

2020

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Recommended Citation

Holladay, K. R., Hagedorn, W., & Boote, D. (2021). The Influence of Cyber-Sexual Assault on the Mental Health Outcomes of Survivors. *Journal of Counseling Sexology & Sexual Wellness: Research, Practice, and Education*, 2 (2), 93-103. <https://doi.org/10.34296/02021026>

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The Influence of Cyber-Sexual Assault on the Mental Health Outcomes of Survivors

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Researchers examined data collected from the only national sample of cyber-sexual assault (CBSA) survivors ($N = 97$; 3.75% response rate to the online survey) using three valid instruments that measure symptomology of sexual assault. We found that participants scored high across each of the inventories, indicating CBSA survivors respond in ways that are similar to sexual assault survivors concerning emotional dysregulation, depression, and post-traumatic stress symptomology, particularly if they had a history of sexual assault. Implications for counselors are reviewed, and clinical recommendations are offered.

Keywords: cyber-sexual assault, revenge-porn, sexual violence, rape culture

Introduction

While non-consensual pornography has received considerable attention in popular media, researchers are still trying to understand the consequences for the victims. Non-consensual pornography includes: sexting, revenge-porn, and cyber-harassment, among others. All forms share some common features: intimate and/or sexually explicit images or videos are shared via electronic media to be viewed by people without the participants' consent. This behavior is more common than many counselors may recognize. In a recent nationwide study that examined 3,044 adults (54% women), 8% (1 in 12) reported victimization through non-consensual pornography (Ruvalcaba & Eaton, 2020). Just over 5% (1 in 20) of respondents has perpetuated nonconsensual pornography. The non-consensual sharing of intimate and sexually explicit images and videos is creating a significant public health challenge, especially among young adults. The continued dissemination and nonconsensual sharing of the sexually explicit materials has contributed to the mental health distress and suicidality for victims (L. Bates, 2014; Borsuk, 2013). The purpose of this article is to measure the mental health outcomes for the victims of this behavior and explore how these outcomes are related to or vary based on participants' demographics, their history of previous sexual victimization, relationship to perpetrator, and frequency of checking for their online material. The results of this study will help clinicians have a better understanding of how to identify and treat adult survivors of cyber-sexual assault.

The evolving terminology for this phenomenon reflects a changing social context and impact on the victims of non-consensual sharing of sexually intimate material (McGlynn

& Rackley, 2016); many of these factors are outside of the scope of this study. These acts are non-consensual, have the potential to harm the victim, and are sexual in nature, so it is quite appropriate to consider non-consensual pornography to be a form of sexual violence. To characterize the fact that these sexual assaults occur via electronic mass-media, we use the term "cyber-sexual assault" (CBSA) to describe these activities. In doing so, we focus on the effect of the assault in the victim and set aside issues related to the intent of the person who distributed the intimate materials (e.g., "revenge" porn; Bloom, 2014; Walker & Sleath, 2017) or whether the material includes images (Bloom, 2014) or video (Osterday, 2015). We also set aside the method of creation and the modality of distribution (Henry & Powell, 2014; Humbach, 2014; Marganski & Fauth, 2013).

Even when nonconsensual online sharing of naked photos and videos is legal in some jurisdictions, the consequences are likely to be akin to in-person abuse and may have social impacts on victims. Perpetrators proliferate the assault by sharing the nonconsensual material, often quite broadly, through technology and cyberspace (Citron & Franks, 2014).

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Potential employers, current support systems or colleagues, family, and friends have access to private material (Citron & Franks, 2014). While research on the psychological consequence is limited, 47% of CBSA survivors had reportedly contemplated suicide (Bloom, 2014; CCRI, 2016) after their material was shared online. In order to anticipate other likely psychological effects on the victims of cyber-sexual assault, it is helpful to compare it to three related phenomena: intimate partner violence, sexual assault, and cyber-harassment (Marganski & Fauth, 2013).

Intimate partner violence (IPV) is committed by a current or former spouse or partner, and is perpetrated through physical, sexual, and psychological means (Flasch, Murray, & Crowe, 2015). Estimates of the prevalence of IPV vary. One national study found that 1 in 4 women and 1 of 13 men experienced physical and sexual aggression by an intimate partner within their lifetime (Tjaden & Thoennes, 2000). More recent studies suggest that one of two males and females experienced psychological violence from an intimate partner within their lifetime (Black et al., 2011; Marganski & Fauth, 2013). Similar to IPV, in a sample of 244 adult victims on nonconsensual pornography, nearly 71% (n = 173) reported that their perpetrator was a current or former partner (Ruvalcaba & Eaton, 2020). In a national sample from the National Violence Against Women Survey (NVAWS), women (n = 6,790) and men (7,122) were asked about their psychological well-being in correlation with their lifetime experiences surrounding IPV. Individuals with a history of IPV reported chronic health conditions, current poor health, and mental health symptoms of anxiety and depression, which correlated with the long-term and adverse effects of IPV (Coker et al., 2002). Cyber-sexual assault draws parallels to IPV, and thus we expect victims to show similar psychological distress.

