A STUDY OF THE DIRECT AND INDIRECT RELATIONSHIPS BETWEEN ONLINE DISINHIBITION AND DEPRESSION AND STRESS BEING MEDIATED BY THE FREQUENCY OF CYBERBULLYING FROM VICTIM AND PERPETRATOR PERSPECTIVES

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Abstract: This study attempted to investigate the direct and indirect influences of online disinhibition effect on university students' levels of depression and stress, being mediated by their reported frequency of cyberbullying as victim and perpetrator. A total of 217 students completed a survey questionnaire consisting of a demographics section, the Online Disinhibition Scale (Udris, 2014) to measure benign online disinhibition and toxic online disinhibition, the Cyberbullying Scale (Patchin & Hinduja, 2010) to measure cyberbullying as victim and perpetrator, and the Depression, Anxiety, and Stress Scale (Lovibond & Lovibond, 1995) to measure depression and stress levels. Results revealed that the participants' reported mean score of benign online disinhibition (i.e., helpful and prosocial behaviors) was higher than that of toxic online disinhibition (i.e., hurtful and denigrating behaviors). Results of path analysis showed that the participants' reported level of toxic online disinhibition has both direct and indirect influences on their reported levels of depression and stress. In terms of direct influence, it was found that the higher the participants' reported level of toxic online disinhibition, the higher their reported levels of depression and stress. The results also showed that in terms of indirect influence, the higher the participants' reported level of toxic online disinhibition, the more they reported themselves as being victims of cyberbullying and, subsequently, the higher their reported levels of depression and stress. The participants' reported level of benign online disinhibition was not found to be significantly associated with their reported levels of depression and stress, either directly or indirectly.

Keywords: Online Disinhibition Effect, Benign Online Disinhibition, Toxic Online Disinhibition, Cyberbullying, Cyberbullying Victim, Cyberbullying Perpetrator, Depression, Stress.

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Introduction

Information and communication technology via the Internet have seamlessly integrated the physical and virtual worlds and have become embedded in people's daily lives, affecting attitudes and orientations. Internet and social media usage have been associated with both positive and negative consequences. Benefits include access to information (Subrahmanyam, Smahel, & Greenfield, 2006), access to teaching and learning resources, increased levels of social support (Amichai-Hamburger, Kingsbury, & Schneider, 2012), and maintaining existing relationships (Valkenburg & Peter, 2009). Sense of community and social connectedness are valued in most cultures; therefore, the use of social media applications such as Twitter and Facebook is popular (Enli & Thumim, 2012). Social networking sites have become a medium of expression for youths to share personal information and shape their reputation (Madden et al., 2013) as well as an extension of identity where profile construction exhibits visual and textual self-representation (Enli & Thumim, 2012). These sites facilitate the fundamental drive of existence; that is, the need to belong (Baumeister & Leary, 1995). Thus, adopting social networking sites as a means of communication enhances peer acceptance and relationship development among the youth (Yu, Tian, Vogel, & Kwok, 2010) as well as boosts self-esteem (Gonzales & Hancock, 2011).

Although use of the Internet and social media platforms is associated with clear benefits for individuals and communities, their ubiquity is also associated with considerable negative implications such as unwanted exposure to sexual material (Finkelhor, Ormrod, Turner, & Hamby, 2005), cybercrime (Tokunaga, 2010), increased social anxiety (Juvonen & Gross, 2008), low self-esteem and depression (Campbell, Slee, Spears, Butler, & Kift, 2013), and stress (Nixon, 2014). With computer-mediated communication acting as a filter, social media can present an opportunity for online deception, adoption of alternative moral standards, and decrease of inhibition as the social online environment is less constraining (Caspi & Gorsky, 2006). Online forums also allow cyberbullying through the distribution of unsolicited texts and images that may be used to threaten or embarrass others (Mishna, Saini, & Solomon, 2009).

Purpose of the Study

As the portability and accessibility of technology increase daily, incidents of cyberbullying arise exponentially. Due to the scarcity of statistically significant findings in support of the aforementioned perspectives within the Thai context, the current researcher deemed it necessary to investigate whether the typical university student in Thailand is more of a victim or perpetrator of cyberbullying. Furthermore, this study attempted to investigate the impact of both benign online disinhibition and toxic online disinhibition on the levels of depression and stress among university students who are vulnerable to cyberbullying, either as victim or perpetrator.

The Internet has become an integral part of students' daily routine and communication process and its uses are incorporated into academic, social, and relational functioning and resources. This study raises important questions about the impact of computer behaviors on their environment and cultivates positive attitudes in order to become responsible digital citizens. This study would create greater

awareness in faculty members, academic administrators, and school-based mental health practitioners including counselors and psychologists of current issues being faced by students, by presenting the opportunity for them to address appropriate guidelines and stress the importance of ethical computer behaviors among university students and their influence on mental health. In addition, this study would be a significant contributor in introducing governmental cyberspace-related policies, campaigns, and programs to safeguard and promote the welfare of youth across the nation and beyond.

Conceptual Framework

Figure 1 below was the Path model showing direct and indirect influences of online disinhibition effect on depression and stress, being mediated by the frequency of cyberbullying as victim and perpetrator.

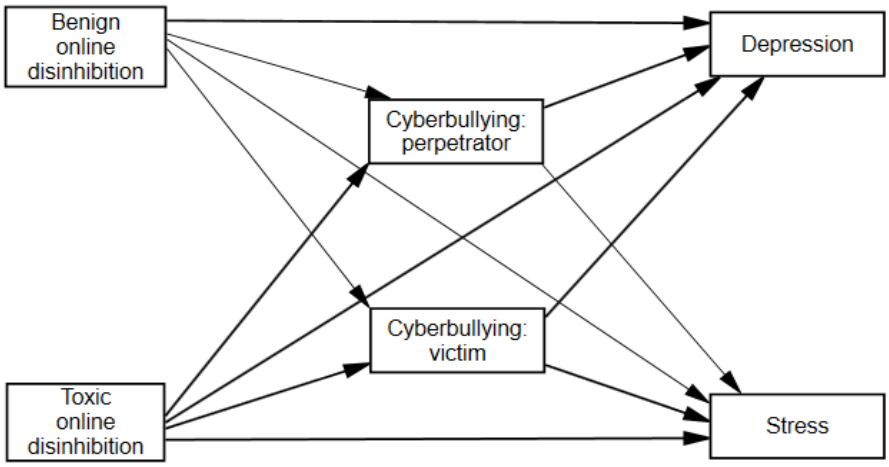


Figure 1: Path Model

Research Questions and Hypotheses

From the conceptual framework, two research questions were drawn: (1) Is there a direct influence of benign online disinhibition and toxic online disinhibition on the participants' levels of depression and stress? And (2) Are there indirect influences of benign online disinhibition and toxic online disinhibition on the participants' levels of depression and stress, being mediated by their reported frequency of cyberbullying as a victim and as a perpetrator?

