CYBER VICTIMIZATION AND DEPRESSION AND ANXIETY SYMPTOMS IN EMERGING ADULTS

by

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ABSTRACT

MEGAN E. MCCOMAS. Cyber Victimization and Depression and Anxiety Symptoms in Emerging Adults (Under the direction of DR. VIRGINIA GIL-RIVAS)

Experiences of cyber aggression victimization in emerging adulthood have been shown to be associated with host of negative psychological health concerns (i.e., depression, anxiety, loneliness, substance use, suicidal ideation and suicide attempts), yet few studies have examined the pathways by which cyber victimization contributes to these outcomes (Kritsotakis, Papanikolaou, Androulakis, & Philalithis, 2017; Schenk & Fremouw, 2012; Varghese & Pistole, 2017). Given this gap in the literature, this study tested a conceptual model of the pathways by which cyber aggression victimization contributes to symptoms of depression and anxiety among emerging adults. Specifically, this study examined the contribution of emotion dysregulation, biological sex, perceived social support, and social media use integration to symptomatology. A total of 310 emerging adults were surveyed. As predicted, emotion dysregulation mediated the relationship between experiencing cyber aggression victimization and depressive and anxiety symptoms. Further, perceived social support moderated the effect of emotion dysregulation on depressive symptoms, but not on anxiety symptoms. Contrary to expectations, biological sex did not moderate the relationship between cyber victimization and emotion dysregulation. Further, social media use integration did not moderate the effect of emotion dysregulation on symptomatology. Implications of these findings for research and intervention are discussed.

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INTRODUCTION

Social media use among emerging adults (individuals aged 18-29) is increasing, with 86% of emerging adults in the United States reporting use of one or more social media sites (Pew Research Center [PRC], 2017). In fact, social media has become a new and common method of communication with Facebook, Instagram, Pinterest, LinkedIn, and Twitter as the most commonly used sites (PRC, 2017). Notably, social media use among this age group has drastically increased over recent years; in 2005, only 6% of emerging adults reported using at least one social media site (PRC, 2017). Further, due to technological advancements, social media sites are not solely accessed via computers, but also through applications on tablets and smartphone devices making it a ubiquitous experience. Research shows that 92% of emerging adults owned a smartphone device in 2016, which potentially provided 24/7 access to social media sites as long as the individual had a cellular connection or wireless internet (PRC, 2017). Greater use and access to social media can increase the likelihood of experiencing cyberbullying or cyber aggression.

Cyberbullying is commonly defined as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008, p. 376). Unfortunately, lack of theoretical grounding and conceptual clarity has hindered research on cyberbullying (Kowalski, Giumetti, Schroeder, & Lattanner, 2014; Underwood & Ehrenreich, 2017). For instance, some researchers use the term cyberbullying and cyber aggression interchangeably, however, others argue that cyberbullying is a distinct form of

aggression and therefore the term ‘cyber-aggression’ should be used (Mehari, Farrell, & Le, 2014; Underwood & Ehrenreich, 2017). Specifically, bullying and cyberbullying are both forms of interpersonal aggression, however, aggression is not always a form of bullying as aggression refers to a single act, and bullying comprises of repeated acts (Dooley, Pyżalski, & Cross, 2009; Olweus, 1993). Also, the power imbalance between the perpetrator and the victim that characterizes bullying is not always seen in aggression (Dooley et al., 2009; Olweus, 1993). These issues have led researchers to study different phenomena (i.e., aggression and bullying) under the single term ‘cyberbullying’ (Corcoran, Guckin, & Prentice, 2015). The present investigation is primarily interested in understanding correlates of aggression victimization in the context of social media and thus we are using the term ‘cyber aggression.’ However, for the purpose of accuracy the original term used by investigators was retained in the review of the literature.

To date, the majority of cyber aggression victimization research has focused on children and adolescents and, thus, there is limited understanding of the effects of cyber victimization on emerging adults. This is a notable gap given that the evidence indicates that cyberbullying and aggression continue into emerging adulthood. For example, surveys among college students in the U.S. have found that between 8.6% and 21.9% of emerging adults had been a victim of cyberbullying (Kraft & Wang, 2010; MacDonald & Roberts-Pittman, 2010; Schenk & Fremouw, 2012; Zalaquett & Chatters, 2014). Within this population, commonly reported cyberbullying and aggression behaviors include malice, public humiliation, unwanted contact, and deception (Doane, Kelley, Chiang, & Padilla, 2015).

Cyber victimization is associated with higher depression, loneliness, maternal attachment anxiety, substance use, suicidal ideation and planning, and suicide attempts among emerging adults (Kritsotakis, Papanikolaou, Androulakis, & Philalithis, 2017; Schenk & Fremouw, 2012; Varghese & Pistole, 2017). Cyber victims also report more social difficulties, higher levels of anxiety, and substance use compared to victims of traditional bullying (Campbell, Spears, Slee, Butler, & Kift, 2012; Mitchell, Ybarra, & Finkelhor, 2007). Furthermore, cyberbullying has been shown to elicit higher levels of stress and negative emotions than prosocial and neutral peer interactions (Caravita, Colombo, Stefanelli, & Zigliani, 2016). The impact of cyber victimization on emerging adults is of grave concern because low self-esteem, high depression, and high loneliness are all risk factors for suicide, the second cause of mortality among older adolescents and young adults in the United States (Centers for Disease Control and Prevention [CDC], 2016; Dieserud, Røysamb, Ekeberg, & Kraft, 2001). Given these findings, research is needed to understand the impact of cyber victimization on emerging adults. Further, it is important to understand characteristics of this developmental period to guide efforts to identify potential mediators and moderators of the impact of cyber victimization on individuals.

Emerging Adulthood in the United States

Five main features characterize emerging adulthood in the United States: Identity exploration, instability, self-focus, feeling in-between, and possibilities/optimism (Arnett, 2015). Identity exploration refers to an individual's efforts aimed at figuring out who they are in life, and what they want out of life (i.e., love, work, and education). Thus, identity

exploration contributes to perceptions of emerging adulthood as a time of instability. As part of this process, emerging adults explore how others evaluate them and learn what others might think are their good and bad qualities (Arnett, 2015). In addition, emerging adulthood is an age of possibilities as individuals try and figure out their life path. Although the perception of having multiple possibilities can be positive, Arnett (2015) argues that emerging adults experience a shift in networks, as they have left their families, but have not established a new network of relationships and obligations, which likely contributes to instability in their social support system. Emerging adults are also experiencing a transition between the restrictions of adolescence and the responsibilities of adulthood (Arnett, 2015). These unique features of this developmental period are likely to influence social media use and the impact of cyber victimization on the physical and mental health of emerging adults. For instance, the feeling of being "in-between" could potentially exacerbate the negative impact of cyber victimization. Further, it is important to consider factors that may act as moderators and mediators of the relationship between cyber victimization and mental health symptoms in this group. Specifically, individual factors such as biological sex, emotion regulation skills, and frequency of use and engagement with social media are likely to play a role in the impact of cyber victimization on mental health in emerging adults.

