**Cyberbullying During COVID-19 Pandemic: Relation to Perceived Social Isolation Among College and University Students**

**by**

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## Dedication

This thesis is wholeheartedly dedicated to Marco—my best friend, partner in crime, and soul mate. You are as important to me as Turk for J.D., and in arduous times, you embody the importance of Samwise's heroism for Frodo's success. Thank you for your words of encouragement and tremendous support throughout the entire master's program. Most of all, thank you for being constantly proud of me and for your unconditional love. You are the unsung hero, and I am truly grateful for having you as my partner.

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## Abstract

One tell-tale sign of the impact of the COVID-19 pandemic is the heavy reliance on electronic devices. Young adults in particular have indicated a greater presence on social media and high levels of loneliness during the pandemic. This trend has raised concerns about increased feelings of social isolation and reliance on technology, which could lead to more internet or computer crimes—including cyberbullying. Despite a growing body of literature, little is known about the association between cyberbullying and social isolation among young adults— with even less known about this phenomenon in the context of the ongoing COVID-19 pandemic. Therefore, the current study aims to raise awareness about cyberbullying in postsecondary education during the pandemic by highlighting the severity of the effects of the COVID-19 pandemic on young adults. Drawing on survey responses from 331 current college and university students residing in the United States, this study explored the relationship between perceived social isolation, reliance on electronic devices, and cyberbullying before and during the pandemic. Specifically, it evaluated the hypothesis that increased perceived social isolation and interaction in cyberspace have increased the prevalence of cyberbullying among young adults. Using *t*-tests and linear regression analysis, the differences between cyberbullying experiences before (prior to March 2020) and during the pandemic (from March 2020 onwards), as well as the relationship between perceived social isolation, social media, and cyberbullying experiences, were examined. The findings of the study suggest that 1) the majority of participants felt more isolated, with most of the sample reporting increased social media use as a consequence of the pandemic; 2) cyberbullying victimization significantly decreased during the pandemic, whereas

there was no significant change for cyberbullying perpetration. One explanation might be that individuals increasingly engaged in safer online behavior or experienced a lack of motivation for perpetration during the pandemic; 3) social media use was not important in predicting cyberbullying during the pandemic; and 4) perceived social isolation was moderately predictive of cyberbullying experiences during the pandemic when pre-pandemic experiences were omitted from the analysis. While the applied sampling method raises concerns about the study's generalizability, the findings have important implications for developing age-specific intervention and prevention strategies of interest to counseling services, health researchers, and practitioners in college and university settings. In addition to underlining that colleges and universities should be vigilant in terms of increased perceived social isolation and cyberbullying experiences during the COVID-19 pandemic, these findings also illustrate the need for continued research on cyberbullying throughout the pandemic. Ongoing research on cyberbullying is also essential, based on the assumption that universities and colleges may increasingly offer online classes in the future.

**Chapter 1 Introduction**

On March 11, 2020, the World Health Organization (2020) officially declared that the Coronavirus Disease 2019 (COVID-19) represents a global pandemic. The disease is caused by a virus, also referred to as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and at the time of writing, there have been over 300 million confirmed cases of COVID-19 worldwide (Centers for Disease Control and Prevention, 2021; World Health Organization, 2022). To help curtail the spread of the ongoing COVID-19 pandemic, companies, educational institutions, and governmental agencies shifted from in-person to virtual delivery methods by proliferating their online repertoires and services. The pandemic prodigiously affected our daily lives by encouraging social distancing, introducing remote learning, and moving meetings online. The pandemic sparked discussion about the future of remote learning and working and may even be preferred by people with caregiving responsibilities, students with limited financial resources, or students who need to reconcile time spent on coursework with their specific life circumstances (Morris et al., 2021).

As Parsons et al. (2019) emphasized, electronic devices and technology enhanced and modernized our quotidian lives. By 2011, one study found 99% ($n = 112$) of American graduate students own a cell phone, and almost 100% ($n = 358$) of undergraduate and graduate students have internet access (Smith et al., 2011). Digital advancements have engendered various benefits, such as the rapid allocation and accessibility of information; at the same time, the ubiquitous reliance on electronic devices greatly increased the number of cybercrimes and cyberbullying (Wang, 2007).

The increase likely intensified with the occurrence of the COVID-19 pandemic. Indeed, with the increasing use of internet technologies in the COVID-19 pandemic context, the number of cybercrimes also increased. In the first five months of 2020, the Federal Bureau of Investigation Internet Crime Complaint Center received nearly the same number of complaints as for the entire year of 2019 (Shivers, 2020).

The current study examined cyberbullying experiences among college and university students during the COVID-19 pandemic and the relationship with perceived social isolation; the aim of this was to measure the level of cyberbullying in a period when students were increasingly required to engage with the online environment and may felt more isolated. Stated differently, it was assumed that individuals potentially engage more in cyberbullying if they use social media and feel socially isolated.

**The Lack of Research on Cyberbullying**

Cyberbullying is often regarded as a public health threat because of the paucity of safeguards and the associated detrimental effects (Arntfield, 2015; Ferrara et al., 2018; Hinduja & Patchin, 2010). In particular, with the modernization of technology, bullying could occur online without traditional bullying characteristics, including physical strength or spatial interconnectedness (Ferrara et al., 2018; Meter et al., 2021).

Scholarly attention generally focuses on cyberbullying among minors in school settings, with adolescents being one of the most researched age groups in cyberbullying research. Despite this, research shows that cyberbullying is an omnipresent societal issue and not restricted to adolescents (Arntfield, 2015; Giumetti et al., 2022). Supported by Varghese and Pistole (2017), 15.1% ($N = 338$) of undergraduate students experienced cyberbullying victimization, and 8.0% of undergraduate students engaged in cyberbullying offending. By measuring cyberbullying

before and during the pandemic, the study examined whether the pandemic increased cyberbullying, made cyberspace safer, or had no significant effect on cyberbullying involvement.

