Covid-19 and Its Link to Victimization Among College Students

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Abstract

In late 2019, the first cases of the disease (Covid-19) caused by the novel coronavirus SARS-CoV2 were discovered. A few months later, a global pandemic was declared that resulted in many lock-down orders across the U.S. These orders and the pandemic itself have sparked research examining the link between Covid-19 and crime. Relevant to the current study, a few studies have found a link between Covid-19 and domestic violence victimization, with many noting significant increases in domestic violence during the pandemic. Some research has also shown that victims are reaching out to domestic violence hotlines at increased rates. Despite these early studies, little is known about how Covid-19 is related to victimization, especially to types other than domestic violence, and how victims may fare during the pandemic. Thus, the current study addresses these gaps by using national level college student data from Fall 2020. Findings show that about 14% of students indicated they had a confirmed test or had symptoms consistent with Covid-19 without a confirmed test. Additionally, having a Covid-19 diagnosis or symptoms were related to all four victimization types and polyvictimization, and being a victim and a polyvictim were related to increased Covid-19-related stress and financial problems. Lastly, victims had increased odds of feeling like psychological or mental health services were somewhat or much more difficult to access during the pandemic relative to non-victims. It may be beneficial for universities to prioritize victims for outreach and consider using resources to modify counseling and other mental health services to better serve their students.

Keywords Covid-19 · Victimization · Mental health services · College students · Pandemic · Financial impacts

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Literature Review

Covid-19 was declared a global pandemic on March 11, 2020 after being first officially identified in December 2019 in Wuhan, China (CDC, 2021a). By April 16, 2021, there were 31,306,928 confirmed cases of Covid-19 in the U.S. and 562,296 deaths (CDC, 2021b). The response to Covid-19 has been dependent on locale, but many places in the U.S. responded by implementing “lock down” orders. In March and April of 2020, over 310 million people in the U.S. were under some type of lock down (i.e., shelter-in-place or a stay-at-home order) (USA Today, 2021). Only six states did not mandate lockdown measures, and in those that did, most of the lockdowns lasted approximately one month (Ballotpedia.org, 2020). And although there is no official definition of “stay-at-home” and “shelter-in-place,” as it varied from state to state, a stay-at-home order usually meant that residents were to not leave their house unless they were essential workers or to resupply critical needs. (Hennes, 2020). Despite these orders, even as many states rescinded their lockdown orders, the states’ governors continued to keep non-essential businesses closed, which effectively kept citizens home. Colleges around the U.S. were also impacted, many of them moving instruction online and closing campus. Thus, college students may have been uniquely impacted by Covid-19 and the policies implemented in response to it (Dennon, 2020).

It may be a while before the long-term effects of lock down orders and Covid-19 are truly understood, but their effects on crime are beginning to be studied. This body of research has documented an increase in homicides during 2020 (Corley, 2021), along with increases in domestic violence (Piquero et al., 2020) and child maltreatment (Bosman, 2020). In fact, a study examining calls for service for domestic violence revealed that, of the six cities/counties studied, all but one reported an increase (Nix & Richards, 2021). Increases in domestic violence have been linked to stay-at-home orders specifically. Piquero et al. (2021) reported that domestic violence incidents increased by 8.1% in the U.S. after the stay-at-home orders were implemented. Survey research buttresses these findings in that people who experienced intimate partner violence (IPV) indicated that their IPV worsened since the start of the Covid-19 pandemic (Jetelina et al., 2020). Further, those who experienced sexual or physical IPV faced the greatest odds of the violence worsening (Jetelina et al., 2020). Other than a few studies regarding stress and mental health, there is very little published research examining the intersection of college students and Covid-19. Since college student victimization is well documented, and because Covid-19 policies may have limited college students’ ability to access support (e.g., health care, peer groups) via the move to virtual learning, research concerning how Covid-19 and victimization are related is needed.

Covid-19 and Victimization

Although this developing body of work shows a link between Covid-19 and crime rates, less is known about the individual-level relationship between victimization

and Covid-19; specifically, whether persons who have had Covid-19 are more prone to victimization than others is not well established. This is particularly true with college students, who tend to be a population vulnerable to victimization. Although it is unclear if experiencing Covid-19 itself increases victimization risk, it is possible that persons with Covid-19 are more vulnerable to victimization. Indeed, the lifestyle-exposure routine activities (L/RAT) perspective may help illuminate why Covid-19 and victimization are likely to be connected. According to this perspective, victimization is likely when persons, given constraints on their behavior, are exposed to motivated offenders who perceive them to be suitable targets without the presence of capable guardianship (Cohen & Felson, 1979; Hindelang et al., 1978). The pandemic has created the possibility of these elements converging in time and space. Persons who are sick may be perceived as vulnerable—they may be easier to victimize when ill and also may be reliant on others who may be offenders. In addition, the lock down orders may have led to people being isolated without capable guardians who could potentially intervene in risky situations, and victims may even be at home with their offender. Further, they created restrictions on movement and, as a result, isolation from friends and other social supports that may have typically been relied upon.

Self-control may also play a role in the likelihood of being a victim and contracting Covid-19. Schreck (1999) proposed that individuals with low self-control were more likely to be victims of crime than others. In later research, Schreck et al. (2002) found that in addition to low self-control, weak social ties to school (which lockdowns increased), significantly increased the chance of victimization. Indeed, some of the elements that determine self-control, such as a lack of future orientation, low empathy for others, a lack of diligence, and risk-taking could also increase an individual's chances of contracting Covid-19. Those with these characteristics may be more likely to disregard protocols enacted to minimize spreading the virus. If true, it would follow that these individuals would be at greater risk of contracting Covid-19 and infecting others.

