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Childhood Emotional Trauma and Cyberbullying Perpetration Among Emerging Adults: A Multiple Mediation Model of the Role of Problematic Social Media Use and Psychopathology

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Abstract Research suggests that a small minority of social media users experience problems as a result of their online use. The purpose of the present study was to examine the association of cyberbullying perpetration and problematic social media use with childhood emotional trauma, Cluster B (narcissistic, histrionic, antisocial, and borderline) personality traits, dissociative experiences (DEs), depression, and self-esteem in a nonclinical undergraduate sample. A total of 344 university students volunteered to complete a questionnaire that included measures on the aforementioned dimensions. Thirty-eight percent of the participants had emotional neglect and 27% had emotional abuse, while 44% of them demonstrated at least one cyberbullying perpetration behavior. Results indicated that cyberbullying perpetrators had higher scores on problematic social media use, dissociative experiences, Cluster B traits, depression and childhood emotional trauma, and lower on self-esteem. Path analysis demonstrated that, while adjusting for gender and age, childhood emotional trauma was directly and indirectly associated with cyberbullying perpetration via Cluster B traits. Moreover, depression and dissociation were directly associated with problematic social media use. The findings of this study emphasize the important direct role of childhood emotional trauma and pathological personality traits on cyberbullying perpetration.

Keywords Cyberbullying · Problematic social media use · Childhood trauma · Personality · Dissociation · Depression · Self-esteem

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Cyberbullying perpetration (CBP) is defined as repeated intentional hostile behavior demonstrated by one or more individuals via online technology (PCs, laptops, smartphones, etc.) in order to harm the others (Hinduja and Patchin 2014). Although CBP is associated with traditional bullying (Baldry et al. 2017), it is arguably more dangerous and unique than traditional bullying because perpetrators have the ability to disguise their true identity. Furthermore, a single offending act (e.g., uploading an embarrassing photo) can become an endless cycle of harassment for the victim (Hinduja and Patchin 2014). CBP is experienced by 20–40% of young people (Tokunaga 2010), and is a serious problem with severe consequences on the victims including depression, anxiety, distress, angriness, sadness, stress, low self-esteem, and suicidal thoughts (Kowalski et al. 2014; Munawar et al. 2014; Schenk and Fremouw 2012; Tomşa et al. 2013; Zalaquet and Chatters 2014; Zsila et al. 2017).

Empirical evidence indicates several psychological, psychosocial, and psychophysiological factors that may lead individuals to engage in this harmful behavior such as depression, anger rumination, socially undesirable personality characteristics, sleep patterns and quality, cyberbullying victimization, and problematic internet use (Campbell et al. 2013; Gámez-Guadix et al. 2016; Kircaburun and Bastug 2016; Kircaburun and Tosuntaş 2018; Kokkinos et al. 2013; van Geel et al. 2017; Zsila et al. 2018). However, despite a large body of investigations, possible influence of adverse childhood experiences on CBP has been neglected.

Childhood maltreatment is one of the important predictors of psychological and personality impairments experienced in adulthood (Kessler et al. 2010). Depression, anxiety, poor self-esteem, post-traumatic stress disorder, delinquency, violence, and other risk-taking behaviors are among the consequences that may arise from childhood trauma (for a review, see Runyan et al. 2002). Furthermore, a couple of studies reported childhood trauma to have an important and direct and indirect role on being a school bullying perpetrator (Wang et al. 2017). Although, school bullying and cyberbullying are two different constructs, school bullies are more likely to become cyberbullies (Zsila et al. 2018). Thus, childhood trauma may have a direct or indirect role on becoming a cyberbullying perpetrator as well. Modeling the direct and indirect relationship of childhood trauma with CBP via including different factors into the model that may explain this relationship (e.g., pathological personality traits, dissociative experiences, depression, and low self-esteem) may extend existing literature and help understand the complex nature of this malovelant behavior. Additionally, since evidence indicate a positive association of childhood trauma and some of its negative consequences with increased problematic use of internet (Leménager et al. 2018), and problematic internet use is related to cyberbullying perpetration (Gámez-Guadix et al. 2016), problematic social media use is another important variable in the model that is expected to account for the relationship between childhood trauma and CBP.

