

Does Cyber Dating Abuse Victimization Increase Depressive Symptoms or Vice Versa?

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Abstract

Although there is a robust positive association between cyber dating abuse victimization and depression, the direction of effects between them is unknown. Thus, we conducted two studies to investigate their temporal relationship. Study 1 ($n = 198$) examined whether cyber dating abuse victimization predicted depressive symptoms 6 weeks later, after controlling for the initial level of depressive symptoms. Study 2 ($n = 264$) used a two-wave, cross-lagged design to investigate possible bidirectional relations between cyber dating abuse victimization and depression. Participants in both studies were emerging adults in romantic relationships. They completed the Partner Cyber Abuse Questionnaire and depression subscale of the Depression Anxiety and Stress Scale. Many individuals (42.40% in Study 1 and 36.4% in Study 2) reported experiencing cyber abuse from their partners. Study 1 replicated the cross-sectional association previously found between cyber dating abuse victimization and depression and showed that cyber abuse predicted depression 6 weeks later. Study 2 replicated the findings of the first study and revealed that cyber dating abuse victimization was related to higher levels of depressive symptoms 12 weeks later, but the

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converse was not the case. These results are discussed in terms of their implications for future research and clinical practice.

Keywords

college students, cross-lagged panel study, cyber dating abuse victimization, dating relationships, depression, longitudinal analysis

Initiating and maintaining romantic relationships is a developmental hallmark of emerging adulthood (18–25 years of age; Arnett, 2004) and may contribute to the physical and mental health of emerging adults (Braithwaite et al., 2010; Whitton et al., 2013). Braithwaite et al. (2010) showed that emerging adults in committed relationships compared to singles reported fewer mental health problems, lower obesity, fewer risky behaviors (e.g., less alcohol, tobacco, and illicit drug use), and fewer sexual partners. However, romantic relationships in emerging adulthood do present challenges. Dating violence is quite common, peaks among emerging adults (Johnson et al., 2014) and may be exacerbated by modern technology.

Technology has increasingly become a part of daily life among adolescents and emerging adults. Smith et al. (2011) found that every emerging adult in college uses the internet, with 92% having smartphones (Jiang, 2018), which are used to send and receive text messages (Duggan, 2013). Text messages in romantic relationships are utilized to initiate and maintain the relationship (Pettigrew, 2009). The popularization of smartphone usage, social networking sites, and texting allows partners to be closer than in prior eras. Technology has a dark side, however, allowing for new forms of abuse between partners, cyber abuse. Rates of cyber abuse victimization are as high as or even higher than in-person dating violence among emerging adults in college (Epstein-Ngo et al., 2014).

Like cyber abuse, depression is common among college students. According to the National Health Assessment (American College Health Association, 2018), an extensive survey of 88,178 college students from 140 campuses in the United States, 18.1% of college students reported being diagnosed or treated by a professional for depression in the past 12 months. This is important because cross-sectional evidence documents a robust positive association between cyber dating victimization and depression (e.g., Borrajo & Gamex-Guadix, 2016; Wolford-Clevenger et al., 2016). However, in the absence of longitudinal data, the direction of effects between cyber dating victimization and depression remains unknown. The present research, therefore, attempts to answer the question: Does cyber abuse victimization predict later depressive symptoms or vice versa?

Cyber Dating Abuse: Definition and Measurement

Definitions of cyber dating abuse vary with terms such as electronic, digital, and cyber being used to characterize abuse, aggression, and violence occurring via digital media. In the current study, we refer to cyber dating abuse. Cyber reflects “the breadth of technological means such as cell phones, social media, electronic mail, and online accounts,” and abuse reflects “the range of harmful actions perpetrated through these means” (Wolford-Clevenger et al., 2016, p. 2). We adopted the definition of Wolford-Clevenger et al. (2016); cyber abuse is “harassing, threatening, monitoring, impersonating, humiliating, or verbally abusing one’s current partner through the use of technology” (p. 2) and utilized their measure of cyber dating abuse.