In addition to these perspectives, it is evident that Covid-19 infection is different across groups, which may help explain a potential link between Covid-19 infection and victimization. Those most at risk for infection and serious illness from Covid-19 may also be those most prone to victimization. In fact, Covid-19 disproportionately impacts persons of color, the demographic group most at risk for victimization (Davis et al., 2020). It remains to be seen if, while accounting for these other risk factors, Covid-19 is linked to victimization. There has been one study examining the link between victimization and Covid-19. In this study, the authors found that intimate partner violence (IPV) victims experienced higher rates of Covid-19. Individuals with a positive Covid-19 test were more likely to experience physical and psychological IPV, and being tested for Covid-19 was also found to be related to being a victim of IPV (Davis et al., 2020). It is possible that those who have been victimized are more susceptible to Covid-19 due to the long-term health consequences related to their victimization experiences. Research has indicated that individuals who have been victimized have higher rates of substance abuse, alcohol use, smoking, gastrointestinal issues, respiratory illness, and chronic stress, which could weaken the immune system (Biebl et al.,

2011; Bouffard & Koeppel, 2012). These same factors may increase the likelihood of contracting and being symptomatic with Covid-19.

Covid-19 and Victims' Needs and Services

Linking Covid-19 to crime and victimization produces an important question: Are victims receiving the services they need during the pandemic? Early research suggests an increase in victim needs, with calls to domestic violence support lines increasing during this time (Bosman, 2020; Bradbury-Jones & Isham, 2020; Daya, & Azpiri, 2021; Taub, 2020). Text messages to the domestic violence hotline in Chicago also increased, which may indicate a change in the ability to access victim services (Bosman, 2020). Victims calling hotlines during Covid-19 have reported unique needs they did not previously have, such as an increased desire for safe shelter (Bosman, 2020). Further, pilot data from victim service providers show that they are lacking in resources to respond to crime victims and that they have had to shift to a virtual format for even initial meetings that would typically occur in person (Lopez-Howard, 2021).

Despite these early findings suggesting a potential relationship between Covid-19 diagnosis, testing, and victimization as well as how victim needs' and service provision may have shifted during the pandemic, it is not apparent if victimization is linked to Covid-19 among college students. Given the changes that college students experienced in 2020, it seems plausible that Covid-19 and victimization may be linked for them as well. Indeed, by the end of March 2020, approximately 14 million U.S. college students were impacted by school closures during the pandemic (Dennon, 2020). With these closures came classes moving to a virtual, online format and essentially the cessation of campus life – including campus services (Dennon, 2020). This change in the campus context likely created challenges with accessing campus-based services such as counseling and victim services post-victimization. Specifically, a report from the Healthy Minds Network (HMN) and the American College Health Association (ACHA) (2020) indicated that 60% of college students reported that the pandemic made it more difficult for them to access mental health care. Not only have college students lost access to campus services, but their social support networks may be gone along with on-campus jobs, housing, and technology (Dennon, 2020). Because of these challenges, college students reported increased levels of stress (HMN & ACHA, 2020). In the HMN and ACHA report, 66% of students indicated the pandemic had increased their financial stress, and compared to 2019, students' levels of depression increased. In addition, 86% of students expressed concern about their security and safety, and many were also worried about the length of the pandemic and the possibility of those they care about contracting Covid-19 (HMN & ACHA, 2020). These findings underlie the need to focus on mental health services for college students. Moreover, this need may be particularly acute for college students who experience victimization, given the link between victimization and mental health. Indeed, depression (Tynes & Giang, 2009), PTSD (Kilpatrick & Acierno, 2003), and anxiety (Storch et al., 2003) have all been linked to victimization, and the pandemic is likely exacerbating any underlying stress or

mental issue with which victims may be dealing. Economic burden related to Covid-19 may also be elevated for college students – young adults are more likely than others to note that someone in their household lost their job and young adults are less likely to have returned to their job after being laid off (Parker et al., 2020). Considering victimization is also associated with financial hardship and victims often experience physical and mental health care costs (Daigle, 2022), it would make sense that victims would experience greater levels of economic stress relative to others. Although not specific to college students, these relationships are likely evident among college student victims as they are in other populations. Additionally, due to universities closing on campus housing during the pandemic, many students moved back into their parents' homes, where these very same stressors may have increased the risk of experiencing domestic abuse from a family member (Kofman & Garfin, 2020).

Current Study

Despite work linking Covid-19 to IPV victimization and shifting needs for victims, it is not clear if other types of victimization are also related to Covid-19. It is also unclear if these relationships exist among college students. Further, how the pandemic impacts college-student victims' wellbeing and ability to access needed psychological or mental health services is unknown. The current study addresses these gaps by using data from a national-level survey of college students. Specifically, the relationship between four types (i.e., violent, sexual, stalking, IPV) of victimization, polyvictimization, and Covid-19 (i.e., whether students had, impact on stress, impact on finances, and impact on counseling services) are examined to see if victims are more prone to Covid-19 and if victims experience greater negative impacts related to Covid-19.

Methods

Data and Sample

Data were derived from the Fall 2020 administration of the American College Health Association's National College Health Assessment (ACHA-NCHA III) survey. First administered in 2000, the ACHA-NCHA is a national survey of college students designed to assess health behavior, adjustment, and wellbeing. The ACHA-NCHA is given every Fall and Spring semester. It was revised in 2008 (ACHA-NCHA II) and 2019. The third version, the ACHA-NCHA III, is used in this study.

