we were interested in student experiences and the lack of previous data on the impact of COVID 19 on sexuality for college students. As this was an exploratory study, the authors did not have a theory or conceptual framework. In line with the goals for our study, Thematic Analysis was considered appropriate to identify patterns in data because it provides a flexible analysis approach and is focused on deriving themes from the data (inductive analysis) instead of coming to the data with perceived themes we might expect to find (Braun & Clarke, 2006).

First, a team of three researchers individually read and coded the data. The team consisted of two university faculty in the fields of Public Health and Psychology (one was an instructor for the Human Sexuality course, and one was not) and a master's student in the Psychology department. Each researcher read the full data set and then the team met to discuss the data. In that discussion, we realized that the student responses for each open-ended question were very similar and some responses for one of the open-ended questions seemed to make more sense as a response for the other open-ended question. Given the similarity in questions and responses, we decided as a team to analyze the responses for each open-ended question as a whole. Next, we each analyzed the data separately and then met to develop a codebook with main themes and subthemes. We analyzed the data again to ensure that our codebook was accurate and then met to discuss the themes and subthemes until we reached 100% agreement. Each researcher individually coded the data to make sure that the team was not missing additional important themes. One additional theme was generated based on this fourth step. The team met a second time to finalize and define the themes and complete the data analysis. All themes were clearly defined, and the results are reported below.

Regarding reflexivity, the research team acknowledged that one of the faculty members was an instructor for the course and was positioned as a person of power in relation to the students taking the survey. Therefore, it was essential that the faculty members teaching the course communicated to the students that the survey was optional, anonymous and that they would receive no penalty for choosing not to participate. The students were told that the faculty would not actually know who participated and who did not. This was in the research protocol approved by the university as well. In terms of our analysis, all team members identified as sex-positive in their conceptualization of human sexuality. This lens may have impacted the ways in which we perceived the data and the themes we developed. However, most of the student responses were short (most were less than three sentences) and direct in terms of length and meaning. There was little room for misinterpretation of the content when compared to long interview data.

Additionally, concerning trustworthiness, we included researcher triangulation as a part of our process by choosing faculty from two different fields (Psychology and Public Health) that focus their research trajectories on human sexuality from different perspectives. Additionally, these faculty study different aspects of human sexuality. The Master's student was also of a comparable age to the university students in the study and contributed a different perspective than the faculty members that may have been more relatable to the students' perspectives. Finally, we debriefed (peer debriefing) with an outside faculty member in Public Health that also teaches the Human Sexuality course but was not involved in the data analysis process. Researchers suggest that these steps may increase credibility of the results in qualitative studies utilizing Thematic Analysis (Nowell et al., 2017). As our data were short responses from 2 open-ended survey questions and we engaged in steps to increase trustworthiness in our results, we believe that our results are reflective of what the students' experiences were as they were reported on the survey.

Results

The following themes were identified during this analysis including: 1) Sexual activity and quality, 2) Relationship dynamics, 3) Self-focus, 4) New partners, 5) Sexual healthcare, 6) No change.

Sexual Activity and Quality

A large number of students indicated change in their sexual health and/or life during the COVID-19 pandemic. One of the changes cited was regarding sexual activity and quality. We define this theme in terms of change in sexual frequency, type of sexual activity and/or quality. Participants cited increases and decreases in sexual activity for various reasons and improved sexual quality during the pandemic.

Some of our participants cited increases in sexual activity. For example, students stated simple statements including: "if anything it has increased since the pandemic has hit" and "more sexually active and masturbating often." One participant cited an

increase in sexual activity with their long-term partner and described an additional increase in sexual quality stating “it has encouraged me to ask for what I want and feel justified in doing so.” Other students cited improvements in sexual quality. For example, students stated that “it [the pandemic] has made it better, more time,” and “it [the pandemic] has made my sex life stronger with my partner,” suggesting that the quality of their sexual life has improved.

Some students reported decreases in sexual activity either because they were in a committed relationship in which they did not get to see their partner as often as before the pandemic or they are single and having trouble meeting potential new partners. For example, one single student stated: “Not having a lot of sex... [it has been] harder to meet people” while another partnered student stated:

Thankfully I am in a committed, monogamous relationship so my sex life hasn't drastically changed. The only difference is that I do not have as much sex as my partner and I live far apart and often only visit each other once a month.

Other students provided short responses about how their sexual frequency had decreased but did not indicate reasons or context for the decrease (e.g., “less sexually active”).