Biological Sex and Cyber Victimization

Biological sex has been identified as a potential risk factor for exposure to cyber victimization but the evidence is mixed. For instance, some investigators have found that men were more likely to be cyberbullies than women (Li, 2006), while women were more

likely to be cyber victims compared to men (Sourander et al., 2010). In contrast, others have not found sex differences in reports of victimization (e.g., Almenayes, 2017; Sumter, Valkenbeurg, Baumgartner, Peter, & van der Hof, 2015; Williams & Guerra, 2007). Similarly, there is limited understanding of sex differences in the relationship between cyber victimization and psychological distress. Kowalski et al. (2014) found that sex moderated the relationship between cyber victimization and depression, such that women experiencing cyber victimization reported greater levels of depression than men who were cyber victims. These findings suggest that women who are victims of cyber aggression will report greater psychological distress compared to men. The literature also suggests that the ways in which individuals attempt to regulate their emotions may moderate the association between exposure to cyber victimization and psychological difficulties.

Emotion Regulation

Emotion regulation has been defined as the processes that influences which emotions an individual experiences in a situation and how the emotions are experienced or expressed (Gross, 2007). Stressful life events and peer victimization have been found to contribute to difficulties in emotion regulation among emerging adults (Herts, McLaughlin, & Hatzenbuehler, 2012). Specifically, the use of self-blame, blaming others, rumination, and catastrophizing are positively associated with depression, anxiety, and stress (Martin & Dahlen, 2005). Reliance on these forms of emotion regulation is commonly referred to in the literature as emotion dysregulation. Emotion dysregulation has been shown to mediate relationships between experiences of stress/victimization and

mental health (Barchia, & Bussey, 2010; Feinstein, Bhatia, & Davila, 2014; Moriya & Takahashi, 2013; Silva, Machado, Moreira, Ramalho, & Gonçalves, 2017; Trompeter, Bussey, & Fitzpatrick, 2018). For example, Trompeter and colleagues (2018) found the emotion dysregulation mediated the relationship between cyber victimization and depression as well as social anxiety. Although this study specifically examined the relationships within middle school students, further research suggests that emotion dysregulation functions as a mediator between experiences of cyber aggression victimization and psychological functioning into emerging adulthood. For instance, Moriya and Takahashi (2013) found that lack of emotional clarity, a facet of emotion dysregulation, and limited access to emotion regulation strategies mediated the relationship between interpersonal stress (i.e., interactions with people that one dislikes) and depression in college students. In addition, rumination, which is a facet of emotion dysregulation, has been shown to mediate the association between cyber victimization and depressive symptoms in college students (Feinstein et al., 2014). Feinstein and colleagues (2014) also found that cyber victimization was significantly associated with increases in rumination for women but not for men. In addition, the indirect effect of cyber victimization on depression symptoms via rumination was significant for women but not for men. These findings suggest that the mediating role of emotion dysregulation on the relationship between cyber victimization and mental health will vary by biological sex. In addition to examining emotion dysregulation, the literature also suggests that media use and the importance of social media in the life of individuals may also influence the impact of cyber victimization on the mental health of emerging adults.

Social Media Use and Cyber Victimization

Frequency of media use has been shown to increase the risk of cyber victimization and the potential impact of those experiences on individuals. The majority of past research on social media use heavily focused on the quantity (i.e., frequency and duration) of social media use and its relationship with psychological well-being (Jenkins-Guarnieri, Wright, & Johnson, 2013; McDougall et al., 2016; Pantic et al., 2012). Overall, these studies have shown that the quantity of social media use is associated with higher levels of perceived social isolation, depression and envy; and with lower life-satisfaction and self-esteem among emerging adults (Primack et al., 2017; Steinfield, Ellison, & Lampe, 2008; Tandoc, Ferrucci, & Duffy, 2015). More recently, Jenkins-Guarnieri and colleagues (2013) have suggested that the integration of social media into daily routines and behavior as well as the emotional connection and importance of this use (i.e., social media use integration) can help explain variability in the impact of social media use on individuals. It is plausible to think that greater social media use integration will magnify the negative impact of these experiences on mental health. Further, given that emerging adulthood is characterized by instability in social support systems, individuals with lower levels of social support may be at a greater risk of experiencing psychological distress associated with cyber victimization.

Social Support

A large body of literature has extensively documented an inverse association between social support and depression and anxiety symptoms (Davaridolatabadi & Abdeyazdan, 2016; Lee & Dik, 2017; Turner & Brown, 2010). Furthermore, the Stress-

Buffering Hypothesis theorizes that social support moderates the relationship between a stressful event and health (Cohen, 2004; Cohen & Pressman, 2004; Cohen & Wills, 1985). Research has shown that social support buffers the impact of stress on depressive symptoms as well as moderates the associations between victimization and depression and anxiety (Cohen & Pressman, 2004; Holt & Espelage, 2005; Lee & Dik, 2017). Perceived social support has also been shown to moderate the association between bullying victimization during childhood and anxiety in college students (Reid, Holt, Bowman, Espelage, & Green, 2016). Given these findings, it is likely that social support will buffer the negative impact of cyber victimization on the mental health of emerging adults.

Current Study

Given the potential negative impact of experiences of cyber victimization on emerging adults, this study examined possible pathways by which cyber victimization contributes to symptoms of depression and anxiety. Specifically, this study aimed to examine the mediating role of emotion dysregulation on the relationship between cyber victimization. Further, this study explored potential moderators of the association between cyber victimization and emotion dysregulation (see Figure 1).

Research Aims and Hypotheses

Aim 1. To test a conceptual model (see figure 1) in a non-clinical sample of emerging adults. We expected that:

Hypothesis 1a: Emotion dysregulation would mediate the relationship between cyber victimization and depression.

Hypothesis 1b: Emotion dysregulation would mediate the relationship between cyber victimization and anxiety.

Hypothesis 2: Biological sex would moderate the relationship between cyber victimization and emotion dysregulation, such that: cyber victimization would have a stronger association with emotion dysregulation among women compared to men; and

Hypothesis 3: The mediating effects of emotional dysregulation on the relationship between cyber aggression and symptoms of anxiety and depression would be conditional on levels of social support and social media integration such that:

H3a) Higher levels of social support would reduce the association between emotion dysregulation and depression.

H3b) Higher levels of social support would reduce the association between emotion dysregulation and anxiety.

