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The Effect of Peer Relationships and Cyberbullying Victimization on Young Adults'
Propensity to Cyberbully

by

Taaj Weraphorn Orr

A thesis submitted in partial fulfillment of the
requirements for the degree of

Master of Science
in
Criminology and Criminal Justice

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Abstract

Technology has deeply engrained itself in our daily lives, leading us to develop a reliance on social media to interact with those in our inner circle and stay connected with what happens around the world. However, with all these changes in technology and how we socialize with one another, we find ourselves exposed to the dangers of cybercrime, cyberbullying. General Strain Theory (GST) could be a useful framework for understanding why cyberbullying exists and why it may be difficult to address it. I collected data through a survey, after recruiting college students, and conducted correlation, mediation, and multiple regression analyses to better examine how peer relationships and prior cyberbullying victimization (types of strain) are related to cyberbullying perpetration. The results suggest that cyberbullying victimization increases participants' risk to cyberbully others whereas positive peer relationships reduce the participants' risk. Depression and anger prove to be predictors of cyberbullying perpetration when examining its relationship to the quality of peer relationships, but no significant indirect effect was observed with cyberbullying victimization. Additionally, anxiety yielded no significant indirect effects with cyberbullying victimization or the quality of peer relationships. Age, race, and amount of time spent online did not increase a participant's likelihood of cyberbullying others. However, gender was revealed to be a predictor, as women were more likely to perpetrate and be victimized than men. Online activity also confirmed what has been discovered in past studies, those who spend more time online are more likely to be victimized.

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Introduction

Technology has deeply engrained itself in our daily lives, leading us to develop a reliance on social media to interact with those in our inner circle and stay connected with what happens around the world. However, with all these changes in technology and how we socialize with one another, we find ourselves exposed to the dangers of cybercrime, and more specifically among those who consider themselves Generation Z, cyberbullying. In the United States, 53% of adults who use the internet have experienced a form of cyberbullying (Djuraskovic, 2022). In 2020, it was reported that posting mean comments about another person was the most common type of cyberbullying (22.5%), followed by spreading rumors (20.1%), and posting sexual remarks (2.1%). Despite attempts to reduce the number of reported incidents, there is no federal law against cyberbullying in the United States. Laws may vary state to state, but our most vulnerable population, our youth, remains largely unprotected against cyberbullying.

Overall, research has consistently shown that cyberbullying “causes severe psychological, emotional, and social problems among many of its victims...and can have a long-lasting psychological impact on individuals..., which can include changes in self-efficacy, self-esteem, and behavior” (Fryling, et al., 2015, p. 5). These long-lasting psychological effects may be due to the lack of accountability for cyberbullying. Unlike traditional bullying¹ (i.e., in-person bullying), cyberbullying “may spill over into different social domains (e.g., school, family) ...[and] is not restrained by time, space,

¹ Traditional bullying is defined as a “form of aggressive behavior in which someone intentionally and repeatedly causes another person injury or discomfort” and can take the form of physical confrontations or verbal exchanges (American Psychological Association, 2022).

and/or geographical boundaries” (Paat & Markham, 2020). Victims of cyberbullying often feel trapped and may perceive suicide as their only way out (U.S. Department of Health and Human Services, 2020) or take control of the situation by becoming the bully themselves (Srabstein & Piazza, 2008). Recent examples include high-profile cases involving Korean pop singers (aka idols) such as Kim Jonghyun, Goo Hara, and Sulli, who took their lives after being tormented online for years. These cases are well known around the globe because they are significant figures in the K-pop industry. These tragic deaths led the South Korean community to consider a real-name social media registration (dubbed the ‘Sulli Act’) in order to combat suicides propagated by cyberbullying. However, not all cases are made known to public, there are still many other victims around the world.

Research has consistently shown that cyberbullying has severe, long-lasting psychological effects for both victims and perpetrators. Antisocial behavior presents as the inability to interact with other individuals and form connections so much so that it interferes with the individual’s ability to function in society. In cyberbullying, the victim and the perpetrator’s social interactions decrease, as they withdraw from their usual friend groups, and become less likely to confide in their parents or other trusted adults. (Fryling, et al., 2015; Skilbred-Fjeld et al., 2020). More specifically, research has shown that victims may experience a 10% decrease in social interactions and 26% decrease in self-esteem (Fryling, et al., 2015). In a separate study, it was found that antisocial behavior was significantly associated with cyberbullying and participants were more than twice as likely to exhibit antisocial behavior (Skilbred-Fjeld et al., 2020). Victims often

feel trapped, so they subsequently withdraw and isolate themselves, effectively cutting off their connection to society and reducing their access to legitimate coping methods.

Cyberbullying victims are likely to develop low self-esteem and begin to form negative opinions of themselves, which leads to the development of depressive symptoms (Djuraskovic, 2022). Additionally, cyberbullying victimization has been found to be positively correlated with anxiety, depression, and somatization (Ildırım, Çalıcı, & Erdoğan, 2017). In 2020, 41% of people who experienced cyberbullying victimization developed social anxiety, 37% developed depression, and 26% had suicide ideation (Djuraskovic, 2022). Cyberbullying victims also present a higher risk of suicide attempts (Quintana-Orts & Rey, 2018). Victims of cyberbullying are subjected to extreme levels of stress and may develop several unrelated physical symptoms with no apparent linked cause. Not only does cyberbullying victimization lead to the cultivation of negative mental health outcomes, but it also presents with psychophysiological effects.

This evidence shows the prominence of cyberbullying and the impact it has on individuals' mental health and physical health. My goal in this thesis is to demonstrate the prevalence of cyberbullying, and why we need to address it, and identify potential risk factors to consider what safeguards should be implemented to protect vulnerable populations.

Literature Review

Origins of General Strain Theory

There have been constant debates about what influences an individual to cyberbully others, from biological and sociological theories to environmental and criminological theories. Understanding the motives of cyberbullying offenders prove to be the most complex because we must account for multiple factors, such as various forms of strain, and this strain can present itself differently depending on the situation, the individuals involved, and their aspirations. However, General Strain Theory (GST) could be a useful framework for understanding why cyberbullying exists and why it may be difficult to address.

Strain theory originated in the 1930s when Robert Merton cited American culture and social structure as the potential strain that pressures individuals to commit crime (Featherstone & Deflem, 2003; Merton, 1938). Merton suggests that the struggle to achieve the American Dream, or more broadly, personal goals, and low socio-economic status creates strain by presenting itself as demoralization or a failure to achieve such goals (Deflem, 2018). Merton's interpretation of the impact of strain on delinquency has led to mixed results due to the challenges of defining and measuring strain, leaving questions about why some individuals are more likely to exhibit delinquent behaviors than others. Merton's paradigm provides a limited definition of strain by focusing solely on monetary or status-related strain imposed by one's position in the social hierarchy (Deflem, 2018).

General Strain Theory

Over time, operationalizing strain has been difficult because GST started with a broad, vague definition, and it still is broad. There are “several hundred types of strain, with some falling under multiple categories” (Agnew, 2001, p. 326) and “strain [has been] judged in terms of the disjunction between the goal and the actual outcome” (Agnew & White, 1992, p. 55). Furthermore, others have argued that it is not necessarily highly weighted aspirations that lead to strain (as Merton would have posited), but rather, low expectations (Bernard, 1984, p. 360). Over the years, strain has been conceptualized in a variety of ways, which can contribute to difficulty in measuring strain. Strain theory struggled to maintain its dominance in criminological research throughout the '50s and '60s.

In the 1990s, Robert Agnew re-conceptualized strain theories and developed GST to provide a general definition of strain, but this updated definition, although accounting for more experiences than earlier versions of strain, remains broad. As another distinction to earlier versions of strain, GST provides that the presence of strain will force individuals to develop negative emotions and these negative emotions create pressure for the offender, influencing them to resort to criminal or deviant behavior to cope with the presence of negative stimuli (i.e., strain). Offenders may attempt to reduce strain by stealing money needed for cost-of-living, seeking revenge, or eliminating the presence of negative emotions by self-medication (i.e., drug or alcohol abuse) (Agnew, 2001, p. 319). This strain can take on many forms, depending on the situation and individuals involved.

Agnew cites three types of strain, each representing a different part of GST:

Objective strain, subjective strain, and emotional response. Objective strains describe negative life events, which produce negative stimuli. These objective strains can take the form of deaths in the family, divorces, or separations. The presence of negative life events refers to the loss of positive stimuli (Agnew, 2001). Subjective strains include experiences that people have experienced or are currently experiencing, like child abuse. One pitfall of GST is that the distinction between objective and subjective strains is unclear because “individuals often differ in their subjective evaluation of the same objective strains” and “an individual's evaluation of an objective strain frequently changes over time as the individual copes with the strain” (Agnew, 2001, p. 321).

Finally, the emotional response to an event or condition is tied to subjective strain in that it provides an evaluation of how different people react to several types of strain. These subjective strains create negative emotions like anger, frustration, disappointment, fear, and depression (Agnew & White, 1992, p. 59). This third type of strain is difficult to measure because strain is subject to change depending on how individuals evaluate their negative emotions versus how researchers may measure it. Although it has not been explored in strain research, it is possible the frequency in which an individual is exposed to strain may also impact their emotional responses. Some individuals may be conditioned to react the same way to the same stressor, or it may decumulate (i.e., feelings over deaths of family members or friends could shift between anger, despair, and depression) or accumulate (i.e., increase in likelihood of delinquency as interactions with strain increase).

Evaluation of General Strain Theory in Empirical Research

Agnew & White (1992) first evaluated strain theory as it applies to juveniles. They define strain as actual or anticipated failure to achieve goals, actual or anticipated removal of positive stimuli, and actual or anticipated presentation of negative stimuli (p. 59). Agnew & White (1992) explain that strain could potentially have a cumulative effect on individuals' likelihood of resorting to delinquency as a coping method, so it is relevant to determine the "magnitude, recency, duration, and clustering of strainful events" (p. 74).

In 2001, Agnew re-evaluated GST to examine why some strains had a stronger impact on delinquency than other measures of strain, maintaining his original definition of strain. He found that some types of strain "are more likely to result in crime than other types" because it influences what coping method is employed to address the strain (p. 326). Some coping methods involve non-criminal means, such as expressing discomfort calmly (i.e., non-criminal) instead of physically or verbally assaulting another (criminal). When referring to negative emotions resulting from exposure to strain, individuals may cope by seeking professional help (i.e., non-criminal) or resorting to alcohol or drug use (i.e., deviant/criminal) (p. 326).

Broidy (2001) replicated this finding, using the same definition of strain that Agnew presented in his study (2001), by investigating how the presentation of negative stimuli (i.e., negative emotions) affects the outcome of experiencing strain (i.e., delinquency). She confirmed that delinquency is associated with several types of strain. It should also be noted that Broidy's study is one of the first to test all aspects of GST.

Using data from a non-random, convenience sample², she conducted a cross-sectional data analysis. She classified strain using two variables: failure to achieve positively valued goals, and loss of positively valued stimuli and presentation of negative stimuli. Broidy assessed positively valued goals by asking participants how successful and fair the outcomes of their goals were³ and loss of positively valued stimuli and presentation of negative stimuli by assessing what stressful life events the participants experienced and to what frequency⁴. She also included Likert scales to assess the emotional state of participants, and legitimate coping strategies and illegitimate/criminal outcomes to determine how participants react when exposed to strain.

Broidy found that all measures of strain were related to anger, in that strain created an angry response among study participants. Thus, “a lack of success at reaching one’s goals appear to reduce the likelihood that individuals respond to strain with anger, whereas stressful life events and lack of fairness in goal outcomes appears to increase strain-induced anger” (p. 22). Although she could not conclude it accounted “for the complexity of the strain/crime relationship,” we can deduce that strain has a prominent presence in the lives of offenders (p. 29). However, it is still unclear which strains motivate potential offenders more and to what degree.

² Although non-random sampling prohibits the generalization of the results on a larger scale, it is not as important in the early stages of theory evaluation and helps ensure the “results are not spurious” (Broidy, 2001, p. 15).