Childhood Emotional Trauma and Cyberbulling Perpetration

Childhood trauma (CT) has been defined as sexual, physical, and/or emotional abuse, and emotional or physical neglect experienced before the age of 17 years (Bernstein et al. 2003). CT has been claimed as the strongest predictor of lifetime DSM-IV disorders (Kessler et al. 2010), and many psychological and behavioral consequences caused by adverse childhood experiences have been reported, including depression, anxiety, feelings of shame and guilt, poor relationships, poor self-esteem, post-traumatic stress disorder, delinquency, violence, and

other risk-taking behaviors (e.g., Runyan et al. 2002). Research suggest that, when compared to physical and sexual trauma, emotional trauma (i.e., abuse and neglect) is more prevalent among society and has similar power of negative influence on individuals' psychological, emotional, and mental health and development (Didie et al. 2006; Hagborg et al. 2017; Mills et al. 2015; Sansone et al. 1995). The present study focused solely on emotional trauma. Emotionally traumatized children are more likely to feel flawed, worthless, and/or unloved, and they will experience serious social, emotional, and behavioral impairments in later life (Maguire et al. 2015).

Anger has been found to be the leading trauma symptom among adolescents (Song et al. 1998). Individuals who have been emotionally maltreated as a child become violent and hostile adults. Research indicated that students who experience higher CT are more likely to be school bullying perpetrators (Wang et al. 2017), have higher levels of negative feelings such as anxiety, anger, and fear, and lower stability, coping, and control (Sudbrack et al. 2015). Meanwhile, other studies have reported that individuals with high anxiety, and low levels of stability and control, perpetrate more cyberbullying (Baldry et al. 2017; Kırcaburun and Tosuntaş 2018). Moreover, expressed anger and suppressed anger that is directed inward were strong mediators between cyberbullying victimization and perpetration (Ak et al. 2015). CT may trigger negative psychological and emotional states that lead to cyberbullying perpetration. Traumatized individuals who were abused or neglected as a child have been reported as becoming isolated from themselves, their surroundings, and society (Paivio and McCulloch 2004) and may lead to more antisocial uses of technological platforms (Ma et al. 2011).

In addition to empirical evidence, social learning theory (SLT), one of several theories that have been used to explain child abuse and its consequences in the development of human behaviors, suggests that children develop their behaviors in two ways. They either develop behaviors as a result of their personal experiences or they perceive and model behaviors of others that surround them, especially adults (Maisto et al. 1999). Based on SLT, children exposed to emotionally traumatizing behaviors (e.g., verbal assaults, humiliating, or demeaning behavior directed toward them [Bernstein et al. 2003]) may become abusive individuals, often referred to as the "cycle of violence" (Caspi et al. 2002). Given that act of CBP is being demonstrated verbally rather than physically (e.g., using a keyboard) through mediums such as social media, computers or smartphones, it is logical that especially emotional trauma should lead to a digital form of bullying. Taken together, CT should have an effect on the level of CBP of individuals. Therefore, it is hypothesized that CT will be associated with CBP.

The Mediating Role of Cluster B Personality Traits

Pathological personality traits are categorized into three different clusters based on the similar patterns, beliefs, and clinical symptoms: Cluster A (paranoid, schizoid, and schizotypal), Cluster B (antisocial, borderline, histrionic, and narcissistic), and Cluster C (avoidant, dependent, and obsessive-compulsive) (Butler et al. 2007). The present study focuses on the Cluster B traits. Cluster B traits have been characterized as being dramatic, emotional, or erratic (American Psychiatric Association 2013). Cluster B traits are reported to be prevalent among university students (Lenzenweger et al. 1997) and studies have reported a strong association between childhood trauma and development of the symptoms of these disorders. Children who are exposed to emotional maltreatment develop antisocial or pathological personality characteristics in order to cope with their trauma. Individuals who were abused or neglected in childhood have significantly higher scores on Cluster B traits (Johnson et al.

1999) and they are more likely to report subclinical symptoms of these pathological traits (Grover et al. 2007).

It has also been suggested that individuals with Cluster B traits are more violent (Garofalo and Wright 2017; Howard 2015; Ostrowsky 2010), emotionally impulsive (Howard and Khalifa 2016), antagonist, psychotic (Hopwood et al. 2013), aggressive, angry, hostile (Velotti et al. 2016), and have a higher risk of psychological violence (Ten Have et al. 2014). Given that these emotional, psychological, and personality features are important predictors of CBP, it can be expected that individuals higher on Cluster B traits will more likely demonstrate CBP. Therefore, it is hypothesized that Cluster B personality traits will be associated with higher CBP, and will mediate the association between CT and CBP.