The term sexual violence implies any form of non-consensual sexual act, gesture or threat, including childhood sexual assault, adult sexual assault, and sexual harassment; the term completed rape is a more specific form of sexual violence that involves sexual intercourse without the victim's consent (Centers for Disease Control and Prevention, 2010). In a longitudinal (1980-2009) research report by the U.S. Census Bureau (2012), 88.1% of violent crimes were completed rape (N = 81,280). Prevalence rates of sexual assault are high, and the psychological impact is harmful. In fact, sexual assault is among the most severe of all traumas, evident in the severity and duration of mental health outcomes (Campbell, Dworkin, & Cabral, 2009). Sexual assault survivors have reported a range of mental health concerns: sexual dysfunction, depression, suicidality, substance abuse, and post-traumatic stress disorder (Russell & Davis, 2007).

The literature on cyber-sexual assault has identified constructs parallel to both sexual assault and cyber-harassment (e.g., depression, suicidal thoughts, emotional dysregulation,

post-traumatic stress) through both quantitative (Holladay, 2016) and qualitative (S. Bates, 2016) research studies. Further, cyber-harassment research has shown severe mental health consequences such as depression, anxiety, suicide, and decreased well-being (Washington, 2014). What makes cyber-sexual assault a unique form of violence is that sexually explicit postings are permanent (e.g., website cache), victims can relentlessly search online for their material, and the number of perpetrators per victim can extend to thousands instantly due to the increased usage of technology among Americans (Ruvalcaba & Eaton, 2020). There is a gap in the literature surrounding mental health outcomes among this population.

The effects of cyber-harassment, sexual assault and IPV extend long after the assault; the trauma can have longstanding emotional, psychological, and physical consequences for survivors. Depression (Campbell et al., 2009; Russell & Davis, 2007) and post-traumatic stress disorder (Campbell et al., 2009; Lancaster, Teeters, Gros, & Back, 2016; Norris, 1992) are the most frequent and debilitating psychological outcomes of sexual assault, while emotional dysregulation (Bjureberg et al., 2015; Najdowski & Ullman, 2011; Livingston, Testa, & VanZile-Tamsen, 2007) exacerbates and lengthens symptomology among survivors of sexual assault. Further, researchers have pointed to the interplay and comorbidity of depression and PTSD among trauma survivors (Dekel, Shaked, Ben-Porat, & Itzhaky, 2019). As such, the current investigation assessed the psychological outcomes of CBSA through a lens of sexual violence, in addition to being informed by prior research on IPV and cyber-harassment.

The purpose of our investigation was to examine the presence and comorbidity of Depression, PTSD severity, and Emotional Dysregulation among a sample of adults who have experienced cyber-sexual assault; prior research has identified these as the most consequential mental health outcomes among survivors of sexual assault (Campbell et al., 2009; Bjureberg et al., 2015; Lancaster et al., 2016). The researchers used previously validated instruments that measure these constructs (i.e., DERS-16; CESD-R; IES-R). The researchers hypothesized that each of these mental health outcomes (i.e., emotional dysregulation; depression; PTSD) would be higher for those participants who had a history of previous sexual assault, and among those who checked for their online material with hypervigilance. Furthermore, we examined how participant-level variables (i.e., ethnicity, sexual orientation, and relationship to perpetrator) would be related to these mental health outcomes, if at all.

Methods

Participants

The sample was comprised of mostly female (n = 91, 93.8%) participants, while the participants ages ranged be-

tween 19-65 years ($M = 32.03$, $SD = 9.93$). The majority of participants identified as Caucasian/White (64.9%), followed by those who identified as Asian (8.2%), Hispanic or Latino (8.2%), African/African American/Black (5.2%), two or more races (Biracial/Multiracial; 4.1%), American Indian or Alaska Native (1%), and Native Hawaiian or Pacific Islander (1%). Most participants self-reported as heterosexual (83.5%), followed by bisexual (11.3%), gay/lesbian (2.1%), and other (1%).