Relationship Dynamics

Many of our participants were in committed relationships while participating in the study ($N=45.5\%$) and reported changes in their relationship dynamics due to the pandemic. We define this theme as changes in relationship status, time spent with partner, sexual quality with partner, and/or intimacy/closeness and found the following three subthemes: decreases in time with or quality of sexual life with partner, increases in time with or quality of sexual life with partner and breaking up during pandemic.

Some partnered students experienced increases in time spent with or quality of sexual life with their partner. Students stated that they had more time with partners (“the pandemic has made my sexual life increase because I have had more time with my partner”) and increased sexual quality with their partner (“It has made my sex life stronger with my partner”). Other students reported increases in sexual activity and sexual quality stating “[due to the pandemic, I have had an] increase in sexual activity, but I have been with the same man for 4 years.... It has encouraged me to ask for what I want and feel justified in doing so.”

Other students with partners discussed decreases in time spent with their partner due to the pandemic and the changes they had to make in housing. One student stated:

I do not see my boyfriend as often so I do not have sex as much as I used to. I went from having sex every day for about 9-10 months to only having sex maybe twice a month since Covid has started.

Another student stated that while she experienced decreases in sexual frequency with her partner, the couple also experienced changes in their intimacy due to the pandemic:

Due to the pandemic I spend more time away from my partner so the frequency at which we have sex has changed and the way we are intimate with each other while we are away is new.

There was also one student in the sample that described experiencing a break-up during the pandemic stating:

I had been in a committed relationship for a few months at the start of Quarantine, but found that my needs were not being met. Since then I have been navigating my sexual health alone and through casual sexual partners.

These findings highlight the differences in relationship dynamics for partnered students given their unique experiences during the pandemic.

Self-Focus

Another theme that we developed during the process of analysis was Self-Focus. This theme encompasses increases in focus on self, self-exploration and/or masturbation. Many students described an increase in masturbation frequency (“a lot more masturbation”) and increased focus on themselves and what they want.

Students cited increases in their masturbation frequency. Some of the students described this increase as a positive experience. For example, one student stated that she purchased a vibrator for the first time:

I caved in and bought my first vibrator because I couldn't see my boyfriend for a while [...] COVID-19 has influenced my sexual life in a good way, I got to achieve really strong orgasms with my vibrator.

Other students described their increases in masturbation in a way that was not as satisfying as partnered sex: “good but also boring, masturbating is fun but not the same as having an actual partner.” And some students described their increase in masturbation in a neutral way just stating that they are engaging in more masturbation (“explored more by body and having less sex with another person”).

Students also discussed a general focus on themselves outside of engaging in masturbation. For example, students included statements such as: “I have been trying to focus on my body and body image for myself since the pandemic” and “learning more about taking care of myself and finding pleasure.” One student talked about this focus on self in relationship to difficulty meeting other potential partners stating that:

The pandemic has made it very difficult to hold a healthy relationship with men and my sexual life, things have just been more quiet recently. I have taken this time away from men to focus on myself and my own mental/sexual/physical health.

As a whole, many students described this focus on self, highlighting the ways they are sexually self-focusing and focused on themselves more broadly due to the pandemic.

New Partners

The next theme that we identified in this analysis was navigating sexuality with new partners. This theme encompasses students communicating difficulty meeting new partners and the choices they made regarding new partners due to the COVID-19 pandemic. We identified three subthemes including increased difficulty meeting potential sexual/romantic partners, online dating/app use and precautions to avoid COVID-19.

Although a few students stated that they met a new partner during the pandemic (“I met my partner through the pandemic, so I am comfortable with him and satisfied with my current sexual life”), many students expressed trouble meeting new potential partners. Multiple students stated that the method of meeting people prior to the pandemic was at social gatherings such as college parties and due to the social distancing restrictions, they were not able to meet new people. For example, one student stated:

My sex life has significantly deteriorated. It’s hard to find someone during a pandemic since we aren’t going out. I don’t go to parties and that was my main way of meeting partners. Now I only have sex with people I knew prior to the pandemic.

To navigate the difficulty students were experiencing meeting new potential partners, some reported using online methods of meeting people including social media and dating applications (e.g., Tinder). These strategies were usually described by students in a negative way. For example, one student stated:

It’s been pretty hard because there is no one to meet to get some company and instead social media is the first place where a person meets a male. Not the best choice since Tinder got me across a person who lied to me and infected me with chlamydia.