³ Such as academic and “career goals, social/family life goals, athletic goals/financial goals, and health/appearance goals” over five years (p. 16).

⁴ Broidy’s assessment of GST captures the potential cumulative effect of strain that Agnew & White (1992) mentions by framing questions in a way that addresses the “magnitude, recency, duration, and clustering of strainful events” (p. 74).

Expanding upon Agnew's analysis of how negative emotions influence delinquency, Bao et al. (2004) examined the relationship between GST and delinquent outcomes in juveniles. They collected data from 615 public school students in three distinct locations in China: Guangzhou City, Shijiazhuang City, and two northern rural schools in Shijiazhuang District. The administrative offices randomly selected participants who had to complete an anonymous survey with 360 questions⁵. Consistent with Agnew's (2001) and Broidy's (2001) definition of strain, Bao et al. measured strain by posing questions related to the participants' relationships with their teachers, parents, and peers and the following negative emotions: anger, resentment, anxiety, and depression. Delinquency was measured by assessing participants' involvement in violent offenses, property offenses, and school-related deviance (p. 286). Their findings suggested negative relationships, particularly at home (with one's parents) and poor peer relationships at school influenced delinquency. They also highlighted anger as an important predictor of delinquent outcomes, which is consistent with past studies (p. 295). However, we still do not know if there is a relationship between strain and certain types of crimes (i.e., whether there is a relationship between strain and cybercrime).

Cybercrime and Defining Cyberbullying

Cybercrime is a growing phenomenon in the criminal and forensic world, and yet there is still a lot of information that we need in order to understand the motives behind these types of crimes and its consequences. One specific area of cybercrime that is

⁵ Given the number of questions, survey fatigue is a probable limitation of this study. The questions were also translated from English to Chinese, and then to Chinese to English. It is possible some nuances were lost in translation.

gaining traction among young adults is cyberbullying. Given its recency, the criminal justice system lacks the appropriate tools to address it. Law enforcement agencies struggle to find a definition that encompasses all elements of cyberbullying (Nowacki & Willits, 2019) and consequently, it leads to varying definitions of cyberbullying perpetration throughout the United States and around the world. While there is no federal cyberbullying law in the United States, most statutes treat cyberbullying as an extension of traditional bullying⁶.

In South Korea, they also relate cyberbullying to traditional bullying, but cyberbullying appears to be limited to emotional harm, when it could easily turn into physical, mental, or sexual harm if left unchecked (this would present as more traditional bullying). Though, it is interesting to see how cyberbullying could be treated as “school violence” even if committed away from school premises. In areas like the United States, it is difficult to enforce cyberbullying at home because it falls outside of the school’s jurisdiction and school employees have no authority over what happens inside someone’s home.

“The term “school violence” means actions committed against students inside or outside of school premises resulting in a physical or mental injury, or damage to property through a battery, assault, confinement, threat, kidnapping, abduction, defamation, insult, extortion, coercion, forced errand, sexual violence, bullying, or cyber-bullying, or with obscene or violent information via an information and communications network.”

“...The term “cyber-bullying” means any form of constant or repeated actions whereby students inflict emotional harm on other students by using the Internet, cell phones or other information and communications devices to reveal personal information about a specific student or to spread lies or rumors about a specific

⁶ The definition of traditional bullying and perception of what qualifies as “severe” cases of traditional bullying varies between jurisdictions.

student, and then inflict pain thereon.” (Act on the Prevention and Countermeasures Against Violence in Schools, 2004)

Increasing our understanding of cybercrime will provide law enforcement agencies solutions of how to respond to these types of crimes and possibly reignite hope for individuals who may have unresolved incidents. Crimes like cyberbullying can be easy to disregard because law enforcement cannot see the crime happening in front of them. Cyberbullying may be more severe than traditional bullying because of the lack of accountability for perpetrators. “Cyberbullies can't witness the effect of their words, they use less restraint than they would in face-to-face situations. After all, you don't see the blood from a broken nose or black eye from a fist fight. There is no mess to clean up, which makes the violence less real,” (Lim, 2019). As a result, many cybercrimes go unreported because victims do not feel confident in the culprit being found and punished for their actions.

How the Strain of Negative Peer Relationships Influences Traditional Bullying

Agnew mentions a possibility of “adverse relations” with other individuals (e.g., at the family level, school level, and neighborhood level), “relationships in which others are not treating the individual as he or she would like to be treated” (Agnew, 2001, p. 320), impacting an individuals’ delinquency if they do not have pre-existing coping methods (p. 75). These negative relationships can create strain and a pressure to find a suitable coping method to alleviate some of the negative emotions the individual experiences. Bao et al.’s findings (2004) highlighted how negative relationships, particularly at home (with one’s parents) and poor peer relationships at school influenced delinquency. Cyberbullying perpetration can be an extension of negative peer

relationships, so the current study seeks to assess the quality of peer relationships as it relates to cyberbullying perpetration. However, due to limited, mixed results of cyberbullying research, I evaluate traditional bullying research and use it as a template to determine how it could translate to cyberbullying. In Moon et al.'s study (2012), they investigated how traditional bullying and poor peer relationships influenced delinquency. They collected data from the Korea Youth Survey (2003-2008), using a multistage cluster sample of eighth grade Korean students in two different waves. Strain was measured through part-time work, traditional bullying victimization/negative peer relationships, family conflict, financial stress, and academic stress. They discovered individuals who had prior bullying victimization history, association with delinquent peers, and frequent family conflicts were at a higher risk to become traditional bullying perpetrators (p. 845).

Oh and Connolly (2019) also investigated the relationship between traditional bullying victimization/negative peer relationships and deviant behavior in order to fill the gap in non-Western culture's knowledge and application of GST. They also collected data from the Korea Youth Panel Survey (2004-2008), using a multistage cluster sample of Korean students in three different waves. Strain was measured as traditional bullying victimization and negative peer relationships. They found traditional bullying victimization and negative peer relationships is strongly associated with deviant behavior in all three waves. Prior traditional bullying victimization and negative peer relationships in early childhood could also lead to the development of deviant behavior during this period (p. 1117), suggesting cumulative strain may play a larger role in the lives of victims who later become perpetrators.

Past Victimization and Negative Peer Relationships' Possible Relationship to Cyberbullying

In 2020, Cho and Galehan examined how the quality of peer relationships could influence delinquent behaviors, such as bullying victimization. The definition of strain coincides with Agnew's (2001) definition and bullying has been defined by Olweus as "a series of repeated behaviors over time that are intended to inflict negative actions on the victim that may cause injury or discomfort" (Cho & Galehan, 2020, p. 40). Research suggests that individuals who associate with delinquent peers are more likely to engage in delinquent behaviors because that is the source of their support system. They collected data from an ongoing Korean Welfare Panel Study (n = 18,856) and selected individuals by a two-stage stratified cluster sampling. They measured strain through bullying victimization, child abuse, and poor friendship quality; all of which address negative relationships with peers, parents, and teachers, as highlighted by Agnew. Their findings suggested poor friendship quality (i.e., poor peer relationships) greatly influenced bullying victimization, which forces a pressure upon the individuals to cope through delinquent behaviors.

Past research has examined cyberbullying among because all forms of bullying are more common among 11-12-year-old students because they are often going through a variety of changes—their bodies as they go through hormonal changes and in their routines as they adjust to shifts in their academic and home environments (Bao et al., 2004; Cho & Galehan, 2020). Although some studies have explored cyberbullying in the context of GST, most have not explored its frequency among the young adult population,

and more specifically, college students. And this research supported strain influencing cyberbullying perpetration (Lee & Sanchez, 2018; Lianos & McGrath, 2018). However, motives for cyberbullying perpetration include it as a method for empowerment or vengeance against those who previously oppressed them (Brewer & Kerslake, 2015; Kim et al., 2017; Lee & Sanchez, 2018; Varghese & Pistole, 2017). It has also been argued that a subculture exists among the youth, and that it “emphasizes a variety of immediate goals... [and] is further said to depend on a variety of factors besides social class: factors such as intelligence, physical attractiveness, personality, and athletic ability” (p. 51). Although there is not much support for this version of strain theory, it is probable when we evaluate motives for cyberbullying perpetration. Understanding the motives of cyberbullying perpetrators could help us determine what strains are most prominent and influential when it comes to delinquent outcomes.

Mediating Effect of Negative Emotions: Anger

Another component of GST is how negative emotions may influence cyberbullying perpetration indirectly. Agnew and White (1992) explain that “adolescents are pressured into delinquency...that often result from negative relationships” (p. 49). Past research has focused on anger because there have been consistent findings that it does increase individuals’ likelihood of engaging in cyberbullying when coupled with victimization and poor peer relationships (Bao et al., 2004; Lianos & McGrath, 2018; Cho & Galehan, 2020). In Lianos and McGrath’s study, they collected data from a random sample of 320 young adults to determine whether GST could explain cyberbullying perpetration. They defined strain as prior traditional bullying or

cyberbullying victimization⁷, perceived social support (i.e., participants' sense of belonging,), academic stress, financial stress, and situational anger (i.e., anger produced as a result of the aforementioned strains). Individuals who presented with low perceived social support scores were more likely to be victimized online. Additionally, "those experiencing greater anger were more likely to be cyberbullying perpetrators" (p. 690). This coincides with Agnew's initial thoughts about anger as a potential mediator for strain and delinquency because it illustrates how illegitimate coping strategies (i.e., delinquency) are used to alleviate anger precipitated by expectations (i.e., an individual's realization that they will not achieve their goal) and actual failed achievements (Broidy, 2001). How individuals cope with anger depends on what coping strategies they will implement to address it.

The expression of anger presents itself in two ways: (1) anger-in, in which the anger is "internalized and/or directed at the self" and (2) anger-out, in which anger is expressed through "noises, facial expressions, physical gestures, or aggressive movements" (Kerr & Schneider, 2008, p. 560). Anger can be viewed as a potential motivator for cyberbullying because most victims are unwilling to share their experiences and are forced to keep their anger within (Ak et al., 2015). The frustration may continue to build within the victims, creating a pressure that needs to be relieved by any means necessary. When cornered, victims may turn to other forms of coping to alleviate this

⁷ Cyberbullying has been defined as stealing personal information from a computer, stealing computer nicknames/screen names, threatening others in online forums, insulting/excluding others in online forums, posting fake photographs online, sharing private Internet conversations with other individuals without involved parties' consent, making fun of comments made by others online, sending hurtful or threatening text messages or emails, stealing email usernames and passwords, reading personal emails, and catfishing (i.e., pretending to be someone else) (p. 685).

pressure and may increase overall aggression and likelihood of confrontations that are physically or mentally damaging in nature to another individual. Agnew & White (1992) explain that anger “creates a desire to take corrective steps, with delinquency being one possible response” and it may be used to “alleviate strain” by “achieving positively valued goals, or protecting or retrieving positive stimuli, or for terminating or escaping from negative stimuli” (p. 60). Though, the age and background of an individual impacts how anger is expressed (Kerr & Schneider, 2008). Some individuals may be more prone to internalizing their emotions because of social standards or upbringing, or access to illegitimate coping methods.

Mediating Effect of Negative Emotions: Depression and Anxiety

Agnew & White (1992) suggest other possible emotions that could produce a type of strain include depression (p. 59) and anxiety. Depression and anxiety are typically produced as a result of an individual blaming themselves for being in a strain-inducing situation (Bao et al., 2004). Past studies have not found any mediating effects of depression and anxiety on delinquent outcomes, but more recent research suggests otherwise. Additionally, studies have either omitted negative emotions other than anger due to time and resources or have been unable to make generalizable findings because there is not enough evidence to support these claims (Broidy, 2001). In Bao et al.’s study (2004), they found that depression increased when individuals reported an association with delinquent peers. While anxiety and depression could not provide an explanation for why individuals committed violent crimes, these emotions were associated with school

deviance and minor offenses (p. 295). However, Varghese and Pistole (2017) did not find a correlation between depression and cyberbullying perpetration.