Cyber Dating Abuse Victimization: Prevalence and Gender Differences

In a pioneering study of college students ($N=437$) between the ages of 18 and 22, 92% reported experiencing some form of cyber victimization (Bennett et al., 2011). Regarding romantic relationships, 73% of a sample of dating college students (sample $N=540$) reported experiencing at least one act of cyber abuse in the past year (Marganski & Melander, 2015). Borrajo and Gamez-Guadix (2016), found that the rate of cyber abuse victimization was 81%. Although most studies offer limited evidence on gender differences, those that do reveal a relatively clear pattern; men and women appear to experience similar rates of victimization (i.e., Borrajo & Gamez-Guadix, 2016; Burke et al., 2011; Leising & Giumetti, 2014; Reed et al., 2016; Toplu-Demirtaş, Akçabozan-Kayabol et al., 2020; Wolford-Clevenger et al., 2016; Zapor et al., 2017). For example, 72% of the males and 74% of the females endorsed being a target of at least one act of cyber abuse (Zapor et al., 2017). Also, Borrajo and Gamez-Guadix (2016) found that 82.8% and 80.4% of males and females, respectively, felt controlled by their partners online.

Cyber Dating Abuse Victimization: Link to Depression

Depression is one of the most common mental health issues reported by the victims of dating violence (Eshelman & Levendosky, 2012; Prospero & Kim, 2009; Volpe et al., 2012). Not surprisingly, experiencing cyber dating violence is positively related to depression (Borrajo & Gamez-Guadix, 2016; Dardis et al., 2019; Sargent et al., 2016; Watkins et al., 2018; Wolford-Clevenger et al., 2016). Dardis et al. (2019), found that excessive and

threatening cyber contact was the most robust predictor of depression compared to any other form of dating violence among undergraduate women. In a similar study, among first-year college men and women, cyber victimization was related to depressive symptoms (Sargent et al., 2016). However, given the lack of longitudinal data, it is not clear whether cyber abuse victimization increases the risk of depression.

Current Studies

As noted earlier, evidence documenting the relationship between depression and cyber dating abuse victimization is limited to cross-sectional data. Thus, we do not know whether cyber dating abuse leads to depression or vice versa? Determining the temporal relationship between cyber dating abuse and depression is important not only for inferring potential direction of effects but also for mental health practitioners. For example, it provides information essential to tailoring preventive and interventive services for students subjected to cyber abuse. Longitudinal studies are needed to establish temporal ordering. Therefore, in the current research, we investigated the associations between cyber dating abuse victimization and depressive symptoms over time in multiple samples of dating college students. Two studies were designed for this purpose.

Study 1

The Purpose and Hypothesis

The first study specifically addressed the question of whether cyber abuse victimization predicts later depressive symptoms after controlling for the initial level of depressive symptoms. Although not thoroughly explored, findings from Duerksen and Woodin (2019) suggest that one might expect prior cyber abuse to predict later depressive symptoms. Therefore, we predicted that cyber abuse victimization at time 1 would predict depressive symptoms at time 2, after controlling for time 1 depression.

Method

Participants

Participants were from a larger project that examined various aspects of college life, including relationship functioning. Students who reported being in a current romantic relationship ($N = 198$) were participants. Participants averaged 20.11 ($SD = 1.89$) years of age and reflected the following racial/ethnic

identifications: 67% Caucasian, 11% Black, 14% Hispanic, 1% Asian, and 6% preferred not to disclose their racial/ethnic identification.

Measures

Cyber abuse. The Partner Cyber Abuse Questionnaire (PCAQ; Wolford-Clevenger et al., 2016) was used to measure cyber dating abuse victimization experiences in a current romantic relationship. The nine-item, single-factor PCAQ involves items such as “My partner checked or read my emails or texts without my permission” and “My partner monitored my profile or used phone applications as a way to keep tabs on me.” All PCAQ items were rated on a 6-point frequency scale over the past year (never, once, twice, three times, four times, and five or more times). Higher scores indicate greater cyber abuse victimization. Consistent with the scoring of other intimate partner violence measures in which violence is nonnormally distributed (e.g., Straus, 2004), the composite of cyber abuse was dichotomized into 0 (never experienced an instance of cyber abuse in their current relationship) and 1 (experienced at least one instance of cyber abuse in their current relationship). At time 1, a total of 57.60% ($n = 114$) respondents reported never experiencing abuse via technology (coded 0), and 42.40% ($n = 84$) reported experiencing abuse via technology at least one or more times (coded 1).

