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Intimate Partner Violence Victimization and Perpetration among U.S. Adults During the Earliest Stage of the COVID-19 Pandemic

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Purpose: The objective of this study was to evaluate the association between COVID-19 related conditions and the perpetration or experience of intimate partner violence (IPV) in the earliest stage of the pandemic.

Methods: This cross-sectional study analyzed data collected via an internet-based survey in the spring of 2020 from an online sample of noninstitutionalized adults in the United States (N = 2,045). More than half of the sample self-identified as being in an intimate relationship at the time of the study (58.2%, n = 1,183) and were used in the analysis. A four-item tool was used to assess IPV perpetration and victimization during the earliest stage of the pandemic. Respondents self-reported demographic data and recent health histories, including COVID-19 tests results, related symptoms, and degree of personal social distancing. We hypothesized that COVID-19 related factors would increase risks of IPV. Descriptive, correlational, and generalized linear modeling analysis techniques were employed.

Results: COVID-19 impacted respondents had an increased risk of IPV victimization and perpetration. Among those who reported having symptoms consistent with COVID-19 but were denied access to testing, the odds of being a victim of psychological IPV was three times more likely than those who did not

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have symptoms. Respondents who reported testing positive to COVID-19 were two to three times more likely to experience or perpetrate psychological and physical IPV against an intimate partner. People who lost their job due to the pandemic were three to four times more likely to perpetrate IPV compared to those who remained employed.

Conclusions: Especially during this COVID-19 pandemic period, our results emphasize the need for an ongoing public-health response to IPV. Continued surveillance via effective screening, intervention development, and implementation is needed.

Keywords: COVID-19; intimate partner violence; domestic violence; perpetration; victimization

COVID-19, the disease caused by SARS-CoV-2, is a highly contagious severe acute respiratory illness. Approximately 33 million people in the United States (U.S) have been infected with this novel coronavirus COVID-19, and 577,054 have died as of May 2021 (Johns Hopkins, 2021). The clinical spectrum of SARS-CoV-2 infection ranges from asymptomatic infection to life-threatening and fatal disease (del Rio et al., 2020). The clinical course and long-term health consequences of COVID-19 still remain largely unknown. Similarly, implications for the social, economic, and mental health well-being of people are currently being researched. Preliminary evidence suggests that nationwide stay-at home and social distancing policies following the COVID-19 pandemic have dramatically shifted the lives of many individuals and families, and introduced or exacerbated stressors (i.e., job loss, limited access to help resources, lack of social support, poor mental health, family conflict) (Czeisler et al., 2020; Patrick et al., 2020). Evidence has long suggested that factors such as family conflict and stress, social isolation, and economic problems, increase the risk of intimate partner violence (IPV) (Buttell & Carney, 2009; Campbell & Jones 2016; Moreira & Pinto Da Costa, 2020).

Referred to as a "shadow" pandemic, IPV, which was already a global public health issue before COVID-19 (WHO, 2013), has reportedly intensified and is expected to rise amid the crisis (Mazza el al., 2020). Several countries indicated a dramatic increase in IPV and domestic violence (DV)[1] during the earliest stage of the pandemic; for example, based on police reports, IPV incidences tripled in the Hubei Province of China in February 2020 (Allen-Ebrahimian, 2020). Brazil reported a 40%–50% increase in similar cases (Bradbury-Jones & Isham, 2020) and in April 2020, Israel reported an increase of about 14% in the number of IPV cases compared to the same period in the previous year (Israel, 2020). In the United States, a study conducted in the state of Indiana showed a significant increase in the number of DV police calls since the implementation of social distancing measures (Mohler et al., 2020) and another study of police reports in Chicago during the initial shelter-in-place period found that DV cases at residential locations were 64% more likely than before (McLay, 2021). However, because evidence in the United

1 While some studies examining DV and IPV use the terms interchangeably, the studies reference here defined IPV as violence occurring only between romantic partners who may or may not be living together in the same household. DV included violence between a parent and a child and siblings, in addition to violence between romantic partners.

States has shown that 47% of cases of IPV go unreported (Morgan et al., 2017), there is a high likelihood that police reports underestimate the true prevalence of the problem. This underscores the importance of drawing on other sources, such as research surveys, to compliment and deepen our understanding of existing data. Additionally, although studies conducted during the earliest stage of the pandemic suggest a link between COVID-19 and IPV, the connection between these two public health problems remain minimally studied (Authors et al., 2020; Gosangi et al., 2020; Jetelina et al., 2020; Walsh et al., 2021). Little is known about the main risk factors of IPV during the COVID-19 crisis or how to adapt prevention and intervention methods to the current situation.