If left unchecked, emotion regulation, or lack thereof, could lead to an accumulation of stress (i.e., strain), development of antisocial behavior, and persistence of cyberbullying perpetration. It is important to evaluate negative emotions as potential mediators so that we can better understand the extent of its impact and offer legitimate coping methods to reduce the magnitude of the overall strain, to eliminate the potential for development of cumulative strain, and limit, if not eliminate, occurrences of cyberbullying perpetration.

In conclusion, cyberbullying perpetration is a growing issue that cannot be addressed until we have established a clear and consistent definition of cyberbullying and determine what mediating effects emotions other than anger may have on cyberbullying perpetration. If left unchecked, cyberbullying perpetration could lead to disintegration of healthy mental attitudes and increase delinquency among our youth. It can be deduced that victimization and peer relationships play a vital role in GST, as they both serve as two measurements of strain, and influence an individual's likelihood of committing a crime. As such, the current study seeks to expand research by investigating the direct relationship between cyberbullying victimization and the quality of peer relationships (i.e., strain) and cyberbullying perpetration (i.e., delinquency). The current study will also serve as a partial test of GST for us to better understand how strain influences delinquency. This study differs from past research by analyzing cyberbullying among

young adults, and measuring and examining how anxiety and depression may indirectly affect cyberbullying perpetration.

Research Questions and Hypotheses

RQ #1: Does strain influence cyberbullying perpetration among college students?

In this study, *strain* is defined by poor peer relationships and prior cyberbullying victimization. Research studies have found a consistent association between cyberbullying victimization and perpetration, such that cyberbullying victimization increases the likelihood of perpetration (Brewer & Kerslake, 2015; Kim et al., 2017; Lee & Sanchez, 2018; Varghese & Pistole, 2017). For example, Lianos and McGrath's (2018) findings indicated that individuals with greater strain, such as prior cyberbullying victimization and poor peer relationships made participants more likely to engage in cyberbullying perpetration.

The current study seeks to expand this important area of research by exploring the quality of peer relationships and cyberbullying victimization.

H₁: Cyberbullying victimization and poor peer relationships will increase the likelihood of cyberbullying perpetration among college students.

RQ #2: Do negative emotions mediate the relationship between both kinds of strain and cyberbullying perpetration?

Cyberbullying victimization may create negative responses, in the form of anger, depression, and anxiety, which could increase victims' likelihood of committing acts of delinquency (Cho & Galehan, 2020). As previously mentioned, Lianos and McGrath (2018) discovered high levels of anger increased individuals' likelihood of engaging in cyberbullying. Thus, anger will be examined to find out whether these effects can be duplicated in the young adult population.

Past research is inconclusive on whether individuals who display feelings of anxiety and depression are more likely to produce delinquent outcomes. For example, Varghese and Pistole's findings (2017) demonstrate depression and anxiety may increase the risk of cyberbullying perpetration. Other studies have either omitted negative emotions other than anger due to time and resources or have been unable to make generalizable findings because there is not enough evidence to support this claim (Broidy, 2001). Thus, it is important to explore the indirect effects of anxiety and depression on cyberbullying perpetration to see whether it produces the similar effects as anger, and if not, to identify what kind of impact they have on cyberbullying perpetration.

H₂: Depression is positively correlated with cyberbullying perpetration, and it indirectly influences cyberbullying perpetration when an individual has a history of cyberbullying victimization or poor peer relationships.

H₃: Anxiety is positively correlated with cyberbullying perpetration, and it indirectly influences cyberbullying perpetration when an individual has a history of cyberbullying victimization or poor peer relationships.

H₄: Anger is positively correlated with cyberbullying perpetration, and it indirectly influences cyberbullying perpetration when an individual has a history of cyberbullying victimization or poor peer relationships.

RQ #3: How do age, gender, ethnicity, and amount of time spent online influence cyberbullying perpetration?

The severity of cyberbullying is indicative of personality traits as well as some perpetrators may wish to assert dominance over their victims to make up for the lack of control they have either at home, school, or other social settings (Kim et al., 2017). Given that participant characteristics have been shown to impact cyberbullying perpetration, they will be examined to determine whether one group is more susceptible to cyberbullying perpetration.

H₅: Younger individuals are at a higher risk for cyberbullying perpetration.

Because cyberbullying perpetration may be an extension of traditional bullying, past research has indicated that gender atypicality is associated with cyberbullying perpetration as “individuals who are insecure in their gender identity are more likely to bully other non-conforming peers due to their own gender related frustration” (Jackson, Bussey, & Trompeter, 2020, p. 625). Even in massively multiplayer online role-playing games, individuals who use female avatars are more likely to be bullied (even if they do not identify as female in real life). Thus, males are more likely to engage in cyberbullying perpetration than females because they may be more insecure in their gender identity or struggling to meet society’s perceptions regarding gender roles (Li, 2006; Fryling, 2018). The cultural background of the perpetrators may also relate to the perpetrators’ cyberbullying behavior. For example, in Turkey, Tanrikulu and Erdur-Baker (2019) discovered that male participants had lower levels of empathy because the “patriarchal

nature” of Turkey’s society is more accepting of their aggressive behavior, which could explain why cyberbullying is more prevalent in males than females (p. 17).

Additionally, female individuals have been found to be more likely to experience a greater negative psychological impact than males (27% vs 12%) when it comes to cyberbullying victimization (Fryling, et al., 2015). It has been concluded that gender plays a pivotal role in cyberbullying as some girls may be more likely to be victimized online than boys (Hase & Goldberg, 2015) because it does not require physical strength and fits within socialization practices among females (Skilbred-Fjeld et al., 2020).

H₆: Men are at a higher risk for cyberbullying perpetration.

Past research has not found a strong relationship between race and cyberbullying perpetration; that is, both White and Black individuals experience high levels of cyberbullying perpetration, with little distinction between races. In Alhajji et al.’s study (2019), White students reported “a larger percentage of cyberbullying victimization compared with their non-white peers” (p. 5). Past research has demonstrated that cyberbullying victims are more likely to become perpetrators, so it is plausible that White individuals could potentially be the perpetrator more often than the victim. However, Black individuals have also attributed race to cyberbullying victimization (Kowalski et al., 2020). Edwards et al.’s (2016) findings concluded that non-White individuals are more likely to be cyberbullying perpetrators. The findings in past research are inconsistent due to varying definitions of cyberbullying in past research and whether in-group bullying occurs between different non-White ethnic groups. “What may be

considered teasing and funny banter in one minority group might be perceived as bullying by another group” (p. 6).

H₇: Non-White individuals are at higher risk for cyberbullying perpetration.

In Chi et al.’s (2020) study, their findings suggested that longer periods of time spent online lead participants more likely to be cyberbullied. As previously discussed, cyberbullies are typically created as a result of experiencing a form of strain, in this case, cyberbullying victimization. If individuals are experiencing cyberbullying victimization, they are building cumulative strain every time they are online, which puts them at a higher risk of cyberbullying perpetration. About 23.7% saved records of the cyberbullying incidents to use as revenge against their perpetrators later (p. 3). Rice et al. (2015) also found that participants who spend at least 3 hours online were more likely to experience cyberbullying perpetration and victimization.

H₈: Individuals who spend more time online are at higher risk for cyberbullying perpetration.

Methodology

Recruitment and Participants

Participants consisted of undergraduate students at a large Oregon university. I emailed the university's Criminology and Criminal Justice department faculty, asking them to share the survey with their undergraduate classes. Seven instructors who agreed shared the survey via class learning platforms (D2L and Canvas). This recruitment yielded a random sample of 120 undergraduate students in November 2021. Extra credit was offered as an incentive to all classes. These procedures were replicated in January 2022 which yielded a random sample of 152 undergraduate students. Extra credit was offered as an incentive to seven out of eight classes. Participants were prevented from taking the survey more than once via the "prevent ballot box" feature in Qualtrics to ensure the survey collected authentic responses and reduce the chances of obtaining duplicate responses.

There were a total of 272 responses. However, five participants (1.84% of the sample) were excluded from data analysis because four did not consent to participate in the study and one participant was excluded due to not meeting the required age. There were a total of 266 participants in the final sample.

The average age of participants was 24 years old (*min* = 18, *max* = 51). 85.3% of participants reported their age, and 14.7% did not report their age.

74.4% of the sample identified as female, 22.6% identified as male, 2.6% identified as other, which included non-binary, genderfluid, and male transgender. One participant (0.4%) preferred not to report their gender.

39.5% of the sample identified as White, 26.3% identified as Hispanic or Latino, 12.4% identified as Mixed Race, 9.0% identified as Asian, 5.3% identified as Black or African American, 1.9% identified as American Indian or Alaska Native, 1.9% identified as Native Hawaiian or Other Pacific Islander, 3.0% identified as other, which included Middle Eastern or Jewish. Two participants (0.8%) preferred not to report their ethnicity.

Of the sample, 83.2% were enrolled in a class with the criminology and criminal justice department and 16.5% were enrolled in a class with the university studies department.

When asked how much time they spend online each day (on average), 4.9% reported spending one hour, 6.4% reported spending two hours, 15.8% reported spending three hours, 22.2% reported spending four hours, and 50.8% reported spending at least five hours online.

Study Procedures

The Portland State University Institutional Review Board approved all materials and procedures prior to the collection of these data. The recruitment information included a short description of the study. If students chose to participate, they were redirected to the Qualtrics site to first read the Informed Consent document. After giving consent, participants completed the demographics section (i.e., age, gender, ethnicity, time spent online). After this section, participants answered questions regarding cyberbullying perpetration and victimization they experienced in the past 12 months. The following definition of cyberbullying was provided for participants based on the Oregon Safe Schools Act of 2009 (ORS 339.351):

“Cyberbullying” means the use of any electronic communication device to harass, intimidate, or [coerce]⁸ another individual (ORS 339.351).”

When assessing a participant’s online activity, “online” was defined for participants as:

“Interacting with other individuals, or the content on their online profiles. This interaction includes, but is not limited to, scrolling through your newsfeed/notifications, responding to posts, sending private messages, reacting to posts with emojis, or video/voice chatting. Interaction can take place in a variety of platforms, which include but are not limited to, text messages, emails, social networking sites/apps (e.g., Facebook, Twitter, Instagram, Tiktok, etc.), dating sites/apps (e.g., eHarmony, Tinder, etc.), online chatrooms and messaging sites/apps (e.g., Skype, Zoom, Discord), or gaming sites/apps (e.g., League of Legends, Counterstrike, Genshin Impact).”

I recoded the data in Qualtrics⁹ and exported it as an SPSS file, after cleaning and reorganizing to remove irrelevant columns and code missing data as needed to ensure they were excluded in the final analyses.

Dependent Variables

Cyberbullying Perpetration

Five items addressed the revised Oregon statutes’ (2021) definition of cyberbullying perpetration. These items were measured on a four-level Likert-scale, ranging from never to three or more instances.

Name calling, teasing, and making fun of others. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have called other individuals names, made fun of them, or teased them in a hurtful way online.”

⁸ “Bully” was modified to “coerce” in the above definition because it was too broad of a term, and the last question of the survey pertains to deception as a cyberbullying tool.

⁹ See Appendix A for codebook.

Spreading rumors. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have spread rumors about another person online.”

Threatening or blackmailing. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have threatened or blackmailed someone online.”

Harassment. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have harassed someone online because of their gender, race, religion, or another identifying characteristic.”

Deception. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have catfished or deceived someone online.” Participants were provided with the following definition of catfishing:

“Catfishing is considered an act of deception and was defined as providing false information to another individual in order to gain some personal advantage or using deception to take advantage for malicious purposes. For example, pretending to be another person in order to receive money or other forms of financial support.”

I created a cyberbullying perpetration scale by collapsing the five items ($\alpha = .629$). The Cronbach’s Alpha reliability value indicated poor to average consistency (Glen, 2022). Prior to collapsing the cyberbullying perpetration items, I ran an exploratory factor analysis to examine whether any measures could be excluded to create a stronger scale. The exploratory factor analysis suggested keeping the items together, and as such, a single scale was created.