Depressive symptoms. The depression subscale of the Depression Anxiety and Stress Scale (DASS-21; Antony et al., 1998) was used to assess depressive symptoms. This seven-item, single-factor scale includes items such as “I felt down-hearted and blue.” and “I felt that I was not worth much as a person.” Respondents rated their level of agreement on a Likert-type scale ranging from (0) did not apply to me at all—never to (3) applied to me very much, or most of the time—almost always. Higher scores indicate greater depression. Cronbach alpha at times 1 and 2 were .82 and .83, respectively.

Procedure

Students were recruited from classes in which instructors offered opportunities to earn extra credit. One of the opportunities included participation in the present study. The university’s institutional review board approved the study, and prior to participation, participants provided informed consent. Participants then completed two online surveys six weeks apart during the course of the semester. Participants were asked to complete a battery of questionnaires, which included as a subsection, the described measurement scales. Specifically, the depression scores were collected at both assessments; however, as the cyber abuse questionnaire assesses incidents over a 12-month window, these

scores were only collected at time 1. A total of 48 participants were lost to attrition at time 2. Analysis of time 2 missing cases revealed that they did not have significantly higher victimization or depression scores (F 's < 1.0, p 's > .05) at time 1 compared to the individuals retained in the full analysis.

Results and Discussion

Means and standard deviations, along with correlations among study variables, are shown in Table 1. Multiple regression analysis examined whether cyber abuse victimization predicted depressive symptoms six weeks later while controlling for the initial level of depressive symptoms. Findings indicate that cyber abuse victimization at time 1 accounted for a significant portion of the variance (22%) in depressive symptoms at time 2, $b = .12$, $SE = .056$, $p = .046$, 95% CI: .221, .002, after controlling for time 1 depression.

The finding supported our hypothesis that cyber abuse victimization at time 1 would predict depressive symptoms at time 2, after controlling for depression at time 1. Study 1 also replicated the concurrent association between cyber abuse victimization and depression. However, Study 1 is limited by the fact that it does not explore potential bidirectional relations between cyber abuse victimization and depression over time. Does depression also predict later cyber abuse victimization controlling for initial levels of such abuse? To examine the potential bidirectional effects, we conducted a second study.

Study 2

Given the unidirectional limitation of Study 1, the second study specifically addressed the question of whether cyber abuse victimization increases the risk of depression or vice versa. To evaluate our proposed research question, we used a two-variable, two-wave design, as depicted in Figure 2. Given the findings in Study 1, we predicted that cyber dating abuse victimization would predict later depressive symptoms.

Table 1. Means, Standard Deviations and Correlations Among Study Variables in Study 1.

Variable	$M \pm SD$	N	1	2	3	4
1. Depression time 1	3.29 ± 4.46	198	—			
2. Depression time 2	4.10 ± 4.73	150	.63**	—		
3. Cyber abuse time 1	—	198	.21 ^a **	.02 ^a	—	

Note. * $p < .05$. ** $p < .01$. M = mean. ^a = point biserial correlation. SD = standard deviation. N = sample size owing to missing data.

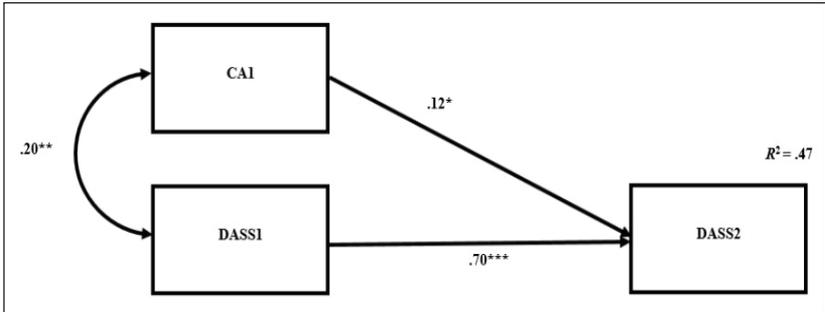


Figure 1. The effect of cyber abuse on change in depressive symptomology.