A recent literature review from the World Health Organization (WHO) points to several potential risk factors for rising rates of IPV, which are unique to these circumstances (WHO, 2020). Specifically, as social distancing and social isolation measures continue to be in place in the United States and in other countries and people are encouraged to stay at home, scholars have predicted the risk of IPV to increase because of staying at home with an abusive person and limited contact to the outside world (Campbell, 2020; Peterman et al., 2020). Social isolation, defined as a "lack of contact or of sustained interaction with individuals and institutions that represent mainstream society" (Wilson, 1987, p. 60), is a factor that has been found to contribute to and affect experiences of IPV (Capaldi et al., 2012; Mojahed et al., 2021). Often measured by type and extent of social support, research has demonstrated that the presence of adequate social supports decreases the likelihood of IPV victimization and re-victimization (Katerndahl et al., 2013; Plazaola-Castaño et al., 2008). Likewise, with evidence from qualitative and quantitative studies, social support has been linked as an important factor in curtailing IPV perpetration (Davis et al., 2020; Richards et al., 2014; Spencer et al., 2020; Voith et al., 2021). Mandatory social distancing and isolation measures enforced during the earliest stage of the pandemic may have placed women already experiencing male perpetrated IPV at increased risk due to the requirement of having to quarantine day-after-day with an abusive partner, especially considering this was coupled with limited access to care, assistance, and informal support from friends and family (Fawole et al., 2021; Kaukinen, 2020; Mazza et al., 2020). Evidence has shown how individuals lose their support systems during disasters, as well, as access to critical resources (Forbes Bright et al., 2020). Critical services needed by women and girls often become unavailable or are de-prioritized and deemed nonessential during crises (WHO, 2020) and recent research suggests a reduction in access to formal services during the current pandemic (Johnson et al., 2020). In addition, as social isolation increased, so did alcohol and drug use along with mental health issues, all of which are risk factors for IPV (Assari & Jeremiah, 2018; Farris & Fenaughty, 2002). A study conducted by Myhill and Hohl (2019) found that almost 54% of individuals perpetrating IPV had a substance abuse and/or a mental health illness. With those who experience IPV already having an increased risk of contracting a sexually transmitted infection (STI) from an abusive partner, exploration of risky behavior such as defying social distancing requirements is worthy of consideration in the context of understanding IPV during the pandemic (Hess et al., 2012). Finally, people who experience IPV are unable to leave their abusive relationships due to financial entanglements, which are being exacerbated as job losses and unemployment increases, particularly among socially disadvantaged groups (Kochhar, 2020).

Based on the literature in times of natural and health emergencies, major stressors seem to alter the trajectories of our intimate relationships (Rao, 2020). As noted, stressors such as physical and psychological health risks, isolation and loneliness, the closure of many schools and businesses, economic vulnerability, and job losses, have increased in the con-

text of the pandemic, and these have been linked to IPV (Usher et al., 2020; Van Gelder et al., 2020).

Researchers are still studying when, why, and for whom these effects are harmful in times of crisis (Van Bavel et al., 2020). Furthermore, large sample studies examining connections between the outbreak of COVID-19 and IPV are skim (Jetelina et al., 2020). Jetelina et al. (2020) conducted a cross-sectional study using convenience sampling and examined IPV prevalence during the early stage of the pandemic in a sample (n = 1,759) of noninstitutionalized U.S. adult respondents. They found that while the majority of respondents reporting IPV victimization remained the same since the COVID-19 outbreak, the odds of worsening victimization was significantly higher for physical and sexual violence. Their study did not explore risk factors. In order to developing policy, exploring relevant psychological interventions, and giving health care providers adequate "tools" to assess risk and provide care accordingly, it is necessary to investigate potential risk factors. However, few studies have assessed the exact risk factors which predict IPV during the earliest stage of the COVID-19 outbreak using self-reported data (for exception see Perez-Vincent et al., 2020a). Additionally, studies which have studied IPV in the context of the pandemic have focused only on victimization, and not on victimization and perpetration. Therefore, we inquired what are effects of COVID-19 status, social distancing restrictions, and cases of coronavirus per state on IPV victimization and perpetration among both men and women in the U.S. general population? We hypothesized that COVID-19 related factors would increase risks of IPV.

METHODS

Sample and Procedures

This was a cross-sectional study of adults. A commercial survey sampling and administration company, Qualtrics, was contracted to recruit adult respondents and implement an internet-based survey. Respondents were recruited from April 15th to May 1st, 2020 by a requested Qualtrics panel that consisted of the following criteria: living in the United States and being 18+ years of age. An internet panel refers to a group of people who have agreed to take surveys on an ongoing basis in exchange for incentives (Boas et al., 2020). A convenience panel of internet users was used for this study. More specifically, the sample came from actively managed, opt-in research panels, whereby volunteers who express interest in participating in surveys are directed to create an account to access a panel portal. Upon creating an account, volunteers can view a dashboard populated with surveys they are likely to qualify for, and then proceed to select the surveys they want to participate in. For this study, to avoid self-selection bias, survey invitations did not include specific details about the contents of the survey and were instead kept very general. While the taking of surveys itself may be encouraged, with this mechanism no one survey is pushed or advertised over another. Qualtrics cannot be certain of how many people saw the invitation but did not enter the survey. However, they estimate that the number of people invited to complete a survey is nine to 10 times the amount of people who complete the survey, which means that for this study, since 3,750 expressed interest in the study, approximately 33,750–37,500 people may have seen the advertisement for survey. We employed quota sampling based on gender, race/ethnicity, and age to represent the major characteristics of the national population in the United States and to be able to make comparisons across

groups in future studies we conduct using this data. While our sample is diverse, it is not representative of the U.S. population.

The survey instrument was pilot tested in a sample of 49 respondents during March 2020 prior to the beginning of data collection. As noted, data collection initiated in April and ended in May 2020. Consent was obtained from all respondents. Participants were compensated in the way of points that can be amassed and then traded in or spent on things. These can be items with cash value equivalents like an Amazon Gift Card or noncash value like in-application or in-game items/perks. All study procedures were sanctioned by a university institutional review board.