H3c) Higher levels of social media integration would bolster the association between emotion dysregulation and depression.

H3d) Higher levels of social media integration would bolster the association between emotion dysregulation and anxiety.

METHOD

Participants

Undergraduate students between the ages of 18 and 29 years old were recruited from a large Southern University. Students were invited to participate in this research through the university's online psychology research recruiting system (SONA). Eligible students recruited via SONA received 0.5 credits for their participation if they completed all measures.

Procedure

All data were collected utilizing electronic self-report survey through a secure web-based survey site, Qualtrics. This research was collected as part of a larger study, which on average took 61.35 minutes to complete. Participants filled out the survey in the convenience of their home. The study was approved by the University's IRB and informed consent was obtained prior to completion of the survey. Data quality check asking participants to answer a specific, unrelated question such as "enter 2 here" was incorporated into the survey to ensure valid responses. Participants who did not give the correct response to the data quality questions were removed.

Measures

Demographic information: Information related to sex, age, race/ethnicity, marital status, employment status, enrollment status (full or part-time), education, and mother's education were collected (See Appendix C).

Cyber Victimization: The 21-item cyber victimization subscale of the Cyberbullying Experiences Scale (CES) was used to assess exposure to cyber

victimization over the past year (Doane et al., 2013; See Appendix D). The CV subscale consists of four factors (i.e., malice, public humiliation, unwanted contact, and deception). The response format is a 6-point Likert-type scale, rating each behavior in terms of frequency of experience ranging from 1 (*never*) to 6 (*every day/almost every day*). The scale has been found to have a strong reliability (α = .90) (Doane et al., 2013); reliability in this study was strong (α = .89). For each item endorsed, participants were asked to rate how distressing the event was on a scale from 1 (*not distressing at all*) to 7 (*extremely distressing*). Scores were then weighed to reflect perceived severity of exposure to cyber victimization. Total weighted scores were calculated by summing the weighed responses to all the items.

Depression and Anxiety: The short version of the Depression, Anxiety, and Stress Severity Scale (DASS-21; Henry & Crawford, 2005) consists of 21 self-report items (See Appendix G) assessing severity of depression and anxiety. Participants indicate their level of agreement to each item on a 1 (*did not apply to me at all*) to 4 (*applied to me very much, or most of the time*) rating scale for the past month. The DASS-21 is a reliable measure of depression (7-items; α = .88) and anxiety (7-items; α = .82) in the general population (Henry & Crawford, 2005). These scales demonstrated good internal reliability in this sample (anxiety α = .80; depression α = .91). Scores below 14 for anxiety and 16 for depression are considered to be within the "normal severity range."

Emotion Dysregulation: The 36-item Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; See Appendix H) was used to assess participants' typical levels of emotion dysregulation. The DERS includes six subscales: a) awareness and

understanding of emotions, b) acceptance of emotions, c) emotional clarity, d) positive beliefs about one's ability to handle negative emotions, e) the ability to engage in goal-directed behavior when experiencing negative emotions, and f) impulse control. The response format is on a 5-point Likert-type scale from 1 (*almost never*) to 5 (*almost always*). A total score was calculated by reverse scoring appropriate items, and then summing responses to all items. Total DERS scores range from 36 to 180, with higher values indicating greater emotional dysregulation. The DERS has been found to have high internal consistency, adequate construct and predictive validity, and consistency across race and sex (Ritschel, Tone, Schoemann, & Lim, 2015). The scale demonstrated strong reliability in this sample ($\alpha = .94$).

Social Media Use Integration: The 10-item Social Media Use Integration Scale includes two subscales: Social Integration and Emotional Connection (SIEC; 6 items) and Integration into Social Routines (ISR; 4 items). The response format is a Likert-type response scale with anchors ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) (see Appendix E). The items on the scale were summed to create a total score. The scale has been found to have strong reliability (Total, $\alpha = .91$) and test–retest reliability over a 3-week period and found that responses remained stable overtime Jenkins-Guarnieri et al. (2013; Total scale, $r = .80$). The reliability of SMUI in this sample was good (Total, $\alpha = .80$).

Social Support: The 12-item Multidimensional Scale of Perceived Social Support measured individual's subjective perception of social support (See appendix F). The scale assesses support from family, friends, and significant others. The response format is a

Likert-type response scale with anchors ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The scale has been found to have strong reliability for all factors in college students (Overall, α = .88) (Zimet, Dahlem, Zimet, & Farley, 1988). A total score was calculated by adding all item responses; scores range from 12 to 84, with higher values indicating greater perceived social support. The scale demonstrated strong reliability in this sample (α = .93).

Statistical Analysis

SPSS Version 25.0 (IBM, 2017) software was used for data management and statistical analyses. Descriptive statistics were conducted to identify missing data and incomplete cases; incomplete cases were removed from the study (n = 39). Group differences were examined between those with complete data and those with incomplete data. There was a significant difference in race for incomplete data (M = .54, SD = .51) and complete data (M = .36, SD = .48), $t(347) = -2.16$, p = .03, such that minorities had a greater proportion of missing data compared to Whites. The group with incomplete data did not differ from those with complete data on any of the other variables of interest. All data manipulation checks were reviewed to assess for response validity; invalid responses were removed from analyses (n = 10). Verification of start times and end times for the survey was conducted to identify fake responders (those who appear to not have read the questions given short completion times of less than 10 minutes). A pilot study revealed that survey completion time took longer than 40 minutes, so survey completion times of less than 10 minutes were removed from analyses (n = 19). Lastly, two participants were

removed from the data set, as they did not indicate their gender and one participant removed as they identified as transgendered.

Descriptive statistics were calculated to examine the distribution of the variables of interest. Pearson's bivariate correlations were conducted to explore the associations among the variables of interest and identify important covariates. All predictor variables were mean-centered. To test the hypothesized model, each proposed hypothesis were tested in order using PROCESS v3 for SPSS (i.e. a computational tool for path-analysis), (Models 1, 4, & 14; Hayes, 2018) and conditional direct and indirect effects were calculated. Specifically, to test H1a and H1b, two mediation models for each outcome of interest (i.e., symptoms of anxiety and depression) were calculated using ordinary least squares path analyses in PROCESS (Hayes, 2018) to determine the mediating effect of emotion dysregulation on the relationship between cyber aggression and symptoms of anxiety and depression.

To test hypothesis 2, a moderation model was calculated using a hierarchical regression in PROCESS (Hayes, 2018) to test the hypothesized moderating effects of sex on the relationship between cyber victimization and emotion dysregulation. In the first step, cyber aggression victimization and sex were entered. On the second step the interaction term sex x cyber victimization was entered. The R^2 change from the second to the third step in the models was examined for practical and statistical significance.