The Fall 2020 survey data include only schools that surveyed all students or used a random sampling strategy and used the web-based version of the survey. The data include survey responses from 13,373 students attending 22 different institutions of higher learning. Unlike previous administrations, the Fall 2020 data include questions about Covid-19.

Measures

Dependent Variables

Violent Victimization A measure was created to assess students' experiences with violent victimization using two questions—whether students had experienced a physical assault and/or verbal threats within the past 12 months, not including intimate relationships. Responses were recoded so that students who indicated experiencing either of these were coded as a 1 and 0 otherwise.

Sexual Victimization A measure was created to assess students' sexual victimization experiences not including intimate relationships using four questions. Students were asked whether they had experienced sexual touching without consent, attempted sexual penetration without consent, sexual penetration/made to penetrate someone else, and sex without consent while drinking alcohol in the last 12 months. Responses were recoded so that those who indicated experiencing any of these four forms of sexual victimization were coded as 1 and coded as 0 otherwise.

Stalking Victimization Students who reported that they were a victim of stalking (for example: waiting for me outside my classroom, residence, or office; or repeated emails/phone calls) not including intimate relationships within the last 12 months were coded as 1 and 0 if not.

IPV Victimization Five questions were used to create an intimate partner violence (IPV) measure. Students were asked within the last 12 months if they had experienced any of the following in an intimate (coupled/partnered) relationship—partner called them names or put them down; partner insisted on knowing where they were or tried to limit contact with family/friends; a partner pushed, grabbed, shoved, kicked, bit, choked, or hit them without consent; partner forced unwanted sexual contact by holding them down or hurting them in some way; partner pressured them into unwanted sexual contact via threats, coercion, or using alcohol or other drugs. Those who indicated experiencing any of these were coded as a 1 and 0 if none were experienced.

Polyvictimization The four different types of victimization detailed above (i.e., violent, sexual, stalking, IPV) were used to create a count polyvictimization measure, ranging from 0 to 4. Those who had experienced 0 victimization types were coded as 0, one type coded as 1, two types coded as 2, three types coded as 3, and four types coded as 4. Polyvictims are considered to be those who experienced two or more types of victimization.

Covid-19 Impact on Stress Students were asked how the Covid-19 pandemic has impacted their overall level of stress, with responses scored 1–5 with 1 indicating 'significantly increased my level of stress' and 5 indicating 'significantly decreased my level of stress'. Response categories were dichotomized so that students who indi-

cated experiencing significant or somewhat increases in their stress levels were coded as 1. Then, students who indicated no significant change, somewhat, or significant decreases in stress levels were coded as 0.

Covid-19 Impact on Finances Participants were asked how their financial situation has been affected by the Covid-19 pandemic, with responses scored 1–5 with 1 indicating ‘a lot more stressful’ and 5 indicating ‘a lot less stressful’. Students who indicated that their financial situation was somewhat or a lot more stressful were coded as 1, and those who indicated no significant change, somewhat, and a lot less stressful were coded as 0.

Covid-19 Impact on Counseling Services Students were asked if they had received psychological or mental health services within the last 12 months. Students who answered yes to this question were then asked, “if you have received counseling or therapy (either in-person or by telehealth) in the past 12 months, how has your access to mental health care been affected by the COVID-19 pandemic?” Original responses were coded on a 1–6 scale, with 1 indicating ‘much more difficult or limited access’, 5 indicating ‘much less difficult or limited access’, and 6 indicating ‘don’t know or not applicable (have not tried to access care since the pandemic began)’. The final variable is coded so that students who indicated experiencing somewhat more difficult or much more difficult (or limited) access to mental health care were coded as 1. Students who indicated experiencing no significant change in access, somewhat less difficult or much less difficult (or limited) access to mental health care were coded as 0.¹

Independent Variables

Victimization In the models examining Covid-19 stress, financial stress, and access to psychological and mental health, each victimization type was included as an independent variable. Each variable was coded as described above.

Had Covid-19 Students were asked whether they had ever had Covid19 (the novel coronavirus disease), with respondents indicating they did and it was confirmed by a test, maybe (e.g., had symptoms consistent with Covid-19, but it was not confirmed by a test), probably not, or no. Responses were recoded so that those who indicated having either a confirmed test were coded as 2, those who had symptoms consistent with Covid-19 were coded as 1, and those who indicated that they had not experienced any symptoms or had a confirmed negative test were coded as 0.

Work for Pay Due to the pandemic’s impact on jobs and the fact that working outside the home may increase the likelihood of contracting Covid-19, a measure was used to assess students’ experiences with working for pay. Students were asked how many hours they spend in a typical week working for pay. Responses

¹ Some students indicated they did not know or it was not applicable (had not tried to access care since the pandemic began), so they were coded as missing for this variable.

ranged from 0 h to more than 30 h. Those who indicated working 1–5 h per week and greater were coded as 1, and those who reported working 0 h per week for pay were coded as 0.

Several measures of substance use were included because they are connected with general wellbeing and also may increase the likelihood of victimization and contracting Covid-19 (CDC, 2021c; National Institute on Drug Abuse, 2021). Thus, measures of binge drinking, marijuana use, and illicit drug use are included.

Binge Drinking Students were asked within the last two weeks, how many times they had “five or more drinks (males) or four or more drinks (females) containing any kind of alcohol at a sitting.” Responses were recoded to reflect those who had participated in binge drinking at least once in the past two weeks as 1 and 0 otherwise.

Marijuana Use Students were asked if they had ever used marijuana in their life. Those who answered yes were then asked how often they had used marijuana in the past three months. Responses were recoded so that those who indicated using marijuana at least once or twice within the past three months were coded as 1. Those who answered never to marijuana use in the last three months, and those who said no to the initial “ever in life” question were coded as 0.