Independent Variables

Strain was measured through cyberbullying victimization history in the past 12 months, and the quality of peer relationships.

Cyberbullying Victimization

Five items measured the frequency of cyberbullying victimization. These items were measured on a four-level Likert-scale, ranging from never to three or more instances.

Name calling, teasing, and making fun of others. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have been called names, made fun of, or teased in a hurtful way online.”

Spreading rumors. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have had rumors spread about me online.”

Threatening or blackmailing. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have been threatened or blackmailed online.”

Harassment. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have been harassed online because of my gender, race, religion, or another identifying characteristic.”

Deception. Participants were asked to select the number of occurrences that apply to the following statement, “In the past 12 months, I have been catfished or deceived by

someone online.” The same definition of catfishing (above) was provided for participants.

I created a cyberbullying victimization scale by collapsing the five items ($\alpha = .715$). The Cronbach’s Alpha reliability value indicated acceptable to good consistency (Glen, 2022).

Quality of Peer Relationships

Four items measured the quality of peer relationships. These items were measured on a five-level Likert-scale, ranging from strongly disagree to strongly agree.

Friendship. Participants were asked to select the option that best describes their thoughts on the following statement, “I get along with my friends or peers at school¹⁰.”

Kindness. Participants were asked to select the option that best describes their thoughts on the following statement, “If I needed help, my friends or peers at school would help me.”

Relatability. Participants were asked to select the option that best describes their thoughts on the following statement, “I can relate to my friends or peers at school.”

Trust. Participants were asked to select the option that best describes their thoughts on the following statement, “I think my friends or peers at school are trustworthy.”

¹⁰ I determined school as the primary place of friendships, as that is how most connections are made for college students. At this time, college students increase their socialization in order to reach certain academic or occupation-related goals, as there is an expectation for them to network with others.

I created a quality of peer relationships scale by collapsing the four items ($\alpha = .838$). The Cronbach's Alpha reliability value indicated good to excellent consistency (Glen, 2022).

Mediating Variables

Negative Emotions

Items assessing the negative emotions of depression, anxiety, and anger were developed from past studies on The National Longitudinal Study of Adolescent to Adult Health (Add Health) and psychological questionnaires (Anxiety & Depression Association of America, 2021; Gracepoint Wellness, 2021). These items were measured on a five-level Likert-scale, ranging from never to always.

Depression

Persistent Depression. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I felt that I was unable to shake off the blues, even with help from family and friends."

Sorrow. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I felt depressed."

Failure. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I thought my life had been a failure."

Loss of Interest. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, “In the past 12 months, I have lost interest in things I used to enjoy.”

I created a depression scale by collapsing the four items ($\alpha = .891$). The Cronbach’s Alpha reliability value indicated good to excellent consistency (Glen, 2022).

Anxiety

Excessive Worrying. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, “In the past 12 months, I experienced excessive worrying about my relationships with my peers.”

Uncomfortable Interactions. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, “In the past 12 months, I felt troubled or uncomfortable with interacting with other people (e.g., having conversations with others or meeting unfamiliar people).”

Fear of Judgment. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, “In the past 12 months, I have experienced an intense and persistent fear of a social situation in which people might judge me negatively.”

Fear of Performance. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, “In the past 12 months, I have experienced a fear of performing in front of others (e.g., delivering a speech or presentation, etc.).”

I created an anxiety scale by collapsing the four items ($\alpha = .857$). The Cronbach's Alpha reliability value indicated good to excellent consistency (Glen, 2022).

Anger

Internalization. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I have spent at least one night, lying awake, thinking about the things that angered me during the day."

Forgetfulness. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I have gotten so angry that I couldn't remember things I said or did."

Regret. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I have gotten so angry that I've said things that I later regret saying."

Loss of Control. Participants were asked to select the option that best describes how often they experienced the scenario mentioned in the following statement, "In the past 12 months, I have gotten so angry, I've lost control of my emotions."

I created an anger scale by collapsing the four items ($\alpha = .845$). The Cronbach's Alpha reliability value indicated good to excellent consistency (Glen, 2022).

Demographics

Participants were asked questions to assess demographic information such as age, gender, ethnicity, and online activity.

Testing for Parametric Statistical Testing

The distribution of most measures was viewed graphically with the use of Q-Q plots and determined to be abnormal, asymmetric distributions. Findings of the Kolmogorov-Smirnov Test and the Shapiro-Wilk normality tests also determined the data is not normally distributed. Given that the sample does not meet the assumption of normality, I conducted non-parametric statistical tests, such as Spearman's rho, to determine the relationship between the independent and dependent variables.

Results

RQ #1: Does strain influence cyberbullying perpetration among college students?

Cyberbullying Victimization Descriptive Statistics

The average score for participants' self-reported cyberbullying victimization was 1.3 (*min* = 1, *max* = 4). The average score for participants' self-reported cyberbullying perpetration was 1.1 (*min* = 1, *max* = 3.4). To test the linear relationship between cyberbullying victimization and perpetration, I first ran a simple correlation analysis between the victimization scale and perpetration scale. There was a statistically significant¹¹ positive correlation between cyberbullying victimization and perpetration, $\rho(261) = .381, p < .001$. This suggests that cyberbullying victimization is positively associated with cyberbullying perpetration. Thus, there is support for my hypothesis when examining the correlation between cyberbullying victimization on cyberbullying perpetration. As levels of self-reported cyberbullying victimization increase, so do self-reported cyberbullying perpetration rates. Table 1 illustrates the correlations between unique cyberbullying victimization items (e.g., *name calling, teasing, and making fun of others*) and unique cyberbullying perpetration items (e.g., *spreading rumors*).

¹¹ Statistical significance is used to determine one's confidence in an outcome, not due to chance. In this case, when we say a correlation is significant, we are confident that there is an association between cyberbullying victimization and cyberbullying perpetration.

Table 1. Comprehensive Correlations: Cyberbullying Victimization

| | Making Fun | Rumors | Threaten/Blackmail | Harassment | Deception |
|--------------------------------------|------------|--------|--------------------|------------|-----------|
| 1. Perpetration – Making Fun | .48** | .15* | .18** | .12* | .06 |
| 2. Perpetration – Rumors | .21** | .18** | .21* | .16** | .07 |
| 3. Perpetration – Threaten/Blackmail | .26** | .14* | .31** | .04 | .09 |
| 4. Perpetration – Harassment | .34* | .13* | .21** | .18** | .04 |
| 5. Perpetration – Deception | .04 | -.02 | .01 | .02 | .12 |

Note: Correlations were conducted using Spearman's rho due to abnormal distribution.

* $p < .05$, ** $p < .01$

Quality of Peer Relationships Descriptive Statistics

The average score for participants' quality of peer relationships was 3.8 (min = 1, max = 5). To test the relationship between peer relationships and perpetration, I first ran a simple correlation analysis between the quality of peer relationships scale and cyberbullying perpetration scale. There was a statistically non-significant negative relationship between the quality of peer relationships and cyberbullying perpetration, $\rho(261) = -.067$, $p = .281$. This suggests that the quality of peer relationships is not associated with cyberbullying perpetration. The correlation between both variables is not statistically significant, and therefore inconclusive. Table 2 illustrates the correlations between unique quality of peer relationships items (e.g., *friendship*) and unique cyberbullying perpetration items (e.g., *spreading rumors*).

Table 2. Comprehensive Correlations: Quality of Peer Relationships

| | Friendship | Kindness | Relatability | Trust |
|---|------------|----------|--------------|-------|
| 1. Perpetration – Name Calling/Making Fun | -.03 | -.06 | -.03 | -.08 |
| 2. Perpetration – Rumors | -.05 | -.06 | -.04 | -.03 |
| 3. Perpetration – Threaten/Blackmail | -.04 | -.02 | -.04 | -.05 |
| 4. Perpetration – Harassment | -.05 | -.08 | -.03 | -.06 |
| 5. Perpetration – Deception | -.03 | -.07 | -.07 | -.10 |

Note: Correlations were conducted using Spearman's rho due to abnormal distribution.

* $p < .05$, ** $p < .01$

RQ #2: Do negative emotions mediate the relationship between both kinds of strain?

Depression Descriptive Statistics

The average score for participants' self-reported depression was 2.7 ($min = 1$, $max = 5$). I first ran a simple correlation analysis between the depression scale and cyberbullying perpetration, cyberbullying victimization, and quality of peer relationships scales. There was a statistically significant positive correlation between depression and cyberbullying perpetration, $\rho(261) = .148, p < .05$ and depression and cyberbullying victimization, $\rho(258) = .213, p < .001$. This suggests that depression is associated with cyberbullying victimization and perpetration. As the participants' levels of self-reported depression increase, so do their self-reported cyberbullying victimization and perpetration rates¹². In addition, there was a statistically significant negative correlation between depression and the quality of peer relationships, $\rho(261) = -.201, p < .001$. This suggests that as the participants' levels of depression decrease, the participants' quality of peer relationships increase.

Depression Mediation Models

To investigate my second research question, I ran a mediation analysis using PROCESS (version 4.0) in SPSS (Model 4). I hypothesized that depression (M) would mediate the relationship between cyberbullying victimization (X) and cyberbullying perpetration (Y). According to Figure 1, the direct effect¹³ of cyberbullying victimization

¹² Importantly, this analysis just demonstrates an association between the two variables, not necessarily causality. As such, it is impossible to say whether victimization preceded depression or vice versa.

¹³ The direct effect of cyberbullying victimization on perpetration will remain the same across all models. As such, I only interpret that relationship once. This is also true for the direct effect of peer relationships on perpetration.

on cyberbullying perpetration was significant: $b = .2194$, $\beta = .3741$, $S.E. = .0347$, $p < .001$, with cyberbullying victimization serving as a significant positive predictor of cyberbullying perpetration. Cyberbullying victimization was also a significant positive predictor of depression, suggesting that those who experience cyberbullying victimization are at a greater risk of depression: $b = .4228$, $\beta = .2158$, $S.E. = .1198$, $p < .001$. However, the relationship between depression and cyberbullying perpetration was not significant: $b = .0175$, $\beta = .0586$, $S.E. = .0177$, $p = .3230$.

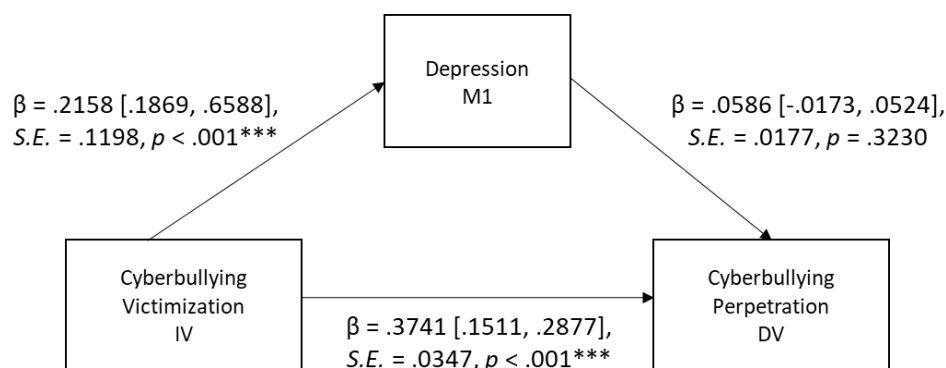


Figure 1 - Depression Mediation Model (Victimization & Perpetration)

The total indirect effect of depression is not significant: $ab(.4228*.0175) = 0.007$, 95% CI $[-.0105, .0273]$ ¹⁴ and the standardized effect was .0126. Zero falls between the upper and lower bound of the bootstrap confidence interval, and therefore, there is no mediation. There is no support for the indirect effect of depression on the relationship between cyberbullying victimization and cyberbullying perpetration.