Sampling and Data Collection Procedures

Participants of this study were recruited online (i.e., website and social media), using the only national nonprofit organization listserv that serves the CBSA population: Cyber Civil Rights Initiative (2016). Additionally, participants were invited through the Rape, Abuse and Incest National Network (RAINN) listserv. Through these nonprofit organizations, approximately 2,600 individuals were invited to participate; this yielded a 3.75% usable response rate ($N = 97$). Participants who experienced cyber-sexual assault and completed over 80% of the items on the instruments were included in this study. Prior to data collection, the IRB at the University of Central Florida reviewed and approved the study. Data was collected anonymously and all participants provided informed consent before starting the survey.

Prior to accessing the surveys, participants were provided definitions. Sexual assault was defined as “any type of sexual contact or behavior that occurs without the explicit consent of the recipient (such as rape, attempted rape, unwanted fondling, molestation, and/or child molestation.” In addition, cyber-sexual assault was defined as follows: “[A]lso known as ‘revenge porn’ or ‘nonconsensual pornography,’ this form of sexual assault occurs when sexually explicit or nude photos/videos are shared online, without the pictured individual’s consent.” Participants were reminded to answer the questionnaire as it related to their experience of cyber-sexual assault.

Inventories

Demographic questionnaire. To minimize the perceived threat for participants who had traumatic experiences online, the researchers collected minimal demographics information to preserve anonymity of the participants. Demographic data collected were age, sex, sexual orientation, organization of belonging (CCRI; RAINN), and relationship to perpetrator. In addition, participants were asked about sexual assault history and cyber-sexual assault history (e.g., “how many times have you been cyber-sexually assaulted?”). For the questions related to sexual assault and cyber-sexual assault, participants were provided with an option of “other” and invited to qualitatively respond to the questions. Finally, prior to moving forward with the quantitative measurements, the participants were reminded to answer the remainder of

the questionnaire related to their experience(s) with cyber-sexual assault, which is/are defined as, “sexually explicit media that is publicly shared online without the consent of the pictured individual.”

Hypervigilance of checking for online material was assessed via three items: “In relation to your cyber-sexual assault, when it was at its worst, how often did you search for our online material [photo(s)/video(s)]?” “Is your material (photos and/or videos) still posted online?” and “In relation to your cyber-sexual assault, presently, how often do you currently search for our online material [photo(s)/video(s)]?” An option of “other” where respondents could qualitatively answer these three questions was offered. Last, we asked participants “In relation to your cyber-sexual assault, what was your relationship to the perpetrator?”

Emotional dysregulation. To measure emotional dysregulation in our sample of survivors of cyber-sexual assault, we used the Brief Version of the Difficulties in Emotion Regulation Scale [DERS-16] (Bjureberg et al., 2015). The inventory assesses emotional regulation difficulties through the presence of maladaptive coping skills via three constructs: (a) emotional regulation and related constructs, (b) psychopathology, and (c) clinically-relevant behaviors stemming from emotion regulation deficits. Participants indicated difficulties with emotional regulation strategies (e.g., “impulse control difficulties”) through a self-report 5-point Likert-scale ranging from “Almost never” to “Almost always.” Bjureberg and colleagues (2015) identified excellent internal consistency ($\alpha = 0.92$) for the scale, high test-retest reliability (.85; $p < 0.001$), as well as high construct validity, especially when compared to similar measures. Further, Cronbach’s α for the DERS-16 scale with these data was .942, which is considered excellent (Hair, 2006).

Post-traumatic stress severity. Post-traumatic stress symptomology was measured by the Impact of Events Scale Revised [IES-R] (Weiss & Marmar, 1997, 2004). The self-report instrument of 22-items measures post-traumatic stress severity according to the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; APA, 1994). At the time this study was completed, the scale aligned with three domains of post-traumatic stress disorder (PTSD): avoidance, intrusion, and hyperarousal. The inventory assesses for PTSD symptomology “over the last seven days” with respect to the three domains of PTSD symptoms resulting from the traumatic stressor (Weiss & Marmar, 2004). Self-reported responses were collected through a 5-point Likert-scale. The IES-R has excellent six-month test-retest reliability (.89–.94) (Weiss & Marmar, 2004). The scale has excellent internal consistency (.79 to .90) among the three subscales (Weiss & Marmar, 1997) and across samples: intrusion subscale (.85), avoidance subscale (.83), arousal subscale (.81), and composite (.91) (Vassar, Knaup, Hale, & Hale, 2011). Furthermore, the inventory accurately discriminates between trauma

victims and non-trauma victims (Leskinand, Kaloupek, & Keane, 1998; Weiss & Marmar, 2004). Cronbach's α for the IES-R scale with these data was .931, which was excellent (Hair, 2006).