Illicit Drug Use Participants were asked if they had ever used any of the following drugs for nonmedical use in their life: cocaine, prescription stimulants, methamphetamine, inhalants, sedatives, hallucinogens, heroin, opioids, or other. Those who answered yes were then asked how often they had used each drug in the past three months. Responses were recoded so that those who indicated using any of these at least once or twice within the past three months were coded as 1. Those who answered never to using any of these in the last three months and those who said no to the initial “ever in life” question were coded as 0.

Demographics

Relationship Status Students were asked what their relationship status was. Those who indicated being in a relationship, whether married/partnered or not were coded as 0. Students who indicated being single were coded as 1.

Race/Ethnicity A race/ethnicity measure was included. Students were asked how they usually describe themselves. Categories were recoded so that students who indicated being White were coded as 1, Black or African American coded as 2, Asian or Asian American coded as 3, Hispanic or Latina/o/x coded as 4, Biracial or Multiracial coded as 5, and other which includes American Indian or Native Alaskan, Middle Eastern/North African (MENA) or Arab Origin, Native Hawaiian or Other Pacific Islander Native, and a general other category coded as 6. Students

could write in an answer if they chose other. Written answers were recoded such that if they clearly fit within one of the identified categories they were coded as such, if the answers were obviously made-up or fake, they were coded as missing, and kept as other if they responses did not appear to fit elsewhere.

Age Age is coded in years.

Birth Sex Students were asked what sex they were assigned at birth. Responses were coded so that females were 0, and males were 1.²

Gender Identity Students were asked which term they used to describe their gender identity. Initial response categories were woman or female, man or male, trans woman, trans man, genderqueer, agender, genderfluid, intersex, non-binary, and other. Written answers were recoded within these categories, coded as missing if clearly made up or fake, and left in the other option if did not appear to fit elsewhere. The measure was then recoded to reflect those who identified as woman/female and man/male as 0 (binary) and all others were coded as 1 (trans+).

Characteristics of this sample are presented in Table 1. Approximately 14% of the sample had a confirmed case or symptoms consistent with Covid-19, and almost all (89%) students indicated Covid-19 had increased their stress levels to some degree. The majority (61%) of students had also been impacted financially by the pandemic, and half (50%) of students who sought out mental health care indicated their access had been limited or more difficult since the Covid-19 pandemic. About 10% of students experienced a violent victimization, and 5% reported experiencing a sexual victimization within the past 12 months. Additionally, 3% of students indicated that they had been stalked, about 14% indicated they experienced IPV within the past 12 months, and approximately 8% of the sample was a polyvictim. Over half (58%) of students indicated they work for pay in a typical week. A little less than a quarter of students (23%) indicated they had participated in binge drinking within the past two weeks. Similarly, about 22% of students indicated they had used marijuana within the past three months, but only 7% had used illicit substances within the past three months. Slightly more than half were in a relationship. The majority of the sample was White (64%), about 7% were Black, about 12% were Asian, 7% were Hispanic, 4% indicated being Biracial or Multiracial, and approximately 6% indicated another race or ethnicity. The average age of participants was 23 with a range from 18–98. The majority (72%) indicated their birth sex as being female. Approximately 98% of students identified with a gender identity that was binary relative to trans+.

² Three individuals indicated being intersex. Because of the small sample size, they were excluded from the analysis.

Table 1 Sample characteristics

	%(n)	N
Dependent variables		
Covid-19 stress		13,343
Yes	89.19 (11,900)	
No	10.81 (1443)	
Covid-19 finance		13,336
Yes	60.90 (8121)	
No	39.10 (5215)	
Covid-19 counsel		3349
Yes	49.87 (1670)	
No	50.13 (1679)	
Independent variables		
Violent victimization (1 = yes)	10.41 (1384)	13,290
Sexual victimization (1 = yes)	5.01 (666)	13,289
Stalking victimization (1 = yes)	3.35 (443)	13,216
IPV victimization (1 = yes)	13.59 (1796)	13,218
Polyvictimization		13,299
0 types	77.29 (10,279)	
1 types	15.88 (2112)	
2 types	4.64 (617)	
3 types	1.66 (221)	
4 types	0.53 (70)	
Had Covid-19		13,307
Yes	14.26 (1897)	
No	85.74 (11,410)	
Variables related to Covid-19 and victimization		
Work for pay	57.83 (7679)	13,279
Binge drinking (1 = yes)	22.83 (3036)	13,296
Marijuana use (1 = yes)	21.70 (2872)	13,235
Illicit drug use (1 = yes)	7.05 (939)	13,310
Relationship status		13,285
Single	48.03 (6381)	
In relationship	51.97 (6904)	
Race/ethnicity		13,356
White	64.29 (8587)	
Black	6.78 (905)	
Asian	11.59 (1548)	
Hispanic	7.35 (982)	
Biracial/multiracial	4.04 (539)	
Other	5.95 (795)	
Age: $\bar{x}$ (s)	23.50 (6.93)	13,189
Birth sex		13,297
Male	28.18 (3747)	

Table 1 (continued)

	%(n)	N
Female	71.82 (9550)	13,293
Gender identity		
Binary	97.68 (12,985)	
Trans+	2.32 (308)	

Analytic Plan

The analysis proceeded in two major steps. First, the relationship between Covid-19 and victimization is examined. Using multivariate logistic regression, having Covid-19 or symptoms of Covid-19 and whether it is related to violent, sexual, stalking, IPV, and polyvictimization is examined, while controlling for factors likely associated with victimization and Covid-19. Second, multivariate logistic regression is used to examine if victimization is associated with Covid-19-related stress, financial impact of Covid-19, and access to counseling, while controlling for factors likely related to victimization and these Covid-19 variables. For all multivariate models, robust standard errors are used to account for the clustering of students within schools (Wooldridge, 2016).