Of the 3,750 people who expressed interest in the study and met study criteria, 351 did not want to participate, 74 were removed for completing the survey under the speeding check (479 seconds), 51 were removed for being of the wrong age, and 829 were terminated for entering the survey when one or several of the quotas were not met. In addition, after conducting a test to assess the quality of the data collected (i.e., poor completion rates, bots, duplicates, poor quality responses, and responses containing sensitive data), 400 completed interviews were eliminated. After removals, 2,045 respondents' data were considered for analyses. The survey response rate was approximately 6%, which is comparable to studies using online panel data. Recruitment participation and response rates for online probability and convenience panels tend to be low (6%–7% for probability; 10% or lower for convenience) (Baker et al., 2013), which is why a quota sampling approach was used to partially compensate for noncoverage and nonresponse (Hays et al., 2015).

The mean age of the sample was 46.63 years (SD = 17.19, range = 18–91 years), and 49.9% (n = 1020) of respondents were female women; 1.5% (n = 30) of respondents were other gender. The majority of individuals indicated that they were in some type of intimate partner relationship (58.2%, n = 1183), 87.4% had completed a college degree or above and in 47.2% the household income was 49,000. 62.6% were White/ European American, 11.9% African American, 3.3% Hispanic/Latino, 2% Asian American and 20.1% other. Sexual orientation was distributed as 80.1% heterosexual, 3.8% gay/lesbian, 5.9% bisexual and 5.5% other. In the current study, we only analyzed data from individuals who indicated that they were in some type of intimate partner relationship (58.2%, n = 1,183).

Measures

Background Variables. The demographic variables considered included age, gender, and race. Age was assessed in years on a continuous scale, gender was dichotomized to cisgender males and cisgender females (participants who responded as "other" were omitted from the study model), and race was divided into six categories: White (reference group), African Americans, Latinos, Asians, Native Americans, and Multi-racial (participants who selected more than one race category).

Dependent Variables. Physical (i.e., slapping, hitting) IPV perpetration (respondent to partner) and victimization (partner to respondent) and psychological IPV perpetration and victimization (i.e., threats to harm) were measured using the Jellinek inventory for assessing partner violence (J-IPV). The J-IPV is a 4-item screening tool developed to assess IPV victimization and perpetration in patients entering substance abuse treatment (Kraanen et al., 2013). Drawing on a recent review of brief IPV screening measures (Davis & Padilla-Medina, 2019), the J-IPV was selected for its strong psychometric properties and brevity. In their synthesis of the literature, Davis and Padilla-Medina (2019) highlighted the strength of the J-IPV in comparison to other measures. The psychometric properties

of this tool revealed strong sensitivity for both “any IPV” and "severe IPV” perpetration, ranging from 80% to 100%. Similarly, the tests reported strong specificity ranging from 79% to 91% for both “any IPV” and “severe IPV” (Kraanen et al., 2013). This suggests that the tool is able to accurately identify patients who are perpetrating IPV versus those who are not. Respondents were asked about recent perpetration or experience of IPV. Items asked were: *Since the Coronavirus crisis started, has it occurred that the situation with your partner got so out of hand that:* (a) *your partner has threatened you, or that he/she threatened to harm you?;* (b) *your partner has being physically abusive towards you and for instance hit o kicked you;* (c) *you acted in a threatening way to your partner, or threatened to hurt him/her?; and* (d) *you became physically violent, and, for example, slapped, hit or kicked your partner?* ("Yes" = 1; "No" = 0).

Independent Variables. COVID-19 Status. Respondents were asked eight questions about their personal health (i.e., “*I tested positive to being a Corona Virus carrier?”* Yes = "1"; No = "0")

Social Distancing Restrictions. Respondents were asked seven questions about their personal condition in relationship to social changes/restrictions (i.e., *"I lost my job because of the coronavirus crisis."* Yes = "1"; No = "0")

COVID-19 Cases per State. Based on the index of the number of cases of COVID-19 reported by Johns Hopkins University Center for Systems Science and Engineering in May 2020, cases were recoded into a 4-level ordinal variable: Group 1: States with "1–4,999 positive cases of COVID-19" ($N = 165$); Group 2: States with "5,000–9,999 positive cases of COVID-19" ($N = 229$); Group 3: States with "10,000–23,999 positive cases of COVID-19" ($N = 228$); Group 4: States with "24,000 and more positive cases of COVID-19" ($N = 1,136$). Each state was coded according to this index. Our state regulatory status measurement, (i.e., grouping at time of response) was a substitute for time effect regarding virus spread, that is, we expected to capture relevant differences in governmental social restriction guidelines/restrictions via the four levels of COVID-19 spread. COVID-19 cases per state were measured in May 2020 after data was collected.

Statistical Analysis

We calculated descriptive statistics to examine distributions of variables and generalized linear modeling (GLM) to examine covariate levels of cases by state. Spearman nonparametric correlation analyses were used to determine whether IPV victimization and perpetration were significantly associated with COVID-19 status and social distancing restrictions in the earliest stage of the pandemic. Four binary logistic regressions within a GLM framework were performed to determine impact of coronavirus exposure, government restrictions, and social distancing differences on IPV probability, while controlling for sociodemographic variables. Covariates evaluated in univariate analysis ($P < .10$) were included in multivariable analysis. It should be noted that the relaxed rejection criterion was set higher to include those possibly confounding covariates, to improve model specification. Missing data were low for almost all variables (0%–3.8%). Only the variable “state levels of COVID-19 cases” were 11%, due to missing data on residence reported by the respondents. Analyses were performed using SPSS version-25.