To test hypothesis H3a and H3b conditional process analyses were conducted to examine if the effect of cyber aggression victimization on depression and anxiety via emotional dysregulation is conditional on perceived social support. To test hypothesis

H3c and H3d, conditional process analyses were conducted to examine if the mediation effect of emotional dysregulation is conditional on social media use integration.

RESULTS

A total of 310 participants (220 female, 90 male) had complete and valid response to the survey. The sample ranged in age from 18 to 29 years (M = 19.21, SD = 1.82). Most (63.9%) self-identified as White, 13.9% as Black/African American, 11.9% Asian, 7.4% more than one race, 2.6% Other, 0.3% Native Hawaiian or other Pacific Islander, and 7.7% Hispanic/Latino ethnicity. All predictors were mean centered in order to reduce non-essential multicollinearity and simplify interpretation of coefficients. All means were within a reasonable range and standard deviations indicate that the sample exhibited acceptable variability in responses for each variable. Descriptive statistics and zero order correlations among variables are reported in Table 1.

The majority (85.2%) of the sample reported experiencing cyber aggression victimization within the past year. Specifically, 14.8% reported "Never" experiencing cyber aggression; 25.8% reported at least one of these experiences "Less than a few times a year;" 28.1% reported at least one of these experiences "A few times a year;" 16.8% reported at least one of these experiences "Once or twice a month;" 8.7% reported at least one of these experiences "Once or twice a week;" and 5.8% reported at least one of these experiences "Every day/almost every day." The most commonly reported experiences were: being cursed at, mean to, teased, receiving an unwanted sexual message, and being made fun of electronically. Although there was some overlap, participant rated receiving an unwanted sexual message, receiving an unwanted nude or partially nude picture, been mean to, been called names, and receiving an unwanted pornographic picture as the most distressing cyber victimization experiences.

Overall, participants reported low levels of depression and anxiety with 75.5% of the sample considered to be in the "normal severity" range for depression and 71% for anxiety (Henry & Crawford, 2005). The sample reported high levels of perceived social support (M = 64.49) and average social media use integration (M = 31.63). Lastly, the sample reported low levels of emotion dysregulation with only 18.7% of the sample reporting "sometimes" to "almost always" experiencing difficulties in emotion regulation.

Correlation analyses are presented in Table 1. Biological sex (i.e., female), cyber aggression victimization, emotion dysregulation, and social media integration were associated with higher levels of depressive symptoms. In contrast, social support was associated with lower levels of depressive symptoms. In the case of anxiety symptoms, biological sex (i.e., female), cyber aggression victimization, emotion dysregulation, and social media use integration were associated with higher symptomatology. Interestingly, social support was not significantly associated with symptoms of anxiety. Age and race were not significantly related to symptoms of depression or anxiety or any of the study variables and thus were not included in subsequent analyses.

Hypothesis 1a

Hypothesis 1a was supported (See Figure 2). As expected, emotion dysregulation mediated the relationship between cyber aggression victimization and depression. Specifically, cyber victimization did not have a direct effect on symptoms depression (effect = .01, 95% CI [-.00, .01], p = .11); however, it had an indirect effect through emotion dysregulation (effect = .02, 95% CI [.02, .03]).

Hypothesis 1b

Hypothesis 1b was supported (See Figure 3). Emotion dysregulation mediated the relationship between cyber aggression victimization and anxiety. Results showed a direct effect of cyber victimization on anxiety (effect = .02, 95% CI [.01, .02], $p < .001$), and an indirect effect through emotion dysregulation (effect = .02, 95% CI [.01, .02]). Total effects revealed that cyber aggression victimization was significantly associated with anxiety ($b = .03$, 95% CI [.02, .04], $p < .01$).

Hypothesis 2

Hypothesis 2 was not supported, as sex did not moderate the relationship between cyber aggression victimization and emotion dysregulation (R^2 change = .00, $F = .11$, $p = .74$). Given that biological sex was not a significant moderator, we excluded this hypothesized moderation in the model for hypothesis 3a thru 3d (Hayes, 2018; Model 14).

Hypothesis 3a

Hypothesis 3a was supported (See Table 2); the effect of emotion dysregulation on depressive symptoms was contingent on perceived social support, as evidenced by the statistically significant interaction between emotion dysregulation and perceived social support ($b = .00$, $p = .04$). Such that, individuals who perceived lower levels of social support and had more difficulty with emotion regulation reported greater depressive symptomatology when exposed to cyber aggression victimization.

Hypothesis 3b

Hypothesis 3b was not supported as perceived social support did not moderate the

relationship between emotion dysregulation on anxiety symptoms (b = .00, p = .22).

Hypothesis 3c

Hypothesis 3C was not supported as social media use integration did not moderate the effect of emotion dysregulation on depressive symptoms (b = .00, p = .26).

Hypothesis 3d

Hypothesis 3d was not supported as social media use integration did not moderate the effect of emotion dysregulation on anxiety symptoms (b = .00, p = .78).

Exploratory analysis

Each of the analyses completed above were re-ran to test the hypothesis with the sample of individuals who reported at least one instance of experiencing cyber aggression victimization within the past year. We found the same results as those conducted with the entire sample.

Final Conceptual Model

Figure 4 summarizes the findings of the path analyses and presents a final conceptual model of the pathways by which cyber victimization is associated with depressive and anxiety symptoms among emerging adults.

DISCUSSION

The current study aimed to test a model of the pathways by which cyber victimization contributes to anxiety and depressive symptoms among emerging adults via emotion dysregulation. Further, we examined potential moderators (i.e., biological sex, perceived social support and social media use integration) of these relationships. The analyses provided partial support for the hypothesized model. As expected, emotion dysregulation mediated the relationship between experiences of cyber aggression victimization and symptoms of anxiety and depression. However, only indirect effects of cyber victimization on depression were found, and in the case of anxiety, both direct and indirect effects of victimization on symptomatology were found. These findings bolster the current literature on the mediating role of emotion dysregulation on the impact of stress and victimization on symptomatology (Barchia, & Bussey, 2010; Feinstein et al., 2014; Moriya & Takahashi, 2013; Silva et al., 2017; Trompeter et al., 2018). Contrary to the hypotheses, biological sex did not moderate the relationship between cyber aggression victimization and emotion dysregulation. This finding supports prior work suggesting that these experiences negatively affect both men and women (Almenayes, 2017; Sumter et al., 2015; Williams & Guerra, 2007). Bearing this in mind, future prevention and intervention programs should be aimed at all sexes.