I hypothesized that depression (M) would mediate the relationship between the quality of peer relationships (X) and cyberbullying perpetration (Y). According to Figure

¹⁴ The total indirect effect was calculated by multiplying the unstandardized regression coefficients from paths a and b pathways of the mediation model (Crowson, 2019).

2, the direct effect of the quality of peer relationships on cyberbullying perpetration was not significant: $b = -.0285$, $\beta = -.0687$, $S.E. = .0191$, $p = .2766$. Thus, the quality of peer relationships is not a predictor of cyberbullying perpetration. The quality of peer relationships was a significant negative predictor of depression, suggesting that those with higher quality peer relationships are at a lower risk of depression: $b = -.2858$, $\beta = -.2084$, $S.E. = .0835$, $p < .001$. Depression was a significant positive predictor of cyberbullying perpetration through the quality of peer relationships, suggesting that as the participants' report higher levels of depression, they are more likely to perpetrate: $b = .0391$, $\beta = .1291$, $S.E. = .0191$, $p < .05$.

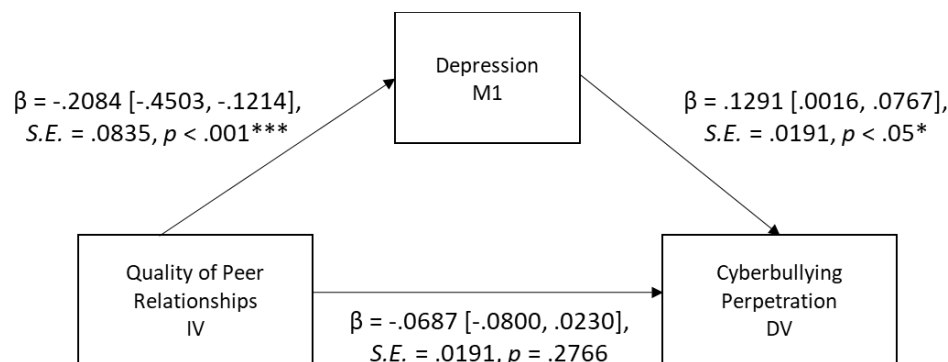


Figure 2 - Depression Mediation Model (Quality of Peer Relationships & Perpetration)

The total indirect effect of depression is significant: $ab(-.2858 \times .0391) = -0.011$, 95% CI $[-.0266, -.0012]$ and the standardized effect was $-.0269$. Zero does not fall between the upper and lower bound of the bootstrap confidence interval, and because the indirect effect is significant, we can conclude there is mediation¹⁵. The quality of peer

¹⁵ It is possible to have mediation without a significant direct effect. In the context of this study, when I say there is mediation, this suggests that the quality of peer relationships is a protective factor, and therefore is reducing the effect it has on cyberbullying perpetration. This effect is what we call an inconsistent mediation, and a suppression effect (MacKinnon et al., 2000).

relationships decreases depressive symptoms, which in turn is positively associated with cyberbullying perpetration. The net indirect effect¹⁶ of stronger peer relationships decreases cyberbullying perpetration. There is some support for my hypothesis in that it suggests that stronger peer relationships reduce cyberbullying perpetration. The lack of a direct effect that was calculated could be due to the presence of several offsetting mechanisms (i.e., unobserved mediators) that are not included in the model. There may be other variables that are influencing the effect of cyberbullying victimization on perpetration.

Anxiety Descriptive Statistics

The average score for participants' self-reported anxiety was 2.7 ($min = 1$, $max = 5$). I first ran a simple correlation analysis between the anxiety scale and cyberbullying perpetration, cyberbullying victimization, and quality of peer relationships scales. There was a statistically significant positive correlation between anxiety and cyberbullying perpetration, $\rho(260) = .163, p < .01$ and between anxiety and cyberbullying victimization, $\rho(258) = .277, p < .001$. This suggests that anxiety is associated with cyberbullying victimization and perpetration. As the participants' levels of self-reported anxiety increase, so do their self-reported cyberbullying victimization and perpetration rates. However, there was a statistically significant negative correlation between anxiety

¹⁶ The net indirect effect differs from a direct effect because the mediator (i.e., depression, anxiety, or anger) influences the outcome through intervention. For example, the quality of peer relationships and cyberbullying victimization could either increase or decrease likelihood of an individual committing an act of cyberbullying. The difference between a direct effect and indirect effect is that a direct effect is not influenced by other variables. When I examine the direct effect, I am excluding factors that could change how much cyberbullying victimization or the quality of peer relationships influence cyberbullying perpetration, and it is a controlled effect.

and the quality of peer relationships, $p(263) = -.232, p < .001$. This suggests that as levels of anxiety decrease, the quality of peer relationships increase.

Anxiety Mediation Models

For the second part of my research question, I analyzed anxiety as a potential mediator. I hypothesized that anxiety (M) would mediate the relationship between prior cyberbullying victimization (X) and cyberbullying perpetration (Y). According to Figure 3, cyberbullying victimization was a significant positive predictor of anxiety, suggesting that those who experience cyberbullying victimization are at a greater risk of anxiety: $b = .5390, \beta = .2496, S.E. = .1310, p < .001$. However, the relationship between anxiety and cyberbullying perpetration was not significant: $b = .0051, \beta = .0188, S.E. = .0162, p = .7534$.

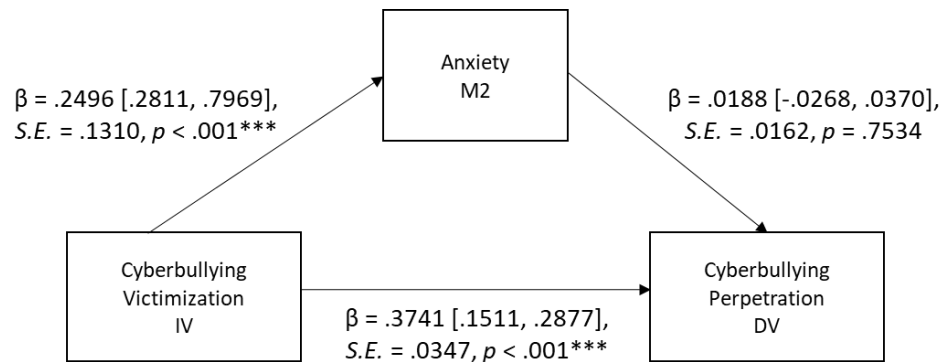


Figure 3 - Anxiety Mediation Model (Victimization & Perpetration)

The total indirect effect of anxiety is not significant: $ab(.5390 \times .0051) = .0027$, 95% CI $[-.0157, .0264]$ and the standardized effect was .0047. Zero falls between the upper and lower bound of the bootstrap confidence interval, so there is no mediation. There is no support for my hypothesis when examining the relationship between anxiety

and cyberbullying perpetration. Cyberbullying victimization increases anxiety symptoms, but whether anxiety influences cyberbullying perpetration is inconclusive.

I hypothesized that anxiety (M) would mediate the relationship between the quality of peer relationships (X) and cyberbullying perpetration (Y). According to Figure 4, the quality of peer relationships was also significant negative predictor of anxiety, suggesting that those who have higher quality peer relationships are at a lower risk of anxiety: $b = -.3720$, $\beta = -.2467$, $S.E. = .0910$, $p < .001$. However, anxiety was not a significant predictor of cyberbullying perpetration: $b = .0307$, $\beta = .1114$, $S.E. = .0175$, $p = .0814$.

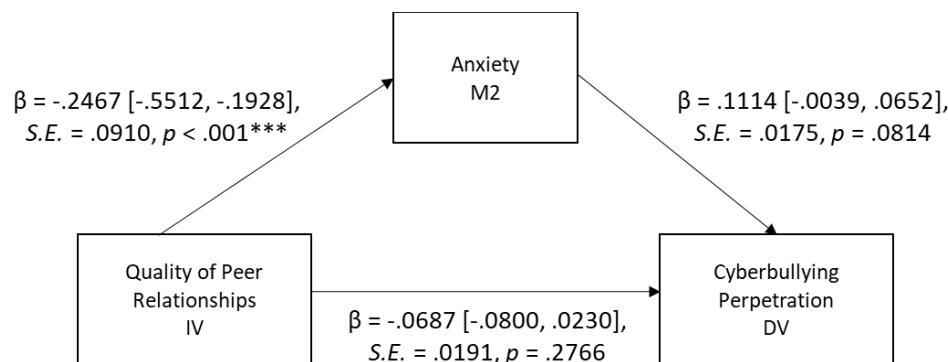


Figure 4 - Anxiety Mediation Model (Quality of Peer Relationships & Perpetration)

The total indirect effect of anxiety is not significant: $ab(-.0283 \times .0307) = -.0008$, 95% CI $[-.0277, .0005]$ and the standardized effect was $-.0275$. Zero falls between the upper and lower bound of the bootstrap confidence interval so there is no mediation. The quality of peer relationships decreases anxiety symptoms but is not associated with cyberbullying perpetration. Therefore, there is no support for an indirect effect of anxiety on the relationship between cyberbullying victimization and cyberbullying perpetration or between the quality of peer relationships and cyberbullying perpetration.

Anger Descriptive Statistics

The average score for participants' self-reported anger was 2.1 ($min = 1$, $max = 5$). I first ran a simple correlation analysis between the anger scale and cyberbullying perpetration, cyberbullying victimization, and quality of peer relationships scales. There was a statistically significant positive correlation between anger and cyberbullying perpetration, $\rho(261) = .211, p < .001$ and between anger and cyberbullying victimization, $\rho(254) = .197, p < .01$. This suggests that anger is associated with cyberbullying victimization and perpetration. As the participants' levels of self-reported anger increase, so do their self-reported cyberbullying victimization and perpetration rates. However, there was a statistically significant negative correlation between anger and the quality of peer relationships, $\rho(259) = -.142, p < .05$. This suggests that as the participants' levels of anger decrease, their quality of peer relationships increase.

Anger Mediation Models

For the third part of my research question, I analyzed anger as a potential mediator. I hypothesized that anger (M) would mediate the relationship between prior cyberbullying victimization (X) and cyberbullying perpetration (Y). According to Figure 5, cyberbullying victimization was a significant positive predictor of anger, suggesting those who experience cyberbullying victimization are at a greater risk of anger: $b = .3982, \beta = .2153, S.E. = .1140, p < .001$. However, anger was not a significant predictor of cyberbullying perpetration: $b = .0234, \beta = .0737, S.E. = .0189, p = .2170$.

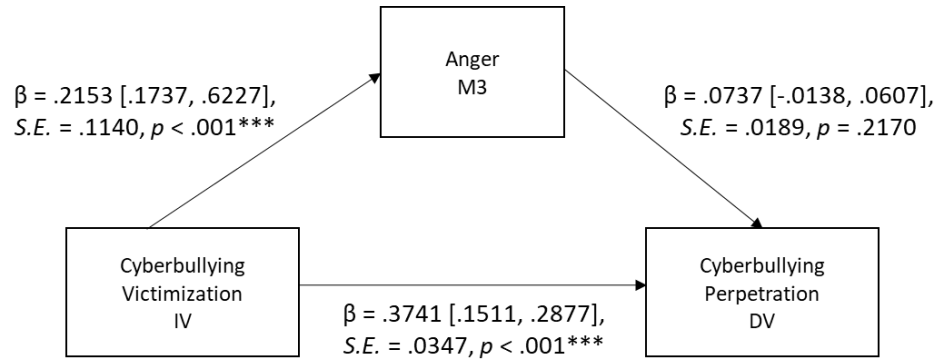


Figure 5 - Anger Mediation Model (Victimization & Perpetration)

The total indirect effect of anger is not significant: $ab(.3948 \times .0240) = .0093$, 95% CI [-.0153, .0380] and the standardized effect was .0159. Zero falls between the upper and lower bound of the bootstrap confidence interval, and therefore, there is no mediation. Cyberbullying victimization increases anger, but whether anger influences cyberbullying perpetration is inconclusive.