In an attempt to answer the research questions, two hypotheses were generated for testing:

Hypothesis 1: Benign online disinhibition and toxic online disinhibition have direct influences on the participants' level of depression and stress such that (a) the stronger the reported experience of benign online disinhibition, the lower the reported levels of depression and stress, and (b) the stronger the experience of toxic online disinhibition, the higher the reported levels of depression and stress.

Hypothesis 2: Benign online disinhbition and toxic online disinhibition have indirect influences on the participants' levels of depression and stress, being mediated by their reported frequency of cyberbullying as a victim and as a perpetrator such that (a) the stronger their reported experience of benign online disinhibition, the lower their frequency of cyberbullying as a victim and pepetrator and, subsequently, the lower their reported levels of depression and stress; and (b) the stronger their reported experience of toxic online disinhibition, the higher their frequency of cyberbullying as a victim and perpetrator and, subsequently, the higher their reported levels of depression and stress.

Literature Review

Cyberbullying

Cyberbullying is a form of bullying or willful and repeated harm inflicted through the use of phone calls, instant messages, emails, chat rooms, websites, social networking sites, and blogs (Kowalski & Limber, 2007; Hinduja & Patchin, 2015). There are no rules and boundaries on the virtual platform which make it difficult to moderate and monitor behavior, language, and psychological effects on youths. Victims can be targeted at any place and any time (Tippett, Thompson, & Smith, 2014). Where most forms of bullying are experienced in the school, cyberbullying are acts carried out in cyberspace and experienced at school, home, clubs, work settings, or other outdoor venues (Slonje et al., 2012). While the experience of victimization leaves victims feeling angry, frustrated, and distressed (Ybarra & Mitchell, 2004; Smith et al., 2008), cyberbullying perpetrators send unreservedly hurtful and denigrating messages to victims, third parties, or public forums (Hinduja & Patchin, 2008). This may involve the perpetrator possessing an image, video, or content and spreading it around using computers or other electronic devices, or ostracizing people from online groups on social networking sites (Willard, 2007). A study revealed that the most reported medium for cyberbullying was text messaging, followed by email, and websites (Zalaquett & Chatters, 2014) where the elements of anonymity, unsupervised online activities, freedom from social constraints, and lack of inherent accountability contribute to perpetrators' audacious behavior.

Cyberbullying has academic, emotional, behavioral, and psychological effects on both victims and perpetrators (Suzuki, Asaga, Sourander, Hoven, & Mandell, 2012). Cyberbullying research had demonstrated that peer victimization and academic achievement are negatively associated (Nakamoto & Schwartz, 2009), that the effects of cyberbullying can range from minimal levels of distress and frustration to serious psychosocial and life problems (Tokunaga, 2010), as well as lead to detrimental effects on mental health and result in the internalizing and externalizing of problems (Nixon, 2014). Zalaquett and Chatters (2014) investigated the frequency, characteristics, and practical implications of cyberbullying in college and reported that cyberbullying experiences left students feeling angry, sad, with claims of increased stress level and loss of productivity. Such experience also caused both victims and perpetrators to suffer from depression, loneliness, low socialization, low

self-esteem, and anxiety (Patchin & Hinduja, 2006). Several studies that explored the characteristics of college cyberbullies similarly reported that students involved in cyberbullying as aggressor or victim scored high in depression, hostility, interpersonal sensitivity, paranoia, phobic anxiety, psychoticism, substance abuse, physical/sexual abuse, and aggression that led to problems at school, including student attrition, property damage, and illegal acts (e.g., Beran & Li, 2007; Katzer, Fetchenhauer, & Belschak, 2009; Raskauskas & Stoltz, 2007; Ybarra, Diener-West, & Leaf, 2007; Schenk, Fremouw, & Keelan, 2013; Ybarra & Mitchell, 2004).

A broad meta-analysis of 131 studies was conducted on risk and protective factors and outcomes of cyberbullying including age, among other variables, relative to perpetration and victimization (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). The analysis showed a weak correlation between cyberbullying perpetration and age, and a non-significant relationship between cyberbullying victimization and age. On a related note, cyberbullying was found to increase with age until 15 years (Kowalski et al., 2014; Tokunaga, 2010) and that 30% of students' first experience of cyberbullying occurred in college (Kowalski, Giumetti, Schroeder, & Reese, 2012).

There have been conflicting reports on the prevalence rate of cyberbullying based on gender. Two broad meta-analyses of gender difference in cyberbullying behavior similarly revealed that cyberbullying perpetration is more common in boys than in girls (Barlett & Coyne, 2014; Ortega, Elipe, Mora-Merchan, Calmaestra, & Vega, 2009). It was also reported that cyberbullying is more prevalent among girls in younger samples and among boys in older samples, and that countries and continents were found to be significant moderators as well (Barlett & Coyne, 2014). Ortega et al. (2009) found that males are more involved in traditional bullying whereas females are more linked to electronic forms of bullying through mobile phones and the Internet. On the other hand, some studies showed that no discrimination existed as a function of gender (Slonje & Smith, 2008; Hinduja & Patchin, 2008; Smith et al., 2008).

With regard to cyberbullying and ethnicity, a meta-analysis of 105 studies examined ethnic differences in peer victimization and found no difference in peer victimization between majority and minority groups (Vitoroulis & Vaillancourt, 2015). Zalaquett and Chatters (2014) explored the prevalence of cyberbullying among college students from diverse backgrounds as well as the relationship between cyberbullying in high school and college and reported that out of 613 college students, 19% experienced cyberbullying victimization in college and 31% in high school; of those who were cyberbullied, 15.5% were females and 3.6% were males. It was also revealed that European Americans were the most cyberbullied and that Asian Americans were four times more cyberbullied than other minorities.