Depression. Lastly, levels of depression symptomology were assessed using the Center for Epidemiologic Studies Depression Scale revised [CESD-R] (Eaton, Jacobs, & Ruvacaba, 2017), which was developed to align with the nine diagnostic criteria according to the DSM-IV (APA, 1994). An updated version was not yet available when this study was conducted. The depression measure has displayed excellent psychometric properties, including high internal consistency, strong factor loadings, and convergent and divergent validity (Van Dam & Earleywine, 2011; Eaton et al., 2017). Prior to its use within this study, the CESD-R was deemed to be a strong measure of depressive symptoms among sexual assault survivors (Najdowski & Ullman, 2011). The 5-point scale measured participants' depressive systems over the past two weeks through items ranging from "not at all or less than one day" to "nearly every day for two weeks." The CESD-R has excellent internal consistency (.923 - .928), as well as excellent convergent and divergent validity (Van Dam & Earleywine, 2011). Cronbach's α for the CESD-R scale with these data was .963, which was excellent (Hair, 2006).

Analysis

To examine the presence and comorbidity of Depression, PTSD severity, and Emotional Dysregulation in a sample of survivors of cyber-sexual assault, the researchers analyzed the survey data using: (a) ANOVA, (b) Spearman rho correlation, and (c) t-tests. T-tests (see Tables 1, 2, and 3) were used to examine mean differences for the binary, nominal data (i.e., biological sex, sexual assault history, and whether material was still online). Spearman's Rho (see Tables 4 and 5) was utilized to examine the relationship among the scales and the ordinal demographic variables (e.g., frequency of searching for online material). One-way between groups analysis of variance (ANOVA) was used to explore the significant relationships found between the demographic variables (e.g., nominal; ordinal) and instruments' total scores (DERS-16, IES-R, and CESD-R).

Data Cleaning and Imputation

We deleted cases with over 20% missing values, as were the cases of participants who had not experienced CBSA, resulting in the final total of 97 cases. The Little's Missing Completely at Random (MCAR) test showed significance greater than .05 ($p=.738$); this indicates the data were missing at random (Little's MCAR test; $\chi^2 = 1090.506$, $df = 1121$, $p = .738$). Data were imputed for the cases with less than 20% missing data (Schumacker, 2010) using mean estimation via SPSS (Version 23). After imputation, the data distribution revealed normalcy and no univariate or multivariate

outliers were identified. Multicollinearity was not evident among the independent variables (e.g., independent variables were not highly correlated; Tabachnick, 2013).

Results

Differences in Trauma Symptomology based on Sexual Assault History

More than half ($N = 54$, 55.7%) of participants reported the experience of prior sexual assault. Regarding number of lifetime sexual assaults experienced, 47 (48.45%) of the participants reported a wide range for number of past sexual assaults 1-100 ($M = 6.53$). A few of the non-numerical responses included: "Too many to count - throughout childhood;" "cannot quantify;" "multiple assaults;" and "I lost count." Regarding number of lifetime cyber-sexual assaults experienced, 74.23% ($N = 72$) of the participants reported a wide range for number of cyber-sexual assaults experienced: 1-100 ($M = 26.2$, $SD = 43.2$). The data about sexual assault history provided by participants were highly skewed and vague, so only the dichotomous variable (Yes; No) was used in the analysis. An independent sample's t-test (see Table 2) was used to examine if differences in symptomology based on prior sexual assault experience. There was a moderately large, statistically significant difference ($t(95) = 2.02$, $p = .05$, $d = 0.41$) in emotional regulation scores for participants who had previously been sexually assaulted compared to those who had not. The other two scales did not exhibit practical or statistically significant differences: PTSD severity ($t(95) = 0.276$, $p = .78$, $d = 0.05$), depressive symptomology ($t(95) = 0.214$, $p = .83$, $d = 0.04$).