I hypothesized that anger (M) would mediate the relationship between the quality of peer relationships (X) and cyberbullying perpetration (Y). According to Figure 6, the quality of peer relationships was a significant negative predictor of anger, suggesting that those who have higher quality peer relationships are at a lower risk of anger: $b = -.2108$, $\beta = -.1620$, $S.E. = .0806$, $p < .01$. However, anger was not a significant predictor of cyberbullying perpetration: $b = .0517$, $\beta = .1616$, $S.E. = .0200$, $p < .01$.

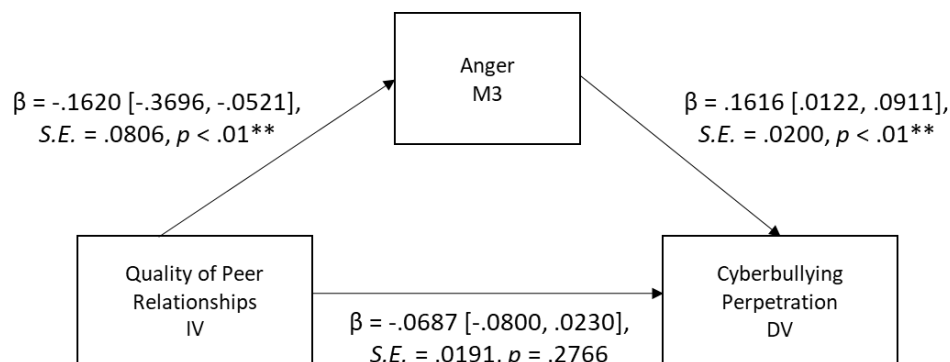


Figure 6 - Anger Mediation Model (Quality of Peer Relationships & Perpetration)

The total indirect effect of anger is significant: $ab(-.2105 \times .0519) = -.0109$, 95% CI $[-.0321, -.0001]$ and the standardized effect was $-.0262$. Zero does not fall between the upper and lower bound of the bootstrap confidence interval, and because the indirect effect is significant, we can conclude, there is mediation. The quality of peer relationships decreases anger, which in turn is positively associated with cyberbullying perpetration. The net indirect effect of stronger peer relationships decreases cyberbullying perpetration. There is some support for my hypothesis in that it suggests that stronger peer relationships reduce cyberbullying perpetration.

There is support for my hypothesis when examining the relationship between anger and cyberbullying perpetration. As participants' anger increases, so does their likelihood of committing acts of cyberbullying perpetration and exposure to cyberbullying victimization. There is also support for an indirect effect of anger on the relationship between the quality of peer relationships and cyberbullying perpetration, but not between cyberbullying victimization and cyberbullying perpetration.

RQ #3: How do age, gender, ethnicity, and amount of time spent online influence cyberbullying perpetration?

I hypothesized that certain participant characteristics would predict cyberbullying perpetration, suggesting that younger, non-White, men, and/or those who spend more time online would be more likely to perpetrate than older, White, women, and/or those who spend less time online. I began my analysis by recoding gender (0: Woman, 1: Man, Other, Missing: Prefer Not to Answer) and ethnicity (0: White, 1: Non-White (including Other), Missing: Prefer Not to Answer) as dichotomous variables. I also recoded cyberbullying victimization and perpetration in order to conduct Fisher Least Significant Difference (LSD) post-hoc tests (where 1: No Victimization/Perpetration and anything greater than 1: Victimization/Perpetration).

To explore which participant characteristics predict cyberbullying perpetration, I ran a multiple regression model. The results of this regression model indicated that the predictors explained 3.8% of the variance ($R^2 = .038$, $p < .05$) in cyberbullying perpetration. Table 3 illustrates how age, ethnicity, and time spent online did not significantly predict cyberbullying perpetration. However, gender was a significant predictor. A post hoc test indicated that women ($\bar{x} = 1.23$, $SD = .465$) are significantly more likely to cyberbully than men ($\bar{x} = 1.07$, $SD = .216$).

Table 3. Results of Multiple Regression Model Predicting Cyberbullying Perpetration Using Age, Gender, Ethnicity, and Online Activity

| Predictors | b | SE | t-value | p-value |
|-----------------|-------|------|---------|---------|
| (Intercept) | 1.207 | .118 | 10.238 | <.001 |
| Age | -.003 | .003 | -1.159 | .248 |
| Gender | -.123 | .041 | -.3008 | .003** |
| Ethnicity | .004 | .037 | .120 | .905 |
| Online Activity | .015 | .016 | .959 | .339 |

Note. * $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.001$. Online Activity – amount of time spent online.

Because of the direct relationship between cyberbullying victimization and perpetration, I decided to run an analysis to explore which participant characteristics predict cyberbullying *victimization*. The results of this multiple regression model indicated that the predictors explained 3.9% of the variance ($R^2 = .039$, $p < .05$) in cyberbullying victimization. Table 4 illustrates how age and ethnicity did not significantly predict cyberbullying victimization. However, gender and amount of time spent online predicted cyberbullying victimization. A post hoc test indicated that women ($\bar{x} = .48$, $SD = .504$) are significantly more likely to be victimized online than men ($\bar{x} = .32$, $SD = .466$). Additionally, the post hoc test revealed that those who spend five hours online ($\bar{x} = 1.39$, $SD = .609$) are more likely to be victimized online than those who spend four hours ($\bar{x} = 1.24$, $SD = .415$), three hours ($\bar{x} = 1.16$, $SD = .278$), two hours ($\bar{x} = 1.21$, $SD = .249$), or one hour ($\bar{x} = 1.11$, $SD = .199$) online.

There is no support for my hypothesis that younger individual and non-White individuals are at a higher risk for cyberbullying perpetration. Additionally, there is no support for my hypothesis that suggests that men are at a higher risk for cyberbullying perpetration. However, the discovery of women being significantly more likely to

cyberbully and become cyberbullying victims is inconsistent with past research, and therefore, a new finding.

Table 4. Results of Multiple Regression Model Predicting Cyberbullying Victimization Using Age, Gender, Ethnicity, and Online Activity

| Predictors | b | SE | <i>t</i> -value | <i>p</i> -value |
|-----------------|-------|------|-----------------|-----------------|
| (Intercept) | 1.057 | .220 | 4.808 | <.001 |
| Age | .003 | .005 | .662 | .509 |
| Gender | -.186 | .075 | -2.477 | .014* |
| Ethnicity | -.001 | .067 | -.013 | .990 |
| Online Activity | .072 | .030 | 2.412 | .017* |

Note. * $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.001$. Online Activity – amount of time spent online.

Discussion

The study examined the impact of strain on cyberbullying perpetration through cyberbullying victimization and the quality of peer relationships. One of my central hypotheses was that the cyberbullying victimization and poor peer relationships will increase the likelihood of cyberbullying perpetration among college students. The findings revealed that cyberbullying victimization is related to cyberbullying perpetration, suggesting that victims are at an increased risk of becoming perpetrators. This is consistent with past research, and it suggests strain plays a prevalent role in whether young adults commit acts of delinquency (Agnew & White, 1992; Agnew, 2001; Broidy, 2001). Agnew mentions offenders may attempt to reduce strain by stealing money needed for cost-of-living, seeking revenge, or eliminating the presence of negative emotions by self-medication (i.e., drug or alcohol abuse) (Agnew, 2001, p. 319). With cyberbullying perpetration, young adults may attempt to reduce the strain of cyberbullying victimization by becoming perpetrators themselves.

However, there was no relationship between the quality of peer relationships and cyberbullying perpetration. This may be due to participants rating the quality of their peer relationships high (i.e., more positively). Overall, there is some support for my hypothesis because it appears strain does influence cyberbullying perpetration (i.e., cyberbullying victimization), but it also highlights that positive peer relationships deter cyberbullying perpetration. Past research has primarily examined poor peer relationships or adverse relationships and examining that as a potential strain (Agnew, 2001; Bao et al., 2004; Moon et al., 2012; Oh & Connolly, 2019), but only a few have connected it to

cyberbullying perpetration (Cho & Galehan, 2020; Lee & Sanchez, 2018; Lianos & McGrath, 2018; Varghese & Pistole, 2017).

Next, I examined how negative emotions may indirectly influence participant's likelihood of cyberbullying others. Although depression and anxiety does not appear to either increase or decrease cyberbullying perpetration if a participant also has a history of cyberbullying victimization, it can be said that the risk of participants developing depressive or anxiety symptoms is tied to their history of cyberbullying victimization. When focusing on the quality of peer relationships, depression, anxiety, and anger continue to be predictors of cyberbullying victimization, as higher quality peer relationships reduce participants' risk of depression, anxiety, and anger. Additionally, the indirect effect of depression and anger on cyberbullying perpetration is related to the presence of positively rated peer relationships, suggesting that these positive relationships reduce depression and anger, and therefore, reduce participants' likelihood of cyberbullying. However, there was no indirect effect for anxiety for both cyberbullying victimization and the quality of peer relationships, so the results are inconclusive. Anger also did not show an indirect effect on cyberbullying victimization.

In regard to the indirect effects of depression on perpetration, my findings are consistent with past research if we focus on its impact on adolescents. However, the same cannot be said for young adults. Nonetheless, depressive symptoms' association with cyberbullying victimization aligns with what has been observed in past research (Agnew & White, 1992 and Bao et al., 2004). Anxiety did not have an indirect effect on cyberbullying perpetration, as past literature proposes (Agnew & White, 1992). There is

not enough evidence to determine whether anxiety poses as a potential predictor for cyberbullying perpetration. If this study was conducted again, it would be useful to examine it once more to determine whether the outcome will remain the same.

Anger has been consistently examined in strain theory and there is evidence to suggest that it indirectly affects cyberbullying perpetration when the individual has a history of cyberbullying victimization (Bao et al., 2004; Lianos & McGrath, 2018; Cho & Galehan, 2020). However, my findings contradict past research, as the indirect effect of anger on the outcome through cyberbullying victimization is not statistically significant. Instead, I found an indirect effect of anger when examining the relationship between peer relationships and perpetration; my findings suggest high-quality peer relationships may lead to lower levels of anger, and therefore, a lower likelihood of committing an act of cyberbullying. These results highlight the potential protective factor that strong peer networks have on young adults' mental health (i.e., anger) and online behaviors.

Finally, I explored how participant characteristics may predict cyberbullying perpetration. The results demonstrated that age, ethnicity, and amount of time spent online did not increase a participant's likelihood of cyberbullying. My findings regarding age are not consistent with past findings in a few ways. Importantly, much of the past research has examined other populations (e.g., adolescents, or samples outside of the United States), so there is not as much evidence to support whether cyberbullying is as prevalent in young adults, or if these differences by personal characteristics hold true in other samples.

However, gender was revealed to be a predictor, as women were more likely to be victimized than men. The findings on cyberbullying victimization are consistent with past research (Li, 2006; Fryling, 2018; Tanrikulu and Erdur-Baker, 2019), but it is unclear why. Women were also found to be more likely to perpetrate than men. This is inconsistent with past research because the literature has consistently shown men as more likely to be cyberbullying perpetrators. It also suggests that cyberbullying perpetration may be more common among the female college student population. It is possible for other factors to influence one gender to perpetrate more than others, such as cultural upbringing or societal norms (Tanrikulu and Erdur-Baker, 2019). It may also depend upon the type of platform individuals are exposed to and spend more time engaging with.

Race/ethnicity has not consistently demonstrated which groups are more susceptible to cyberbullying victimization and perpetration. In some studies, White individuals are more likely to be victimized (Alhajji et al., 2019), but in others, non-White individuals are cyberbullied more frequently (Kowalski et al., 2020). Although past research suggests cyberbullying victims are more likely to become perpetrators, there is not an agreement on which ethnic groups are more susceptible to cyberbullying victimization or perpetration. And research has not considered in-group bullying (Edwards et al., 2016). Similarly, I did not find that race/ethnicity was associated with cyberbullying victimization or perpetration. Future research should continue to explore this topic, as there is some evidence to suggest experiences online vary across different groups. Those differences did not manifest amongst this sample.