It is essential to explore cyberbullying experiences during the current pandemic to examine this phenomenon when online classes predominantly substitute for in-person learning. In Fall 2019, 37% of postsecondary students reported being enrolled in distance education, whereas in Spring 2020, 84% of students expressed that some or all of their classes were remotely (National Center for Education Statistics, 2022).

Significantly, the COVID-19 pandemic increased the likelihood of students utilizing electronic devices to submit assignments, access lectures, and communicate with professors (Morris et al., 2021). Relevant literature reveals that the time spent on cell phones is a significant predictor for cybervictimization. Exploring cyberbullying during the increased use of technology is necessary given the substantiated correlation between technology, and cyberbullying perpetration and victimization among young adults (Giumetti et al., 2022).

Similarly, scholars emphasize the increased use of social networking sites as a ramification of the pandemic (Lemenager et al., 2020; Tuck & Thompson, 2021). Related literature also demonstrates a relationship between social media usage and perceived social isolation, colloquially referred to as loneliness. In particular, increased social media consumption has been associated with greater feelings of loneliness during the pandemic (Ma et al., 2020; Lisitsa et al., 2020).

Findings on the association between isolation and cyberbullying tend to be ambiguous. While some researchers claimed that loneliness is insufficient to predict cyberbullying victimization, others argue that loneliness is a significant predictor of victimization (Brewer and Kerslake, 2015; Sahin, 2012). Some existing studies measured social media usage and perceived

social isolation during the pandemic, with results showing that loneliness is a predictor of excessive social media usage (Boursier et al., 2020). The current study focused on cyberbullying experiences, perceived social isolation, and social media usage to measure the well-being of students in higher education during the pandemic.

Examining cyberbullying in postsecondary education extends cyberbullying research by enabling a thorough understanding of the phenomenon among young adults, and to a broader extent, the general population, thereby contributing significantly to the fields of criminology, criminal justice, and psychology. Considering that Clair et al. (2021) reported young adults showing the highest feelings of isolation during the pandemic, focusing on college and university students becomes essential.

Research further reveals a significant increase in cyberbullying perpetration among U.S. adults during the pandemic (Barlett et al., 2021a). Although there exists a robust body of literature related to cyberbullying prevalence rates and outcomes for middle or high school students, less research focused on students in postsecondary education (Arntfield, 2015; Giumetti et al., 2022). Yet, 30% ($N = 110$) of undergraduate students reported having their first cyberbullying experiences during college, illustrating the necessity for cyberbullying research in postsecondary education settings (Kowalski et al., 2012a).

**Thesis Outline**

Besides cyberbullying experiences, social media usage, and perceptions of social isolation among young adults, this thesis examines relevant theoretical concepts related to cyberbullying. Incorporating a theoretical framework enables a comprehensive understanding of the phenomenon and its complexity.

Routine activity theory (RAT) and the Barlett Gentile cyberbullying model (BGCM) are viable theoretical frameworks for assessing cybervictimization or cyberbullying perpetration. Herrero et al. (2021) found that RAT is applicable to the online environment, with explanatory strength related to cybervictimization. Similarly, the Barlett Gentile cyberbullying model is the first existing theory designed explicitly for cyberbullying perpetration and customized to its unique characteristics and environment. The framework aims to theoretically elucidate the occurrence of cyberbullying and its potential increase based on the surge in technology usage.

To the best of the author's knowledge, no empirical study has explored the relationship between cyberbullying experiences, perceived social isolation, and social media usage among young adults, especially during the pandemic. The current thesis fills this gap in the literature. This is an emerging area of study and essential considering the high levels of loneliness and social media usage among young adults even in pre-pandemic times (Varghese & Pistole, 2017).

Drawing on survey data from current U.S. college and university students in 2021 ($N = 331$), this study explored the relationship between cyberbullying experiences, perceived social isolation, and social media usage during the COVID-19 pandemic. The objective of the study was to determine the influence of the COVID-19 pandemic on cyberbullying experiences. The thesis addressed the three following research questions:

1) What relationship, if any, exists between cyberbullying experiences before and during the pandemic?
2) What relationship, if any, exists between cyberbullying experiences before and during the pandemic and social media usage?
3) What relationship, if any, exists between cyberbullying experiences before and during the pandemic and perceived social isolation?

The increase in technology, defined by social media usage, could make cyberbullying victimization and perpetration during the pandemic more likely. It is hypothesized that cyberbullying has accelerated during the COVID-19 pandemic and is induced by perceived

social isolation. In other words, social relationship quality and engagement in cyberspace may influence cyberbullying experiences.

A quantitative study was conducted to understand the relationship among perceived social isolation, social media usage, and cyberbullying before and during the pandemic more fully. The study first focused on descriptive statistics to summarize and characterize the data. To determine the further significance of the differences between the experiences before and during the pandemic, *t*-tests were utilized. Following the *t*-tests, simple linear regression and multiple linear regression were employed to model the linear relationship between cyberbullying experiences, social media usage, and perceived social isolation. The Pearson correlation coefficient was utilized to explore the relationship between the variables further.

Cyberbullying victimization and perpetration are generally associated with low self-esteem, feelings of anxiety, and suicidal thoughts, suggesting that future cyberbullying research focusing on the pandemic should remain significant (Hinduja & Patchin, 2010; Wolke et al., 2017). The study will generate awareness of cyberbullying in higher education during the pandemic, with practical implications for both scholars and practitioners; the outcomes of this study will also serve as a foundation for future research. While the study has limited generalizability based on the sampling technique and further research is needed, the results suggest that colleges and universities should be vigilant in terms of increased perceived social isolation and cyberbullying experiences during the ongoing pandemic.

## Chapter 2 Literature Review

The study seeks to explore whether cyberbullying has increased during the COVID-19 pandemic, as well as the importance of perceived social isolation for cyberbullying experiences and engagement in cyberspace during the pandemic. To examine this, the chapter conceptualizes cyberbullying and summarizes the existing literature on the associations between social media usage, perceived social isolation, and cyberbullying.