The Mediating Role of Dissociative Experiences

Dissociation, defined in the DSM-5 as "a disruption or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behavior" (American Psychiatric Association 2013, p. 291), is prevalent among psychiatric inpatients (Gast et al. 2001), general populations (Akyüz et al. 1999; Şar et al. 2007), and community youth samples (Martínez-Taboas et al. 2006). Moreover, nonclinical university students have a variety of dissociative symptoms (Ray and Faith 1995). Several researchers have reported a strong association between dissociative experiences in adulthood and emotionally traumatic events experienced in childhood (Şar et al. 2012; Watson et al. 2006). Dissociation is referred as a maladaptive coping mechanism against unwanted real life situations and/or thoughts. Individuals with a dissociative disorder have more frequent childhood emotional abuse (Şar et al. 2004). Emotionally traumatized individuals may have a desire to dissociate from themselves with the urge to deal with or escape from their feelings of shame, guilt, or worthlessness arise from emotional trauma (Maguire et al. 2015; Watson et al. 2006).

Meanwhile, other studies have reported that dissociation is positively correlated with increased hostility (Keefe et al. 2017), anger (Calamari and Pini 2003), and adolescent aggression (Kisiel and Lyons 2001). Moreover, it has been suggested that insecure adolescent females, who experience an intense anger or who direct their anger inward, use dissociation as a coping mechanism (Calamari and Pini 2003). Both anger-in and anger-out are strong predictors of cyberbullying perpetration (Ak et al. 2015). These negative feelings may decrease individuals' control over their behaviors and involvement in verbal attacks through digital mediums. Evidence suggests that CT is associated with higher dissociation, and higher dissociation is related to the factors that lead to higher CBP. Therefore, it is hypothesized that dissociative experiences will be associated with higher CBP, and will account for the association between CT and CBP.

The Mediating Role of Depression and Self-Esteem

Depression and low self-esteem are strongly inter-related (Orth and Robins 2013) and have been reported to have strong negative impacts on individuals' psychological well-being (Beekman et al. 2002; Paradise and Kernis 2002). Adult depression and poor self-esteem are affected by many factors. However, traumatic experiences during childhood (e.g., abuse or neglect) are reported to be one of the most important factors in the development of depression and poor self-esteem (Finzi-Dottan and Karu 2006; Heim et al. 2009; Ruyan et al. 2002). Especially emotionally abused or neglected individuals develop increased vulnerability to

depression and low self-esteem (Kuo et al. 2011) because of their cognitive emotion dysregulation (Huh et al. 2017).

Individuals with higher depressive symptoms and lower self-esteem perpetrate more cyberbullying (Campbell et al. 2013; Fan et al. 2016). Moreover, in recent empirical studies, Turkish university students that reported higher CBP indicated higher levels of depression and self-esteem (Kircaburun 2016a; Koc and Gulyagci 2013). It has been argued that students may be cyberbullying others in order to deal with their depressive mood and real-life social isolation by receiving social support and feeling connected to others socially in digital platforms. However, if they cannot find the needed interactions they may carry out antisocial behaviors. Taking these studies together, it is hypothesized that depression and low self-esteem will be associated with higher CBP, and will explain the relationship between CT and CBP.

The Mediating Role of Problematic Social Media Use

Problematic social media use (PSMU), applying the symptoms of behavioral addiction (Griffiths 2005), has been defined as being driven by an unmanageable urge to use social media and spending too much time on it in which real life relationships and areas are negatively affected (Andreassen and Pallesen 2014; Griffiths et al. 2014). Individuals engage in PSMU as a consequence of interactions between a wide range of predisposing factors, mediators, and moderators (Brand et al. 2016). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model asserts that individuals' development and maintenance of different types of Internet-use disorders (e.g., PSMU) emerge from the combination of different core characteristics such as biopsychological constitution (e.g., early childhood experiences), personality (e.g., impulsivity, low self-esteem), and psychopathology (Brand et al. 2016).

Empirical evidence provides support for I-PACE model via the demonstrated significant relationships of childhood emotional trauma (Dalbudak et al. 2014; Schimmenti et al. 2017), Cluster B traits (Crysel et al. 2013; Dalbudak et al. 2014; Ekşisu et al. 2017; Taymur et al. 2016), dissociation (Biolcati et al. 2017; Lee et al. 2016), depression and low self-esteem (Andreassen et al. 2017; Banyai et al. 2017; Hong et al. 2014; Kircaburun 2016b; Kircaburun and Griffiths 2018; Lin et al. 2016; Shensa et al. 2017) with Internet-use disorders. Scholars have argued the possible underlying reasons for these relationships. Narcissists have been reported as attributing significant importance to their social media profiles (Andreassen et al. 2017) and to use social media in order to get the attention of others and positive feedback by presenting themselves as more exciting and popular than they are in reality (Ekşisu et al. 2017; Blachnio et al. 2016). Moreover, because of their unstable personality and negative emotions, individuals who have borderline personality features may be expected to have unstable interpersonal relationships with others and this may lead them to avoid real-life interactions and to choose virtual relationships via social media (Dalbudak et al. 2014). Dissociative experiences are referred to as strategies to relieve painful emotions (Tutkun et al. 2004) and it is suggested that students may try to dissociate from their negative emotions by using the Internet (Dalbudak et al. 2014).