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. CA1 = Cyber abuse at time 1. DASS1 = Depressive symptoms at time 1. DASS2 = Depressive symptoms at time 2.

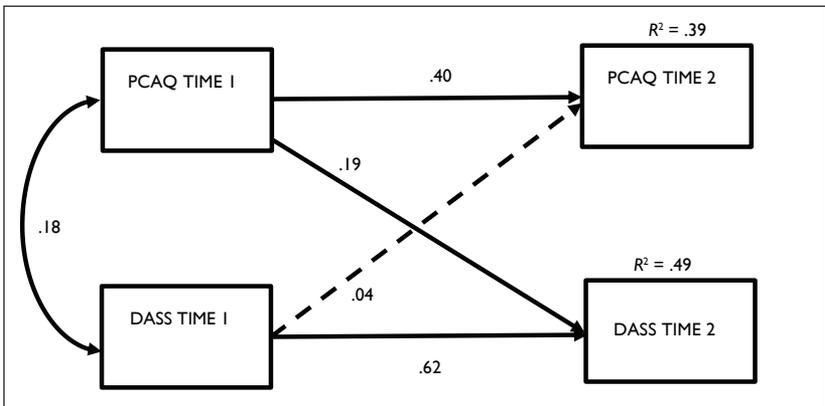


Figure 2. Cross-lagged model.

Note. Solid lines indicate $p < .05$. PCAQ TIME1 = Cyber abuse victimization at time 1. PCAQ TIME 2 = Cyber abuse victimization at time 2. DASS TIME 1 = Depressive symptoms at time 1. DASS TIME 2 = Depressive symptoms at time 2.

Method

Participants

A different sample of college students independent of those who participated in Study 1 was recruited. Participants ($N = 264$) reported being in a current romantic relationship. Their age averaged 20.00 years ($SD = 1.12$). They identified their gender as 93.5% female, and their race/ethnicity as: 65.5% Caucasian, 10% Black, 16% Hispanic, 3% Asian, and 5.5% preferred not to disclose their racial/ethnic identification.

Measures

The PCAQ and depression subscale of the DASS-21 were utilized to gauge cyber dating abuse victimization experiences and depressive symptoms, respectively, as in Study 1. In Study 2, however, cyber abuse victimization at time 2 was assessed by asking if an occurrence had happened since the time 1 assessment conducted 12 weeks earlier. Using the same scoring procedure to calculate frequency, 36.4% and 31.9% of college students at times one and two, respectively, reported experiencing at least one incident of cyber dating abuse in their current relationships.

Procedure

In this study, participants completed two online surveys 12 weeks apart during the course of the semester. A total of 129 participants were lost to attrition at time 2. As in Study 1, analysis of time 2 missing cases revealed that they did not have significantly higher victimization or depression scores (F 's < 1.0, p 's > .05) at time 1 compared to the individuals retained in the full analysis.

Statistical Analyses

A repeated-measures ANOVA examined mean differences in depression scores between waves 1 and 2. A McNemar repeated measures test was also used to explore frequency differences for cyber abuse scores for waves 1 and 2. Cross-lagged stability models with autoregressive effects and bidirectional (nonrecursive) analyses were utilized to examine temporal relationships. Cross-lagged stability models allowed examination of longitudinal relationships between variables while controlling for their stability by having each time 2 variable simultaneously regressed on each time 1 variable. The occurrence of a significant cross-lagged effect reflects a relationship beyond which can be accounted for by the stability of the constructs and their association at time 1. The presence of bidirectional or synchronous effects between cyber abuse victimization and depressive symptoms was also examined in nonrecursive models. Structural equation modeling (SEM) was conducted using Mplus Version 7.3 (Muthen & Muthen, 1998–2012). Using Mplus, weighted least squares estimation (WLSMV) provided probit regression coefficients for dichotomous outcomes, while ML was used to provide standardized estimates for continuous outcomes. The pairwise deletion was used to handle missing data. Because the models are fully saturated (without any degrees of freedom), there are no estimates of model fit, and the focus is on parameter estimates only.