The thesis first establishes a framework that conceptualizes the phenomenon of cyberbullying and its associated challenges by establishing relevant definitions and prevalence rates; examining its overlap with traditional bullying; and identifying its effects, risks, and impacts. This focus aims to illustrate the comparability issues of cyberbullying studies due to the lack of consensus on definitions, measurements, and timeframes. Subsequently, social media and perceived social isolation are outlined, showing that young adults report high levels of loneliness and social media usage. The chapter further presents research findings on the relationship between social media usage, perceived social isolation, and cyberbullying experiences, indicating that a positive relationship often exists, particularly during the pandemic.

### The Ubiquity of Cyberbullying

The saturation of the internet and technology has enabled traditional bullying to occur beyond school premises, and this has laid the foundation for electronic bullying, also known as cyberbullying (Patchin et al., 2020). With emerging technology, bullying can now occur through social media, email, or text message, and it can be perpetrated 24 hours per day, seven days per

week (Moreno, 2016; Watts et al., 2017). Accordingly, King (2010) accentuates the gravity of cyberbullying as a societal issue related to the emergence of social networking sites. As users have come to rely increasingly on electronics, these users have often disregarded the possible dangers and effects of these technologies, which include cyberbullying (Ferrara et al., 2018).

While this is beyond the scope of the study, some researchers further differentiate between passive and active social media usage. Here, *active* is defined as directly communicating with other users, whereas *passive* describes scrolling down a social media website without engaging in interactions.

Contemporary social media platforms include Facebook, Instagram, Twitter, and WhatsApp (Lisitsa et al., 2020). At the same time, Twitter and YouTube are identified as social networking sites, which refer to web-based services and enable users to accomplish the following: "1) construct a public or semi-public profile within a bounded system, 2) articulate a list of other users with whom they share a connection, and 3) view and traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2007, p. 211). Simply put, social media refers to online platforms with the aim of connecting individuals.

Accordingly, the Pew Research Center found that most young adults use Instagram, Snapchat, and TikTok, with 7 out of 10 American adults reporting using such sites. Among young adults aged 18–29 years, 84% announced having used social media platforms at some point (Auxier & Anderson, 2021).

Although cyberbullying research focuses on youth and adolescents in school settings, cyberbullying occurs across the lifespan (Whittaker & Kowalski, 2015). A national survey in New Zealand showed that 14.9% of adults reported being a victim of cyberbullying during their lifetime, with 2.2% experiencing it within the past month (Wang et al., 2019). Nevertheless,

early prevention strategies in adolescence can still potentially limit cyberbullying experiences in adulthood (Meter et al., 2021). Notably, Smith et al. (2003) found that bullying experiences during school are a significant predictor for subsequent workplace victimization. Furthermore, as Wang and Kraft (2010) outline, the roles of cyberbullying in high schools are often maintained in postsecondary education ($p$ < .001). Given this issue, prevention and intervention strategies might be most valuable during adolescence and may reduce the likelihood of cyberbullying experiences later in life (Meter et al., 2021).

Historically, scholarly attention has focused on the bullying of children and adolescents in school settings (Addington, 2013). The first studies of bullying date back to Olweus's research in 1970, with bullying becoming an established topic in the literature in 1990. Today, bullying is considered a fundamental topic in developmental and educational psychology (Menin et al., 2021). In recent years, this interest has expanded to include cyberbullying as an electronic form of bullying and is partially ascribed to its high-profile cases, as well as to the perception of its pernicious consequences (Addington, 2013).

As Kowalski et al. (2012b) pointed out, cyberbullying was not generally considered a concern within society beyond two decades ago. However, over the last 20 years, scholarly research and media publicity devoted to cyberbullying have continuously expanded (Kowalski et al., 2012b). Yet, neither the scholarly nor criminal justice context has agreed on a uniform definition or classification for cyberbullying, making the identification and reporting of cyberbullying convoluted (Addington, 2013). Based on the lack of consensus, law enforcement officers, school administrators, parents, and students might fail to recognize behaviors that constitute cyberbullying (Patchin et al., 2020).

**Defining Cyberbullying**

Traditional bullying can be executed by individuals or a group with the aim of inflicting harm over a period of time, and it includes a power imbalance between perpetrator and victim (Hinduja & Patchin, 2010). Although definitions of traditional bullying vary, the central elements include inflicting harm, repetition, and intentional acts, with repeated behavior defined in most states as a behavior occurring at least twice (NW3C, 2021). Some scholars define cyberbullying as bullying through electronic technology, thereby declaring it a subset of traditional bullying with its underlying characteristics (Arntfield, 2015).

The literature proffers various definitions and classifications of cyberbullying (Sahin, 2012). Such terms as "electronic aggression," "electronic bullying," and "internet harassment" appear to be interchangeable with "cyberbullying" (Aboujaoude et al., 2015). Given that, Ansary (2020) cautions that declaring cyberbullying and cyberaggression as identical constructs can increase concerns of internal validity.

While the definition of cyberbullying remains elusive, relevant literature often employs Hinduja and Patchin's (2015) or Tokunaga's (2010) definition of cyberbullying (Peter & Petermann, 2018). Hinduja and Patchin (2015) defined cyberbullying as the utilization of electronic devices for purposeful and repeated infliction of harm. Posed by Tokunaga (2010), cyberbullying is "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (p. 278). In other words, electronic devices are used to harass, offend, or threaten somebody (Holladay, 2011).

Based on systematic literature research on 24 definitions, Peter and Petermann (2018) more recently developed a definition of cyberbullying that incorporates feelings of

embarrassment. They identified five shared characteristics (i.e., information and communication technologies, repetition, intent, harm, and target) in relevant cyberbullying definitions. Peter and Petermann (2018) declared "cyberbullying [as] using information and communication technologies (ICT) to repeatedly and intentionally harm, harass, hurt and/or embarrass a target" (p. 358).