Applying problem behavior theory (PBT) (Jessor 1991), a recent study reported a positive direct relationship between PSMU and CBP among both adolescents and emerging adults (Kircaburun et al. 2018a). PBT suggests that adolescents and emerging adults develop their behaviors under the influences of several factors such as individual differences, and interactions with their social surroundings, as well as psychological and biological (genetic) factors (Boyd et al. 2009). Moreover, problematic behaviors (e.g., substance abuse, alcohol use, etc.)

are claimed to have an augmenting effect on each other (Jessor 1991; Jessor and Jessor 1977). Adolescents and emerging adults who have one of these problem behaviors are reported to have an increased likelihood of having another problem behavior (Donovan and Jessor 1985). Recent studies suggest that PBT also applies to online problem behaviors. Students with problematic internet use report higher levels of cyberbullying perpetration (Casas et al. 2013). Individuals who cannot control their online use might also show uncontrolled and thoughtless behaviors when they retaliate against provocative and unfair online comments during online interactions with others (Gámez-Guadix et al. 2016). Based on the theoretical assumptions and the aforementioned empirical evidence, it is hypothesized that PSMU will be directly associated with CBP, and will account for the relationships of childhood trauma, Cluster B traits, dissociation, depression, and self-esteem with CBP.

The Present Study

Parallel to theoretical assumptions and previously published empirical research, the present study tested a multiple mediation model in which childhood emotional trauma was the independent variable, pathological personality traits, dissociative experiences, depression, and self-esteem as first-level mediators, problematic social media use as the second-level mediator, and cyberbullying perpetration as the outcome variable. Additionally, because of the previous studies that have found higher PSMU for women and youngers, and higher CBP among men and youth (Kircaburun et al. 2018b; Kırcaburun and Tosuntaş 2018), gender and age were adjusted for in the model.

Method

Participants

A convenience nonclinical sample of 344 university students, aged between 18 and 25 years (82% female, M_{age} = 20.76 years; SD = 1.54), from a state university in Turkey comprised the study group. Students participated in the study voluntarily and anonymously. Informed consent was obtained from all of the participants. Researchers gathered the data by visiting each class, giving the necessary information and handing out the questionnaires to students. It took approximately 40 minutes for students to complete the questionnaires in each class.

Measures

Cyberbullying Offending Scale (CBOS)

The unidimensional CBOS (Patchin and Hinduja 2015) comprises nine items (e.g., "I spread rumors about someone online") on a five-point Likert scale, ranging from "never" (1), "once" (2), "a few times" (3), "several times" (4), and "many times" (5), and assesses students' cyberbullying perpetration behaviors. In order to label aggressive online behaviors as cyberbullying perpetration, the behavior should be demonstrated more than once (Zsila et al. 2017); therefore, the CBOS used in dichotomized structure via re-coding never and once as 0, and a few times, several times and many times as 1. In the present study, the dichotomized scale showed high internal consistency (Table 1).

Table 1 Cronbach's alphas, descriptive statistics, and Pearson's correlation coefficients of the variables

	1	2	3	4	5	6	7
1. Cyberbullying perpetration	—						
2. Problematic social media use	.36***	—					
3. Depression	.18**	.22***	—				
4. Self-esteem	−.24***	−.21***	−.18**	—			
5. Dissociative experiences	.39***	.30***	.24***	−.15**	—		
6. Cluster B personality disorder	.43***	.33***	.30***	−.19***	.52***	—	
7. Childhood emotional trauma	.37***	.17**	.28***	−.28***	.39***	.44***	—
Minimum score	0	1	1	1	0	1.07	1
Maximum score	1	5	4	7	8.46	4.70	4.30
Mean	.12	2.51	2.46	5.75	2.37	2.25	1.67
SD	.20	.87	.90	1.29	1.64	.66	.70
Cronbach's Alpha	.82	.89	.82	—	.95	.93	.85

**p < .01; ***p < .001

Social Media Use Questionnaire (SMUQ)

The SMUQ (Xanidis and Brignell 2016) comprises nine items (e.g., "I feel anxious, when I am not able to check my social network account") on a five-point Likert scale from "never" to "always", consisting of two factors (i.e., withdrawal and compulsion). The Turkish form of the SMUQ assesses problematic social media use levels and previous studies have reported optimal validity and reliability of the scale (Kircaburun et al. 2018c).