Partial support was found for the moderating role of social support on the relationship between emotion dysregulation and psychological symptoms. Consistent with expectations, social support moderated the association between emotion dysregulation and symptoms of depression. Specifically, emotion dysregulation had a

stronger effect on symptoms of depression among individuals with higher levels of emotion dysregulation and lower levels of social support. This finding provide support for the value of interventions aimed at increasing perceived social support for emerging adults specifically targeting individuals who have poor emotion regulation skills. Interestingly, social support did not moderate the mediational role of emotion dysregulation and anxiety symptoms. It is possible that participants who endorsed higher anxiety symptoms also experience social anxiety, and thus social support may not be as beneficial for these individuals. Specifically, social anxiety is marked by fear or anxiety in social situations including social interactions (American Psychiatric Association, 2013) and has been shown to be associated with relationship difficulties (Porter & Chambless, 2017). Further, socially anxious individuals have been shown to have a negative bias regarding perceptions of support from romantic partners and perceive having received less support than do observers (Porter & Chambless, 2017). This suggests that receiving and recognizing social support may be challenging for individuals with anxiety, and explain why perceived social support does not act as a buffer between experiences of victimization and anxiety symptomatology.

Consistent with prior studies social media was an important aspect of emerging adults' daily life and cyber victimization was a common experience. However, contrary to expectations, social media use integration did not moderate the mediating effect of emotion dysregulation on anxiety or depression. This is surprising given that social media use integration was significantly associated with symptoms of depression and anxiety, and emotion dysregulation at the bivariate level. It is possible that social media

integration plays a different role in the relationship between cyber aggression victimization and symptoms of depression and anxiety. For instance, it may function as an antecedent of cyber victimization exposure and predict experiences of cyber victimization as well as the perceived severity of these experiences (Chen, Ho, & Lwin, 2017). Additional research is needed to better understand the role of social media integration in the association between victimization and psychological distress.

This study's findings suggest that emotion dysregulation mediates the relationship between cyber aggression victimization and symptoms of depression and anxiety. Indicating individuals with poor emotion regulation skills are more vulnerable when exposed to cyber aggression victimization. Further, the mediational effect of emotion dysregulation on depression is conditional on perceived social support. However, perceived social support had no impact on the effect of emotion dysregulation on anxiety, suggesting that social support plays a differing role in these relationships.

Implications

This study adds to the existing literature that examines the pathways by which cyber aggression victimization contributes to symptoms of depression and anxiety among emerging adults. Further, it is the first study to this author's knowledge to explore the moderating effect of sex, perceived social support, and social media use integration. These findings suggest that organizations serving emerging adults, such as university campuses, should be aware of the potential negative impact of cyber aggression victimization on emerging adults. Prevention and intervention efforts are needed to reduce exposure to cyber victimization and teach students skills to cope effectively with

these experiences. University counseling centers and other mental health providers should consider interventions to help emerging adults develop adaptive emotion regulation skills to help them cope with stressful experiences. Further, interventions that foster and develop social support, such as creating peer-led social support groups, could have a beneficial effect on students (Mattanah, Ayers, Brand, Brooks, Quimby, & McNary, 2010). Prior research indicates that interventions starting in early childhood (Girard, Kohlhoff, McNeil, Morgan, & Wallace, 2018) can help individuals develop adaptive emotion regulation skills and increase their capacity to cope with stressful experiences. This suggests that future programs ought to take a more proactive approach and begin teaching emotion regulation skills at a young age and continue reinforcing the skills throughout emerging adulthood.

Strengths, Limitations, and Future Directions

Previous studies have failed to distinguish between aggression and bullying (Underwood & Ehrenreich, 2017), two theoretically different constructs that serve different functions, and impact outcomes differently (Hawley, Stump, & Ratliff, 2010). A major strength of this study is the conceptual clarity regarding the construct of interest and the use of a validated measure to assess exposure to cyber aggression. Lastly, to the authors' knowledge, this is the first study to not only examine the frequency of cyber aggression victimization, but also the perceived impact of experience on emerging adults. The fact that this study examined perceived impact of those experiences may help explain why some of our findings were not consistent with the previous literature. For instance, previous research on biological sex differences have been mixed with some research

finding that cyber victimization occurs more often in females (Sourander et al., 2010). This study however, suggests that assessing the perceived impact of these experiences of victimization may help us better understand the contribution of cyber aggression victimization to psychological difficulties among emerging adults.

The study also has some limitations worth noting. The findings may not be generalizable to individuals of racial minority backgrounds and males given that most of the sample identified as White and female. Further, individuals from racial minority groups were more likely to have incomplete data compared to White participants. Moreover, this study included young students who were starting their college education. This is a time of major life transitions, and Freshman students may be more susceptible to experiences of cyber aggression given changes in social relationship and other challenges associated with entering college (Clark, 2005). As such, these findings may not generalize to individuals approaching the end of emerging adulthood. Also, these findings may not generalize to non-college educated emerging adults who may be facing different demands during this developmental period. Future research is needed to examine the proposed model within a more diverse sample of emerging adults. In addition, on average, participants in this study reported low levels of depression and anxiety symptoms, indicating a predominately healthy population. As such, our findings may not be generalizable to emerging adults with clinically significant symptomatology. It is also important to note that the current model does not account for other constructs that may influence depression and anxiety symptomatology. Future research should expand upon the model, taking into account additional pathways, which may influence

the impact of cyber aggression experiences on depression and anxiety. In addition, recall biases are possible given the use of self-reported and retrospective assessments of cyber aggression. Given this, participants may not be accurately reporting their true online experiences. Furthermore, this study was a cross-sectional design so we cannot draw conclusions about causality.

Future Directions

Prior literature has suggested that depression is associated with more frequent use of emotion dysregulation strategies such as rumination and suppression of negative and positive emotion, and less use of emotion regulation skills such as distraction and reappraisal (Joormann & Stanton, 2016). Similarly, research suggests that anxiety is related to the specific forms of emotion dysregulation such as lack of emotional clarity, limited access to emotion regulation strategies, and non-acceptance of negative emotional responses (Bender, Reinholdt-Dunne, Esbjørn, & Pons, 2012). As such, it is necessary to determine which emotion regulation skills are more strongly associated with symptoms of depression and anxiety among emerging adults exposed to cyber aggression victimization. Gaining a deeper understanding of which emotion dysregulation strategies may be more problematic will inform the development of prevention programs. Similarly, it is necessary for future research to collect longitudinal data to better test the conceptual theoretical model, specifically the meditational effect of emotion dysregulation on anxiety and depression.

In addition, it would be important to examine what sources (i.e., family, friends, and significant other) and forms (i.e., instrumental, emotional) of social support have the

greatest influence on the impact of cyber aggression victimization on emerging adults. Previous research has demonstrated that higher levels of perceived social support from friends predicted increases in personal-emotional, social and overall adjustment to college, while increases in perceived social support from family only predicted increases in overall adjustment (Friedlander, Reid, Shupak, & Cribbie, 2007). These findings suggest the need to examine the role of different sources of social support in promoting adjustment among emerging adults. Lastly, as previously discussed, further research is needed to examine the role of social media use integration on experiences of cyber victimization. Social media use integration is associated with cyber victimization, but it is unclear how it might contribute to symptoms of depression and anxiety in this age group.