Differences in Trauma Symptomology Based on Checking Behaviors

Three questions on the survey were geared to explore how often the individuals returned to visit their trauma: whether the material was still available online, how frequently they check their material "when it was at its worst," and how frequently they checked at the time they completed the survey. Nearly half of the participants' (42.3%) reported that "yes," the non-consensual, intimate materials (i.e., photos or videos) were still online. A smaller percentage reported "no," that the materials were not still online (30.9%), and a large percentage reported "other" (26.8%). Among those reporting "other," a large majority ($n = 22$, 85%) answered qualitatively that they did not know or did not care to look. Independent sample t-tests (see Table 3) showed that participants who answer "Yes" to the question "Is your material still posted online?" exhibited statistically and practically significant greater levels of psychological trauma on two of the three scales: emotional dysregulation ($t(69) = 1.97$, $p = .05$, $d = 0.48$) and post-traumatic symptomology ($t(69) = 4.38$, $p = .00$, $d = 1.05$). The third measure, depres-

Table 1
Results of *t*-tests and DERS-16, CESD-R, and IES-R by Biological Sex

Outcome	Group						95% CI for				
	Male			Female			Mean				
	M	SD	n	M	SD	n	Difference	t	df	<i>p</i>	<i>d</i>
DERS-16	60.5	16.5	6	49.6	15.0	97	-1.70, 23.5	1.71	95	.089	0.69
CESD-R	58.7	18.5	6	39.7	22.4	91	.405, 37.6	2.03*	95	.045	0.92
IES-R	70.7	12.7	6	50.3	18.47	91	5.05, 35.5	2.64*	95	.010	1.28

Note. * = $p < .05$

Table 2
Results of *t*-tests and DERS-16, CESD-R, and IES-R by Sexual Assault

Outcome	Group						95% CI for				
	Yes			No			Mean				
	M	SD	n	M	SD	n	Difference	t	df	<i>p</i>	<i>d</i>
DERS-16	53.0	14.4	54	46.8	15.7	43	.107, 12.3	2.02*	95	.05	0.41
CESD-R	41.3	20.6	54	40.3	25.1	43	-8.2, 10.2	.214	95	.83	0.04
IES-R	52.1	17.9	54	51.1	20.0	43	-6.59, 8.72	.276	95	.78	0.05

Note. * = $p \leq .05$

Table 3
Results of *t*-tests and DERS-16, CESD-R, and IES-R by Material Online

Outcome	Group						95% CI for				
	Yes			No			Mean				
	M	SD	n	M	SD	n	Difference	t	df	<i>p</i>	<i>d</i>
DERS-16	53.9	16.6	41	46.4	14.4	30	-.085, 15.0	1.97*	69	.05	0.48
CESD-R	47.2	22.7	41	36.4	23.1	30	-.404, 21.5	1.92	69	.06	0.47
IES-R	62.2	16.3	41	44.8	16.9	30	9.46, 25.3	4.38*	69	.00	1.05

Note. * = $p \leq .05$

sion symptomology, did not show a statistically significant difference ($t(69)=1.92$, $p=.06$), though the effect size was moderate ($d=0.48$).

At its most frequent, a plurality of participants 44 (45.4%) reported searching online for their material daily followed by 28 (28.9%) participants who searched hourly. Among the remaining participants, 10 (10.3%) reported never searching, seven (7.2%) reported "other," six (6.2%) reported searching once a week; and 2 (2.1%) who reported searching for their material online once a month. The relationships between the three scales used to measure trauma symptomology and frequency of checking online "when it was at its worst" was assessed using Spearman's rho (see Table 4). Depressive symptomology (CESDR) exhibited a statistically significant correlation with how frequently participants checked whether their materials were still online, ($r = -.1357$, $p = .000$; $r^2 = 1.8\%$), though the relationship was weak. The correlations for the other two measures of trauma symptomology were not statistically significant: emotional dysregulation ($r = -.195$, $p = .055$; $r^2 = 3.8\%$ variance) and PTSD symptomology ($r = -.132$, $p = .198$; $r^2 = 1.7\%$ variance).

In contrast with their most frequent checking online, at the time they completed the survey none of the participants

(0%) reported searching hourly for their material and only 14 (14.4%) reported searching daily. Among the remaining participants, 26 (26.8%) reported never searching, 24 (24.7%) searching monthly, 12 (12.4%) searched weekly (1 participant chose not to report (1.0%) and 20 (20.6%) reported "other"). Spearman's rho (see Table 5) was used to identify a statistically significant correlation between PTSD symptomology and how current searching behavior ($r = -.217$, $p = .034$; $r^2 = 4.7\%$ variance). The other two measures of trauma symptomology did not exhibit a statistically significant relationship with their current searching behavior: emotional dysregulation ($r = -.025$, $p = .812$; $r^2 = .06\%$ variance) and depressive symptomology ($r = -.173$, $p = .091$; $r^2 = 3\%$).