While Tokunaga's (2010) and Hinduja and Patchin's (2015) definitions are often cited in the literature, the current study expanded Holladay's (2011) laconic definition of cyberbullying to avoid the complexity, length, and potential confusion caused by existing definitions. Holladay (2011) notes: "Simply put, cyberbullying is the repeated use of technology to harass, humiliate, or threaten" (p. 4). Accordingly, the survey defined cyberbullying as the intentional and repeated use of electronic technology to harass, offend, or threaten someone. The word *electronic* was incorporated into Holladay's (2011) definition to emphasize the electronic form of bullying. *Offend* replaced *humiliating someone* to emphasize intentionally causing harm rather than diminishing someone's reputation, thereby relating to the notion of embarrassment as outlined by Peter and Petermann (2018).

The lack of consensus in cyberbullying is not merely observable among scholars and practitioners; rather, it is also reflected in participants' perceptions of cyberbullying. In 2008, Vandebosch and Van Cleemput (2008) found that while adolescents are familiar with the term cyberbullying, they could not precisely recognize cyberbullying behavior. Supported by Meter et al. (2021), undergraduate students' definitions of cyberbullying generally reflected personal experiences rather than a comprehensive view of cyberbullying with its multifaceted forms. In the same way, the students often encountered ambiguity in identifying a behavior as

cyberbullying and struggled to discern whether their experiences truly represented cybervictimization.

In terms of social media posts, the participants emphasized the equivocal and nuanced line between cyberbullying behavior and dogmatic statements about politics and religion (Meter et al., 2021). In accordance with this, Myers and Cowie (2017) identified eight studies of cyberbullying in postsecondary education and concluded that some students view cyberbullying as frivolous rather than criminal conduct. Differences in the operationalization of cyberbullying are also likely to influence prevention programs' effectiveness because a clear prevention target may be lacking (Ansary, 2020).

Juxtaposed with the declaration of inconsistent definitions, Ansary (2020) argues that definitions of cyberbullying are becoming more alike by increasingly involving similar elements, including technology, repetition, intent, and harm. Nonetheless, substantial disparities, such as sample age and size, and divergent time measurements are still considered current obstacles in cyberbullying research and presumably engender the large variation in prevalence rates (Addington, 2013; Ansary, 2020). Accordingly, studies with adolescents show higher rates of cyberbullying when compared to elementary school samples. In terms of the time parameter, examining more extended periods of time tends to indicate higher prevalence rates than examining shorter periods (i.e., one year versus 30 days; Addington, 2013; Ansary, 2013; Olweus, 2012).

**Prevalence Rate**

As the literature on cyberbullying evolves, it is becoming clear that prevalence rates vary across the lifespan. At the same time, most studies suggest that adolescence is the riskiest stage of life for experiencing cyberbullying, with prevalence rates for victimization ranging from 5%

to 72% (Wolke et al., 2017). As a result, cyberbullying research tends to be primarily concerned with children and adolescents (Newman et al., 2005). Still, estimates of the prevalence of cyberbullying among adolescents remain inconsistent. For instance, Juvonen and Gross (2008) reported that 72% ($N = 1,454$) of youths included in a survey had been cyberbullied within the previous year, whereas the 2019 Youth Risk Behavior Survey concluded that only 16% ($N = 13,000$) of high school students had been cyberbullied during the past year (Centers for Disease Control and Prevention, 2020). According to the relevant cyberbullying studies, 15.3%–17.4% of all surveyed children have experienced cyberbullying victimization (Cyberbullying Research Center, n.d.).

Giumetti et al. (2022) highlight the lack of longitudinal studies with samples of college and university students as a gap in the cyberbullying literature. Although cyberbullying in colleges and universities is less extensively studied in research, in one study, 30% of 110 undergraduate students reported having their first victimization experiences during college, illustrating the need for cyberbullying research in college and university settings (Kowalski et al., 2012a). Notably, in a study involving 3,699 adults, the prevalence rate of cyberbullying victimization in adulthood was higher than that of traditional bullying. (Kowalski et al., 2018). More studies, including the current study, are needed to examine cyberbullying among young adults.

The rate of cyberbullying victimization in college and university settings fluctuates across studies. Turan et al. (2011) reported that 59.8% ($N = 579$) of 18- to 30-year-old students in Istanbul were cyberbullied. Reporting a lower figure, a US study concluded that 14% of university students ($N = 613$) experienced being cyberbullied at least once in college (Zalaquett & Chatters, 2014; Myers & Cowie, 2017). Varghese and Pistole (2017) also reported that 15.1%

($N = 338$) of undergraduate students had experienced cyberbullying victimization, whereas Schenk and Fremouw (2012) found that 8.6% ($N = 799$) of college students were cyberbullied.

In terms of the latest research, Giumetti et al. (2022) discovered that 42.9% of senior students ($n = 317$) reported cyberbullying victimization during the pandemic. In line with this, a recent study with German adolescents ($N = 1,107$) suggested that the COVID-19 pandemic did not influence the frequency of cyberbullying victimization. However, the study measured victimization without including a timeframe before the COVID-19 pandemic, making inferences from before to during the pandemic potentially problematic (Schunk et al., 2022). The results mentioned above give concerning estimates and suggest the ubiquity of cyberbullying victimization, even in higher education.

Regarding perpetration, Varghese and Pistole (2017) found that 8.0% ($N = 338$) of undergraduate students engage in cyberbullying offending. In line with these findings, 15.5% of adult participants reported recently cyberbullying someone in adulthood, whereas 8.8% reported the same for traditional bullying (Kowalski et al., 2018). In a more recent study, Giumetti et al. (2022) compared cyberbullying experiences among senior students between fall 2019 ($n = 820$) and spring 2020 ($n = 317$) and found a decline in cyberbullying perpetration (dropping from 23.7% to 13.2%).

In the context of social upheavals, including the COVID-19 pandemic, Barlett et al. (2021b) discovered a significant increase in cyberbullying perpetration among US adults ($N = 354$) during the pandemic. Their study further found that positive attitudes toward cyberbullying were higher for the May 2020 ($n = 173$) sample than for the July 2019 one ($n = 181$) and likely resulted from increased internet usage during the pandemic (Barlett et al., 2021b).

Although cyberbullying victimization generally shows higher rates than offending does, perpetration is a prevalent concern (Giumetti et al., 2022; Varghese & Pistole, 2017). More studies are needed on cyberbullying victimization and perpetration and their association with the pandemic, including research aimed to better understand the prevalence rate during a phase of increased online presence (Varghese & Pistole, 2017). The current study attempts to fill this gap.