Despite a paucity of cyberbullying research in Thailand where this study was based, there have been some notable findings. For example, Sittichai (2014) examined the incidence and predictors of cyber-victimization in three southern provinces of Thailand, using an adaptation of a UK-based questionnaire using both strict and lenient criteria. It was found that cyberbullying victimization was at 3.7% under strict criteria and 14.9% under lenient criteria. Furthermore, it was found that victims were mostly male with highly-educated parents. NoBullying.com (2015) reported that out of 2,500 students aged between 12 and 24 years, 43% experienced

being cyberbullied. Moreover, most of the perpetrators have divorced parents or come from broken families, and who reportedly turn to the Internet to annoy others. Another study suggested that aggression arises due to different perceptions and adoption of behaviors that can be attributed to the absence of inherent authority and accountability (Sittichai & Smith, 2013). The authors also posited that individualism, collectivism, or hierarchy may impact on prosocial behavior or abuse of power, and that societal differences play a key role.

Online Disinhibition Effect

Online disinhibition effect refers to diminished internal censorship when communicating in cyberspace where its hidden realm allows people to abandon inhibitions and detach themselves from their actual identity in presenting an online persona (Suler 2004, 2005). The virtual environment gives rise to unrestrained behaviors as people hide their real identity and act in a manner they would not normally do offline (Suler, 2004). The online disinhibition effect also presents a window of opportunity for self-disclosure where people reveal information about themselves, and which allows expression of hidden desires, emotions, and fears, and reduces uncertainty in their interactions (Joinson, 2007). Suler (2004) proposed six factors that interact and intersect with each other to cause online disinhibition. These factors are dissociative anonymity (being anonymous, online user averts responsibilities and moral obligations), invisibility (being invisible, user becomes disinhibited in facial expressions and bodily cues), a synchronicity (time lapse allows suspension of self-disclosure leading to disinhibition), solipsistic introjections (user assimilates or introjects characteristics and creates internal representation), dissociative imagination (allows user to create an imaginary character that one can disengage from offline), and minimization of status and authority (absence of real world authorities allows user to voice out oneself freely).

The positive consequence of online disinhibition is benign online disinhibition which refers to behaviors aimed at improving self-understanding and personal development, assistance in resolving interpersonal and intrapersonal conflicts, or exploration of new emotional or experiential realms of one's identity (Lapidot-Lefler & Barak, 2015). Suler (2004, 2005) opined that this effect involves exhibiting unusual acts of kindness and generosity, as well as attempts to understand and explore dimensions of oneself. Lapidot-Lefler and Barak (2015) clarified that positive (or benign) online disinhibition effect can also have social ramifications such as philanthropic gestures, giving advice and emotional support, and greater self-disclosure. A study that investigated whether situational factors could induce self-disclosure and prosocial behaviors by means of benign online disinhibition effect reported that disclosure of emotions was higher when anonymity was combined with invisibility (Lapidot-Lefler & Barak, 2015). Furthermore, the benign effect may enhance collaborative efforts and sharing of feelings with the absence of nonverbal communication cues (Kowalski & Limber, 2007) as well as help promote positive and genuine relationships (Heirman & Walrave, 2008). However, Udris (2014) argued that benign online disinhibition can have a direct influence on cyberbullying, and that invisibility can predict online benign online disinhibition in both victim and bully. According to Suler (2004), invisibility allows people to be aware of the other

person's background, habits, and other details; and when the other user's identity is known but is unable to see and respond to physical cues, this can cause inhibitions to be lowered. Thus, it can be inferred that the positive behavior of online disinhibition may have negative consequences.

The negative consequence of online disinhibition is toxic online disinhibition which is exemplified as underlying aggressive behaviors, rude language, and harsh criticisms in online communications, as well as the dark side of the Internet: crime, drugs, violence, and hate-groups (Suler, 2004, 2005). One example of toxic online disinhibition is the behavior of flaming on online forums which arises from a display of hostile intentions, intense hatred, insults, or profanity that causes severe distress and psychological disturbance (Alonzo & Aiken, 2004). A study revealed that individual attributes were antecedent of flaming and this form of uninhibited behavior is fueled by anonymity (Aiken & Waller, 2000). Lack of nonverbal signals may cause emotions to be overestimated or underestimated, leading to escalation of conflicts (Derks, Fischer, & Bos, 2007), and that lack of social, contextual, and affective signs online can foster insensitive and remorseful feelings and behaviors (Mason, 2008).

Past research has attributed the factor of toxic online disinhibition to anonymity, invisibility, asynchronicity, textuality, and personality-related factors (e.g., Joinson, 2003; Joinson, 2007; Suler, 2004). Udris (2014) proved that toxic online disinhibition and invisibility predicted cyberbullying, but that the latter factor was the most significant predictor. Lapidot-Lefler and Barak (2012) examined the effects of anonymity, invisibility, and lack of eye contact on toxic online disinhibition. Lack of eye-to-eye contact was found to be the strongest contributing factor to toxic online disinhibition. This may be because lack of eye contact leads individuals to feel less exposed and anonymous, thereby increasing flaming behavior and cyberbullying. Another predictor of toxic online disinhibition is the factor of minimization of authority. According to Hinduja and Patchin (2008), disinhibition is present when repercussions of behavior are unforeseen. The authors posited that deviant behavior is present where punishment and repercussions are deemed unlikely. This outcome can be linked to another study which found that deviant behavior decreases with punishment certainty and severity of punishment (Wang & Shih, 2014). Görzig and Ólafsson (2013) investigated the link between cyberbullying and online disinhibition by exploring the nature of self-representation and lack of supervision, and reported that disinhibited self-representation online is significantly related to increased cyberbullying, while lack of supervision is not. Furthermore, anonymity was found to play a role in both benign online disinhibition and toxic online disinhibition.

Depression

Depression is characterized by depressed mood, loss of interest in pleasurable activities, and sleep disturbances as well as other symptoms which significantly disrupt daily functioning (American Psychiatric Association, 2000). Research suggests that cyberbullying and depression have a significant relationship (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008; Wang, Nansel, & Iannotti, 2011; Wigderson & Lynch, 2013). Individuals who experience major depressive disorder tend to focus their attention on unflattering information, interpret ambiguous information negatively, and harbor pervasively pessimistic beliefs (Kessler et al.,

2003; Rude, Gortner, & Pennebaker, 2004). Negative interactions on social networking sites have been found to be associated with depressive symptoms (Davila et al., 2012). In addition, cyberbullying experiences can leave victims feeling isolated, lonely, hopeless, sad, and powerless (Brighi et al., 2012; Raskauskas & Stoltz, 2007). Perren, Dooley, Shaw, and Cross (2010) showed that cyberbullying victims have higher level of depressive symptoms than traditional bullying victims, and that the anonymity of the perpetrator and ease of accessibility to the victim in cyberspace posed a significant challenge (Dooley, Cross, Hearn, & Treyvaud, 2009).