Results and Discussion

In comparing depression scores from wave 1 ($M = 3.66, SD = 4.01$) to wave 2 ($M = 4.43, SD = 4.44$), repeated measures analysis revealed that depressive symptoms increased over time, $F(1, 263) = 13.15, p < .001$, partial $\eta^2 = .037$ (with Wilks' lambda at .963 and Greenhouse-Geisser correction at 1.000). The McNemar repeated measures test revealed no significant differences in frequency between cyberabuse at wave 1 (63.6% of no abuse with $n = 168, 36.4\%$ of an occurrence of abuse with $n = 96$) and at wave 2 (68.1% of no abuse with $n = 92, 31.9\%$ of an occurrence of abuse with $n = 43$), $\chi^2 = .031, p = .860$.

Regarding the cross-lagged analysis, depressive symptoms reported at time 1 did not predict reports of being a victim of cyber abuse at time 2, $\beta = .04, p = .141, \text{Exp}(B) = 1.03$. However, reports of cyber abuse victimization at time 1 did predict depressive symptoms at time 2, $\beta = .19, p = .037$ (see Figure 2). To examine possible bidirectional (synchronous) effects between the two indices, we estimated a nonrecursive model (Figure 3). In order to identify a bidirectional effects model, several conditions need to be satisfied. The present model satisfies these conditions in that earlier measures of cyber abuse victimization and depressive symptoms are presumed to be predetermined variables and thereby uncorrelated with the disturbance terms in both time 2 equations and both cross-lagged effects are constrained to be zero. These analyses yielded results that were consistent with those obtained in the cross-lagged stability models. The nonrecursive model demonstrate that time 2 cyber abuse

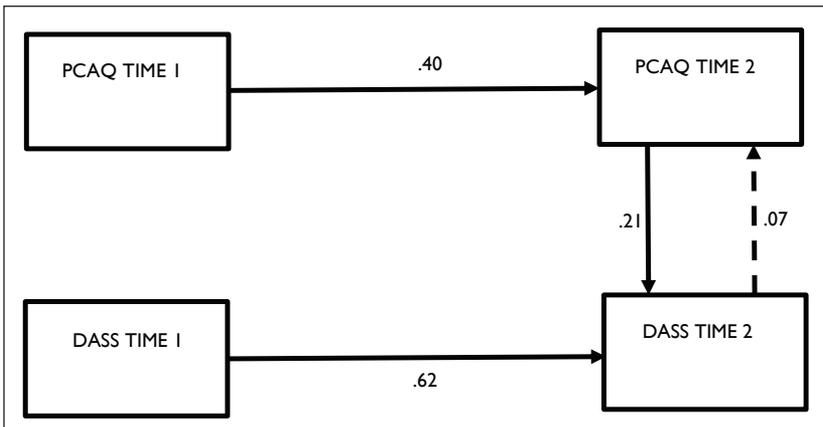


Figure 3. Non-recursive model.

Note. Solid lines indicate $p < .05$. PCAQ TIME1 = Cyber abuse victimization at time 1. PCAQ TIME 2 = Cyber abuse victimization at time 2. DASS TIME 1 = Depressive symptoms at time 1. DASS TIME 2 = Depressive symptoms at time 2.

victimization predicted depressive symptoms, $\beta = .21, p = .014$. However, the path from depressive symptoms to cyber abuse victimization at time 2 did not reach statistical significance, $\beta = .07, p = .111, \text{Exp}(B) = 1.09$.