Results

The results of the models examining the relationship between having Covid-19 and violent, sexual, stalking, IPV victimization, and polyvictimization are presented in Table 2. As shown, having a confirmed Covid-19 diagnosis was associated with increased odds of sexual victimization, IPV victimization, and polyvictimization. Even though not significant, having a confirmed Covid-19 diagnosis also increased the odds of violent victimization and stalking victimization in similar magnitudes. Students who had Covid-19 had odds of being sexually victimized that are 29% higher than other students. Similarly, the odds of IPV victimization were 24% higher and the odds of polyvictimization are 25% higher for students who had Covid-19. Students who had symptoms consistent with Covid-19 were also more likely to be victimized. The odds of being violently victimized were 74% higher, the odds of being sexually victimized were 65% higher, the odds of being stalked were 115% higher, the odds of being a victim of IPV were 41% higher, and the odds of experiencing polyvictimization were 35% higher when compared to those who had no symptoms or had a negative test.

In the next step, the relationship between violent, sexual, stalking, IPV victimization and Covid-19 related stress is examined, while accounting for factors likely connected to these types of victimization and Covid-19 related stress. As shown in Table 3, the odds of having Covid-19 significantly or somewhat impact overall stress increased for violent victims compared to those who had not been victimized.

Table 2 Regression Models Predicting Victimization

Variables	Violent victimization (N = 12,894)		Sexual victimization (N = 12,891)		Stalking victimization (N = 12,825)		IPV victimization (N = 12,838)		Polyvictimization (N = 12,899)	
	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI
Had Covid-19 (no symptoms/ negative test—Ref)										
Symptoms	1.74***	1.35 2.25	1.65***	1.29 2.10	2.15***	1.66 2.78	1.41***	1.22 1.63	1.54***	1.35 1.75
Confirmed positive test	1.24	0.97 1.60	1.29*	1.05 1.59	1.24	0.77 2.01	1.24**	1.06 1.46	1.25**	1.10 1.42
Work for pay (1 = yes)	1.37***	1.15 1.64	1.26*	1.02 1.55	1.28	1.00 1.66	1.24***	1.10 1.39	1.25***	1.12 1.40
Binge drinking (1 = yes)	1.22***	1.11 1.35	1.52***	1.26 1.83	1.12	0.91 1.36	1.45***	1.28 1.63	1.30***	1.22 1.37
Marijuana use (1 = yes)	1.60***	1.41 1.82	2.22***	1.84 2.66	1.36**	1.10 1.67	1.53***	1.31 1.78	1.55***	1.40 1.71
Illicit drug use (1 = yes)	1.67***	1.39 2.02	1.80***	1.42 2.28	1.75***	1.29 2.37	1.63***	1.44 1.84	1.55***	1.38 1.74
Relationship status (1 = single)	1.17*	1.03 1.32	1.32**	1.10 1.57	0.93	0.73 1.18	0.82**	0.72 0.92	0.99	0.91 1.09
Race/ethnicity (White—Ref)										
Black	0.71*	0.52 0.96	1.31	0.85 2.02	1.28	0.83 1.96	0.91	0.75 1.11	0.94	0.78 1.13
Asian	0.65***	0.53 0.80	0.79	0.52 1.21	1.03	0.65 1.61	0.80	0.63 1.02	0.78**	0.66 0.91
Hispanic	0.82	0.63 1.06	0.66	0.39 1.10	0.84	0.46 1.52	1.17	0.97 1.41	0.92	0.77 1.10
Biracial/multiracial	1.28*	1.02 1.61	1.10	0.68 1.79	1.17	0.64 2.14	1.14	0.87 1.47	1.15	0.94 1.40
Other	1.18	0.99 1.40	1.35	0.94 1.92	1.64**	1.16 2.31	1.22*	1.04 1.43	1.23*	1.05 1.43
Age	0.97***	0.96 0.99	0.92***	0.89 0.95	0.96**	0.93 0.98	1.00	0.99 1.01	0.98***	0.98 0.99
Birth sex (1 = male)	1.38***	1.16 1.63	0.31***	0.23 0.41	0.33***	0.26 0.43	0.81***	0.73 0.89	0.83***	0.77 0.90
Gender Identity (1 = trans +)	2.27***	1.61 3.21	1.97**	1.19 3.26	1.19	0.53 2.70	0.83	0.60 1.16	1.44*	1.07 1.93
_cons	0.11	0.08 0.14	0.19	0.10 0.37	0.08	0.04 0.14	0.12	0.08 0.17	0.32	0.26 0.40
Pseudo r ²	0.0449		0.0969		0.0464		0.0305		0.0302	
Log Pseudolikelihood	− 4118.9626		− 2325.6533		− 1792.162		− 4931.0231		− 9156.4805	