Short Depression-Happiness Scale (SDHS)

The original SDHS was developed by Joseph et al. (2004). The Turkish form of the scale comprises two subscales which are depression and happiness (Kircaburun et al. 2018a). The scale comprises six items (three items in each subscale) on a four-point Likert scale. In the present study, only depression subscale was used (e.g., "I felt that life was meaningless"). The scale assesses depressive symptoms experienced in the past seven days.

Childhood Trauma Questionnaire (CTQ)

The CTQ (Bernstein et al. 1994; Bernstein et al. 1997) comprises 28 items on a five-point Likert scale from "never true" to "very often true," and consists of five factors: emotional neglect (e.g., "Felt loved"), emotional abuse (e.g., "Called names by family"), physical neglect (e.g., "Got taken care of"), physical abuse, and sexual abuse. In the present study, items relating to emotional abuse and neglect factors were used. Previous studies have reported optimal validity and reliability of the scale (Şar et al. 2012).

Dissociative Experiences Scale (DES)

The DES (Bernstein and Putnam 1986; Şar et al. 2012) comprises 28 items on an 11-point Likert scale (from 0, 1, 2, through to 10). An exploratory factor analysis (Ray and Faith 1995) identified four factors: derealization (e.g., "Not remember if something really happened"), depersonalization (e.g., "Hear voices in head"), segment amnesia (e.g., "Do things do not remember doing"), and in situ amnesia (e.g., "Space out while listening"). The DES assesses dissociative symptoms, and has been reported as showing high accuracy with the clinical diagnoses of dissociation (Yargic et al. 1995). Previous studies reported optimal validity and reliability of the scale (Yargic et al. 1995).

Personality Beliefs Questionnaire Short Form (PBQ-SF)

The PBQ-SF (Butler et al. 2007) comprises 65 items on a five-point Likert scale from "I do not believe that" to "I believe fully." The PBQ-SF, which was developed to assess patterns and beliefs that are related to ten clinically defined personality disorders in DSM-IV by self-evaluation reports, is strongly correlated with the clinical diagnoses of personality disorders (Butler et al. 2007). The Turkish form of the scale (Taymur et al. 2011) comprises nine subscales: avoidant, dependent, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, schizoid, and paranoid personality disorder beliefs. Also, five mutual and two unique items are used to assess borderline personality disorder beliefs (Butler et al. 2002). In the present study, Cluster B personality disorder belief scales were used to assess antisocial

(e.g., "People will get me if I don't get them first"), narcissistic (e.g., "Other people should satisfy my needs"), histrionic (e.g., "It is awful if people ignore me"), and borderline (e.g., "I cannot trust other people") personality disorder beliefs. Previous studies have reported optimal validity and reliability of the scale (Taymur et al. 2011).

Single Item Self-Esteem Scale (SISES)

The SISE comprises one item ("I have a high self-esteem") on a seven-point Likert scale from "absolutely incorrect" to "absolutely correct." The SISE was developed by Robins et al. (2001) and adapted to Turkish (Kircaburun et al. 2018b). Since it has only one item, Cronbach's alpha coefficient of the scale could not be calculated. However, it was reported in the original study that the scale had strong convergent validity with the Rosenberg Self-Esteem Scale (Rosenberg 1965) and it has been used by many researchers around the world in order to assess self-esteem of the participants.

Statistical Analysis

The statistical analyses were carried out with SPSS 23 and AMOS 23 software (IBM Corporation, New York, USA). Normality assumptions were checked by examining the skewness and kurtosis values of the variables. Since skewness values were smaller than |3| and kurtosis values were smaller than |10| (Kline 2004), normal distribution was accepted. Variables that had sub-factors were introduced into the model as latent variables, and unidimensional variables were introduced into the model as observed variables. In the path analysis, maximum likelihood estimation method was used. Furthermore, goodness of fit indices designated by Hu and Bentler (1999) were utilized. Consequently, thresholds for good and acceptable fit values are as follows: Root Mean Square Residuals (RMSEA) < .05 is good, Comparative Fit Index (CFI) > .95 is good, Normed Fit Index (NFI) > .95 is good, Goodness of Fit Index (GFI) > .95 is good; also RMSEA < .08 is acceptable, CFI > .90 is acceptable, NFI > .90 is acceptable, GFI > .90 is acceptable. Path analyses were carried out via using bootstrapping method with 95% bias-corrected confidence intervals and 5000 bootstrapped samples. In order to calculate the indirect effects of each path, two estimands were used (Gaskin 2016). The first one calculates the significance of the indirect effect of the independent