Finally, most participants reported being online for three or more hours per day. The amount of time spent online was not a predictor of cyberbullying perpetration, which conflicts with past research. However, it was a predictor of cyberbullying victimization, which is consistent with past studies. These other studies have shown that individuals who spend more time online are more likely to be cyberbullied (Rice et al., 2015; Chi et al., 2020). If they are cyberbullied every day, they could build up cumulative strain, which places them at a higher risk of cyberbullying.

Limitations and Directions for Future Research

This study presents with a few limitations that should be taken into consideration. First, the sample consisted of mainly women, so it is not representative of a larger population, and cannot be generalized to all college students. Secondly, most participants received low scores on the cyberbullying perpetration scale, meaning that most report fewer occurrences of cyberbullying perpetration. This may allude to the possibility that cyberbullying perpetration is not common among Portland State University's undergraduate students, but this should not be generalized to college students in Oregon, or even all college students, as each college has a different demographic make-up. Additionally, issues arise from self-reported data because participants may interpret questions differently or may provide responses that are more socially acceptable rather than truthful. They may also feel less inclined to volunteer to provide information that could put them in an uncomfortable position or hold them liable for their actions.

Thirdly, I could not examine *how* the quality of peer relationships influenced cyberbullying perpetration because the direct effect was not significant. It is plausible it may be due to participants rating their peer relationships as stable connections (i.e., this “ceiling effect” made it difficult to see any variation). It could also be further argued that strong peer relationships contribute to the lack of cyberbullying perpetration, but future research would need to closely examine this relationship. It is often difficult to define what is considered a “negative” peer relationship, so perhaps we should consider it from the opposite standpoint and examine how positive peer relationships influence

cyberbullying perpetration. Although, this sample had relatively high-quality peer relationships, which had no effect on cyberbullying perpetration (even a negative effect).

Lastly, the cyberbullying perpetration scale had a low Cronbach's Alpha ($\alpha = .629$), which suggests that some questions may not be representative of cyberbullying perpetration. It may be due to most participants not reporting incidents of cyberbullying perpetration, or too few participants reported deception (one of the items in the scale). However, future research should continue to examine how cyberbullying is operationalized and measured to ensure all aspects are being acknowledged and appropriately tested.

Due to some inconclusive results, future research should examine how depression, anxiety, and anger affect college students' propensity to cyberbully. It may also be useful to investigate how other negative emotions, such as disappointment, resentment, or loneliness may interact with the relationship between cyberbullying victimization/cyberbullying perpetration and the quality of peer relationships/cyberbullying perpetration.

Conclusion

The study examined how cyberbullying victimization and quality of peer relationships, types of strain, influence cyberbullying perpetration, how negative emotions may indirectly affect the effect of strain on cyberbullying perpetration, and how participant characteristics could serve as potential predictors of cyberbullying victimization and perpetration. Although most participants did not report high levels of cyberbullying victimization and perpetration, the study has identified potential areas for future research to explore. My attempt to fill the gaps in current literature has left some lingering questions; is cyberbullying perpetration prevalent in college students? How might other negative emotions impact the effect of strain on cyberbullying perpetration?

The goal of this thesis is to inform people of the detrimental effects of cyberbullying and contribute to the discussion of what can be done to combat it. This data may help to demonstrate the causes of cyberbullying perpetration, which can be useful in considering safeguards to protect vulnerable populations. I believe the current study has succeeded in explaining the harmful connection between cyberbullying victimization and perpetration, the role of negative emotions, and the potential protective factors of high-quality peer relationships. Future research should continue to examine these topics further, with the ultimate goal of informing policy that can help to protect individuals online.

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Appendix A: Survey (with codes)

1. Please enter your age: _____ (text entry)

2. How would you describe your gender?

- a. Woman (1; later recoded as 0)
- b. Man (2; later recoded as 1)
- c. Other, please specify: _____ (3; later recoded as MISSING)
- d. I prefer not to answer. (4; later recoded as MISSING)

3. What is your ethnic background?

Choose all that apply.

- a. White (1; later recoded as 0)
- b. Black or African-American (2; later recoded as 1)
- c. Asian (3; later recoded as 1)
- d. Hispanic or Latino (4; later recoded as 1)
- e. American Indian or Alaska Native (5; later recoded as 1)
- f. Native Hawaiian or Other Pacific Islander (6; later recoded as 1)
- g. Mixed Race (7; later recoded as 1)
- h. Other, please specify: _____ (8; later recoded as 1)
- i. I prefer not to answer. (9; later recoded as MISSING)

4. How much time do you spend online per day?

DEFINITION: Being “online” can be defined as interacting with other individuals, or the content on their online profiles. This interaction includes, but is not limited to, scrolling through your newsfeed/notifications, responding to posts, sending private messages, reacting to posts with emojis, or video/voice chatting.

Interaction can take place in a variety of platforms, which include but are not limited to, text messages, emails, social networking sites/apps (e.g., Facebook, Twitter, Instagram, Tiktok, etc.), dating sites/apps (e.g., eHarmony, Tinder, etc.), online chatrooms and messaging sites/apps (e.g., Skype, Zoom, Discord), or gaming sites/apps (e.g., League of Legends, Counterstrike, Genshin Impact).

- a. 1 hour
- b. 2 hours
- c. 3 hours
- d. 4 hours
- e. 5+ hours

CYBERBULLYING PERPETRATION (DV)

The following questions pertain to cyberbullying perpetration.

DEFINITION: Cyberbullying can be defined as using any “electronic communication device (i.e., phones, computers, etc.) to harass, intimidate, or coerce another individual” (ORS 339.351: Oregon Safe Schools Act of 2009).

For the following questions, please select an appropriate rating that you think fits the following statements. (1 – Never, 2 – Once, 3 – Twice, 4 – Three or More Instances)

1. In the past 12 months, I have called other individuals names, made fun of them, or teased them in a hurtful way online.
2. In the past 12 months, I have spread rumors about another person online.
3. In the past 12 months, I have threatened or blackmailed someone online.
4. In the past 12 months, I have harassed someone online because of their race, religion, or another identifying characteristic.
5. In the past 12 months, I have catfished or deceived someone online.

DEFINITION: Deceiving someone can be interpreted as providing false information to another individual in order to gain some personal advantage or using deception to take advantage for malicious purposes.

CYBERBULLYING VICTIMIZATION (IV)

The following questions pertain to cyberbullying victimization. As a reminder, cyberbullying can be defined as using any “electronic communication device (i.e., phones, computers, etc.) to harass, intimidate, or coerce another individual” (ORS 339.351: Oregon Safe Schools Act of 2009).

For the following questions, please select an appropriate rating that you think fits the following statements. (1 – Never, 2 – Once, 3 – Twice, 4 – Three or More Instances)

1. In the past 12 months, I have been called names, made fun of, or teased in a hurtful way online.
2. In the past 12 months, I have had rumors spread about me online.
3. In the past 12 months, I have been threatened or blackmailed online.
4. In the past 12 months, I have been harassed online because of my gender, race, religion, or another identifying characteristic.
5. In the past 12 months, I have been catfished or deceived by someone online.
DEFINITION: Deceiving someone can be interpreted as providing false information to another individual in order to gain some personal advantage or using deception to take advantage or exploit another individual’s weaknesses. For example, pretending to be another person in order to receive money or other forms of financial support.

QUALITY OF PEER RELATIONSHIPS (IV)

For the following questions, please select an appropriate rating that best describes your thoughts on the following statements.

(1 – Strongly Disagree, 2 – Disagree, 3 – Neutral/Indifferent, 4 – Agree, 5 – Strongly Agree)

1. I get along with my friends or peers at school.
2. If I needed help, my friends or peers at school would help me.
3. I can relate to my friends or peers at school.
4. I think my friends or peers at school are trustworthy.

KEY: ANGER, ANXIETY, DEPRESSION

NEGATIVE EMOTIONS

For the following questions, please select an appropriate rating that you think fits the following statements.

(1 – Never, 2 – Rarely, 3 – Sometimes, 4 – Most of the Time, 5 – Always)

1. In the past 12 months, I felt that I was unable to shake off the blues, even with help from family and friends.
 2. In the past 12 months, I felt depressed.
 3. In the past 12 months, I thought my life had been a failure.
 4. In the past 12 months, I have lost interest in things I used to enjoy.
 5. In the past 12 months, I experienced excessive worrying about my relationships with my peers.
 6. In the past 12 months, I felt troubled or uncomfortable with interacting with other people (e.g., having conversations with others or meeting unfamiliar people).
 7. In the past 12 months, I have experienced an intense and persistent fear of a social situation in which people might judge me negatively.
 8. In the past 12 months, I have experienced a fear of performing in front of others (e.g., delivering a speech or presentation, etc.).
 9. In the past 12 months, I have spent at least one night, lying awake, thinking about the things that angered me during the day.
 10. In the past 12 months, I have gotten so angry that I couldn't remember things I said or did.
 11. In the past 12 months, I have gotten so angry that I've said things that I later regret saying.
- In the past 12 months, I have gotten so angry, I've lost control of my emotions.

Appendix B: Frequency Statistics on Individual Survey Items

Table 5: Participants' Age

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
| 17 | 1 | .4 | .4 | .4 |
| 18 | 21 | 7.9 | 9.2 | 9.5 |
| 19 | 27 | 10.1 | 11.8 | 21.5 |
| 20 | 38 | 14.2 | 16.7 | 38.2 |
| 21 | 39 | 14.6 | 17.1 | 55.3 |
| 22 | 16 | 6.0 | 7.0 | 62.3 |
| 23 | 12 | 4.5 | 5.3 | 67.5 |
| 24 | 12 | 4.5 | 5.3 | 72.8 |
| 25 | 12 | 4.5 | 5.3 | 78.1 |
| 26 | 6 | 2.2 | 2.6 | 80.7 |
| 27 | 4 | 1.5 | 1.8 | 82.5 |
| 28 | 5 | 1.9 | 2.2 | 84.6 |
| 29 | 3 | 1.1 | 1.3 | 86.0 |
| 30 | 1 | .4 | .4 | 86.4 |
| 31 | 4 | 1.5 | 1.8 | 88.2 |
| 32 | 3 | 1.1 | 1.3 | 89.5 |
| 33 | 3 | 1.1 | 1.3 | 90.8 |
| 34 | 2 | .7 | .9 | 91.7 |
| 35 | 4 | 1.5 | 1.8 | 93.4 |
| 36 | 3 | 1.1 | 1.3 | 94.7 |
| 38 | 1 | .4 | .4 | 95.2 |
| 39 | 2 | .7 | .9 | 96.1 |
| 42 | 1 | .4 | .4 | 96.5 |
| 43 | 1 | .4 | .4 | 96.9 |
| 44 | 3 | 1.1 | 1.3 | 98.2 |
| 49 | 1 | .4 | .4 | 98.7 |
| 50 | 2 | .7 | .9 | 99.6 |
| 51 | 1 | .4 | .4 | 100.0 |
| MISSING | 39 | 14.6 | -- | -- |

Table 6: Participants' Gender

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Man | 60 | 22.5 | 22.5 | 22.5 |
| Woman | 199 | 74.5 | 74.5 | 97.0 |
| Other ¹ | 7 | 2.6 | 2.6 | 99.6 |
| Preferred not to answer | 1 | .4 | .4 | 100.0 |

Table 7: Participants' Ethnicity

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|-----------|---------|---------------|--------------------|
| White | 106 | 39.7 | 39.7 | 39.7 |
| Black or African-American | 14 | 5.2 | 5.2 | 44.9 |
| Asian | 24 | 9.0 | 9.0 | 53.9 |
| Hispanic or Latino | 70 | 26.2 | 26.2 | 80.1 |
| American Indian or Alaska Native | 5 | 1.9 | 1.9 | 82.0 |
| Native Hawaiian or Other Pacific Islander | 5 | 1.9 | 1.9 | 83.9 |
| Mixed Race | 33 | 12.4 | 12.4 | 96.3 |
| Other ² | 8 | 3.0 | 3.0 | 99.3 |
| Preferred not to answer | 2 | .7 | .7 | 100.0 |

Table 8: Participants' Online Activity

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| 1 hour | 13 | 4.9 | 4.9 | 4.9 |
| 2 hours | 18 | 6.7 | 6.7 | 11.6 |
| 3 hours | 42 | 15.7 | 15.7 | 27.3 |
| 4 hours | 59 | 22.1 | 22.1 | 49.4 |
| 5+ hours | 135 | 50.6 | 50.6 | 100.0 |

¹ Of the seven individuals who responded with "other", five reported their gender as non-binary, one reported transgender male, and one reported genderfluid.