Conclusion

In conclusion, the present study was a novel investigation that examined the pathways by which cyber aggression victimization is associated with depression and anxiety in emerging adults. Consistent with prior work, emotion dysregulation mediated the relationship between experience of cyber aggression victimization and anxiety and depression. As such, it is important for clinicians to evaluate the current emotion regulation strategies of individuals experiencing cyber victimization, since individuals with difficulty regulating their emotions are at greater risk for increased anxiety and depression symptoms. Likewise, practitioners should enhance emerging adults' emotion regulation skills in order to help them cope effectively with experiences of cyber aggression victimization. The study's findings also point to the need of helping emerging adults develop supportive social relationships as they enter college. Further, helping

emerging adults develop strong social skills could further their capacity to benefit from social support. Finally, additional research is needed to understand how social media use integration relates to experiences of cyber aggression victimization among emerging adults. Overall, the findings from this study can inform practitioners working with emerging adults. In addition, this study highlights the need for the development of prevention programs to reduce the negative impact of experiencing cyber aggression victimization on mental health in emerging adulthood.

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APPENDIX A: FIGURES

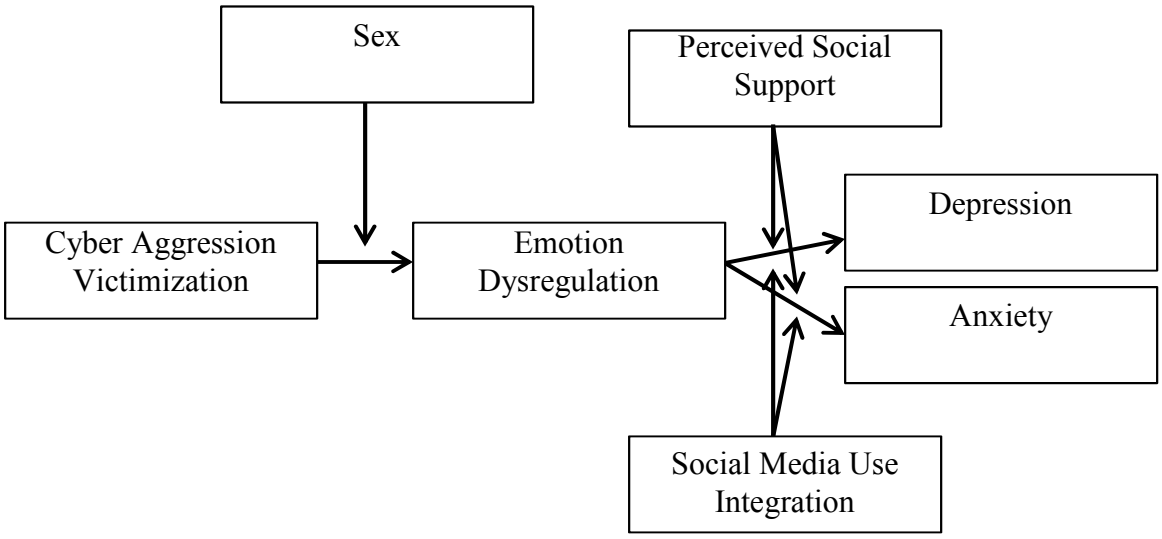

Figure 1. Conceptual model of the pathways by which cyber victimization is associated with anxiety and depressive symptoms among emerging adults.

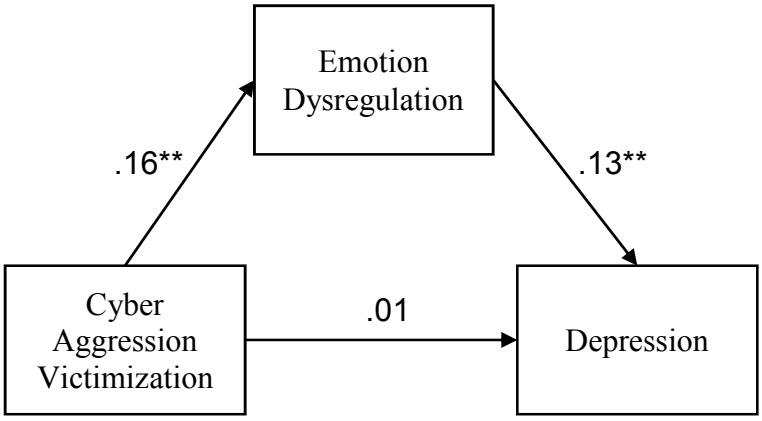

Figure 2. N = 310. *$p < .05$; **$p < .01$. $R^2 = .43$. Hypothesis 1a mediational models with emotion dysregulation mediating the association between cyber aggression victimization depression. Unstandardized regression coefficients are presented for each path. Indirect effect of cyber victimization through emotion dysregulation = .02.

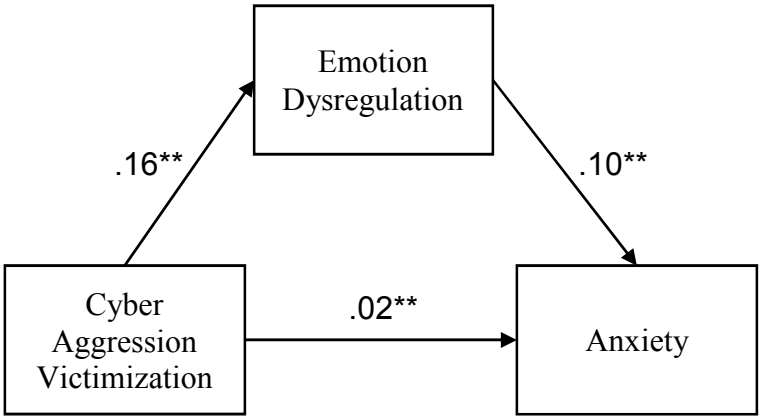

Figure 3. N = 310. *p < .05; **p < .01. R^2 = .44. Hypothesis 1b mediational model with emotion dysregulation mediating the association between cyber aggression victimization and anxiety. Unstandardized regression coefficients are presented for each path. Indirect effect of cyber victimization through emotion dysregulation = .02.