Another student responded by listing Tinder and Grinder with a frowny-face emoji.

Many students expressed that they were more selective with partners during the pandemic. Some stated that they engaged in sexual activity only with people who could be trusted (e.g., “Only having sex with partners I trust are being safe with the pandemic”) while others expressed that they actively chose to engage in sexual activity with one person for safety reasons. For example, one student stated: “because of the uncertainties with COVID and asymptomatic individuals, I have entered into a casual relationship with one person who is also COVID conscious.”

Sexual Healthcare

The final theme that was identified was navigating sexual healthcare. This theme encompassed students' experiences with accessing and navigating sexually transmitted infection (STI) testing, birth control and preventative screenings. Many students reported continuing their sexual healthcare as usual and some reported decreases in accessing sexual healthcare.

Many students indicated that they were able to continue their sexual healthcare as needed. Many of them describe accessing their primary care physician for their sexual healthcare regularly and this did not change during the pandemic. For example, one student stated: "I went to my doctors for a full checkup and every time I have sex after a couple weeks I go get checked." Another student described accessing their doctor to get tested for STIs and refill a contraceptive prescription:

I have received one panel of STI tests and attended 1 doctor's apt regarding my birth control during the pandemic. However, if it weren't for the requirement of seeing a doctor before having my birth control refilled, I most likely would not have seen my obgyn.

Many of these students described getting tested for STIs and switching contraceptive methods during regular scheduled appointments and check-ups with their doctor ("I've only had one sexual partner to avoid the spread of covid. I also continue to get tested for STIs in my regular checkups"). Other students expressed seeking out these services as needed. One student stated "I got a boyfriend over quarantine and got tested for STDs afterwards."

Two students specifically described their utilization of Planned Parenthood as a service provider of their sexual healthcare needs. These students indicated that they went for STI testing ("gone to planned parenthood for STD testing and check-up when I think I need too") and to access contraceptives ("I got the Nexplanon contraception and got tested for chlamydia and gonorrhea at planned parenthood").

Some students also stated that they have had less engagement with sexual healthcare during the pandemic, specifically, less testing and access to preventative care such as pap smears. One student referred to the availability of walk-in clinics stating that "Covid-19 has influenced my sexual life because the resources of walk-in clinics are now limited."

No Change

One common theme that emerged was no change in sexual health/life. We defined this theme as participants reporting that their sexual lives did not change due to the pandemic. Many of the student responses that fit under this theme cited situations in which they were already in a long-term, stable relationship and so the pandemic did not change their sexual health, dynamics or situations. For example, one participant stated, "I live with my boyfriend... covid-19 has not influenced my sexual life." Other participants stated that they had never engaged in sexual activity with a partner prior to the pandemic and so nothing was different due to the COVID-19

pandemic (“none, I hadn’t had sex before COVID and still haven’t”). Other responses stated that nothing changed but did not indicate the reason for or context of the no change during the pandemic. Examples of these responses included “not at all” and “it hasn’t [changed].”

Discussion

The purpose of this study was to investigate how the COVID-19 pandemic has influenced the sexual lives of college students at a university that was conducting curriculum primarily online for the fall 2020 and spring 2021 semesters. We identified the following themes: (1) Sexual activity and quality, (2) Relationship dynamics, (3) Self-focus, (4) New partners, (5) Sexual healthcare, (6) No change. Many students reported changes in their sexual health and lives due to the pandemic. Students who reported no changes in sexual health/life and relationship dynamics were often in committed relationships since before the pandemic and noted that their partner interactions were similar prior to and during the pandemic. However, this was not the case for all students in committed relationships.

For some, COVID-19 and the related social distancing regulations led to an increase in sexual activity and/or quality of sexual interactions with their partner due to more time spent together and/or increased opportunities to explore each other’s preferences. These findings are similar to those of Herbenick et al., (2022), who found that in their sample of US college students, sexual partner interactions were more likely to occur between partners living together and were linked with more emotional connection. In international comparison, our data also align with research from Jacob et al. (2020), who surveyed 868 British young adults (age 25–34; 63.1% female, 36.9% male) about the effects of social distancing on their sexual lives and found a particularly high sexual activity prevalence among young adults in stable relationships. Another international study also found increases in sexual activity and intimacy when asking partnered participants from Bangladesh, India, and Nepal (age 20–60; 21.7% female, 77.5% male, 0.8% gender not reported) to describe the impact of COVID-19 regulations on their sex life in April 2020 (Arafat et al., 2020). Participants in this study reported an increase of 3.3% in sexual activity during the pandemic and 50% reported positive changes in emotional bonds with their partners. Arafat et al. (2020) propose a search for intimacy and an increase in availability as potential explanations, but they did not assess those factors in their study. Our qualitative student responses fill this gap and provide support for the proposed explanations.