Table 4
Results of Spearman's Rho and DERS-16, CESD-R, and IES-R by Searching at at Worst

Variable	<i>r</i>	Variance	<i>p</i>
DERS-16	-.195	3.8%	.055
IES-R	-.132	1.7%	.198
CESD-R	-.136	1.8%	.000*

Note. * = $p \leq .05$

Table 5
Results of Spearman's Rho and DERS-16,
CESD-R, and IES-R by Searching Presently

Variable	<i>r</i>	Variance	<i>p</i>
DERS-16	-.025	.06%	.812
IES-R	-.217	4.7%	.034*
CESD-R	-.173	3%	.091

Note. * = $p \leq .05$

Differences Related to Ethnicity, Sexual Orientation, and Relationship to Perpetrator

Mean differences in traumatic symptomology scores for the sub-groups within the demographic data reported for ethnicity, sexual orientation, and relationship to perpetrator were explored using a one-way between groups analysis of variance. The most frequently reported relationship to the perpetrator (of CBSA) was a partner/significant other (35%), followed by a causal relationship (14%), a friend (12%), and then marital partner (8%). No statistically significant differences were identified for any sub-group on any of the three scales. No differences were evident for levels of emotion regulation difficulties: ethnicity ($p = .932$); sexual orientation ($p = .191$); or relationship to perpetrator ($p = .781$). No differences were evident for PTSD symptomology: ethnicity ($p = .667$); sexual orientation ($p = .315$); or relationship to perpetrator ($p = .206$). And no differences were evident for depressive symptoms: ethnicity ($p = .711$); sexual orientation ($p = .685$); or relationship to perpetrator ($p = .821$).

Discussion and Recommendations

We found that participants scored high across each of the inventories, indicating CBSA survivors respond similar to sexual assault survivors concerning mental health outcomes after the assault. Researchers have reported females are 1.5 times as likely to experience CBSA compared to men (Eaton et al., 2017), and we also found the majority of survivors in this study of cyber-sexual assault were female ($N = 93.8\%$). In addition, this research examined differences and relationships of the outcome variables associated with trauma symptomology when compared to participant variables (i.e., sexual orientation, ethnicity, previous sexual assault, relationship to perpetrator, material currently online and past/current checking behaviors). Specifically, the researchers explored emotional dysregulation (Bjureberg et al., 2015), depression (Campbell et al., 2009), and post-traumatic stress severity (Lancaster et al., 2016), as these are among the most significant mental health outcomes among survivors of sexual assault.

More than half of the respondents had experienced previous sexual assault in addition to their experiencing cyber-sexual assault. Regarding number of cyber-sexual assaults

experienced, nearly three quarters of the participants responded and reported prolific numbers of cyber-sexual assaults experienced, 1-100 ($M = 26.2$, $SD = 43.2$). Such high numbers (likely due to the permanency of the non-consensual material), and the multiple lifetime assaults, will both influence and exacerbate mental health consequences among survivors. Emotional dysregulation was significant for CBSA survivors with a history of sexual assault. Emotional regulation difficulties are a common outcome of sexual assault, particularly revictimization. Keep in mind that nearly two of three individuals sexually victimized are revictimized (Classen, Palesh, & Aggarwal, 2005), and research has empirically established that the majority of those who experience sexual assault will experience multiple sexual assaults throughout their lifetime (Grauerholz, 2000). The results in this study of CBSA survivors suggests to clinicians that for many, CBSA may be a form of revictimization and should be clinically treated accordingly, and based on revictimization literature (Classen et al., 2005; Grauerholz, 2000).

In addition to the quantitative response, participants were provided with an option of "other" to qualitatively respond to the question surrounding how many times they had experienced CBSA. A few of the individuals who did not quantify the number of times they had experienced cyber-sexual assault reported: "I don't know. You cannot put a value on this because you cannot track your photos"; "Unsure of total photos and websites"; "countless"; "ongoing"; "dozens." Most likely, because the material is permanent (Citron, 2014) once posted online, the photos or videos rarely disappears (e.g., website cache). The material spreads from site to site and disappears and reappears until the survivors lose count of how many times they were assaulted. Essentially, the original poster only needs to post the nonconsensual material once, then anonymous individuals can share this material for years after the original posting.