RESULTS

Descriptive statistics include the rate of IPV within the study sample. Psychological IPV victimization was 13.3%, physical IPV victimization was 9.7%, psychological IPV perpetration was 12%, and physical IPV perpetration was 10.8 %. In addition, 21.5% of subjects were suspected as experiencing covid-19 symptoms, tested or not, and 2.7 % reported testing positive for COVID-19. Spearman nonparametric correlation analyses examined items as quoted in the survey (See Table 1). Some items were positively correlated with IPV (i.e., I tested positive to being a Corona Virus carrier; I have had symptoms consistent with Corona Virus (e.g., fever, coughing, shortness of breath, etc.), while others were negatively correlated (i.e., I have not had any symptoms consistent with Corona Virus). A negative association was found between the item "due to government restrictions, I am practicing one of the following measures: social distancing, isolation, and/or quarantine" and all types of IPV, which identified this unique COVID-19 circumstance not as a risk factor, but as a protector against IPV. We examined group differences by state-level intensity of positive COVID-19 cases in relationship to IPV using GLM (see Table 2). Differences between COVID-19 intensity groups were estimated for psychological victimization: $\chi_{(3)}^2 = 13.11^{**}$, $p < .01$; physical victimization: $\chi_{(3)}^2 = 14.47$, $p < .01$; psychological perpetration: $\chi_{(3)}^2 = 14.52$, $p < .01$, and physical perpetration; $\chi_{(3)}^2 = 10.92$, $p < .05$. We then employed a group mean ranking, based on post-hoc pairwise comparisons between expected violence rates. These comparisons were subject to the Bonferroni correction for multiple comparisons. Group 4 ($M = .16$) had significantly higher rates of psychological IPV victimization than group 1 ($M = .07$), $p < .001$ and higher rates of physical IPV of group 4 ($M = .12$) victimization than group 1 ($M = .04$), $p < .001$ and 2 ($M = .05$) $p < .05$. In addition, group 4 ($M = .15$) had significantly higher rates of psychological IPV perpetration than group 1 ($M = .07$) and group 2 ($M = .07$) $p < .05$ and higher rates of physical IPV perpetration of group 4 ($M = .13$) than group 1 ($M = .05$), $p < .05$.

IPV perpetration and victimization were regressed on COVID-19 conditions. Prior to running regression models, we examined independent variables for multicollinearity. Collinearity diagnosis revealed small collinear effects between independent indicators. Tolerance was nearly 1.00 for each independent indicator; variance inflation factor (VIF) was slightly above 1.00 for all indicators (following recommendations (Myers, 1990); VIF < 10). Table 3 presents variables retained in the models. Among those endorsing "I tested positive to being a Corona Virus carrier," odds of experiencing psychological IPV increased more than threefold (Exp [B] = 3.77, [1.36, 10.42] $p < .05$), and odds of experiencing physical IPV increased more than twice (Exp[B] = 2.77, [1.04, 7.36] $p < .05$). The odds of using psychological IPV (Exp[B] = 3.24, [1.18, 8.89] $p < .05$) and physical IPV (Exp[B] = 3.02, [1.12, 8.17] $p < .05$) against an intimate partner increased more than threefold for those respondents who tested positive to COVID-19.

Respondents who tested for the virus but received negative results were almost twice as likely to report being a victim of psychological IPV (Exp[B] = 1.91 [1.12, 3.26]] $p < .05$), in comparison to those not tested. Similarly, they were twice as likely to report being a perpetrator of psychological IPV (Exp[B] = 2.00 [1.14, 3.52] $p < .05$). Respondents who had symptoms consistent with COVID-19 (i.e., fever, coughing, etc.) were almost three times as likely to report being victims of physical IPV than those not tested (Exp[B] = 2.90 [1.27, 6.58] $p < .05$). In addition, respondents who had symptoms consistent with COVID-19, but were denied access to testing, were three times as likely to report being victims of psychological IPV than those not tested (Exp[B] = 3.20 * [1.11, 8.70] $p < .05$). When

TABLE 1. Correlations Personal Corona Virus Health Conditions, Restrictions Condition, Social/Occupational Changes During the Crisis with IPV

	Victims Psychological IPV	Victims Physical IPV	Perpetration Psychological IPV	Perpetration Physical IPV
I tested positive to being a Corona Virus carrier	.27**	.19**	.26**	.24**
I have had symptoms consistent with Corona Virus (e.g., fever, coughing, shortness of breath, etc.).	.13**	.17**	.10**	.12**
I have had symptoms consistent with Corona Virus, but I was denied access to testing.	.27**	.19**	.23**	.22**
I have had symptoms consistent with Corona Virus, but I did not want to get tested.	.21**	.18**	.21**	.16**
I was tested for Corona Virus, but results came back negative.	.24**	.23**	.22**	.19**
I had cold or flu-like symptoms and was ordered by a medical professional to stay at home for a period of 14 days to 40 days.	.12**	.11**	.12**	.12**
I have not had any symptoms consistent with Corona Virus.	−.30**	−.25**	−.26**	−.22**
Nothing has changed since the crisis started.	.26**	.13**	.26**	.20**
Due to government restrictions, I am practicing one of the following measures: social distancing, isolation, and/or quarantine.	−.16**	−.10**	−.15**	−.10**
Due to personal choice, I am practicing one of the following measures: social distancing, isolation, and/or quarantine.	−.03	−.03	−.02	−.10
I am not practicing any of these measures.	.15**	.12**	.15**	.12**
I'm not going to work because of the situation.	.14**	.01**	.11**	.10**
I lost my job because of the coronavirus crisis.	.09**	.12**	.11**	.14**

	Victims Psychological IPV	Victims Physical IPV	Perpetration Psychological IPV	Perpetration Physical IPV
My social life has changed. I tend to avoid social meetings. I'm more alone.	.01	−.03	−.02	−.002
My family life has changed.	.01	−.03	.02	.10

Note. Table shows Spearman (nonparametric correlations) performed across those with any type of intimate relationship ($N = 1172$).