*p < .05, **p < .01, ***p < .001

Table 3 Logistic regression models predicting Covid-19 variables

Variables	Covid-19 stress (N = 12,759)			Covid-19 finance (N = 12,759)			Covid-19 counsel (N = 3227)		
	Odds ratio	CI		Odds ratio	CI		Odds ratio	CI	
Violent victimization (1 = yes)	1.42**	1.12	1.81	1.67***	1.41	1.99	1.20	0.99	1.45
Sexual victimization (1 = yes)	1.35	0.97	1.88	1.34**	1.09	1.66	1.06	0.83	1.36
Stalking victimiza- tion (1 = yes)	1.27	0.91	1.76	1.48***	1.20	1.83	1.43**	1.09	1.87
IPV victimization (1 = yes)	1.23	0.99	1.52	1.38***	1.23	1.54	1.17	0.95	1.43
Had Covid-19 (no symptoms/negative test—Ref)									
Symptoms	0.97	0.78	1.20	1.23***	1.10	1.38	1.16	0.97	1.39
Confirmed positive test	0.94	0.78	1.12	1.20**	1.05	1.38	1.26	0.85	1.85
Work for pay (1 = yes)	1.24**	1.06	1.45	1.45***	1.26	1.67	1.13	0.95	1.34
Binge drinking (1 = yes)	1.04	0.88	1.23	1.05	0.94	1.18	0.94	0.81	1.09
Marijuana use (1 = yes)	1.36**	1.12	1.64	1.24***	1.11	1.39	1.20*	1.04	1.39
Illicit drug use (1 = yes)	1.10	0.80	1.51	1.17	0.99	1.38	1.44***	1.21	1.71
Relationship status (1 = single)	0.90**	0.84	0.96	0.78***	0.72	0.85	1.03	0.88	1.20
Race/ethnicity (White—Ref)									
Black	0.66***	0.54	0.82	1.40**	1.15	1.71	0.86	0.65	1.13
Asian	1.07	0.90	1.27	1.32*	1.06	1.65	0.86	0.60	1.23
Hispanic	1.56***	1.18	2.05	1.87***	1.47	2.38	1.18	0.87	1.60
Biracial/multiracial	1.08	0.68	1.72	1.36**	1.10	1.69	1.69*	1.08	2.64
Other	1.10	0.90	1.34	1.44***	1.22	1.71	1.00	0.78	1.29
Age	1.00	0.99	1.01	0.98**	0.98	0.99	0.98	0.96	1.00
Birth sex (1 = male)	0.34***	0.30	0.39	0.73***	0.69	0.78	1.15	0.95	1.40
Gender identity (1 = trans +)	2.52***	1.66	3.84	1.67***	1.37	2.04	1.41**	1.12	1.77
_cons	9.86	8.18	11.89	1.57	1.28	1.92	1.23	0.76	2.01
Pseudo r ²	0.0539			0.0372			0.0209		
Log Pseudolikelihood	−4094.3063			−8220.3652			−2189.9285		

*p < .05, **p < .01, ***p < .001

Table 4 Logistic regression models predicting Covid-19 variables

Variables	Covid-19 stress (N = 12,890)			Covid-19 finance (N = 12,889)			Covid-19 counsel (N = 3251)		
	Odds ratio	CI		Odds ratio	CI		Odds ratio	CI	
Polyvictimization (0 type—Ref)									
1 type	1.33**	1.09	1.62	1.60***	1.37	1.87	1.24*	1.02	1.49
2 types	2.00***	1.44	2.78	2.31***	1.88	2.85	1.57***	1.25	1.97
3 types	2.11**	1.22	3.63	2.53***	1.69	3.81	1.76**	1.18	2.63
4 types	1.50	0.73	3.06	3.11***	1.78	5.44	1.03	0.54	1.95
Had Covid-19 (symptoms/negative test—Ref)									
Symptoms	0.97	0.79	1.20	1.24***	1.10	1.39	1.15	0.96	1.38
Confirmed positive test	0.94	0.78	1.13	1.22**	1.07	1.40	1.28	0.87	1.89
Work for pay (1 = yes)	1.23*	1.05	1.44	1.45***	1.25	1.67	1.12	0.94	1.34
Binge drinking (1 = yes)	1.04	0.88	1.23	1.05	0.94	1.17	0.94	0.80	1.10
Marijuana use (1 = yes)	1.38**	1.14	1.66	1.24***	1.10	1.40	1.18*	1.03	1.35
Illicit drug use (1 = yes)	1.10	0.80	1.52	1.16	0.98	1.37	1.43***	1.20	1.70
Relationship status (1 = single)	0.89**	0.83	0.96	0.79***	0.73	0.85	1.03	0.89	1.20
Race/ethnicity (White—Ref)									
Black	0.66***	0.54	0.80	1.39**	1.15	1.68	0.85	0.65	1.12
Asian	1.07	0.90	1.27	1.33*	1.07	1.65	0.86	0.60	1.24
Hispanic	1.56**	1.19	2.06	1.87***	1.46	2.38	1.16	0.85	1.59
Biracial/multiracial	1.09	0.68	1.74	1.37**	1.11	1.69	1.68*	1.07	2.64
Other	1.10	0.90	1.34	1.43***	1.22	1.67	1.02	0.79	1.31
Age	1.00	0.99	1.01	0.98**	0.98	0.99	0.98*	0.96	1.00
Birth sex (1 = male)	0.34***	0.30	0.39	0.73***	0.69	0.78	1.15	0.96	1.39
Gender identity (1 = trans +)	2.57***	1.69	3.91	1.70***	1.39	2.07	1.39***	1.09	1.77
_cons	9.80	7.96	12.06	1.56	1.27	1.91	1.22	0.74	2.00
Pseudo r ²	0.0548			0.0375			0.0212		
Log Pseudolikelihood	−4144.3098			−8300.744			−2205.6		

* $p < .05$, ** $p < .01$, *** $p < .001$

Violent victims had odds that were 42% greater than non-violent victims of having Covid-19 significantly or somewhat impact their overall stress. Although not significant, the magnitude and direction of the effects of sexual (35%), stalking (27%), and IPV (23%) victimization were similar to those for violent victimization.