Categorizing the rate according to perpetrator or victim may exclude the linkage between the roles. While the prevalence rate can be distinguished by victim and perpetrator, the literature further subdivides this dichotomy. Individuals can belong to the following groups: 1) those who believe they have the privilege to bully based on specific differences, such as racial dissimilarities, or bully as a consequence of previous bullying experiences; 2) those who are the targets; 3) those who are bystanders or witnesses by either supporting the perpetrator through encouragement or supporting the victim by intervening (El Asam & Samara, 2016).

Individuals can inhabit more than one role, such as being both a victim and a perpetrator; these individuals are referred to as "bully-victims" (Pichel et al., 2021). Although discussing this category is beyond the scope of the thesis, shifts in group belongings among adolescents or transitions to adulthood could potentially result in exhibiting new roles (i.e., moving from victim to perpetrator). For simplification, this study focused on the main categories of perpetrators, victims, and witnesses.

As Watts et al. (2017) argued, "more alarming than the trend of cyberbullying is the lack of reporting it" (p. 270). For instance, Zweig et al. (2013) conducted a study of 5,647 young individuals from middle and high school and found that only one in six cyberbullying victims seek help. Consequently, little is known about the relationship between the criminal justice system and cyberbullying. It is assumed that most cyberbullying cases are not reported or are

substantially underreported (Addington, 2013; Arntfield, 2015). Some related studies focused on cybercrime and law enforcement, but only a limited amount of research has explicitly considered cyberbullying as a cybercrime or examined police responses to it (Patchin et al., 2020).

When reporting is examined, it is mainly focused on children and adolescents and is defined as speaking to family or friends rather than the police (Addington, 2013; Patchin & Hinduja, 2006). For instance, Addington's (2013) study revealed that 68.4% ($n = 272$) of the adolescents surveyed did not communicate cyberbullying victimization to school officials, and only 28.5% of the cases reported to the police were cleared.

In the context of universities, Jain et al. (2020) showed that merely 4.55% of the students ($N = 364$) took legal actions against cyberbullying perpetrators. The diminutive amount of reporting might be partially explained by the self-report research design that is routinely applied to cyberbullying research, which leads to concerns about potential memory issues, discomfort, or lack of information among participants (Development Services Group, 2013). In addition, the wide variety of cyberbullying forms may further inhibit the measurement and reporting of cyberbullying.

**Categorization of Cyberbullying Forms**

Social media is the most commonly used venue for cyberbullying (Kowalski et al., 2019). Such cyberbullying frequently occurs via social media, text messages, emails, online gaming communities, or chatrooms (U.S. Department of Health and Human Services, 2021c). Heavy reliance on apps, such as Facebook, Instagram, and Twitter, is not solely the province of Generation Z (i.e., born after 1996). For instance, in a study involving adults in the United States, 84% of 18- to 29-year-olds and 45% of those 65 years or older indicated using at least one social

networking site (Pew Research Center, 2017). Still, most cyberbullying literature focuses on school and adolescent-aged victims and offenders.

Cyberbullying can take a broad range of forms (Myers & Cowie, 2017). For example, an exploration of cyberbullying incidents on Facebook among undergraduate students ($n = 265$) revealed that the incidents mainly occurred via comments, pictures, and status updates (Brody & Vangelisti, 2017). Specifically, sending harassing, threatening, and offensive messages and sharing or uploading humiliating photos and videos are activities that are commonly characterized as cyberbullying (Myers & Cowie, 2017; Patchin et al., 2020). Cyberbullying can also involve sharing false content or private information, creating fake accounts, making hoax calls, or designing hate sites to humiliate someone (Myers & Cowie, 2017; U.S. Department of Health and Human Services, 2021c).

Scholars often follow Willard's (2011) classification of cyberbullying as taking the following forms: 1) flaming, 2) harassment, 3) denigration, 4) outing, 5) trickery, 6) exclusion, and 7) cyberstalking. *Flaming*, also called trolling, involves messages with aggressive or hostile content directed or exchanged between at least two individuals. *Harassment* involves sending repeated messages and with offensive content often considered cyberbullying. *Denigration* is described as the sharing of false material or information that aims and is considered to tarnish the target's reputation. *Outing* is sending private and disgracing information about an individual without that person's permission, whereas *trickery* is defined as deceiving a person into revealing harmful material about themselves and subsequently sharing the information with others.

In contrast, in the cyberbullying context, *exclusion* is the act of ostracizing someone from chats or online groups. Finally, *cyberstalking* is often described as tracing someone online without their permission, causing victims to fear for their safety; it can also involve other forms

of bullying, such as flaming (El Asam & Samara, 2016; Willard, 2011). Cyberharassment is declared to be cyberstalking when feelings of fear on the part of the victim are involved (Langos, 2015).

Langos (2015) expanded on Willard's (2011) categorization by adding happy slapping, impersonation, and masquerading. *Happy slapping* is the behavior of recording and sharing the material of a physical assault; in *impersonation*, the offender acts and pretends to be the victim while aiming to humiliate the victim (Langos, 2015). This chapter cannot provide a definitive and comprehensive list of the forms of cyberbullying but does attempt to provide definitions and examples of the most commonly recognized behaviors. As technology develops, the forms of cyberbullying develop alongside it (Myers & Cowie, 2017).

Smith (2009) claimed that cyberstalking, cyberharassment, and cyberbullying can all be characterized as internet harassment, with cyberbullying being perceived as the least harmful form. A study of 364 university students found that cyberstalking was the most prevalent type of cyberbullying (71.2%), followed by offensive comments (62.3%) and the leaking of content (41.6%) and harassment (21.9%). The percentage overlap illustrates that individuals can experience multiple forms of cyberbullying (Jain et al., 2020).