These findings replicated the findings from study 1 and supported our hypothesis that cyber abuse victimization predicts dating college students' depressive symptoms. Furthermore, this study expanded the assessment window of Study 1 from 6 weeks to 12 weeks. Our findings revealed that cyber dating abuse victimization predicts depression and that this relationship is not bidirectional, which is a novel addition to the literature. Although the evidence is not experimental, there is now some evidence to believe that cyber abuse victimization may be a risk factor for depression among dating college students.

General Discussion

Romantic relationships in emerging adulthood may, in general, be protective for depression (i.e., Braithwaite et al., 2010); yet, they may increase the risk of depression as well (i.e., Wolford-Clevenger et al., 2016), particularly if the relationship is an abusive one. We know that cyber dating abuse victimization (e.g., Borrajo & Gamez-Guadix, 2016) and depression (American College Health Association, 2018) are common among college students and that they are concurrently associated. However, the direction of effects between the two variables is unknown. The present study, therefore, investigated the direction of effects between cyber dating abuse victimization and depression among college students using time-ordered data. Additionally, rates of victimization were documented.

Before considering the hypotheses investigated, it is worth discussing the prevalence rates found in our studies. The rate of victimization in Study 1 was 42.40% (time 1). In study 2, we obtained rates of 36.4% and 31.9% for times one and two, respectively. Compared to other studies, which found rates as high as 95%, our findings may appear more modest. However, victimization rates fluctuate considerably, depending on the instrument used. Utilizing the same tool as we did, for example, Wolford-Clevenger et al. (2016) found a similar rate, 40.0%. Although not as high as in other studies, the rate is still alarming as it shows that a substantial minority of college students experience cyber dating abuse victimization.

Turning to the hypotheses, we replicated the positive cross-sectional relationship between cyber abuse victimization and depression (Borrajo & Gamez-Guadix, 2016; Dardis et al., 2019; Sargent et al., 2016; Watkins et al., 2018; Wolford-Clevenger et al., 2016) in both studies. Depression and cyber victimization in Studies 1 and 2 were positively related to each other.

Importantly, we extended the literature by examining longitudinal relationships, helping to better understand the potential time ordering of cyber abuse victimization, and the occurrence of depressive symptomology. In Study 1, it was shown that initial cyber abuse victimization accounted for a significant portion of the variance in later depressive symptoms. The findings of Study 2 regarding the cross-lagged path and possible bidirectional (synchronous) effects were of sufficient magnitude to reach statistical significance. In the models, the paths from cyber abuse victimization to depressive symptoms were significant, but the effects in the opposite direction were not, thus providing an answer regarding the time ordering of the variables investigated. Based on the evidence, we can infer that cyber dating abuse victimization increases depressive symptoms (but not vice versa). This novel finding suggests that cyber abuse victimization is a risk factor for depression in emerging adults and has important implications for future research and college counselors.

Limitations

To the best of our knowledge, these are the first reported data on the temporal association between cyber dating abuse victimization and depression among college students, but they need to be interpreted in light of several limitations. Our sample size was modest, with a majority of participants being Caucasian women from a large southern university, which limits generalizability. Future studies will benefit from larger samples reflecting greater diversity. Moreover, we believe that the inclusion of emerging adults not enrolled in college, labeled the “the forgotten half” (Halperin, 2001), will be informative. The use of self-reported cyber abuse victimization and depression also raises issues of potential reporting bias and social desirability. Future research should consider gathering data from the dating partner to handle such matters. Obtaining partner reports has the added advantage of providing dyadic data to identify actor and partner effects, thus further advancing the understanding of the cyber abuse victimization–depression association. In addition, data sources, such as diagnostic interviews and digital records, may also be considered.

Implications for Further Research and Practice

As Lu et al. (2018) unveiled drug abuse as a risk factor in the victimization–depression link, alcohol may also play a similar role. Some 38% of emerging adults between the ages of 18 and 25 years reported binge drinking in the 2015 National Survey on Drug Use and Health. Similarly, results of brief alcohol intervention helped to reduce not only underage drinking but both

dating violence perpetration and depression symptoms (Ngo et al., 2018). Given these prior findings, we suggest that longitudinal investigation of cyber dating abuse victimization, alcohol, and depression among college students would prove fruitful.