How victimization is tied to financial stress is examined in Table 3, column 2. As shown, each type of victimization is related to an increase in having Covid-19 impact financial stress either by a lot or somewhat. The odds of indicating having financial stress impacted by Covid-19 a lot or somewhat are 67% higher for violent

victims, 34% higher for sexual victims, 48% higher for stalking victims, and 38% higher for IPV victims (compared to those who were not victimized).

In the last model, how access to psychological or mental health services is impacted by Covid-19 for victims was examined (Table 3, column 3). Only those individuals who indicated they had received such services over the previous year are included in the model. Stalking victims faced odds of noting their access to psychological or mental health services was negatively impacted that were 43% higher than non-stalking victims. Although not significant, the odds of this outcome for violent victimization were increased by 20%, 6% for those experiencing sexual victimization, and 17% for those experiencing IPV victimization.

In Table 4, the results examining polyvictimization and its relationship to Covid-19 related outcomes are presented. As demonstrated, experiencing one type of victimization (compared to none) increased the odds of having Covid-19 significantly or somewhat impact overall stress, Covid-19 impact financial stress, and having Covid-19 negatively impact access to psychological or mental health services. As the number of different types of victimization increased so too do the odds of experiencing each of these negative outcomes, with students who experienced three different types of victimization facing odds of having Covid-19 significantly or somewhat impact overall stress that are 111% higher, having Covid-19 impact financial stress that are 153% higher, and having Covid-19 negatively impact access to psychological or mental health services that are 76% higher than those who experienced no victimizations. Having experienced four types of victimization was not significantly related to Covid-19 overall stress or Covid-19 negatively impacting access to psychological or mental health services (likely because of the small number of individuals who experienced four types ($n = 70$), but it was associated with an increase in the odds for these outcomes. Experiencing four types of victimization was associated with a 211% increase in the odds of having Covid-19 impact financial stress.

Discussion

Research is underway to uncover the many effects of Covid-19. In criminal justice, much of the focus has been on how crime rates have shifted during the pandemic. Little empirical work has examined the relationship between Covid-19 and victimization. This manuscript addresses this gap by examining not only whether having Covid-19 is related to different types of victimization, but also how victimization may shape stress and access to needed services during the pandemic. To this end, this manuscript has three key findings.

First, although not the main focus of the manuscript, we found that Covid-19 appears to be problematic among college students. Fourteen percent of students indicated they either had Covid-19 or they had symptoms consistent with Covid-19 without a confirmed test. Almost 90% of students reported that Covid-19 had somewhat or significantly impacted their overall stress, and 61% reported that Covid-19 had somewhat or significantly impacted their financial stress. Of those students who had received psychological or mental health services over the previous 12 months, almost half found that it was somewhat or much more difficult to access these

services during the pandemic. Overall, these findings demonstrate that although young people are less likely to become seriously ill or die as a result of Covid-19 (Maragakis, 2020), they are not immune from the negative effects of the pandemic. Colleges, then, should consider expanding services for college students to deal with the increased stress and financial stress that students are experiencing (Frueh, 2021; Son et al., 2020). Further, because many students rely on the university for psychological and mental health services, making sure that students can still access these services virtually or through other mechanisms is critical. Alerting students to the availability of these services is especially important, considering that many students are no longer attending in-person and may not be informally notified about available services.

Second, our findings show that having Covid-19 and Covid-19-like symptoms increased the odds of experiencing all four types of victimization and polyvictimization. Research on the link between Covid-19 and crime has demonstrated that reports of domestic violence increased during the pandemic (Jetelina et al., 2020; Nix & Richards, 2021; Piquero et al., 2021), and others have shown relationships to homicide (Corley, 2021). Our study builds on this work by demonstrating that Covid-19 is also connected to different types of violence—violent, sexual, stalking, and IPV—along with polyvictimization. Students who had Covid-19 had greater odds of experiencing each of these victimization types (confirmed test significant for sexual victimization, IPV victimization, and polyvictimization and Covid-19 symptoms significant for all types of victimization) than those who had not been diagnosed or did not have symptoms. Importantly, we found these relationships even when controlling for factors related to Covid-19 and victimization such as demographics and other lifestyle factors. Although speculative, it could be that having Covid-19 or being sick increases victimization risk by increasing vulnerability. It is also possible that the lock-down increased exposure to motivated offenders by increasing the amount of time spent indoors and preventing people from being able to readily leave their home if needed. It is also possible that having Covid-19 removed capable guardians or people who could have intervened in potentially dangerous situations. Having Covid-19 could also reduce a person's access to resources that they could have otherwise used that may have helped reduce their victimization risk such as getting a protective order, seeking shelter, calling the police, or getting counseling. It is possible that the victimization incident did not occur while a person was actively suffering from Covid-19, but the relationships found do suggest that Covid-19 and victimization are indeed related; this could indicate that victimization occurred first, and the after-effects may have compromised the students' health making them more susceptible to the virus. Further, our findings reflect a need for researchers to examine multiple forms of victimization.