² Of the eight individuals who responded with "other", seven reported their ethnicity as Middle Eastern, and one reported Jewish American.

Table 9.1: Cyberbullying Perpetration – *In the past 12 months, I have called other individuals names, made fun of them, or teased them in a hurtful way online.*

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 219 | 82.0 | 83.3 | 83.3 |
| Once | 21 | 7.9 | 8.0 | 91.3 |
| Twice | 6 | 2.2 | 2.3 | 93.5 |
| Three or More Instances | 17 | 6.4 | 6.5 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 9.2: Cyberbullying Perpetration – *In the past 12 months, I have spread rumors about another person online.*

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 251 | 94.0 | 95.8 | 95.8 |
| Once | 7 | 2.6 | 2.7 | 98.5 |
| Twice | 0 | 0 | 0 | 98.5 |
| Three or More Instances | 4 | 1.5 | 1.5 | 100.0 |
| MISSING | 5 | 1.9 | -- | -- |

Table 9.3: Cyberbullying Perpetration – *In the past 12 months, I have threatened or blackmailed someone online.*

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 256 | 95.9 | 97.3 | 97.3 |
| Once | 4 | 1.5 | 1.5 | 98.9 |
| Twice | 2 | .7 | .8 | 99.6 |
| Three or More Instances | 1 | .4 | .4 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 9.4: Cyberbullying Perpetration – In the past 12 months, I have harassed someone online because of their gender, race, religion, or another identifying characteristic.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 256 | 95.9 | 97.3 | 97.3 |
| Once | 3 | 1.1 | 1.1 | 98.5 |
| Twice | 1 | .4 | .4 | 98.9 |
| Three or More Instances | 3 | 1.1 | 1.1 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 9.5: Cyberbullying Perpetration – In the past 12 months, I have catfished or deceived someone online.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 254 | 95.1 | 96.2 | 96.2 |
| Once | 7 | 2.6 | 2.7 | 98.9 |
| Twice | 2 | .7 | .8 | 99.6 |
| Three or More Instances | 1 | .4 | .4 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 10.1: Cyberbullying Victimization – In the past 12 months, I have been called names, made fun of, or teased in a hurtful way online.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 174 | 65.2 | 65.7 | 65.7 |
| Once | 40 | 15.0 | 15.1 | 80.8 |
| Twice | 21 | 7.9 | 7.9 | 88.7 |
| Three or More Instances | 30 | 11.2 | 11.3 | 100.0 |
| MISSING | 2 | .7 | -- | -- |

Table 10.2: Cyberbullying Victimization – In the past 12 months, I have had rumors spread about me online.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 233 | 87.3 | 88.6 | 88.6 |
| Once | 19 | 7.1 | 7.2 | 95.8 |
| Twice | 4 | 1.5 | 1.5 | 97.3 |
| Three or More Instances | 7 | 2.6 | 2.7 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 10.3: Cyberbullying Victimization – In the past 12 months, I have been threatened or blackmailed online.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 242 | 90.6 | 91.7 | 91.7 |
| Once | 17 | 5.4 | 6.4 | 98.1 |
| Twice | 0 | 0 | 0 | 98.1 |
| Three or More Instances | 5 | 1.9 | 1.9 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 10.4: Cyberbullying Victimization – In the past 12 months, I have been harassed online because of my gender, race, religion, or another identifying characteristic.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 210 | 78.7 | 79.8 | 79.8 |
| Once | 24 | 9.0 | 9.1 | 89.0 |
| Twice | 11 | 4.1 | 4.2 | 93.2 |
| Three or More Instances | 18 | 6.7 | 6.8 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 10.5: Cyberbullying Victimization – In the past 12 months, I have been caffished or deceived by someone online.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Never | 232 | 86.9 | 88.2 | 88.2 |
| Once | 19 | 7.1 | 7.2 | 95.4 |
| Twice | 3 | 1.1 | 1.1 | 96.6 |
| Three or More Instances | 9 | 3.4 | 3.4 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 11.1: Quality of Peer Relationships – I get along with my friends or peers at school.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| Strongly Disagree | 2 | .7 | .8 | .8 |
| Disagree | 4 | 1.5 | 1.5 | 2.3 |
| Neither Agree nor Disagree | 33 | 12.4 | 12.5 | 14.7 |
| Agree | 146 | 54.7 | 55.1 | 69.8 |
| Strongly Agree | 80 | 30.0 | 30.2 | 100.0 |
| MISSING | 2 | .7 | -- | -- |

Table 11.2: Quality of Peer Relationships – If I needed help, my friends or peers at school would help me.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| Strongly Disagree | 4 | 1.5 | 1.5 | 1.5 |
| Disagree | 10 | 3.7 | 3.8 | 5.3 |
| Neither Agree nor Disagree | 72 | 27.0 | 27.2 | 32.5 |
| Agree | 118 | 44.2 | 44.5 | 77.0 |
| Strongly Agree | 61 | 22.8 | 23.0 | 100.0 |
| MISSING | 2 | .7 | -- | -- |

Table 11.3: Quality of Peer Relationships – I can relate to my friends or peers at school.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| Strongly Disagree | 9 | 3.4 | 3.4 | 3.4 |
| Disagree | 28 | 10.5 | 10.6 | 14.0 |
| Neither Agree nor Disagree | 66 | 24.7 | 24.9 | 38.9 |
| Agree | 116 | 43.4 | 43.8 | 82.6 |
| Strongly Agree | 46 | 17.2 | 17.4 | 100.0 |
| MISSING | 2 | .7 | -- | -- |

Table 11.4: Quality of Peer Relationships – I think my friends or peers at school are trustworthy.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| Strongly Disagree | 2 | .7 | .8 | .8 |
| Disagree | 12 | 4.5 | 4.5 | 5.3 |
| Neither Agree nor Disagree | 105 | 39.3 | 39.6 | 44.9 |
| Agree | 94 | 35.2 | 35.5 | 80.4 |
| Strongly Agree | 52 | 19.5 | 19.6 | 100.0 |
| MISSING | 2 | .7 | -- | -- |

Table 12.1: Depression – In the past 12 months, I felt I was unable to shake off the blues, even with help from family and friends.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 47 | 17.6 | 17.8 | 17.8 |
| Rarely | 56 | 21.0 | 21.2 | 39.0 |
| Sometimes | 101 | 37.8 | 38.3 | 77.3 |
| Most of the time | 45 | 16.9 | 17.0 | 94.3 |
| Always | 15 | 5.6 | 5.7 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 12.2: Depression – In the past 12 months, I felt depressed.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 31 | 11.6 | 11.7 | 11.7 |
| Rarely | 50 | 18.7 | 18.9 | 30.7 |
| Sometimes | 103 | 38.6 | 39.0 | 69.7 |
| Most of the time | 59 | 22.1 | 22.3 | 92.0 |
| Always | 21 | 7.9 | 8.0 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 12.3: Depression – In the past 12 months, I thought my life had been a failure.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 67 | 25.1 | 25.4 | 25.4 |
| Rarely | 58 | 21.7 | 22.0 | 47.3 |
| Sometimes | 88 | 33.0 | 33.3 | 80.7 |
| Most of the time | 32 | 12.0 | 12.1 | 92.8 |
| Always | 19 | 7.1 | 7.2 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 12.4: Depression – In the past 12 months, I have lost interest in things I used to enjoy.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 49 | 18.4 | 18.6 | 18.6 |
| Rarely | 58 | 21.7 | 22.0 | 40.5 |
| Sometimes | 90 | 33.7 | 34.1 | 74.6 |
| Most of the time | 53 | 19.9 | 20.1 | 94.7 |
| Always | 14 | 5.2 | 5.3 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 13.1: Anxiety – In the past 12 months, I experienced excessive worrying about my relationships with my peers.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 68 | 25.5 | 25.8 | 25.8 |
| Rarely | 46 | 17.2 | 17.4 | 43.2 |
| Sometimes | 78 | 29.2 | 29.5 | 72.7 |
| Most of the time | 52 | 19.5 | 19.7 | 92.4 |
| Always | 20 | 7.5 | 7.6 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 13.2: Anxiety – In the past 12 months, I felt troubled or uncomfortable with interacting with other people (e.g., having conversations with others or meeting unfamiliar people).

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 53 | 19.9 | 20.1 | 20.1 |
| Rarely | 60 | 22.5 | 22.7 | 42.8 |
| Sometimes | 78 | 29.2 | 29.5 | 72.3 |
| Most of the time | 41 | 15.4 | 15.5 | 87.9 |
| Always | 32 | 12.0 | 12.1 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 13.3: Anxiety – In the past 12 months, I have experienced an intense and persistent fear of a social situation in which people might judge me negatively.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 64 | 24.0 | 24.2 | 24.2 |
| Rarely | 54 | 20.2 | 20.5 | 44.7 |
| Sometimes | 70 | 26.2 | 26.5 | 71.2 |
| Most of the time | 49 | 18.4 | 18.6 | 89.8 |
| Always | 27 | 10.1 | 10.6 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 13.4: Anxiety – In the past 12 months, I have experienced a fear of performing in front of others (e.g., delivering a speech or presentation, etc.).

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 57 | 21.3 | 21.6 | 21.6 |
| Rarely | 51 | 19.1 | 19.3 | 40.9 |
| Sometimes | 76 | 28.5 | 28.8 | 69.7 |
| Most of the time | 39 | 14.6 | 14.8 | 84.5 |
| Always | 41 | 15.4 | 15.5 | 100.0 |
| MISSING | 3 | 1.1 | -- | -- |

Table 14.1: Anger – In the past 12 months, I have spent at least one night, lying awake, thinking about the things that angered me during the day.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 65 | 24.3 | 24.7 | 24.7 |
| Rarely | 53 | 19.9 | 20.2 | 44.9 |
| Sometimes | 79 | 29.6 | 30.0 | 74.9 |
| Most of the time | 45 | 16.9 | 17.1 | 92.0 |
| Always | 21 | 7.9 | 8.0 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 14.2: Anger – In the past 12 months, I have gotten so angry that I couldn't remember the things I said or did.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 158 | 59.2 | 60.1 | 60.1 |
| Rarely | 49 | 18.4 | 18.6 | 78.7 |
| Sometimes | 31 | 11.6 | 11.8 | 90.5 |
| Most of the time | 19 | 7.1 | 7.2 | 97.7 |
| Always | 6 | 2.2 | 2.3 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |

Table 14.3: Anger – In the past 12 months, I have gotten so angry that I've said things that I later regret saying.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 93 | 34.8 | 35.5 | 35.5 |
| Rarely | 87 | 32.6 | 33.2 | 68.7 |
| Sometimes | 52 | 19.5 | 19.8 | 88.5 |
| Most of the time | 19 | 7.1 | 7.3 | 95.8 |
| Always | 11 | 4.1 | 4.2 | 100.0 |
| MISSING | 5 | 1.9 | -- | -- |

Table 14.4: Anger – In the past 12 months, I have gotten so angry, I've lost control of my emotions.

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Never | 121 | 45.3 | 46.0 | 46.0 |
| Rarely | 64 | 24.0 | 24.3 | 70.3 |
| Sometimes | 49 | 18.4 | 18.6 | 89.0 |
| Most of the time | 20 | 7.5 | 7.6 | 96.6 |
| Always | 9 | 3.4 | 3.4 | 100.0 |
| MISSING | 4 | 1.5 | -- | -- |