$^{**}p < .0$.

respondents had no symptoms, they showed a lower probability to experience physical violence (Exp[B] = .57 [.34, 1.01] $p < .05$) and a lower probability to perpetrate psychological violence Exp[B] = .60 [.35, 1.00] $p < .05$). For respondents reporting job loss as the result of COVID-19, the probability of being victims of physical IPV increased more than twice (Exp[B] = 2.88 [1.37, 6.04] $p < .01$), whereas the probability of perpetrating IPV increased three-fold for psychological IPV (Exp[B] = 3.03 [1.46, 6.28] $p < .01$) and four-fold for physical IPV (Exp[B] = 4.00 [2.00, 8.13] $p < .001$). We examined the possibility of income status and job loss during the pandemic as a moderator for the association between testing positive for COVID-19 and all types of IPV, but no significant results were found. During the earliest stage of COVID-19, men were almost twice as likely to perpetrate physical violence in comparison to women (Exp[B] = 1.80 [1.10. 3.10] $p < .05$). We examined the possibility of gender as a moderator for the association between testing positive for COVID-19 and all types of IPV. However, no significant results were found. Older respondents were less likely to experience or perpetrate IPV, compared to younger respondents. State levels of COVID-19 were not found to be a significant predictor of IPV. Overall, the results support our hypothesis that COVID-19 related factors indeed increased risk for IPV.

DISCUSSION

Overview of Results

The present study opens an important line of inquiry in the nascent research of COVID-19 and IPV. As noted, the link between COVID-19 and IPV is still being examined and understood by scientists. This study contributes to this new line of inquiry by examining the effects of COVID-19 status, social distancing behavior, and cases of COVID-19 per state in the earliest stage of the pandemic on IPV victimization and perpetration among men and women in the general population.

As hypothesized, the study findings advance scientific knowledge by suggesting a link between COVID-19 related factors in the earliest stage of the pandemic and increased IPV risk in an online sample of adult respondents. People reporting COVID-19 positive were three times more likely to experience IPV and nearly three times more likely to perpetrate IPV. Our findings also indicate that having COVID-19 symptoms, but testing negative, increased the risk of IPV victimization by two, in comparison to those not tested. Desiring but not obtaining access to testing appears to have been a risk factor in the earliest stage of

TABLE 2. Group Differences Between State Level of Coronavirus Cases and IPV

Marginal Means	Victims Psychological IPV	Victims Physical IPV	Perpetration Psychological IPV	Perpetration Physical IPV
Group 1	.07[a] (.03)	.04[a] (.02)	.07[a] (.03)	.05 [a] (.03)
Group 2	.10[ab] (.03)	.05[a] (.02)	.06[a] (.02)	.07 [ab] (.02)
Group 3	.11[ab] (.03)	.08[ab] (.02)	.10[ab] (.02)	.10 [ab] (.03)
Group 4	.16[b] (.01)	.12[b] (.01)	.15[b] (.01)	.13 [b] (.01)
Model Wald Chi-square	13.11**	14.47**	14.52**	10.92*

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

Group 1 States: "1–49,99,000 positive COVID-19 cases" (n = 165); Group 2 States: "5,000–9,999 positive COVID-19 cases" (n = 229); Group 3 States: "10,000–23,999 positive COVID-19 cases' (n = 228); Group 4 States: "24,000 or more positive COVID-19 cases" (n = 1,136). Latin letters used to rank sub-group mean from the smallest mean ("a") and upward based on the pairwise post hoc comparisons with the Bonferroni correction for multiple comparisons.

the pandemic, as respondents who had COVID-19 symptoms, but were denied access to testing, were three times as likely to report being victims of psychological IPV than those not tested. Residents in states with low-levels of COVID-19 were impacted with IPV at lower rates than states with higher virus spread. However, the number of COVID-19 case per state was not found to be a significant IPV risk factor. People who lost their jobs due to COVID-19 were two to four times more likely to perpetrate physical and psychological IPV and experience physical IPV. Our exploration of risk factors is limited, but future manuscripts we are currently developing will consider other demographic and social risk factors.

Relationship to Existing Literature

The existing literature has primarily assessed changes in prevalence, type, and severity of IPV victimization during the pandemic (Gosangi et al., 2020; Jetelina et al., 2020). Walsh et al. (2021) also studied changes in perpetration and victimization by type of IPV in a sample of sexually minoritized men. One the study conducted by McLay (2021) examined the role of different predictors (i.e., presence of a sex offense, weapon use, resulting arrest, and residential location) on domestic violence victimization. Thus far, to our knowledge this current study is the only one that has assessed the predictive role of COVID-19 status, social distancing restrictions, and COVID-19 cases per state on the perpetration and victimization of IPV in the earliest stage of the pandemic. At this juncture, we are unable to fully compare the findings yielded in our analyses, as research has yet to study the role of these risk factors. Nonetheless, our findings regarding unemployment due to COVID-19 align with the findings of the study conducted by Jetelina et al. (2020), whereby victimization was significantly higher among those with a job/income change due to the pandemic, compared with those with no change in job status/income.