Depression and other negative online consequences have been linked to individual and social perspectives. For example, Strickland (2014) proposed that individual perspectives are attributed to personality traits and behaviors such as sedentary behaviors that may lead to lack of face-to-face interactions and social withdrawal. Turkle (2012) posited that social perspectives can be influenced by the attraction of social media as it allows the illusion of companionship without the demands of friendship. The interplay is associated with social comparison, constant connectivity, relationship privacy, and fear of missing out. The entanglement of these factors exacerbates lower self-esteem, anxiety, feelings of inadequacy and victimization and, thus, leads to depression (Strickland, 2014).

On the other hand, past research had demonstrated the link between psychological well-being and online interactions. Prosocial online behaviors including giving and receiving social and emotional support decrease vulnerability towards rejection and bullying and, thereby, allows individuals to express and share their feelings more. Expressed inherent needs and expectations can generate personal empowerment and buffer against negative life experiences (Tanis, 2007). The positive influence of online communication was demonstrated among those with introverted or neurotic personality (Amchai-Hambuger, Wainapel, & Fox, 2002), those who have difficulty in building social connections and are lonely (McKenna, Green, & Gleason, 2002), and those whose identity carries a stigma (McKenna & Bargh, 1998). According to Eysenck, Eysenck, and Barrett (1985), people who are unable to express themselves may suffer from serious psychological disorders. In light of this, it is possible that prosocial behaviors and self-expressions through virtual interactions can help reduce incidence or level of psychological problems, including depression. Additionally, online disinhibition effect allows individuals and group members to reveal personal information without directly exposing themselves to the public (Barak, Boneil-Nissim, & Suler, 2008).

Stress

Stress arises from any interaction between an individual and the environment when the individual perceives the situation as threatening, challenging, or possibly damaging. In essence, the individual perceives that such a situation may exceed his/her resources to cope (Lazarus & Cohen, 1977). Cyberbullying can be a stressful experience for many individuals, thereby, producing a number of negative and traumatic feelings (Beran & Li, 2005; Campfield, 2006; Dehue, Bolman, & Vollink, 2008). According to Boulton and Underwood (1992), peer victimization is a salient stressor for youths. Research suggests that both cyberbullying victims and perpetrators experience high level of stress which poses a concern towards their

mental well-being (Campbell et al., 2013). The latter study indicated that cyberbullying perpetrators lack empathy and this has led to the experience of social difficulties and peer relationship problems. Moral disengagement can also lead cyberbullying perpetrators to be induced by online disinhibition effect with the factors of anonymity and reduced social and contextual cues (Ang & Goh, 2010; Suler, 2005). Their emotional problems suggest low coping skills and this has led them to have high levels of stress and mental health problems (Campbell et al., 2013). In Aoyama's (2010) study, the cyberbullying perpetrator-victim group scored highest on aggression, anxiety, and stress, and lower self-esteem than other groups. It was also reported that moderate effects of peer relationships could buffer between depression, anxiety, and stress but effect sizes were small. It was suggested that those who were involved in cyberbullying may have poor peer relationships. For example, cyberbullying victims who do not know the identity of the cyberbullying perpetrator may lead them to doubt their peers. This poses a challenge for the cyberbullied victims to reach out and look for emotional support.

Campbell et al. (2013) found that those who were not involved in cyberbullying experiences reported high scores on prosocial behaviors and lower scores on stress. It was suggested that their characteristic of being empathic and prosocial may have led them to be less negatively disinhibited online and report lower levels of stress. A related study revealed that those who have not experienced cyberbullying scored the highest on self-esteem and peer relationships, and lowest in depression, anxiety, and stress. The author inferred that good social support and peer relationships help buffer between the negative effects of cyberbullying experiences (Aoyama, 2010).

With the proliferation of technology, the development of social support online can also help eliminate stress (Dietrich, 2010). In addition, many studies established that helping other people has a positive influence on physical and mental health as well as well-being (e.g., Brown, Nesse, Vinokur, & Smith, 2003; Schwartz, Sprangers, Carey, & Reed, 2004). Raposa, Laws, and Ansell (2015) reported that affiliate behaviors and participating in prosocial behaviors help reduce stress. In other words, it is not only being at the receiving end of support that can reduce stress, but providing social support or acting prosocially can also help reduce stress (Soghom, 2016).

The proliferation of digital-mediated devices has equipped the audience on cyberspace to become visible with people articulating through images and text. Their misuse has given rise to cyberbullying which has become prevalent in today's society, and where its nature of subtleness evokes a shift in personality, thereby, causing harm to both victim and perpetrator. The omnipresent nature of online interactions facilitates as a medium to intimidate and harass, as well as adopt different moral standards where anonymity, invisibility, and accountability present an unprecedented challenge. These experiences have an impact on mental health, physically and psychologically which, in turn, threaten the well-being of both cyberbullying victim and perpetrator.

Most researches on cyberbullying have been carried out in Western countries. From the limited evidence available so far, a few Thai-based studies on cyberbullying (e.g., Laeheem, Kuning, McNeil, & Besag, 2008; Musikaphan, Yongchin, & Chancharoen, 2011; Sittichai, 2014) demonstrated the seriousness of the cyberbullying problem in Thailand; thus, there is a strong case for more focused research on the topic.

Method

Participants

The participants of the study (N= 217) consisted of students (males = 102; females = 115) currently studying at Assumption University, Bangkok. Their ages ranged between 17 years and 42 years, with a mean age of 22.16 years. In terms of their educational status, 76 participants (35%) were first year university students, 34 participants (15.7%) were second year university students, 33 participants (15.2%) were third year university students, 31 participants (14.3%) were fourth year university students, and 43 participants (19.8%) were master's level students.

Instrumentation

The research instrument was a self-administered survey questionnaire that consisted of the following six sections:

Informed Consent. This section contained basic information about the study, including its purpose, what was required from the participants, how information obtained from the questionnaires would be used, confidentiality clauses, and consent to participate, and contact details of the researcher.

Personal Information. This researcher-constructed section was written to tap the participants' gender, age, university year level, hours spent on the Internet, and means of using the Internet.