Protective factors are also worth future investigation—as well as risk factors—to increase cyber victims' ability to prevent and cope with victimization and its potential effect on depression. For example, mindfulness seems to be a promising factor to investigate as there is evidence to show that mindfulness is negatively related to depression. For example, Barnes and Lynn (2010) showed in their longitudinal research that mindfulness practices alleviated depressive symptoms by counteracting rumination. Self-compassion and forgiveness also merit further investigation. One longitudinal study found that self-compassion was effective in helping at-risk people reduce depressive symptoms (Lopez et al., 2018). In another study, Toussaint et al., (2015) showed that as forgiveness increased, stress decreased, which in turn led to an increase in mental health. The evidence of these longitudinal and experimental studies signifies that skill-based (i.e., mindfulness, self-compassion, forgiveness, rumination) interventions may mitigate depressive symptoms of cyber abuse victims and empower them accordingly. Thus, we recommend further that researchers investigate—longitudinally and experimentally—the mediating and moderating roles of those constructs. Finally, we dichotomized the composite cyber abuse with a rationale (nonnormality) behind the decision. We are curious if more severe or frequent cyber abuse would differentially predict higher rates of depression than one isolated experience, which may be quite interesting for the researchers to explore.

This study also has implications for mental health professionals who work with victims of cyber abuse in college counseling centers. Considering the relationship between depression and cyber victimization, practitioners should assess dating college students for both, when they know or reasonably suspect symptoms of dating abuse victimization (in-person or cyber) or depression. Moreover, given the prevalence of cyber abuse victimization identified both in the current and previous research, there is a need for evidence-based prevention programs for college students. Mental health practitioners in college counseling centers might disseminate information regarding cyber dating abuse and its effects via brochures, seminars, events, and psychoeducation groups for preventive efforts. At the clinical level, though there has been no evidence yet, cultivating mindfulness, self-compassion, and forgiveness might help survivors of cyber violence to empower themselves and thus reduce depression. Nevertheless, it should not be forgotten that addressing dating violence and cyber abuse requires action at multiple levels, so it is the responsibility of colleges to have a clear policy regarding these concerns.

Concluding Remarks

The purpose of the present research was to document the temporal ordering (i.e., potential causal direction) between cyber abuse victimization and depression via two-wave longitudinal surveys with different samples and differing time intervals between assessments (6 weeks and 12 weeks). We found that cyber abuse victimization is prevalent among college students and replicated cross-sectional evidence of the relationship between cyber abuse victimization and depression. More importantly, using cross-lagged and bidirectional models, we found that cyber dating abuse likely leads to depression and not vice versa. To our knowledge, this is the first study to provide such longitudinal evidence. For future studies, we encourage researchers to continue accruing data to strengthen the foundation for making causal inferences regarding the association between cyber dating abuse victimization and depression. It will also be important to investigate potential mechanisms that may help explain why they are related.

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Ross W. May, PhD, is a research faculty member and associate director of the Family Institute at Florida State University. His research program focuses on psycho-cardiology, the interplay between psychological states and physiology. Specifically, his research investigates the relationship between hemodynamics, cardiac autonomic modulation, and affective states both intra and interpersonally (individuals, couples,

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Gregory S. Seibert, PhD, LMFT, is a postdoctoral scholar in the Department of Psychiatry at the University of California San Diego . His current research interest is better understanding the utility of family systems as a point of intervention for various health outcomes, with a specific focus on individual and dyadic stress management processes. Dr Seibert is also involved in developing, adapting, and testing behavioral interventions for implementation at the organizational, team, and family levels in the hospital, addiction, and mental health settings.

Frank D. Fincham, PhD, is an eminent scholar and director of the Florida State University Family Institute. His goal is to understand the cognitive processes involved in conflict, forgiveness, and prayer in close relationships. He also investigates emerging adulthood, focusing particularly on school burnout, hooking up, and friends with benefits. Recently, he has integrated hemodynamic and cardiac functioning into his research to understand how the processes he studies impact health.