Being denied access to testing even when displaying symptoms consistent with COVID-19 appears to have been a risk factor for IPV perpetration and victimization in the earliest stage of the pandemic. The association between denial to health services

TABLE 3. Binary Logistic Regression Results Assessing Personal Corona Virus Health conditions, Restrictions Condition as Predictors of IPV

	Victimization Psychological IPV	Victimization Physical IPV	Perpetration Psychological IPV	Perpetration Physical IPV
	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI
Gender	1.50 [.92, 2.44]	1.45 [.85, 2.50]	1.50 [.89, 2.49]	1.80* [1.10. 3.10]
Age	.96***[.94, .98]	.97***[.95, .98]	.96 *** [.94, .1.00]	.95***[.93, .97]
Education	1.12 [.99, .25]	1.10 [.93, 1.22]	1.13 [.99, 1.29	1.04 [.72, 1.10]
Race	.92 [.77, 1.11]	.85 [.68, 1.10]	.97 [.80, 1.17]	.89 [.72, 1.10]
Income	1.10 [.95, 1.17]	1.10 [.96, 1.20]	1.05 [.95. 1.17]	1.11 [1.00, 1.24]
I tested positive to being a Corona Virus carrier	3.32*[1.18,9.36]	2.47 [.91, 6.73]	2.95* [1.05, 8.27]	2.59 [.94, 7.15]
I have had symptoms consistent with Corona Virus (e.g., fever, coughing, etc.).	1.37 [.58, 3.24]	2.90* 1.27, 6.58]	1.04 [.41, 2.62]	1.58 [.63, 3.91]
I have had symptoms consistent with Corona Virus, but I was denied access to testing.	3.20* [1.11, 8.70]	1.47 [.53, 4.02]	2.15 [.75, 6.18]	2.35 [.86, 6.44]
I have had symptoms consistent with Corona Virus, but I did not want to get tested.	1.63 [.63, 4.24]	.93 [.33, 2.60]	2.29 [.88, 5.95]	1.22 [.45, 3.50]
I was tested for Corona Virus, but results came back negative.	1.91* [1.12, 3.26]	2.00* [1.14, 3.52]	1.58 [.90, 2.76]	1.52 [.86, 2.71]

	Victimization Psychological IPV	Victimization Physical IPV	Perpetration Psychological IPV	Perpetration Physical IPV
I had cold or flu-like symptoms and was ordered by a medical professional to stay at home for a period of 14 days to 40 days.	1.19 [.50, 2.80]	1.50 [.61, 3.64]	.96 [.39, 2.38]	1.34 [.55, 3.28]
I have not had any symptoms consistent with Corona Virus.	.61 [.37, 1.02]	.57*[.34, 1.01]	.60* [.35, 1.00]	.71 [.41, 1.21]
Nothing has changed since the crisis started.	3.10*** [1.70,5.63]	1.42 [.71, 2.85]	3.71***[2.03, 6.78]	2.76**[1.47,5.18]
I am not practicing any of these measures.	1.52 [.50, 4.74]	1.52 [.49, 4.75]	1.31 [.40, 4.30]	.99 [.29, 3.31]
I'm not going to work because of the situation.	1.40 [.87, 2.16]	.84 [.50, 1.40]	1.05 [.64, 1.70]	.89 [.54, 1.47]
I lost my job because of the coronavirus crisis.	1.81 [.84, 3.90]	2.88**[1.37, 6.04]	3.03** [1.46, 6.28]	4.00***[2.00, 8.13]
State level of COVID-19 cases	1.10 [.82, 1.35]	1.19 [.89, 1.58]	1.10 [.84,1.43]	1.05 [.80, 1.40]

Note. IPV - intimate partner violence, N = 1024; Gender; 1 = males; 0 = Females.
*$p < .05$. **$p < .01$. ***$p < .005$.

and any form of interpersonal violence, including IPV, has yet to be explored. Perhaps, denial to health services, such as testing, may lead to experiences of stress, and stress in turn impacts the perpetration and victimization of IPV. Regarding COVID-19 status, it is interesting to find that having symptoms regardless of whether the person tested positive or negative, increased the risk of perpetration and victimization. Unfortunately, no existing studies addressing this risk factor were found. It may be that this finding reflects the already established relationship between poor health and increased risk for IPV. Similarly, this finding may reflect the combined effects of experiencing illness and experiencing illness alongside uncertainty and worry about the long-term effects of a novel virus. Regardless of result of the COVID-19 test, we know that at the time of this study (Spring 2020) only people in the general public who were experiencing significant symptoms were eligible for COVID-19 testing.