Most sexual assault survivors had some relationship to their perpetrators (i.e., casual relationship, family, friend, marital partner, partner/significant other, other). Cyber-sexual assault and sexual assault draw parallels regarding relationship to perpetrator, as CBSA may be another form of interpersonal violence since 69% of the participants had a relationship to their perpetration specific to cyber-sexual assault. Therefore, the experience of CBSA as a form of interpersonal violence, domestic violence, and sexual violence should be assessed for when treating individuals of CBSA, since it is possible that CBSA will be the presenting issue of a larger abuse related to their perpetrator. Meanwhile, it is essential to note that the severity of trauma symptomology did not vary by relationship type. Further, while most of this sample knew their perpetrators, there are plenty of situations where private photos were hacked and shared by an unknown person; in this sample 31% of the victims had no known relationship.

To assess the effect of victims revisiting their trauma, participants were asked how frequently they searched for their photos or videos online. When the participants first learned that intimate or sexual materials depicting them were posted online without their consent at the height of their online searching, almost half reported that they searched for their online material daily and almost an additional one-third reported they searched hourly. However, over time, participants' checking behaviors declined substantially, with none searching hourly and only one-sixth checking daily. In the open-ended responses, participants described a range of tactics, from checking every few months to once a year, to having a friend check.

At the time of data collection, about one-third of participants qualitatively reported that they did not care to look for their online, nonconsensual material. When these data were collected, laws were being drafted to criminalize CBSA, and therefore many participants did not have legal recourse (CCRI, 2016). If participants had no legal ability to remove and destroy the material (see Tungate, 2014), they may have elected to disengage altogether. The following section will explore how the varying responses (e.g., hypervigilance of checking behaviors; history of SA) influenced degree of distress among CBSA survivors.

Emotional Dysregulation

As anticipated, emotional dysregulation was significant for adult survivors of cyber-sexual assault who had experienced previous sexual assault, consistent with prior research (Walsh, DiLillo, & Messman-Moore, 2012). Further, participants who had prior histories of sexual assault and whose material is still posted online did show statistically significant greater levels of emotional dysregulation. An overwhelming amount of literature highlights that the majority of those who experience sexual assault will experience multiple sexual assaults (e.g., revictimization; Grauerholz, 2000). Empirical research overwhelmingly supports that sexual victimization, particularly revictimization, negatively affects emotional dysregulation, post sexual assault adjustment, and psychopathology (Boesch, Koss, Figueredo, & Coan, 2001; Burgess & Holmstrom, 1978; Najdowski & Ullman, 2011; Ullman, Peter-Hagene, & Relyea, 2014; Walsh, DiLillo, & Scalora, 2011; Walsh et al., 2012). Heightened levels of emotional dysregulation, in turn, exacerbate psychological distress (e.g., depression) for sexual assault survivors (Boesch et al., 2001; Cloitre, Miranda, Stovall-McClough, & Han, 2005; Walsh et al., 2011, 2012). These findings suggest emotional dysregulation is an area of intervention among CBSA survivors.

The relationship between emotional dysregulation and current searching behaviors for CBSA material presently was not statistically significant. However, the analysis also suggests that participants who search most often for their mate-

rial online, when their searching was most hypervigilant, exhibited greater levels of emotional dysregulation. This suggests to the researchers that reducing levels of hypervigilance may benefit CBSA victims. Due to the correlation of higher searching behaviors and higher emotional dysregulation concerns (e.g., lack of coping, lack of goal oriented behaviors, etc.), interventions targeting these behaviors are suggested.

Post-Traumatic Stress

The relationship between PTSD symptomology as measured by the IES-R (Weiss & Marmar, 1997) and searching for CBSA material when at its worst was not statistically significant; however, the relationship between PTSD symptomology and searching for CBSA material presently was significant. Furthermore, if the CBSA survivors' material was still posted online at the time they completed the study, PTSD symptomology was significant. While PTSD is associated with the experience of a traumatic event, for a diagnosis to be warranted symptoms must be present for a month (APA, 1994). Therefore, heightened levels of PTSD symptomology appear to correlate with those who continued to search for their material long after the acute stage wherein individuals first learned they had become victims of cyber-sexual assault. The Impact of Event's Scale –Revised (Weiss & Marmar, 1997) asks about PTSD related symptomology in the past seven days. As such, it is no surprise that current behaviors as well as current material being online were significant of PTSD symptomology (i.e., present searching behaviors of material and the material currently being accessible online). Because post-traumatic stress disorder (Lancaster et al., 2016; Norris, 1992) has been identified to be among the most profound and persistent psychological outcomes of sexual assault it is a likely outcome for CBSA survivors, particularly when they continue to revisit their crime online. PTSD should be assessed for and treated where appropriate among this population.