Table 2 Comparison of the scores of study variables using multivariate analysis of covariance (MANCOVA) between cyberbullying perpetrators and non-perpetrators

	CB perpetrators (N = 153)	Non-perpetrators (N = 191)	F	Partial eta squared (η^2)
Problematic social media use	2.80 ± .89	2.28 ± .79	14.84***	.08
Depression	2.62 ± .89	2.33 ± .90	4.75**	.03
Self-esteem	5.46 ± 1.55	6.00 ± .99	6.13**	.04
Dissociative experiences	2.77 ± 1.80	2.05 ± 1.42	13.50***	.07
Cluster B personality	2.46 ± .70	2.08 ± .59	24.37***	.13
Childhood emotional trauma	1.92 ± .80	1.48 ± .55	16.48***	.09

Note: Mean ± SD. CBP Wilks $\square$ = .84, $F_{(6,335)}$ = 11.06, $p < .001$, η^2 = .17; gender (Wilks $\square$ = .91, $F_{(6,335)}$ = 5.43, $p < .001$, η^2 = .09) and age (Wilks $\square$ = .95, $F_{(6,335)}$ = 2.85, $p < .01$, η^2 = .05) were significant covariates
**$p < .01$; ***$p < .001$

Table 3 Standardized estimates of total, direct, and indirect effects on cyberbullying perpetration and mediator variables

	Effect	S.E.	% explained of total effect
CT→CBP (total effect)	.47***	.08	–
CT→CBP (direct effect)	.31**	.12	66%
CT→CBP (total direct effect)	.16**	.07	34%
CT →PDB → CBP	.13**	.26	28%
PDB →CBP (total effect)	.23**	.09	–
PDB → CBP (direct effect)	.22*	.09	96%
PDB → PSMU → CBP (indirect effect)	.01	.01	4%

CT childhood trauma, *PDB* Cluster B personality, *PSMU* problematic social media use, *CBP* cyberbullying perpetration

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

variable through one mediator, while the latter calculates the significance of an indirect through two consecutive mediators.

Results

The present study examined the prevalence rates of emotional abuse and neglect of the sample. According to cutoff scores that have been determined in a previous study (Tietjen et al. 2010), 38% of the participants had experienced emotional neglect and 27% had experienced emotional abuse. Pearson's correlation coefficients, reliability coefficients, maximum, minimum, mean scores, and standard deviations of the variables are shown in Table 1. PSMU was moderately correlated with Cluster B traits and dissociative experiences, and weakly with self-esteem (negatively), childhood trauma, and depression. Moreover, CBP was moderately correlated with Cluster B traits, childhood trauma, dissociative experiences, and PSMU, and weakly with self-esteem and depression.
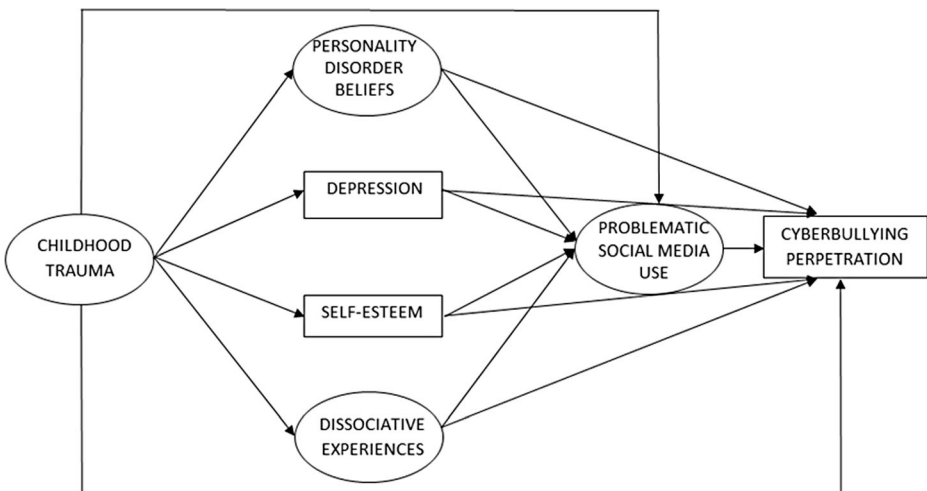