Regarding symptomatology, previous literature suggests a relationship between disability status and vulnerability to IPV victimization (Ballan et al., 2017; Breiding & Armour, 2015) and between physical and mental health problems and IPV victimization (Breiding et al., 2008; Dillon et al., 2013; Lagdon et al., 2014 and perpetration (Crane & Easton, 2017; Fulu et al., 2013; O'neil & Scovelle, 2018) of IPV. In addition, through interviews with and discussion forum posts written by survivors of IPV, several news reports and qualitative studies have warned about the possibility that people perpetrating IPV (i.e. via intimate terrorism), may be using COVID-19 symptoms and social distancing, isolation, and quarantining, as weapons to further control and abuse their partners (i.e., threatening to throw partner out of the house if they start coughing; justifying forcefully keeping a partner at home to avoid infecting others; buying guns as an excuse to self-protect during the pandemic (Godin, 2020; Lyons & Brewer, 2021). Coercive control has been identified as a risk factor for severe abuse, including femicide (Myhill & Hohl, 2019). Related to this, yet in contrast with other evidence, our findings preliminarily suggests that social distancing, isolation, and quarantining may not be a risk factor for IPV. Perhaps it depends on the type of IPV (i.e., Johnson's typology: violent resistance, intimate terrorism, situational, etc.), however this dimension was beyond the scope of our study (Johnson). Other studies in the United States (McLay, 2021) and abroad (Ebert & Steinert, 2021; Perez-Vincent et al., 2020) have found an increased risk of DV with home quarantine and shelter-in-place measures. It is important to highlight that while these studies had large sample sizes, their definitions of DV were broad encompassing other forms of family violence in addition to IPV, such as physical and sexual offenses against children. The results were not disaggregated by type of DV. Other theoretical studies have suggested the potential negative impact social distancing, isolation, and quarantining measures may have on IPV and DV victimization (Forbes Bright et al., 2020; Kaukinen, 2020; van Gelder et al., 2020). Additionally, studies on IPV outside the context of COVID-19, have demonstrated that social isolation increases the risk of victimization (Capaldi et al., 2012; Lanier & Maume, 2009; Jose & Novaco, 2016).

The current pandemic, particularly in the earliest stage of the pandemic, has disrupted many aspects of partners and families' lives, including employment security, having to school children at home, having to quarantine at home, limited access to services, and ability to connect with sources of support. Previous empirical evidence has found a link between stress and IPV (Finkel et al., 2012; Langer et al., 2008) and recent theoretical studies suggest that the stress generated by COVID-19 could lead to violence at home (Gulati & Kelly, 2020; Moreira & Pinto Da Costa, 2020; Telles et al., 2020). Scientific literature on emergencies (i.e., natural disasters, armed conflicts, pandemics) have shown that these events increase the likelihood of IPV and subsequent negative physical and mental health outcomes by generating stress, social isolation, economic instability, and increased relationship and family conflict (Buttell & Carney, 2009; Campbell & Jones 2016).

Finally, as for the impact of covariates, our study findings regarding the increased likelihood of men to perpetrate IPV in comparison to women, further add to the findings presented by Jetelina et al. (2020), were women odds of being victimized were significantly lower among in comparison to men. A vast body of research has revealed gender symmetries and asymmetries in IPV. Some studies suggest that women are as likely as men to perpetrate violence against a partner (symmetry), while other studies have found that it is overwhelmingly men who perpetrate violence against partners (asymmetry) (Fleming et al., 2015; Dobash & Dobash, 2004).

Implications

As previously noted in the introduction, the pandemic has engendered or exacerbated risk factors associated with IPV, including self-isolation and social distancing, limited access to support, limited access to contactless services (i.e., internet or phone-based services), economic hardship, and stress. It is important that future studies continue to further explore these and other relevant risk factors associated with IPV, including drug and alcohol use and engaging in high-risk behaviors during the pandemic. Since our findings suggest there is an association between having COVID-19 symptoms and the perpetration and victimization of IPV, there is an increased need of screening in primary health care settings for IPV. Health care practitioners are already overwhelmed by the increased number of COVID-19 cases. Consequently, health care systems need to develop a coordinated response with relevant social work units within primary health care facilities so that practitioners are sensitized to the importance of screening for IPV, while at the same time linking patients with social work unit personnel that can quickly refer patients for relevant IPV services. Synchronizing efforts is particularly critical as previous research suggests that while practitioners in primary health care facilities are willing to screen for IPV and patients will indeed disclose their perpetration of IPV (Singh, 2009), lack of time and lack of knowledge on available resources remain common barriers to screening (Davis & Padilla-Medina, 2019; Penti et al., 2018). The 4-item brief screening tool used to assess IPV perpetration/victimization in this study should be considered as a reference. The measure used in this study may be adequate for health care settings due to its brevity because it can be answered in less than 2 minutes. However, although the tool holds good promise, before we can be certain that it is appropriate for widespread use in the United States, we need to further analyze data confirming that its psychometric properties hold strong for populations in the United States, because the measure was developed for and validated with a European sample. We are in the process of such testing.

As health care facilities and IPV service organizations are adapting the services provided and the format in which they are delivered (i.e., providing options for virtual visits), victims and perpetrators may encounter difficulties to disclosing this type of information. In the case of victims, they may be afraid of being overheard by a perpetrator or they may feel uncomfortable with a less personal interaction (Moreira & Pinto da Costa, 2020). Likewise, those who are engaging in violence may face challenges in opening up about their use of violence. Similarly, providers may struggle to identify nonverbal cues which are easier to detect in person (Moreira & Pinto da Costa, 2020). It is also important to acknowledge that the safe space provided by medical or services institution offices may not be available to victims, further creating a sense of fear and vulnerability which limits disclosure and engagement. Service providers need to ensure that victims are able to answer questions in safe and private spaces, and initial questions should be more general (i.e., yes/no, inquiring about whether it is safe to talk or not), until the provider can establish that the victim is able to talk freely (Zero & Geary, 2020). These concerns may justify the implementation or use of pre-visit automated IPV screening, which prior studies have found to yield higher disclosure of perpetration (Houry et al., 2008; Rhodes et al., 2002). This is perhaps due to removing the layer of reporting which requires one to verbalize embarrassing or stigmatized behaviors.