For other students in our sample, COVID-19 led to decreases in sexual interactions and/or relationship quality with their partner. Frequently mentioned reasons were less time with the partner, travel restrictions, and/or changes in housing. These results are similar to those observed by Herbenick et al. (2022), who found decreases in sexual behaviors and increased break-ups/separation. Our results also align with those of Firkey et al. (2021), who reported that in their sample of US college students ($N=212$; 50.5% female, 49.5% male; M age=22.1), over half experienced decreases in sexual activity during the early stages of the pandemic (Firkey et al.,

2021). In international comparison, a survey of 1526 Italian adults (age 31–46; 64.6% female, 35.4% male) also found pandemic-related decreases in sexual interactions for 28% of partners in committed relationships (Cito et al., 2020). In this study, the reasons for decreased sexual interactions included poor privacy (43.2%), lack of psychological stimuli (40.9%), and lack of desire (13.5%). A survey of 967 young Chinese adults (age 16–35; 44.1% female, 55.9% male) found that 31% of partnered participants experienced a deterioration in relationship quality (Li et al., 2020), and mentioned increased family supervision/interference and less personal freedom as potential reasons, although those factors were not assessed.

The American college students in our sample who were in relationships mentioned less time with their partners and fewer opportunities to see each other as the main reasons for decreased engagement in partnered sex. These themes emerged mostly for partners who were not cohabitating at the onset of and during the pandemic and were facing additional challenges in terms of travel and meeting regulations. Some themes that emerged in the international studies were not referenced by the students in our sample (e.g., “lack of desire/stimuli”, Cito et al., 2020; “increased family supervision/interference”, Li et al., 2020). Potential reasons could be differences between the samples in cultural context; age distribution (our participants were of similar age range as those in Li’s study but younger than those in Cito’s study), current stage in life (our participants were all students and so were most of Li’s participants but the participants in Cito’s study were mainly young professionals), gender distribution (Li’s sample consists mostly of men while our sample and that of Cito consist of mostly women); or any combination of those, thus raising questions and offering directions for future research.

For students who were not in committed relationships at the onset of the pandemic, changes in sexual activity and/or relationship dynamics also occurred, but for different reasons. Some students reported increases in sexual interactions with new partners due to more free time. However, most students reported decreases in sexual activity due to challenges in meeting new potential partners in the absence of social gatherings. A reported approach utilized to solve this problem was engagement in online dating. An increased use of technology to engage in sexual behaviors during the pandemic was also observed by Herbenick et al. (2022), who reported increases in sexting behavior among US college students who were unpartnered. In our study, most in-person online dating experiences were described in negative ways. For example, one student experienced a negative sexual health outcome after physically interacting with a person they met on a popular dating app. This research indicates possible differences in outcomes related to engagement in various forms of “sextech” (term defined by Gesselman et al., 2022) during the pandemic for college students.

The students in our sample also mentioned increases in focus on self, sexual self-exploration, and sex toy use. Some students perceived their increased masturbation activities as positive experiences, unrelated to the frequency of sexual interactions with others, whereas other students viewed their masturbation activities as less satisfying and/or an alternative to sexual interactions with others. Similar to our results, Li et al. (2020) also found an increase in masturbation frequency in 30% of the young adults in their sample. However, Herbenick et al. (2022) found

no differences in masturbation frequency for unpartnered students. More research is needed to understand these changes (or lack of changes) in solo sexual behaviors among unpartnered students. Our results provide nuanced insight about the differences in circumstances and perceptions for students and how sexual behavior (and perceptions of that behavior) may vary depending on the person.