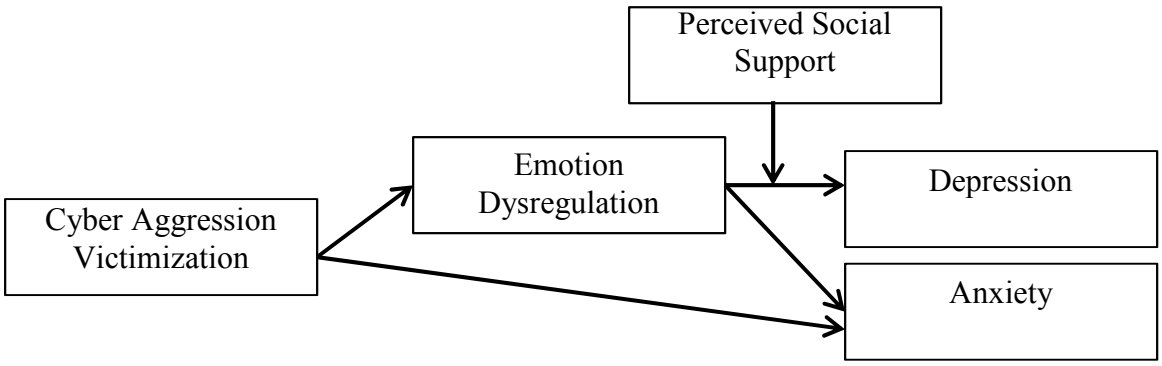

Figure 4. Final conceptual model of the pathways by which cyber victimization is associated with depressive symptoms among emerging adults.

APPENDIX B: TABLES

Table 1

Descriptive Statistics and Zero-Order Correlations among Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Age	19.21	1.82	--								
2. Sex	--	--	-.01	--							
3. Race	--	--	.01	-.03	--						
4. CAV	70.03	58.74	.00	.14*	.05	--					
5. PSS	64.49	15.24	-.08	.21**	.04	-.02	--				
6. DERS	86.95	23.28	.00	.15**	.00	.41**	-.23**	--			
7. SMUI	31.63	8.31	-.02	.18**	-.05	.25**	.00	.22**	--		
8. Depression	12.22	4.95	.02	.14*	.03	.33**	-.22*	.65**	.25**	--	
9. Anxiety	11.59	4.17	.04	.18**	.02	.45**	-.06	.63**	.25**	.72**	--

Note. N = 310. *$p < .05$, **$p < .01$. CAV = Weighted Cyber Aggression Victimization. PSS = Perceived Social Support. DER = Difficulty in Emotion Regulation. SMUI = Social Media Use Integration. White = 0; nonwhite = 1. Male = 1 and female = 2.

Table 2

Conditional Process Analyses of Perceived Social Support on Depression

Predictors	*b* (*SE*)	*t*	LLCI	ULCI
Depression				
$F(4, 305) = 60.74$, $p < 0.001$, $R^2 = 0.44$				
CAV	.01 (.00)	1.64**	.00	.01
DERS	.13 (.01)	12.55**	.11	.15
PSS	-.03 (.01)	-1.88	-.06	.00
DERS X PSS	.00 (.00)	-2.08*	.00	.00
Conditional Indirect Effects				
PSS	*ab*[a] (*SE*)		95% CI[b]	
At one SD below M	.02 (.00)		.02	.03
At M	.02 (.00)		.02	.03
At one SD above M	.02 (.00)		.01	.02

Note. $N = 310$. *$p < .05$; **$p < .01$. CAV = Weighted Cyber Aggression Victimization. DERS = Emotion Dysregulation. PSS = Perceived Social Support. *CI* = Confidence Interval. [a]ab the product of the unstandardized coefficients of the two mediating paths. [b]Confidence intervals obtained from the bootstrapping of 5,000 samples. Mediation existed if the confidence interval did not include zero.

APPENDIX C: DEMOGRAPHICS

DEMOGRAPHIC INFORMATION

What is your gender?	
Male	0
Female	1
Trans-	2
Other: Specify _____	3

What is your race?	
American Indian or Alaska Native	0
Asian	1
Black/African American	2
Native Hawaiian or Other Pacific Islander	3
White	4
More than one race (write in all that apply)	5
Other	[String Variable]

How do you identify yourself?	
Hispanic/Latino	0
Not Hispanic/Latino	1

What is your current academic class standing (based on number of credit hours)?	
Freshman	0
Sophomore	1
Junior	2
Senior	3
Post-Baccalaureate	4
Graduate	5

Are you enrolled as a full-time or part-time student?	
Part-time (less than 12 credit hours/semester)	0
Full-time (12 or more credit hours/semester)	1

What is your current employment status?	
Unemployed/Not working	0
Full-time employed	1
Part-time employed	2
Other (please describe; i.e., 2 jobs, during	3

the summer, etc.)	
If employed, what is your position?	[String Variable]

What is your marital status?	
Married / Civil Union	0
Single	1
Divorced	2
Live-in-partner	3
Widowed	4

Are you currently living	
In an apartment on campus?	0
In an apartment or house off campus?	1
With your parents?	2

What is your MOTHER's highest level of education?	
Some high school / No GED	0
High school diploma / GED	1
Some college (less than 4 years)	2
Bachelor's degree	3
Graduate/Professional degree (Masters, Doctorate, etc.)	4

APPENDIX D: CYBERBULLYING VICTIMIZATION EXPERIENCES

*Please rate the following experiences for the past **YEAR***						
	Never (1)	Less than a few times a year (2)	A few times a year (3)	Once or twice a month (4)	Once or twice a week (5)	Every day/Almost every day(6)
1. Has someone distributed information electronically while pretending to be you?	1	2	3	4	5	6
2. Has someone changed a picture of you in a negative way and posted it electronically?	1	2	3	4	5	6
3. Has someone written mean messages about you publicly electronically?	1	2	3	4	5	6
4. Has someone logged into your electronic account and changed your information?	1	2	3	4	5	6
5. Has someone posted a nude picture of you electronically?	1	2	3	4	5	6

6. Has someone printed out an electronic conversation you had and then showed it to others?	1	2	3	4	5	6
7. Have you completed an electronic survey that was supposed to remain private but the answers were sent to someone else?	1	2	3	4	5	6
8. Has someone logged into your electronic account and pretended to be you?	1	2	3	4	5	6
9. Has someone posted an embarrassing picture of you electronically where other people could see it?	1	2	3	4	5	6
10. Has someone called you mean names electronically?	1	2	3	4	5	6
11. Has someone been mean to you electronically?	1	2	3	4	5	6
12. Has	1	2	3	4	5	6

someone cursed at you electronically?						
13. Has someone made fun of you electronically?	1	2	3	4	5	6
14. Has someone teased you electronically?	1	2	3	4	5	6
15. Have you received a nude or partially nude picture that you did not want from someone you were talking to electronically?	1	2	3	4	5	6
16. Have you received a pornographic picture that you did not want from someone electronically that was not spam?	1	2	3	4	5	6
17. Have you received an unwanted sexual message from someone electronically?	1	2	3	4	5	6
18. Have you received an offensive picture electronically that was not	1	2	3	4	5	6

spam?						
19. Has someone pretended to be someone else while talking to you electronically?	1	2	3	4	5	6
20. Has someone lied about themselves to you electronically?	1	2	3	4	5	6
21. Have you shared personal information with someone electronically and then later found the person was not who you thought it was?	1	2	3	4	5	6