Smith (2009) also pointed out that cyberharassment and cyberbullying are regarded as fungible in some contexts, but in others, cyberbullying solely refers to harassment between children or adolescents with cyberharassment referring to incidents between adults. For instance, the Kansas cyberbullying laws define cyberbullying as incidents that occur between students, staff, or even parents, whereas Michigan's laws focus solely on incidents between pupils (U.S. Department of Health and Human Services, 2021a; U.S. Department of Health and Human Services 2021b).

In this thesis, cyberbullying refers to incidents between two individuals regardless of their age, while the study limited cyberbullying to young adults who were students. Alternatively, some scholars argue that cyberbullying is a form of traditional bullying, with cyberbullying generating merely a small percentage of new victims (Olweus, 2012).

**The Overlap Between Traditional Bullying and Cyberbullying**

Scholars generally view cyberbullying as either a subtype of traditional bullying or an individual phenomenon based on its unique circumstances and environment (Ansary, 2021). A study involving 2,083 children and adolescents found that cyberbullying perpetration rarely occurs outside of the school context and suggested combining cyberbullying and traditional bullying rather than viewing these types of bullying as two separate entities (Pichel et al., 2021). Equivalently, Olweus (2012) argued that cyberbullying is a "low-prevalence phenomenon" (p. 534). In Olweus's (2012) study involving 450,490 students from 1,349 elementary and middle schools in Norway and the US, one of the key findings was that cyberbullying claims are mostly overestimated by the media. The media attention devoted to cyberbullying may provide a false narrative of cyberbullying (i.e., being a noxious issue), and the overlap between traditional bullying and cyberbullying is substantial. The study found that the overlap between both phenomena was 88% for the American schools and 91% for the schools in Oslo. Stated differently, cyberbullying generates hardly any new victims and perpetrators compared with traditional bullying (Olweus, 2012).

Slonje and Smith (2008) found that cyberbullying occurs less frequently than traditional bullying does, with cyberbullying representing a subcategory of traditional bullying. Despite this, these researchers acknowledged the challenges that are uniquely associated with cyberbullying, including the absence of physical strength and increased anonymity (Slonje & Smith, 2008).

Other researchers have recognized similarities between both concepts while declaring cyberbullying an individual behavior (Ansary, 2020). Nevertheless, the central elements of traditional bullying —namely, inflicting harm, a power imbalance, repetition, and intentional acts—might be less apparent in cyberbullying incidents.

The physical power imbalance between perpetrator and victim outlined in traditional bullying is not required in cyberbullying, allowing perpetrators with less strength to potentially engage in electronic bullying without the peril of negative feedback (Hinduja & Patchin, 2010; Meters et al., 2021). To a certain extent, the lack of supervision and increased anonymity in cyberspace may engender cyberbullying to be more concerning than traditional bullying (al-Khateeb & Epiphaniou, 2016). As Ansary (2020) summarized, "cyberspace makes bullying easier, more accessible, and inflicts greater harm than traditional bullying" (p. 1). In addition, posts can be shared or retweeted while consistently adding new information to the original content, allowing for the rapid dissemination of unwanted information to numerous users (Kazerooni et al., 2018). Regardless of the number of repetitions, the enduring availability of content may also have longstanding effects on cyberbullying victims and make the determination of repetition and intentional harm in cyberbullying cases more complex (Menin et al., 2021).

Cyberbullying enables anonymity because of the lack of a need for face-to-face interactions; since perpetrators do not need to interact with victims in this way, perpetrators may have the perception that no harm has been caused (Meters et al., 2021). Supported by Sticca and Perren's (2013) vignette research, while cyberbullying is generally not considered more detrimental than traditional bullying is, public and anonymous bullying can be perceived as more severe than private bullying or bullying with known perpetrators. Notably, anonymous cyberbullying was viewed as more severe than traditional bullying (Sticca & Perren, 2013). By

contrast, other scholars argue that a power imbalance persists in cyberspace because of the opportunity to engage in bullying anonymously, which is related to the disinhibition effect (Menin et al., 2021). The *disinhibition effect* refers to the increase in anonymity and concomitant decrease in concern for other people and outcomes, even when victims and perpetrators are familiar with each other (Watts et al., 2017).

Cyberspace potentially makes it less likely to report cases of bullying as the victim may not know who to contact, especially in cases of sham accounts (Meters et al., 2021). That being said, it may be more suitable to characterize cyberbullying as a modern form of traditional bullying to acknowledge the overlap between them rather than viewing cyberbullying as a separate entity (Sticca & Perren, 2013). Consequently, the relationship between traditional bullying and cyberbullying should not be trivialized. Some studies have found that being a victim of traditional bullying increases the risk of cyberbullying victimization (Kowalski et al., 2019, see also Pichel et al., 2021). In other words, cyberbullying perpetrators often target victims of traditional bullying.

As illustrated in the previous section, disparities in operationalizations and time measurements are essential to consider in cyberbullying research because they can potentially limit the comparability of research findings across studies (Cyberbullying Research Center, n.d.; Myers & Cowie, 2017). Beyond the lack of consensus on the relationship between cyberbullying and traditional bullying, the relevant literature reveals that the effects and risks of traditional bullying often overlap with those of cyberbullying (Ansary, 2020).

**Effects and Risks Associated with Cyberbullying**

In line with traditional bullying, cyberbullying is often considered a public health threat with potentially deleterious consequences (Ferrara et al., 2018). As King (2010) stressed, "the

Internet creates a virtual world that can result in very real consequences for people's lives" (p. 846). The severe outcomes of cyberbullying are illustrated in the case of Tyler Clementi.

In 2010, Tyler, a Rutgers University student in New Jersey, asked his roommate for privacy while entertaining his date in their room. Without Tyler's permission, the roommate and another student allegedly recorded him via a webcam during a sexual encounter with another man and shared the live recordings with other students. Tyler discovered the material on his roommate's Twitter account and learned that his roommate allegedly planned to repeat the incident. While Tyler complained to the Resident Assistant and requested a new roommate with evidence to substantiate the incident, the measures authorities or school administrators took remain unknown. Three days after the incident, Tyler committed suicide and sparked national conversations about cyberbullying among LGBTQIA (i.e., lesbian, gay, bisexual, transgender, queer or questioning, intersex, and asexual) individuals (State of New Jersey v. Dharun Ravi, 2016; Tyler Clementi Foundation, n.d.).