Many students in the current study reported that they continued their sexual healthcare as usual by accessing their primary health care physician or Planned Parenthood for STI testing and birth control. However, some students mentioned a decrease in sexual healthcare due to infrequent access to walk-in clinics during COVID-19. These results align with reports about decreased availability of sexual health services and resources during the pandemic in New York city and the Southern region of the US (Nagendra et al., 2020; Pampati et al., 2021). We noticed that none of the students in our sample referred to campus-related healthcare resources at the university. These resources include a student healthcare center, which offers mental and sexual healthcare services and remained accessible to students during COVID-19, with increased online services. It is possible that some of the students in our sample were transfer students who had just joined from a near-by community college and were not yet aware of the university-related healthcare resources, or simply did not expect there to be any. Previous research by Lechner et al. (2013) found that students in the US at 2- vs. 4-year institutions feel differently about the level of sexual healthcare support they expect from their schools. Students at 2-year community colleges expect their schools to provide referrals while students at 4-year universities expect resources to be directly available on campus. Students who recently transferred from a 2-year community college may have not been aware of the available resources at their new institution. Alternatively, it is possible that students in the stage of emerging adulthood might feel most comfortable with independent off-campus services for sexual health, like Planned Parenthood, which was specifically mentioned by our participants. According to Lechner et al. (2013), students believe that it is their institution's responsibility to provide resources, but their own responsibility as young adults to access those resources. It may be the case that Planned Parenthood provides a unique combination of accessibility and safety, which may resonate particularly well with students, who tend to struggle to feel comfortable with services designed for adults (Lechner et al., 2013).

In international comparison, challenges in access to sexual healthcare resources were also mentioned by the young adults in the study by Li et al. (2020). In summary, the themes that emerged in our sample of American college students align overall with previous research from other countries, which investigated aspects of sexual health in different participant samples, mostly comprised of older adults. The present study extends previous research by providing insight into the unique experiences of American college students who have been receiving online-only instruction during the pandemic for more than a full semester. The present study also provides a more in-depth investigation of sexual health changes reported by students and provides insight into the specific reasons for changes in sexual activity, sexual health, and relationship dynamics, which were not addressed in this context in previous studies.

While the present study explored the impact of COVID-19 on the sexual lives of US college students, we found it valuable to discuss our results relative to other studies from within the US, and relative to international studies. First, because sexual culture and education vary strongly within the US (Baker et al., 2015); second, because COVID-19 is a global phenomenon, but individual experiences may differ relative to cultural context and value structures. Insights from the World Values Survey (2015), for example, revealed that cultures differ in their values along two main dimensions, i.e., traditional versus secular-rational and survival versus self-expression (Döring et al., 2017; Inglehart & Welzel, 2005). Traditional values focus on deference to authority, religion, and sexual conservatism, while secular-rational values are less focused on authority and religion and incorporate greater sexual liberalism. The traditional/secular-rational value dimension is therefore of particular relevance for examining cultural differences regarding sexuality (Döring et al., 2017). Velezmo et al. (2012), for example, found that prior to the pandemic, Peruvian college students from more traditional Catholic backgrounds engaged more frequently in online sexual experiences than the US college students. When comparing college students from Canada, Germany, Sweden, and the US, Döring et al. (2017), found only small differences in students' sexual attitudes and behaviors. To date, there are no cross-cultural studies on the effects of COVID-19 on the sexual lives of college students. The themes we found in our participant sample were similar to those observed in other regions within the US and in other countries of the world. Variations and nuances of the themes existed, and the discussion of our results relative to other national and international studies helps pave the way for strategic cross-cultural comparisons in future research, which go beyond the explorative scope of this study.

Strengths of the Present Study

One strength of our study is the high percentage of students who identified as LGBTQ (27%) with the majority being bisexual/pansexual women (21%). We also asked students about their involvement in various relationship structures. While the majority of prior research differentiated only between single and coupled/married/cohabiting relationship configurations, our sample included 18.2% of students in casual sexual relationships and 4.5% of students in sexual relationships with multiple partners. With this sample, we found similarities across students in terms of sexual health changes and needs during the pandemic, suggesting a need to focus on sexual health access broadly.

Most importantly, no prior research has conducted exploratory research on the experiences of college students from their own perspective regarding the impact of the COVID-19 pandemic on sexual health. Our study was conducted in the spring semester of 2021, allowing students to experience more than a full semester of online-only learning during the pandemic. This time adds richness to our data because the students have had time to experience and process the changes in their sexual lives that may not have existed at the beginning of the

pandemic. Emerging adulthood is a transition period in which young individuals explore and develop their sexuality, and this process comes with many challenges, which have likely been intensified by the pandemic for some students. College-aged youth are at higher risk of negative sexual health outcomes compared to the rest of the population (CDC, 2021) and barriers to accessing quality sexual healthcare and education/information services (including discomfort with facilities and services designed for adults) are often the cause (Lechner et al., 2013). The COVID-19 pandemic provides unique challenges. Because sexual health is related to student well-being and academic achievement (Lechner et al., 2013), it is important to understand how American college students are affected by the pandemic, and the present study contributes to that understanding.