Cyberbullying Scale-Victimization. This section consisted of the nine-item Cyberbullying Scale-Victimization developed by Patchin and Hinduja (2010). It measures the respondents' experience in the previous 30 days with nine different forms of online aggression. The response set for these questions ranged from Never, Once or twice, A few times, Many times, to Everyday, with high values representing more experience as a cyberbullying victim. The scale has reported internal reliability with Cronbach's $\alpha = .736$.

Cyberbullying Scale-Perpetration. This section consisted of the five-item Cyberbullying Scale-Perpetration developed by Patchin and Hinduja (2010). It measures the respondents' experience in the previous 30 days with five different forms of online aggression. The response set for these questions ranged from Never, Once or Twice, A few times, Many times, to Everyday, with higher values representing more participation in cyberbullying perpetration behaviors. The scale has reported internal reliability with Cronbach's $\alpha = .761$.

Online Disinhibition Scale. This section consisted of the 11-item Online Disinhibition Scale developed by Udris (2014). It consists of two subscales: benign online disinhibition (7 items) and toxic online disinhibition (4 items). The validity of the subscales showed adequate reliability with Cronbach's $\alpha > 0.8$ for each subscale. The response set for all 11 items ranged from Disagree, Somewhat disagree, Somewhat agree, to Agree.

Depression, Anxiety, and Stress Scale. This section consisted of the 21-item Depression, Anxiety, and Stress Scale (DASS-21) developed by Lovibond and Lovibond (1995). The DASS-21 consists of three self-report subscales designed to provide relatively pure measures of the three-related negative affective states of depression, anxiety, and stress. Each subscale is composed of seven items written to

reflect negative affective symptoms experienced over the last week. Each item is scored on a four-point scale ranging from 0 = 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 me, to 3 = Applied to me very much, or most of the time. For the purposes of this study, only the subscales of depression and stress were utilized.

Data Collection and Analysis

The researcher obtained written permission from the Dean of the Graduate School of Human Sciences certifying that the data can be collected from Assumption University students. The informed consent form was presented to the participants and those who agreed were given the survey questionnaire to fill out. After the collection of completed questionnaires, the researcher individually inspected the questionnaires to check for possible errors for exclusion. Only valid completed questionnaires were subjected to statistical analysis.

Data analysis was accomplished through descriptive statistical analysis. The study applied frequency and percentage distributions in analyzing the data obtained from the respondents. The analysis of the respondents' scores was conducted using means and standard deviations. Path analysis via multiple regression analysis was employed to test the hypothesized direct and indirect influences of online disinhibition effect on depression and stress, being mediated by the frequency of cyberbullying as a victim and perpetrator.

Results

Means and Standard Deviations for the Computed Factors

Table 1 presents the means and standard deviations for the six computed factors.

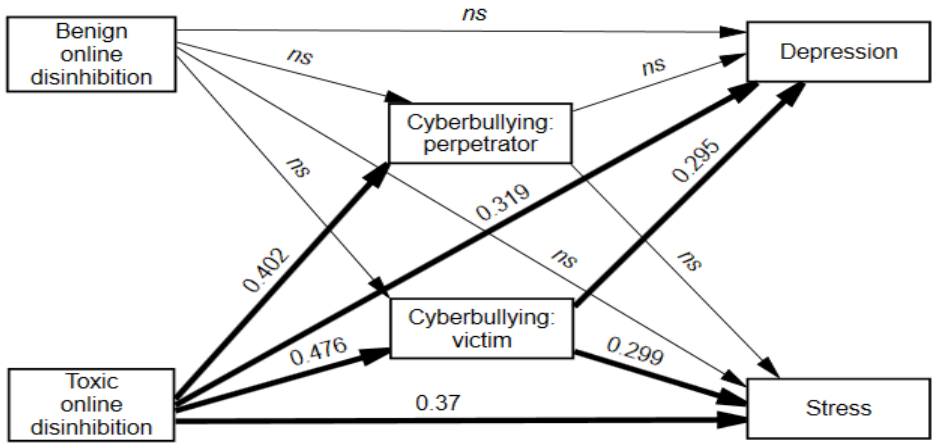
Table 1: Means and Standard Deviations for the Computed Factors of Cyberbullying-Victim, Cyberbullying-Perpetrator, Benign Online Disinhibition, Toxic Online Disinhibition, Depression, and Stress

	Mean	S.D.	Mid-point
• Cyberbullying-victim	2.312	.755	3.00
• Cyberbullying-perpetrator	2.076	.837	3.00
• Benign online disinhibition	2.748	.533	2.50
• Toxic online disinhibition	2.040	.747	2.50
• Depression	1.043	.566	1.50
• Stress	1.109	.573	1.50

As can be seen from Table 1, the factors of 'cyberbullying-victim' and 'cyberbullying-perpetrator' were rated below the mid-point on their respective scales, the factor of 'benign online disinhibition' was rated above the mid-point on its scale, the factor of 'toxic online disinhibition' was rated below the mid-point on its scale, and the factors of 'depression', and 'stress' were, likewise, rated below the mid-point on their respective scales. Thus, overall, the participants perceived themselves as low in being both a victim and perpetrator of cyberbullying, were more likely to

experience benign online disinhibition than toxic online disinhibition when they are online, and reported experiencing lower levels of depression and stress.

Path Analysis
The results of path analysis are presented in Figure 2.



(ns = non-significant, p>.05)

Figure 2: Path Model of Participants' Levels of Depression and Stress as A Function of The Direct and Indirect Influences (Being Mediated by Their Experiences of Being Both Victims and Perpetrators of Cyberbullying) of Their Reported Levels of Benign and Toxic Online Disinhibition.

The results presented in Figure 2 revealed that the participants' reported level of toxic online disinhibition has both direct and indirect influences on their reported levels of depression and stress. In terms of direct influence, the higher the participants' reported level of toxic online disinhibition, the higher their reported levels of depression (Beta=.319) and stress (Beta=.37). In terms of indirect influences, the higher the participants' reported level of toxic online disinhibition, the more frequent they reported themselves as being victims of cyberbullying (Beta=.476) and, subsequently, the higher their reported levels of depression (Beta=.295) and stress (Beta=.299). The participants' reported level of benign online disinhibition was not found to be significantly associated with their reported levels of depression and stress, either directly or indirectly (p>.05).