The two students broadcasting the sexual encounter were charged with the invasion of privacy. In 2016, his roommate pleaded guilty to the charge and was sentenced to 20 days in jail, a $10,000 fine, and cyberbullying counseling sessions (Gonzales, 2016). In the wake of Tyler's death, the Tyler Clementi Foundation raised awareness of bullying and harassment occurring both online and offline (Tyler Clementi Foundation, n.d).

In the relevant literature, experiences of cyberbullying and traditional bullying are associated with increased suicidal ideation and self-harm behavior (Dorol-Beauroy-Eustache & Mishara, 2021). According to a study involving middle school students ($n = 1,963$), 20% of all students had considered suicide, with cyberbullying victims being more likely to attempt suicide than students without cyberbullying experiences (Hinduja & Patchin, 2010). Most importantly,

cyberbullying can affect life beyond university settings and may not be limited to one incident. Resharing or retweeting may allow the perpetrator to target the victim multiple times. At the same time, the permanence of digital content may result in noxious outcomes for victims (Giumetti et al., 2022; Kazerooni et al., 2018). Given this point, symptoms of posttraumatic stress disorder, anxiety, and depression are often significantly correlated with cybervictimization in general (Chen et al., 2018; Giumetti et al., 2022).

Cyberbullying victimization is also associated with somatic problems and the risk of physical inactivity (Vaillancourt et al., 2017). Whereas most studies on such topics focus on adolescents, postsecondary education research has confirmed that 31.4% ($N = 338$) of university students are at risk of clinical depression, with victims of cyberbullying indicating higher feelings of depression (Varghese & Pistole, 2017). Victimized college students also indicate higher levels of hostility, paranoia, and sensitivity compared with individuals who have not been victimized (Schenk & Fremouw, 2012). In data from 6th–10th graders ($N = 7,084$) in the United States, being a cyberbullying victim was a predictor of alcohol usage among female participants. Alcohol usage was measured by the frequency of alcohol use in the last 30 days and showed that strict parental rules are associated with less alcohol usage, suggesting the potential of rules for prevention and intervention strategies (Lee et al., 2020).

Scholars focusing on cyberbullying have presented mixed results regarding the relationship between alcohol usage and cyberbullying perpetration. In a recent study, Giumetti et al. (2022) found that cyberbullying perpetration was positively associated with the personality trait of Machiavellianism (i.e., manipulating people) and engagement in deviance. At the same time, alcohol usage was not significantly correlated with perpetration among senior students (Giumetti et al., 2022).

The effects and risks of victimization and perpetration may not be mutually exclusive. Kritsotakis et al. (2017) showed that male undergraduate students with cyberbullying experiences (victim or perpetrator) are more likely to engage in alcohol abuse compared with their female counterparts. Relevant literature has also identified the systematic risk and protective factors of traditional bullying and cyberbullying victimization and perpetration (Ansary, 2020). For instance, research shows that low self-control is a risk factor for cyberbullying behavior (Giumetti et al., 2022). In Vazsonyi et al.'s (2012) sample of youths ($N =$ 25,142), low self-control was associated with increased cybervictimization and perpetration. Contrarily, Kowalski et al. (2019) included high self-esteem, high socioeconomic status, social competence, and high peer support as protective factors for cyberbullying victimization and perpetration. Taking all the mentioned findings into account, both cyberbullying perpetration and victimization have pernicious outcomes; moreover, they have a variety of shared risk and protective factors that include anxiety and suicidal thoughts. Moreover, as outlined below, some social identities are generally more prone to experience victimization or to target other individuals.

**The Impact of Cyberbullying on Social Identity**

In a similar vein to the health and psychological effects, cyberbullying experiences can affect social identities. According to Jetten et al. (2012), "It [social identity] therefore reflects the fact that in thinking about who we are, we can define ourselves (and our sense of self) not just as 'I' and 'me', but also (and often more importantly) as 'we' and 'us'" (p. 4). Social identity is a self-conception, and it is based on belonging to groups, such as the individual's family or university community (Ellemers et al., 2002; Jetten et al., 2012). Notably, individuals can inherit numerous social identities. In general, the stronger the belonging to a group, the higher the level

of identification (Swann et al., 2009). Social identities, including identities related to gender or sexual orientation, differ in their ramifications for people's experiences with cyberbullying.

Research on adolescents generally supports the claim that LGBTQIA individuals are at a heightened risk for cyberbullying victimization (Ansary, 2020; Kowalski et al., 2019). The Youth Behavior Risk Survey revealed that LGBTQIA high school students (26.6%) are nearly twice as likely to be cyberbullied compared with heterosexual students (14.1%; Centers for Disease Control and Prevention, 2020). A few studies found no significant difference between LGBTQIA individuals and their counterparts. For instance, Wensley and Campbell (2012) found that homosexual students are more likely to be involved (i.e., victims and perpetrators) in traditional bullying among undergraduate students ($N = 528$). In their study, no differences were found between heterosexual and homosexual students in terms of cyberbullying perpetration and victimization.

Studies concerned with racial and minority cyberbullying differences have uncovered mixed results. Some evidence suggests that white people are more victimized, while others emphasize the increased risk for racial or ethnic minorities (Ansary, 2020; Kowalski et al., 2019). For instance, Hong et al. (2016) found that African Americans are more likely to experience cyberbullying victimization than Hispanic/Latino or European American peers. By contrast, Hinduja and Patchin (2008) found no support that race influenced cyberbullying victimization or perpetration, suggesting that race may become less relevant in online settings.

Women may be more likely to experience cyberbullying victimization than other genders (Faucher et al., 2014). In a study involving Canadian university students ($N = 1,925$), Faucher et al. (2014) found that cyberbullying victimization and perpetration were more targeted toward the same gender than toward the opposite gender. In particular, female students in the university

setting tended to be more likely to target or be victimized by other women (Faucher et al., 2016).