APPENDIX E: SOCIAL MEDIA USE INTEGRATION (SMUI)

Please rate your agreement with the following statements.						
	Strongly disagree (1)	(2)	Neither agree nor disagree (3)	(4)	(5)	Strongly agree (6)
1. I feel disconnected from friends when I have not logged into Facebook or other social media	1	2	3	4	5	6
2. I would like it if everyone used Facebook or other social media to communicate	1	2	3	4	5	6
3. I would be disappointed if I could not use Facebook at all or other social media	1	2	3	4	5	6
4. I get upset when I can't log on to Facebook or other social media	1	2	3	4	5	6
5. I prefer to communicate with others mainly through Facebook or other social media	1	2	3	4	5	6
6. Facebook or social media play an important role in my social relationships	1	2	3	4	5	6

7. I enjoy checking my Facebook or other social media accounts	1	2	3	4	5	6
8. I don't like Facebook or social media	1	2	3	4	5	6
9. Using Facebook or other social media is part of my everyday routine	1	2	3	4	5	6
10. I respond to content that others share on using Facebook or other social media.	1	2	3	4	5	6

APPENDIX F: MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.							
	Very Strongly disagree (1)	Strongly Disagree (2)	Mildly Disagree (3)	Neutral (4)	Mildly Agree (5)	Strongly agree (6)	Very Strongly agree (7)
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7

10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7

APPENDIX G: SHORT VERSION OF DEPRESSION ANXIETY AND STRESS SEVERITY SCALE (DASS-21)

Please read each statement and circle a number 0,1, 2, or 3 which indicates how much the statement applied to <u>you over the past month</u>. There are no right or wrong answers. Do not spend too much time on any statement.				
	Did not apply to me at all (1)	*Applied to me to some degree, or some of the time (2)*	*Applied to me to a considerable degree, or a good part of the time (3)*	*Applied to me very much, or most of the time (4)*
1. I found it hard to wind down	1	2	3	4
2. I was aware of dryness of my mouth	1	2	3	4
3. I couldn't seem to experience any positive feeling at all	1	2	3	4
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	1	2	3	4
5. I found it difficult to work up the initiative to do things	1	2	3	4
6. I tended to over-react to situations	1	2	3	4
7. I experienced trembling (e.g. in the hands)	1	2	3	4
8. I felt that I was using a lot of nervous	1	2	3	4

energy				
9. I was worried about situations in which I might panic and make a fool of myself	1	2	3	4
10. I felt I had nothing to look forward to	1	2	3	4
11. I found myself getting agitated	1	2	3	4
12. I found it difficult to relax	1	2	3	4
13. I felt down-hearted and blue	1	2	3	4
14. I was intolerant of anything that kept me from getting on with what I was doing	1	2	3	4
15. I felt I was close to panic	1	2	3	4
16. I was unable to become enthusiastic about anything	1	2	3	4
17. I felt I wasn't worth much as a person	1	2	3	4
18. I felt that I was rather touchy	1	2	3	4
19. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart	1	2	3	4

rate increase, heart missing a beat)				
20. I felt scared without any good reason	1	2	3	4
21. I felt that life was meaningless	1	2	3	4

APPENDIX H: DIFFICULTIES IN EMOTION REGULATION SCALE (DERS)

Please indicate how often the following 36 statements apply to you by writing the appropriate number from the scale of 1 to 5 alongside each item.					
	Almost Never (0 -10%)	*Sometimes (11-35%)*	*About half the time (36-65%)*	*Most of the time (66-90%)*	*Almost always (91-100%)*
1. I am clear about my feelings	0	1	2	3	4
2. I pay attention to how I feel	0	1	2	3	4
3. I experience my emotions as overwhelming and out of control	0	1	2	3	4
4. I have no idea how I am feelings	0	1	2	3	4
5. I have difficulty making sense out of my feelings	0	1	2	3	4
6. I am attentive to my feelings	0	1	2	3	4
7. I know exactly how I am feeling	0	1	2	3	4
8. I care about what I am feeling	0	1	2	3	4
9. I am confused about how I feel	0	1	2	3	4
10. When I'm upset, I acknowledge my emotions	0	1	2	3	4
11. When I'm upset, I become angry with myself for feeling that way	0	1	2	3	4
12. When I'm upset, I become embarrassed for feeling that way	0	1	2	3	4
13. When I'm upset, I have difficulty getting work done	0	1	2	3	4
14. When I'm upset, I become out of control	0	1	2	3	4
15. When I'm upset, I believe that I will remain that way for a long time	0	1	2	3	4

16. When I'm upset, I believe that I will remain that way for a long time	0	1	2	3	4
17. When I'm upset, I believe that my feelings are valid and important	0	1	2	3	4
18. When I'm upset, I have difficulty focusing on other things	0	1	2	3	4
19. When I'm upset, I feel out of control	0	1	2	3	4
20. When I'm upset, I can still get things done	0	1	2	3	4
21. When I'm upset, I feel ashamed with myself for feeling that way	0	1	2	3	4
22. When I'm upset, I know that I can find a way to eventually feel better	0	1	2	3	4
23. When I'm upset, I feel like I am weak	0	1	2	3	4
24. When I'm upset, I feel like I can remain in control of my behaviors	0	1	2	3	4
25. When I'm upset, I feel guilty for feeling that way	0	1	2	3	4
26. When I'm upset, I have difficulty concentrating	0	1	2	3	4
27. When I'm upset, I have difficulty controlling my behaviors	0	1	2	3	4
28. When I'm upset, I believe that there is nothing I can do to make myself feel better	0	1	2	3	4
29. When I'm upset, I become irritated with myself for feeling that way	0	1	2	3	4
30. When I'm upset, I start to feel very bad about myself	0	1	2	3	4

31. When I'm upset, I believe that wallowing in it is all I can do	0	1	2	3	4
32. When I'm upset, I lose control over my behaviors	0	1	2	3	4
33. When I'm upset, I have difficulties thinking about anything else	0	1	2	3	4
34. When I'm upset, I take time to figure out what I'm really feeling	0	1	2	3	4
35. When I'm upset, it takes me a long time to feel better	0	1	2	3	4
36. When I'm upset, my emotions feel overwhelming	0	1	2	3	4