Discussion

Means and Standard Deviations
The results revealed that only the factor of benign online disinhibition was rated above the mid-point scale, while all other factors (i.e., toxic online disinhibition, cyberbullying-victimization, cyberbullying-perpetration, depression, and stress) were rated below the mid-point on their respective scales. These results suggest that the students reportedly rated themselves as having high level of benign online

disinhibition, which means that their predominant online behaviors may reflect unusual acts of kindness, generosity, helping others, joining online support groups, philanthropy, volunteering and suchlike, as suggested by many researchers (e.g., Morahan-Martin & Schumacher, 2003; Panopoulos & Sarri, 2013; Shim, Cappella, & Han, 2011; Wright & Li, 2011). Thus, it can be gleaned from these perspectives that most of the students in this study are predominantly benign online. It is likely that when they witness other users being bullied, they may attempt to defend or help the victims.

The results also revealed that the students rated themselves below the mid-point in terms of being cyberbullying victims and cyberbullying perpetrators, indicating that they rated themselves low in terms of frequency of cyberbullying experiences, either way. This finding appears to reflect the positive consequences of benign online disinhibition, despite the non-significant relationships uncovered in the present study. Similarly, it was found that the participants rated the factors of depression and stress below the mid-point on their respective scales, indicating the students' perceived low levels of depression and stress. These finding could once again reflect the positive consequences of benign online disinhibition on psychological outcomes. However, this suggestion is equivocal since the current findings revealed no significant relationship between benign online disinhibition and the states of depression and stress. Thus, these important relationships warrant further investigation.

Path Analysis

The results of path analysis showed that the students' reported level of toxic online disinhibition had both direct and indirect influences on their reported levels of depression and stress. In terms of direct influences, the results reported that the higher the participants' reported level of toxic online disinhibition, the higher their reported levels of depression and stress. Alonzo and Aiken (2004) proposed that toxic online disinhibition reflects forms of unrestrained behaviors, hostile intentions, hatred or profanity used online that cause severe distress and psychological disturbance and, consequently, have a negative impact on interactions and relationships. However, their study does not report directly on who is distressed and psychologically disturbed, nor does it fully describe the nature and extent to which type of interactions or relationships are affected. With regard to the current result that toxic online disinhibition has a direct influence on depression and stress, this result must be interpreted with caution since there are no research findings on what are the facets of distress and psychological disturbances due to toxic online disinhibition. It could be that when toxic online disinhibition behaviors occur online, it is hard to discern or observe such behaviors. In addition, it is possible that due to the factors of online disinhibition effect, especially the anonymity factor, that the emotions and behaviors of individuals engaging in toxic online disinhibition cannot be directly seen by other people. This outcome appears to run contrary to other research findings which suggest that toxic online behaviors that cause distress and psychological disturbances have become a prevalent issue. Toxic online disinbition reflects behaviors of flaming, trolling, harsh criticisms, profanity, expressions of hatred and threats of violence (Alonzo & Aiken, 2004; Suler, 2004). The phenomenon is somewhat similar to cyberbullying, based on Hinduja and Patchin's (2008) proposition that cyberbullying

perpetrators are those who send hurtful and denigrating messages to a victim, a third party, or online forum. Perhaps it may be posited that those who exhibit toxic online disinhibition are inclined to be cyberbullying perpetrators. However, more research is needed in order to make more definitive conclusions.

Further analysis of the results showed that in terms of indirect influences, the higher the participants' reported level of toxic online disinhibition, the more they reported themselves as being victims as well as perpetrators of cyberbullying and, subsequently, the higher their reported levels of depression and stress, as hypothesized earlier. This outcome is partly in line with Udris's (2014) finding that toxic online disinhibition is a predictor of cyberbullying. However, apart from the study of Udris, there has been no other research finding that showed a clear link between toxic online disinhibition and cyberbullying victimization in which sufferers face aggressive and intentional acts such as unsolicited text and photos that threaten, harass, embarrass, or involve social exclusion via email, social networking sites, and other computer-mediated communications forms.

On a different note, it is interesting to see that cyberbullying perpetration and cyberbullying victimization moderately correlate with toxic online disinhibition (see Figure 2). Cyberbullying perpetrators are those who send hurtful and denigrating texts and images with emails, text messages and other forms of online communication. Whereas it was shown that there is a significant moderate relationship between toxic online disinhibition and cyberbullying perpetration, this study's findings revealed no significant relationship between cyberbullying perpetration and the negative states of depression and stress. Thus, it was revealed that cyberbullying perpetration is not a moderator between toxic online disinhibition and the dependent variables of depression and stress. This could mean that cyberbullying perpetrators are unaware of the harm they cause or that they deliberately ignore the issue. This may imply that perpetrators are morally competent to judge actions but significantly deficient with respect to moral sentiments and caring (Gini, Pozzoli, & Hauser, 2011). In addition, cyberbullying perpetrators have low levels of empathy. Thus, it can be suggested that that their indifferent attitude towards the victim's sentiments may not cause any untoward effect on their mental health. Campbell et al. (2013) showed that cyberbullying perpetrators' perception of harshness in their actions is lower than their victims' perception of harshness despite reportedly high level of stress.

The hypothesis on indirect influences was supported by the current results as it was revealed that the higher the participants' reported level of toxic online disinhibition, the more they reported themselves as being victims or perpetrators of cyberbullying and, subsequently, the higher their reported levels of depression and stress. Thus, it can be inferred that, in this study, students who scored high on toxic online disinhibition and frequency of cyberbullying as victim or perpetrator subsequently experienced high levels of depression and stress. This is partly in agreement with Aoyama's (2010) finding that cyberbullying perpetrator-victims scored the highest in depression, anxiety, and stress.

Cyberbullying perpetration-victimization dynamics. Past research had demonstrated situations in which individuals experience both cyberbullying perpetration and victimization. For example, Chapell et al. (2006) examined the trajectory of bullying (being a bully or bully-victim) among undergraduates and

reported a significant positive correlation between being a bully and victim in elementary school, high school, and college. This outcome was explored by other researchers who posited that those who reported having higher level of toxic online disinhibition and who were cyberbullying victims when they were younger may have become cyberbullies in high school (Kowalski et al., 2012; Kraft & Wang, 2010). In considering the motives that could be associated with the cyberbullying perpetrator-victim group, Aoyama (2010) proposed that the status of being a perpetrator and a victim can be easily switched and, in some cases, is associated with other victims who might seek revenge on individuals who cyberbullied them. Revenge and payback are motives for cyberbullying. Thus, it is possible that cyberbullying perpetrators-victims also become victimized by other bullying victims who wish to seek revenge (Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012).