Our findings add to the literature on victimization and health, in which victims have been shown to suffer heightened negative health outcomes (Brewer & Thomas, 2019; Campbell, 2002; Coker, 2000; Follingstad, 2009; Lagdon et al., 2014). Indeed, victims demonstrate worse health outcomes than others. Our findings cannot establish that Covid-19 caused victimization given the cross-sectional nature of the data. It is possible that having Covid-19 is indeed a risk factor for victimization—but it is also possible that victimization increases the risk that Covid-19 is contracted. In

this way, it could be that victimization and its attending health outcomes both serve to elevate the risk of contracting or feeling sick with Covid-19. It is also possible that the connection between Covid-19 and victimization is a function of other factors, even though we control for demographics and other factors connected to risky lifestyles. One such potential factor is having low self-control. Previous research has found that individuals who are low in self-control are more prone to victimization and these people may also be more prone to contracting Covid-19. Those low in self-control may not be willing or able to restrain their behavior in ways that functionally reduces the risk of getting contagious diseases such as Covid-19. For example, past research has linked low self-control to risky sexual behavior, which may lead to contracting Sexually Transmitted Infections (Kahn et al., 2015; Sutarso et al., 2018). Future research should include measures that account for low self-control or other factors that could potentially explain the Covid-19—victimization link.

Our findings show that colleges could use testing for Covid-19 as an opportunity to screen for other things, such as victimization and other hardships. In this way, colleges may identify victims who could use assistance dealing with stress, their finances, or receiving psychological and mental health services. To this end, universities may benefit from implementing early alert systems that identify students who are at risk of falling behind. Specifically, instructors could be prompted, early in the semester, to submit the names of students who appear to be having a difficult time in their course. Upon receipt of the student names, students are then prompted to fill out an online assessment, which allows the early alert staff to reach out to these students. Relevant to Covid-19, instructors may already have been notified by their students that they needed extensions to make-up work due to having Covid-19 or consistent symptoms. Thus, instructors can indicate this on the initial form, and early alert teams can be trained to recognize there may be additional factors impacting the students' daily lives. The staff can then recommend students to the appropriate campus services.

Third, our findings also show that victims are more likely to experience overall stress and financial stress during the pandemic. Although violent victimization was significantly related to overall Covid-19 related stress, the other types of victimization were not significant. The odds ratios, however, indicate an increase for all types. All types of victimization were related to Covid-19 impacting financial stress, with the effect for violent victimization being the largest. Stalking victimization was significantly related to having access to psychological or mental health services negatively impacted, while the other types of victimization were not significantly related. Polyvictimization was related to each negative Covid-19 related outcome. These disparate findings suggest the need to further investigate how different types of victimization are related to Covid-19 and Covid-19 related impacts. Importantly, much of the literature on victimization and Covid-19 is focused on IPV, but our findings suggest that other types of victimization are associated with having Covid-19 and experiencing negative outcomes related to Covid-19.

It is possible that victims may, independent of Covid-19, be experiencing stress and financial hardship at greater levels than others. The pandemic, then, may exacerbate these underlying issues, suggesting the need for intervention. The findings are especially relevant when considering that some victims indicated more difficulty

accessing psychological and mental health services than others. Victims are also those who expressed greater stress and financial stress connected to Covid-19; thus, they may be in even greater need of such services. It would behoove colleges to expand their provision of counseling and other mental health services, especially during times such as a pandemic. For instance, many colleges restrict the number of visits students have over the course of the semester. They may consider increasing the limit or adding virtual options. Additionally, due to the pandemic restricting access to in-person services, students who are prompted to use virtual methods to receive care may be unable to do so. Specifically, there may be students who do not have access to their own laptop or internet or have a safe and secure place to participate in online counseling. Thus, their ability to receive services virtually would be restricted, or they would be forced to seek counseling services in public spaces. Their time in counseling or seeking other services may also be their only outlet to connect with others, which may leave them feeling isolated. Colleges that have victim services and/or Title IX offices that have information on reported victimizations, could consider reaching out to victims to ensure they feel supported and have the resources they need. These recommendations could be supported by funding from the CARES Act that universities received as part of the Covid-19 relief packages (U.S. Department of Education, 2021). In this way, universities could help alleviate some of the negative health effects that students may be facing due to the pandemic as it relates to victimization, stress, finances, and mental health services.

Despite the contributions of our study, it is not without limitations. First, the Fall 2020 ACHA-NCHA III data include a smaller sample than previous administrations, given the pandemic. Although the sample is still quite large, it includes a smaller number of schools than in previous administrations. Thus, although the data are national, they are not generalizable to all colleges in the U.S. Second, because the data are cross-sectional, we are unable to establish causal order. It is possible that the victimizations the students experienced happened prior to the start of the pandemic and/or occurred after they experienced stress or need for psychological and mental health services. Regardless, our findings connecting Covid-19 and victimization suggest the need for longitudinal analysis to disentangle causal effects. In addition, although we establish that victims found it harder to access psychological and mental health services than others, we cannot be certain that they were attempting to access these services related to their victimization. Further, the response options for this variable are worded imprecisely; thus, there is a likelihood of measurement error. Qualitative interviews with victims could help illuminate how they have been navigating life during the pandemic, the reasons they may be experiencing high levels of stress, and the barriers they may have to accessing needed services.

Conclusion

Although the full effect of Covid-19 on the populace may not be fully understood for many years, there are current, recognizable needs that can be addressed. Our research contributes to the identification of those needs in college students, especially those who have been victimized. Lockdowns, mandated virtual learning, and

isolation created new stressors and uncertainties over finances and their wellbeing. As our research indicated, these effects were increased with those college students who had experienced violent, sexual, stalking, IPV victimization, and polyvictimization. In addition, students who had Covid-19 symptoms and diagnoses were more likely to be victims than other students. Underlying all of these issues, is the fact that victims found it more difficult than non-victims to access services that could help them through the pandemic. The findings indicate the need for universities to be more proactive in identifying these students and providing them with needed services. Further research is needed to determine causal effects between the Covid-19 pandemic and the increased stress of college student victims.

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