A significant relationship was identified for PTSD symptomology and biological sex (see Table 1). Gender contributes to the development of PTSD (Breslau & Davis, 1992; Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Shalev et al., 1998). This is significant because most sexual assault survivors are women, and within this study, the majority of cyber-sexual assault survivors were female as well. Females are more likely than males to be exposed to rape and molestations; additionally, females are more likely to develop PTSD (Breslau & Davis, 1992; Kessler et al., 1995; Shalev et al., 1998). Please note, however, that due to the small sample of men, these results should be interpreted with caution, and group differences cannot be explored.

Depression

A statistically significant relationship was identified for depression symptomology and searching for CBSA material when at its worst; however, the relationship between depression and searching for CBSA material presently was not statistically significant. This suggests that depression is not a long-lasting outcome for individuals that search for their material long after it was posted, especially when compared to post-traumatic stress, though future research would benefit from exploring this finding. Further, participants whose materials were still online exhibited statistically significant greater levels of depression symptoms. Depression is the most profound and persistent psychological outcome of sexual assault (Russell & Davis, 2007). These findings suggest that depression rates were higher for those that were searching for their online nonconsensual material often, and for those individuals whose material was still online. Interventions initially aimed at reducing the hypervigilance of checking behaviors may reduce symptoms of depression.

Limitations

The data presented in this study were limited in a few ways, suggesting opportunities for future research. This study focused on the mental health outcomes of cyber-sexual assault and not the means for transmission (e.g., sexting; Facebook; email). The mechanisms of transmission could influence trauma symptomology. Furthermore, although a representative sample of the population was sought, diversity is limited within this sample. For example, a range of options were provided for both gender identity, sexual orientation and affirmation, and relationship to perpetrator but responses were limited. For example, participants self-identified as male or female only. In this sample, six of the participants identified as male. As such, the results are reported (see Table 1), but comparison cannot be made due to this large group difference. Finally, all participants were recruited from the online nonprofit organization, CCRI, which may influence the responses as well.

Future research would benefit from utilizing a mixed-methods approach to increase the richness of the data and help address some of the limitations pointed out in this study. Further, the limited sample size and diversity within the sample will influence generalizability of this study; some sub-samples may not be representative of the population of victim of cyber-sexual assault. While the overall sample size provided adequate power for the statistical tests reported here, the small sample of some sub-groups limits generalizability of some findings. As a result, some of the statistically non-significant results should be interpreted with caution, especially when the effect sizes were moderately large. The low response rate to this online survey, generally and among some sub-populations, could be due to victims' ex-

periences with having their privacy violated online; however, the causes of this low response remains unclear.

Regarding instrumentation, the three measurements used offered both reliability and validity, and construct validity has been measured for each inventory with CBSA survivors (see Holladay, 2016). The three questions surrounding hypervigilance of checking behaviors were not validated, limiting generalizability. As such, content validity, or the ability to know we are measuring a specific construct of interest (Cronbach & Meehl, 1955) may be lacking specific to these items. Because new areas of study often lack validated instruments (Marganski & Fauth, 2013), we proceeded noting the importance for utilizing validated instruments in research design. In addition, while explicit definitions of both sexual assault and cyber-sexual assault were offered at the beginning of this survey, and participants were asked to answer the measurements based on their experience of cyber-sexual assault, other factors may have influenced how participants responded. While no validated instruments exist to quantify the experience of CBSA, participants reported a wide range of SA ($M = 6.53$) experiences and CBSA ($M = 26.2$) experiences.

Conclusions

As the first study to investigate the psychological outcomes of survivors of cyber-sexual assault, this study offers clinicians several recommendations when working with survivors of CBSA. Based upon previous sexual violence (Campbell et al., 2009) and cyber-sexual assault (S. Bates, 2016) literature as well as these findings, it appears that targeting emotion regulation strategies is key for survivors, especially for clients who have experienced sexual revictimization. Helping survivors regulate how often they look for their material seems especially important as this may help to decrease the distressing psychological outcomes. Future research would benefit from exploring this linear relationship of checking behaviors and increased distress to learn about successful intervention strategies. Finally, while learning emotional regulation strategies may be a key part of any intervention, assessing for and treating both depression and PTSD is essential for survivors of sexual violence, including CBSA. Based on these findings, depression may be more likely initially after the posting, while PTSD may be more likely among individuals who continue to search for their material online. Due to the devastating impact CBSA can have on survivors, future research geared towards the creation of interventions specific to this population are necessary, especially in the age of technology.

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