Some motives for those involved in toxic online disinhibition for the specific act of flaming may include escaping from reality, passing the time, or engaging in flaming for entertainment and relaxation (Alonzo & Aiken, 2004). These behaviors are reflected in Finn's (2004) survey of online harassment in a university study which showed that students reportedly received threatening and insulting emails and messages as well as unwanted pornography. Making fun of someone's posts or profiles by posting hurtful comments can cause emotional disturbances (Zalaquett & Chatters, 2014). It is possible that some cyberbullying perpetrators are unaware of the degree of harm they inflict on others or deliberately ignore the consequences (Gini et al., 2011). The latter suggests that some cyberbullying perpetrators find it funny to make fun of people through text messages and images which could lead to emotional disturbance in the victims. In being emotionally affected, the victim him/herself may seek revenge upon those who cyberbullied them, especially in cases where the identity of the perpetrator is known. Through self-representations online, social networking sites, or within groups of shared interest, the identity of the cyberbullying perpetrator can be made known through their visual and textual self-representations or digital footprints. Past reports indicated that in some cases, victims know or think they know who the cyberbullying perpetrator was, and that it could be someone in their social circle or an old or former friend, and that the identity can be determined from the nature or content of the text message or graphics sent. A number of studies demonstrated that some victims eventually discover who their cyberbully was (e.g., Mishna et al., 2009; Tomsa, Jenaro, Campbell, & Neacsu, 2013). Identified cyberbullying perpetrators may be ostracized from their groups due to their undesirable behavior (Hinduja & Patchin, 2010). The authors further stated that victims can create another account or use pseudonyms to hide their identity, in order to escape retaliation. Another method reportedly used by vengeful victims include cyberbullying by proxy which involves hacking into the perpetrator's account and sending malicious content to family and friends on the list, with the recipients assuming that the message was sent by the original account holder (Aftab, 2011).

It is not unusual to hear about victims being induced by the factor of anonymity to seek revenge on their cyberbullies. A study proved that there are ostracized victims who readily joined online groups in order to retaliate, thus, turning themselves from victims to perpetrators (Kowalski & Limber, 2007). Furthermore, being ostracized is associated with the outcomes of lack of acceptance, loneliness, social dissatisfaction,

and social withdrawal which can lead to profound negative effects on victims' social support system and mental health. In addition, ostracism affects the fundamental needs of belonging, self-esteem, control, and meaningful existence (Williams, 2007). On a related note, Aoyama (2010) reported that there are moderator effects of peer relationships between the cyberbullying perpetrator-victim group and depression, anxiety, and stress. Peer victimization is a salient stressor for youths; it was found to have an effect on academic performance. More specifically, the experience of cyberbullying victimization may lead to lower grades, dissatisfaction over examination results, and cheating on a test (Nakamoto & Schwartz, 2009).

Good peer relationships help and protect individuals from internalizing problems (Woods, Done, & Kalsi, 2009) whereas poor sense of connectedness due to lack of close friends and peer rejection decreases mental well-being (Joiner, 1997). There is interplay among social isolation, rejection experience, loneliness, low self-esteem, and depressed feelings. Cyberbullying perpetrators who face peer victimization or ostracism may end up with a diminished social support system which could lead to mental health issues including the risk of developing depression and stress (Beck & Clark, 1988). Being involved in cyberbullying as victim and bully can lead to even higher levels of depression and stress.

There are deterrents that discourage cyberbullies from pursuing further perpetrator behavior such as coming under the light of higher authority, fear of punishment, and fear of being reported by the victim. It was found that students' toxic online disinhibition decreased with the certainty and severity of punishment (Wang & Shih, 2014). This finding is consistent with that of Joinson (2003) who demonstrated that anonymity is a key factor that gives rise to disinhibited behavior. Cyberspace users hide their identity and act in a manner they would not normally do offline, basically because the factors of visual anonymity, lack of eye-to-eye contact, and invisibility lower accountability over one's actions, thus, devaluing moral obligations (Suler, 2004; Mishna et al., 2012). Ironically, cyberbullying perpetrators may become victims of their own crime when they are held accountable for their actions (Wang & Shih, 2014).

Past research has established that young perpetrators may develop maladaptive behaviors that could lead them to being unable to interact and communicate with older people (Haynie et al., 2001; Nansel, Craig, Overpeck, Saluja, & Ruan, 2004; Picket et al., 2002). Victims, on the other hand, may find it difficult to report being victimized due to their poor relationship or lack of communication channels with higher authorities. In cases where the cyberbullying perpetrator faces victimization among peers who are influenced by the anonymity factor of online disinhibition, new victims begin to doubt their peers and are unable to reach out for emotional and social support due to their lack of social skills and poor peer relationships. It is important to note that the role of the cyberbullying victim can switch to that of a cyberbullying perpetrator. Past research had shown that the characteristics of victims include low self-esteem, sadness, depression, stress, powerlessness, and hopelessness. It can be perplexing to see how some victims have risen up and avenged themselves against those who cyberbullied them. It could be that victims resort to coping skills in maladaptive form (Lazarus & Folkman, 1984). However, cyberbullying experiences also range from minimal distress and frustration to more serious psychosocial and life

problems, and each psychological outcome may come in differing levels (Tokunaga, 2010).

The current finding that the higher the students' level of toxic online disinhibition, the more they reported being victims or perpetrators of cyberbullying and, subsequently, the higher their reported levels of depression and stress is consistent with that of Aoyama (2010) in that there are psychological consequences of cyberbullying experiences on perpetrators and victims. A related study proposed that higher parental control is needed (Mishna et al., 2012). From another angle, it was proposed that bullying and cyberbullying experiences may have similar physical and psychological consequences (Perren et al., 2010). Studies have been conducted on bully-victims who were involved in traditional forms of bullying and it was shown that indirect bully-victims and victims had similar internalization of problems, peer relational problems, and displayed antisocial behavior. This group was found to have higher levels of depression and aggression, low prosocial behaviors, self-control, social acceptance, self-esteem, and academic competence (Marini, Dane, Bosacki, & Ylc-Cura, 2006; Pellegrini, 1998). In light of the aforementioned findings, it can be surmised that cyberbullying perpetrators and victims experience similar levels of negative psychological outcomes.