Fig. 1 Hypothesized model. For clarity, the correlations between the four mediator variables and insignificant path coefficients have not been depicted in the figure
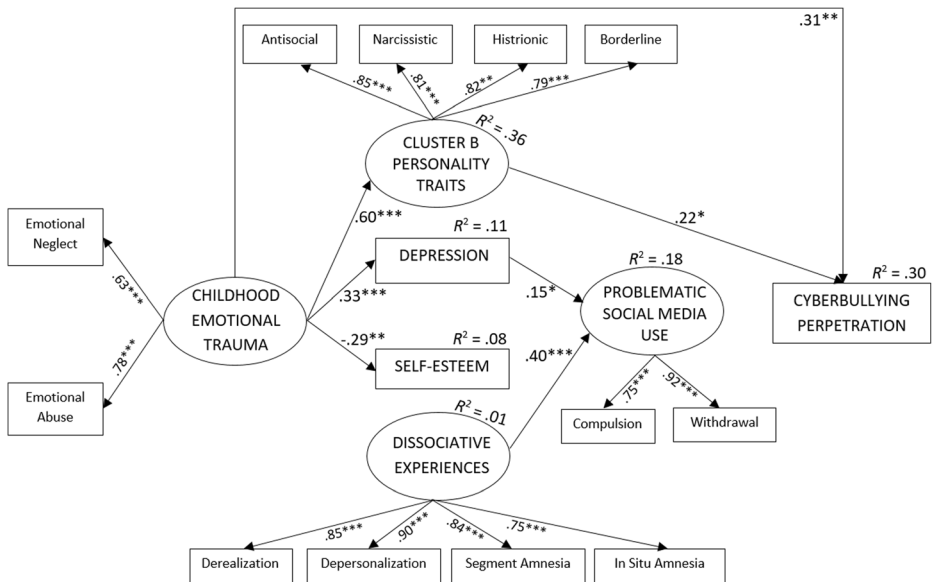
Fig. 2 Final model of the significant path coefficients between variables. For clarity, the correlations between the four mediator variables and insignificant path coefficients have not been depicted in the figure. Gender and age were controlled in the model for problematic social media use and cyberbullying perpetration; however, these are not shown in the model for clarity

The present study examined cyberbullying perpetration both categorically and continuously. Participants who indicated that they cyberbullied others at least once, and demonstrated one of the eight cyberbullying behaviors more than once are classified as cyberbullying perpetrators. Forty-four percent of the study sample reported being involved in one of the cyberbullying perpetration behaviors at least once. A multivariate analysis of covariance (MANCOVA) showed that these participants had higher PSMU, depression, Cluster B traits, and childhood trauma, and lower self-esteem scores compared to those who have not been involved in any type of perpetration behaviors. Gender and age were significant covariates in MANCOVA (Tables 2 and 3).

The hypothesized model was tested using path analysis (Fig. 1). The model demonstrated mostly good fit values (χ^2/df = 2.23, RMSEA = .06 [CI 90% (.05, .07)], CFI = .95, NFI = .91, GFI = .93). The final model of the significant path coefficients between variables is presented in Fig. 2. Analyses regarding the relationship between childhood trauma, PSMU, and CBP demonstrated that experiencing childhood emotional trauma was moderately directly (β = .31, $p < .01$; 95% CI [.10, .53]) and weakly indirectly related to CBP via Cluster B traits (β = .16, $p < .01$; 95% CI [.06, .28]). Lastly, PSMU was not related to childhood trauma; however, it was directly moderately associated with dissociative experiences (β = .40, $p < .001$; 95% CI [.25, .53]) and directly weakly with depression (β = .15, $p < .05$; 95% CI [.03, .27]). The model explained 30% of CBP and 18% of PSMU.

Discussion

The present study investigated the relationships between childhood emotional trauma (CT), Cluster B traits, dissociative experiences, self-esteem, depression, PSMU, and CBP. Results

showed that cyberbullying perpetrators had significantly higher scores on emotional trauma, Cluster B traits, dissociative experiences, depression, and PSMU, and lower on self-esteem. However, some of these differences did not show in the model. In the multiple mediation model, emotional trauma was directly and indirectly associated with CBP via Cluster B traits. Similarly, dissociative experiences and depression were directly associated with PSMU.