The recovery from COVID-19 can be very tenuous and health problem can persist even after recovery (Huang et al., 2021), particularly for people with comorbid conditions (Sanyaolu et al., 2020). As previously noted, empirical evidence has suggested that

several physical and mental health problems and comorbities have been associated with IPV perpetration (Singh et al., 2014) and victimization (Weaver et al., 2015). Thus, it is important that in addition to the screening of IPV, the health progression of IPV victims and perpetrators who tested positive needs to be monitored.

Our findings also suggest that aside from screening, services for those experiencing or using IPV need to be adapted to the context of COVID-19. Policy makers and IPV service providers need to find ways to address this gap for urgent social services like IPV help, while following rigid health and safety protocols. IPV agencies could consider further fostering alliances with the hospitality industry to, for example, provide safe homes for IPV survivors (Oliver, 2020).

Finally, unemployment appears to be a risk factor for IPV victimization and perpetration during COVID-19. Additional governmental economic stimuluses should be implemented, as this resource may significantly reduce couples and individuals stress due to economic burden and uncertainty. Relieving financial stressors would likely yield positive impacts on relational and behavioral health. Similarly, employer-based paid safe leave policies could be implemented which would allow people time off work to address issues stemming from IPV without losing pay. These policies could reduce the risk for further IPV perpetration and victimization, as IPV is more likely to occur when couples are experiencing financial distress (Lucero et al., 2016; Renzetti, 2009).

Limitations

Surveys using convenience online panels of respondents are subject to the same limitations as other surveys using nonprobability samples: the relationship between the sample and the population is unknown so there is no theoretical basis for computing or reporting a margin of sampling error and thus estimating how representative the sample is of the population as a whole (Baker et al., 2013). Convenience panels are known to differ from the underlying population, as 1/3 of the U.S. adult population does not have access to the internet and there are significant demographic differences between those who do have access and those who do not (Baker et al., 2013). People with lower incomes, less education, those living in rural areas or ages 65 and older are underrepresented among internet users (Pew Research Center, n.d.). This is consistent with data that suggests that panel members tend to me more educated and have a higher socioeconomic status than nonpanel members (Craig et al., 2013). Additionally, this study used a cross-sectional design and data was self-reported. These methodological shortfalls limit the generalizability of our findings. Thus, results are tentative and should be interpreted cautiously. Research with more robust samples and funding to support such efforts are needed to further validate our findings.

While the response rate of this study was similar to the rates for studies using internet panels to collect data, the response rate was very low, suggesting the presence of bias. A low response rate does not automatically imply the presence of bias and poor data quality (Rindfuss et al., 2015; Templeton et al., 1997). Low response rates can produce bias only to the extent there are differences between respondents and nonrespondents on the estimate of interest. Since data on nonrespondents was not collected, we are unable to truly determine the extent to which respondents and nonrespondents differ. Qualtrics did not incorporate any post-stratification adjustments to compensate for noncoverage and/or nonresponse, and future studies should contemplate using them.

Due to the study's cross-sectional design, changes in IPV perpetration and victimization through different stages in the pandemic could not be examined, and future studies

should use longitudinal designs to analyze these changes. As noted, while a recent study found that the majority of victimization stayed the same during the earliest stage of the pandemic (Jetelina et al., 2020), the study was cross-sectional and only explored victimization. Therefore, given the findings and impacts discussed in the present study, which highlight increased IPV, longitudinal examination is needed in order to verify the previously discussed findings.

Our IPV measure was developed in Europe and has not been validated in the United States, although as noted, validation is currently underway. However, we conducted a previous study comparing and contrasting brief screening tools for health care settings, and the items of the IPV measure used in this study compare to the items in IPV measures developed and validated in the United States (Davis & Padilla-Medina, 2019).

Although Black/African American, subjects of longtime systemic racism are most disproportionately hit by the pandemic, along with Hispanic/Latino(a) and Native populations, race and ethnicity effect on IPV were not tested in this study. This limitation is currently being addressed by the authors who will soon examine (in a future manuscript) the relationship among COVID-19, race, and IPV. This study did not parse out the sample by sexual orientation and the number of respondents who were transgender, or gender nonconforming were too infrequent to run inferential statistics on. Finally, despite efforts, we were also unable to capture a representative number of Native American respondents. However, attention to vulnerable and specialized populations during COVID-19 remain a high priority.

CONCLUSION

This study provides initial evidence that the pandemic is associated with increased likelihood of IPV in the United States. The relationship between IPV and COVID-19 has important implications for scientific study, medical care, nursing, public-health and social work practice. These findings should *not* be interpreted as an endorsement to disengage in social distancing practices. Rather, these results emphasize need for an ongoing public-health response to IPV, including further investigation, funding for development/evaluation of interventions, funding for financial care of residents while social distancing is necessary during vaccination rollout and the implementation of cross-disciplinary healthcare practices that address physical and behavioral issues in tandem.

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