There is a wealth of information on the psychological consequences of cyberbullying experiences among perpetrators and victims. The combination of negative consequences and characteristics could indicate that cyberbullying perpetrators-victims are highly disturbed. However, it is imperative to consider other factors. Tokunaga (2010) reported that cyberbullying experiences range from minimal distress and frustration to serious psychosocial and life problems. The impact of these experiences is associated with the frequency, length, and severity of the malicious acts. One example could be the need to be constantly connected online for fear of missing out. This could be one of the reasons that justify why outcomes of distress and disturbances prove to be inconsequential for some individuals (Turkle, 2012). In contrast, the repeated experience of cyberbullying can cause severe psychological problems, as in the high profile case of Amanda Todd who repeatedly experienced cyberbullying by an unknown perpetrator. The perpetrator circulated her nude pictures around the Internet, and she was traumatized further, even though she moved schools. The experience was too much for her that it led her to commit suicide.

There are other factors to consider. It is possible that after experiencing cyberbullying, each emotional, behavioral, and psychological outcome may be at differing levels. For example, self-esteem was found to be low, high, or with no association to bullying and cyberbullying behaviors. In this case, it could be that self-esteem may have already been of a low level prior to being cyberbullied. Alternatively, it may have started from a high level and, subsequently, decreased due to cyberbullying. The differing levels of self-esteem are dependent upon developmental changes in perceptions and acceptance of the changing self (Nixon, 2014) and that level of self-esteem could be the cause rather than the consequence of pathological use of the Internet and online disinhibition (Niemz, Griffiths, & Banyard, 2005).

It is also important to consider that some psychological factors may be antecedents of cyberbullying experiences. Ybarra (2004) demonstrated that

individuals with depressive symptoms are more likely to perceive online situations as threatening and, therefore, may elevate the chances of further emotional distress, indicating that people may have exhibited previous symptoms of depression. Individuals with depressive disorder tend to focus their attention on unhappy and unflattering information, interpret ambiguous information negatively, and harbor pervasively pessimistic beliefs (Kessler et al., 2003; Rude et al., 2004).

According to Kawachi and Berkman (2001), the influence of social ties on mental health may be difficult to classify in terms of whether lack of social ties is an antecedent or concomitant to psychological distress. It could be that cyberbullying perpetrators and victims may have a positive or negative social support system before or after the cyberbullying experience. For example, cyberbullying victims could gain emotional and social support from bystanders during the cyberbullying experience.

Individuals also apply differing levels of coping strategies to cope with stress and these may be related to cognitive, behavioral, and emotional responses (Lazarus & Folkman, 1984). Other factors to consider are physical impairments or health problems in the form of sedentary behaviors of individuals prior to the cyberbullying experience.

Individual attributes people bring to the online arena should also be examined. As mentioned earlier, Kowalski et al. (2014) pointed out that many factors come into play in a cyberbullying situation. These factors include: personality traits, attitudes, temperament, motives, gender, beliefs, values, long-term goals, experiences, background, behavioral scripts, and other consistent characteristics. The personality traits of empathy, narcissism, social intelligence, competitiveness, dominance, and emotional stability also play a role in cyberspace. Furthermore, social media facilitates the extension of identity through which inherent and unconscious emotions are expressed and given meaning through images and texts (Suler, 2010), and the second self emerges through one's perceived traits, roles, and desired identity (Salimkhan, Manago, & Greenfield, 2010). Sittichai and Smith (2015) suggested that differences in culture, philosophy of living, problem solving, and policy implementation between countries also have an impact on people's perceptions of cyberbullying. Moreover, what one brings into the arena of cyberspace further interacts with other users who bring a different set of diverse characteristics with them. Overall, it is possible that toxic online disinhibition and cyberbullying victims possess differing degrees of developmental, emotional, behavioral, academic, and psychological factors as well as a diverse set of individual attributes and social structure. Further research is imperative in order to establish more concrete conclusions.

Path analysis results of this study also showed that the participants' reported level of benign online disinhibition is not significantly related to the reported levels of depression and stress, both directly and indirectly. In addition, benign online disinhibition is not significantly related to cyberbullying victimization and cyberbullying perpetration. Alternatively, the benign online disinhibition behaviors of kindness, generosity, self-disclosure, prosocial behavior, empathy, conformity to socially accepted behaviors, and behaviors that benefit others and society have no relationship with the frequency of cyberbullying as a perpetrator and victim, as well as with levels of depression and stress. The current result is not in agreement with an

earlier finding that benign online disinhibition behaviors can be seen when people online defend other users against cyberbullying perpetrators (Amichai-Hamburger et al., 2012), suggesting that some people become benign online as they witness others being bullied and, consequently, attempt to defend or help the victims.

Limitations

There are limitations in any empirical study and this present investigation is no exception. The present study involved only one university in Bangkok and thus, the findings may not generalize to other university students in Bangkok or in other geographical locations in the country. A related issue is the selection method of convenience sampling in which may have resulted in a less representative sample in which subjects might have been more biased through response sets such as social acquiescence. Another limitation is that the measures of this study were written in the English language. Although Assumption University uses English as its medium of instruction, it cannot be assumed that all the participants of the study equally understood the measures and were proficient in English. In addition, participants may have disclosed more in their first language. Often, people do not disclose emotionally-laden feelings in their second language, thus, introducing a possible bias. The psychosocial variables examined in this study have been widely used in other studies across many countries but have not been investigated in combination in a single study. In particular, the measures of online disinhibition, cyberbullying, depression, and stress have not been tested together. Therefore, there is no comparative data to support the results of this study. It could also be considered a limitation that the present study employed path analysis which is correlational and not experimental (i.e., the study did not manipulate the main variables). Therefore, the design of the study is only explained in terms of the relationships between the variables rather than on a cause and effect basis.

Furthermore, the participants were requested to respond to all questions in the research instrument. As the veracity of responses could not be validated in the survey, this meant that the researcher had to accept the responses at face value and assume that the respondents replied to the questions honestly. There is also the problem of social desirability which occurs when participants respond to the study's questionnaire items in a way that puts them in a positive light, in order to project a more positive image to observers, considering that the sensitive issues of cyberbullying, online disinhibition, depression, and stress were being tested. Answering in a way they think questions should be answered instead of responding truthfully can introduce bias into the study. Furthermore, self-reported studies have validity problems. Respondents may either exaggerate their thoughts and feelings in order to make their situations seem worse, or they may under-report the severity or frequency of these thoughts and feelings in order to minimize their problems.

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