One of the most important results of the present study was that even though physical and sexual abuse and physical neglect sub-dimensions of CTQ were not included into the research, childhood trauma was still a significant direct and/or indirect predictor of cyberbullying perpetration, Cluster B traits, depression, and low self-esteem. In concurrence with previous studies (Dalbudak et al. 2014), this result suggests that emotional trauma is also an important traumatic experience that need focusing upon when considering low self-esteem (Şahin et al. 2010) and the formation of psychopathologies such as depression (Finzi-Dottan and Karu 2006; Wiersma et al. 2009), and Cluster B traits (Johnson et al. 1999; Semiz et al. 2007). Moreover, the present study demonstrated for the first time that emotional trauma was directly associated with CBP. Although the association between childhood trauma and CBP is, to the best of authors' knowledge, being reported for the first time, several studies have found significant association between childhood trauma and bullying (Wang et al. 2017), anxiety, anger, and fear (Sudbrack et al. 2015). Moreover, emotional abuse has been found to be positively related with neuroticism and psychoticism which are significant predictors of CBP (Kırcaburun and Tosuntaş 2018; Ojedokun and Idemudia 2013; Ozden and Icellioglu 2014). Traumatized students who do not have the ability to cope with their suppressed negative feelings and who cannot express themselves in real-life social environments may well be using digital mediums where they can hide their identity, in order to feel powerful by bullying others. Bullying others anonymously may actually be a maladaptive strategy to help them cope with their negative feelings.

CBP was also directly related to Cluster B traits and these traits played a mediating role in the relationship between emotional trauma and CBP. Students with higher Cluster B personality disorder symptoms were more likely to demonstrate CBP. This result may be explained by the studies that have reported significant associations of different personality disorders with different negative factors that may lead to CBP such as violent behavior (Garofalo and Wright 2017; Howard 2015; Ostrowsky 2010), emotional impulsiveness (Howard and Khalifa 2016), neuroticism, disagreeableness (Watson 1998), antagonism, psychoticism (Hopwood et al. 2013), aggression, anger, hostility (Velotti et al. 2016), and higher risk of psychological violence (Ten Have et al. 2014). Recent studies also demonstrate that cyberbullying is associated with psychopathological traits (Aboujaoude et al. 2015; Floros et al. 2013; Kokkinos et al. 2014), and the dark triad (Baughman et al. 2012; Goodboy and Martin 2015). These kinds of dysfunctions in personality and various symptoms of personality disorders may lead students to engage in problematic relationships in virtual platforms. Consistent with the study previous study (Kokkinos et al. 2014), which indicated that cyberbullies may have underlying problems needed to be investigated, the present study presents evidence that cyberbullies may have symptoms of several personality disorders that should be examined when engaging in possible interventions.

Consistent with the previous studies which indicated that problematic and addictive use of Internet is associated with dissociative experiences and symptoms (Biolcati et al. 2017;

Iskender et al. 2017; Lee et al. 2016), dissociative experiences and PSMU were directly related in the present study. It has been found that spending time in virtual reality increased dissociative symptoms and students had less sense of presence in real life after they had spent time in virtual reality (Aardema et al. 2010). Moreover, a recent study developed the Digital Schizophrenia Scale and suggested that daily time spent engaging in social media and the number of social media friends were significantly related to fragmented personality and digitalization of interpersonal relationships (Bekiroğlu and Hülür 2016). According to this research, social media platforms construct the feeling of fragmented personality and dissociation between real life and virtual life, and students who stay longer in social media and have more virtual friends experience more dissociation. Digital schizophrenia and social media use intensity were also related to low self-esteem (Bekiroğlu and Hülür 2016). Furthermore, it has been argued that students may be using the Internet in order to cope with their pain by dissociating from their negative feelings (Dalbudak et al. 2014).

The present study has number of limitations that should be addressed. First, the data were collected via self-report questionnaires. As previously indicated, symptom overreporting in self-reports may occur on dissociation phenomena (Merckelbach et al. 2017); thus, future studies could be conducted using clinical samples. Second, the cross-sectional nature of the study prevents any causal relationships between the variables being identified. Third, study group was chosen by convenience sampling, and therefore future studies may wish to use more representative study groups. Finally, most of the study group comprised young adult females (82%), and future studies should be conducted by using samples with a more equal proportion of both genders, and using other age groups. Despite the limitations, this study demonstrates for the first time that childhood emotional trauma is directly and indirectly associated with cyberbullying perpetration via Cluster B personality traits. The evidence presented in the present study suggests that cyberbullying prevention studies should focus on negative early childhood experiences and their consequences on participants' personality.

Compliance with Ethical Standards

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