Limitations

The generalizability of the findings in the present study is limited by sample and methodology. The students who participated were all enrolled in a human sexuality course, indicating a pre-existing interest in topics related to sexuality and sexual health (sample bias). Similar to the research from Europe (Cito et al., 2020; Jacob et al., 2020), our sample was predominantly female. Some of the prior research found gender differences in sexual activity/satisfaction during COVID-19. Li et al. (2020), for example, found that the males in their sample were more likely to experience a decrease in sexual desire, while Jacob et al. (2020) found that the females in their sample were more likely to report low levels of sexual activity during the pandemic. However, these studies were not conducted in the US, and more research is needed to investigate the influence of COVID-19 on sexual health, relative to gender and socio-cultural context.

In addition, the timing of the survey varied. Some students participated at the beginning of the semester and others a few weeks into the semester. This may have caused differences in experiences navigating sexual health during COVID-19 and might have influenced students' responses. Ideally, the impact of COVID-19 on the sexual health and well-being of college students could be studied longitudinally, with large and representative samples from different campuses across the US. The present study provides a first step into that direction by offering insights from our cross-sectional data, which can help inform future studies.

Implications

The students in our sample provided useful information to inform sexual health prevention, intervention, and policy. For example, some participants reported self-exploration and increases in masturbation frequency while others reported effects on their partnered sex. Participants also reported increased difficulties in finding new partners, and increased use of online resources to address these difficulties, albeit with mixed success and sometimes negative sexual health outcomes, such as contracting and STI from a partner they met online. COVID-19 thus requires some

reconsideration of the information made available to support college students' sexual health. The Sexuality Information and Education Council of the United States (SIECUS) states that it is the responsibility of professionals serving young adults to "provide accurate information and education about sexuality, and [to assure] access to sexual and reproductive health care" (SIECUS, 2013, cited after Lechner, 2013). In the context of the present study, this means that universities need to understand the challenges students are experiencing because of the pandemic and continue to support students in navigating their sexual health and well-being even when in-person support and meetings are not available. Possible ways to attain these goals include surveying students about their experiences and providing opportunities for students to socialize in safe settings (e.g., peer-monitored online student forums/student clubs). For example, at the university at which the present study was conducted, students organized a faculty-supported club that met regularly online and was dedicated to discussing relationship and sexuality topics at the onset of the pandemic.

Prior research on general well-being shows that it can also be helpful to provide psychoeducation on practices to maintain sexual, physical, and mental well-being during times of crisis, and facilitate engagement in these practices online (e.g. via online mediation groups or apps; Lippmann et al., 2019). Recent research indicates that young adults will attend telemedicine sessions for sexual health concerns (Rabinowitz et al., 2021). Universities may benefit from increasing their telemedicine services in addition to providing traditional on-campus health clinics to better meet students' sexual health needs. In addition, communicating regularly with healthcare providers is essential for providing students with accurate information about changes to available services, and facilitating access to online healthcare and counseling, including access to the necessary technological devices and stable internet. In a study conducted with a large sample of college students examining mental health services during the pandemic, the majority of college students (70–72%) report interest in free, online mental health services including telehealth and online self-help resources (Ahuvia et al., 2022). Finally, students may benefit from increased communication about the types and availability of university sexual healthcare services during times when instruction is primarily online (e.g., pandemics, natural disasters) so that students are aware of these services and how to access them.

Conclusions

The present study provides nuanced insights into the impact of the COVID-19 pandemic on the sexual health and sexual lives of American college students. The results of this study contribute to understanding the reasons and mechanisms underlying changes in sexual activity/quality and relationship dynamics among college students due to COVID-19 and help outline potential approaches to support students in navigating their sexual health and well-being in times of crisis.

Funding No funding to declare.

Availability of Data and Materials Not applicable.

Code Availability Not applicable.

Declarations

Conflict of Interests All authors declare no conflict of interests.

Ethical Approval Research protocol involved human subjects and went through review and approval of the Institutional Review Board of the authors' university.

Consent to Participate All participants provided informed consent prior to participating in the study.

Consent for Publication All authors consent to publish this manuscript.

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