Differences in the forms of cyberbullying must be considered in this discussion. Research shows

that female undergraduates are often targeted based on their sexual activity, whereas men are

victimized for their sexual orientation or skills (Ansary, 2020).

Such events as the termination of friendships, intimate relationships and aspects like

sexual orientation can also significantly heighten the risk of cyberbullying victimization (Myers

& Cowie, 2017). For racial and ethnic minorities, the results for cyberbullying vary across

studies, with some suggesting that African Americans are more likely to be victimized than

white students (Hong et al., 2016). In general, women and students who are engaged with

activities on campus—for instance, athletes or students associated with sororities—are more

likely to either be victimized by a cyberbully or execute the role of a cyberbully (Ansary, 2020;

Kowalski et al., 2019).[1] In addition to gender and sexual orientation differences, high technology

or social media usage generally increases the risk for cyberbullying (Kowalski et al., 2019).

**Social Media Usage, Cyberbullying, and the COVID-19 Pandemic**

Based on the onset of the COVID-19 pandemic, individuals have been required to use

more electronic devices than before, with current research supporting increased internet and

social media usage as a ramification of the pandemic (Jain et al., 2020). In a study by the Pew

Research Center in 2021, 90% of American adults revealed that the internet is an important

aspect of their life during the pandemic (Auxier & Anderson, 2021).

Participants ($N = 2,000$) in an Ohio State University Wexner Medical Center (2020)

study reported increased social media usage because of events associated with the pandemic.

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[1] Future research may explore to which extent cyberbullying is used to maintain social hierarchies and may consider focusing on females and/or students who are engaged on campus.

This was supported by a German study, in which over 70% of 18- to 55-year-old participants reported more online media consumption during COVID-19 lockdowns (Lemenager et al., 2021). Furthermore, a survey of university students in Mumbai concluded that social media usage was correlated with the COVID-19 pandemic (Jain et al., 2020).

Related literature has also examined the association between technology usage and cyberbullying victimization experiences and showed mixed results (Cagirkan & Bilek, 2021; Watts et al., 2017). A Korean study involving adolescents ($N = 7,109$) discovered that increased online leisure activities increase the likelihood of cybervictimization (Choi et al., 2019b; see also Cagirkan & Bilek, 2021). In 2021, Marengo and colleagues (2021) measured problematic social media usage through the Social Media Disorder Scale and discovered that problematic social media usage heightens the risk of cybervictimization among children.

As Holt et al. (2016) noted, "the risks of cyberbullying victimization appear to increase as youth gain more access to different forms of technology as they age" (p. 608). A representative study of Singapore youth ($N = 4,315$) revealed that more internet access made cyberbullying victimization more likely, potentially illustrating that increased internet usage enables more opportunities for perpetrators to engage in cyberbullying behavior (Holt et al., 2016).

While some studies have found a correlation between cyberbullying victimization and technology usage, other researchers stress that only some technology forms increase the likelihood of cyberbullying (Davis & Koepke, 2016; Watts et al., 2017). Adolescents who engage in increased cell phone usage tend to be more likely to experience cybervictimization, but there has been no significant relationship found between time spent on the internet and victimization experiences (Davis & Koepke, 2016). Research has also revealed that technology use, cell phone usage, and time spent on the internet was not associated with cybervictimization

among senior college students. In other words, technology use could not significantly predict cyberbullying victimization (Giumetti et al., 2022).

Cyberbullying is often viewed as peaking in adolescence and subsequently declining later in life. A study with 471 college students concluded that students at the age of 25 years or younger are more likely than students over the age of 25 years (35% vs. 13%) to use social media accounts 14 or more times each week; thus, the younger students have a higher risk of being cybervictimized (Wang & Kraft, 2010). Similarly, a web-based survey with 15- to 25-year-old participants from the United States, Finland, Spain, and South Korea ($N = 4816$) found that the risk of being victimized increases with social media usage (Marengo et al., 2021). In addition to the risk of victimization, social media usage among college students is also associated with symptoms of depression and low self-esteem (Sahin, 2012; Varghese & Pistole, 2017).

In regard to perpetration, Barlett and Chamberlin (2017) collected data from 177 middle and high school youth and 552 adults between 18-75 years. The researchers' regression analysis showed an inverted quadric relationship between age, technology time, and cyberbullying perpetration; in their results, perpetration experiences and time spent online increased from youth to early adulthood and continually decreased afterward (Barlett & Chamberlin, 2017).

Concerning the COVID-19 pandemic, a study discovered higher rates of cyberbullying perpetration among an adult sample in the United States during the pandemic than before (Barlett et al., 2021b). While the time spent online was not disclosed in the study, Barlett and associated (2021b) stressed that "greater access predicts greater risk" (p. 415). Furthermore, in a recent study, 176 college students reported increasing their habitual use of and addiction (i.e., self-disclosed and measured by the adapted version of the Bergen Facebook Addiction Scale) to social networking sites during the COVID-19 pandemic (Tuck & Thompson, 2021).

The increase in students' online time is often associated with loneliness (i.e., perceived social isolation; Barlett et al., 2021b; Varghese & Pistole, 2017). Loneliness is considered a risk factor for addictive and erratic internet behavior, and related literature further shows an association between loneliness and social networking sites (Brewer & Kerslake, 2015). However, the relationship between social media usage and loneliness may be more convoluted than this. More social media usage was also identified as involving increased support seeking with online connections, substituting for in-person relationships, or strengthening offline bonds (Keles et al., 2020; Lisitsa et al., 2020). Stated differently, social media "can also function as a source of fulfilling individuals' social and psychological needs, such as belongingness, self-esteem, and avoiding loneliness" (Mikkola et al., 2020, p. 2).

Conversely, in another study, 36.3% of 274 of adults reported feeling lonelier, arguing that video calls cannot replace face-to-face interactions during the pandemic (Schellekens & van der Lee, 2020). Lisitsa et al. (2020) concluded that loneliness often drives a surge in social media usage during the COVID-19 pandemic. A study in Italy found that the adult sample ($N = 715$) increased the time spent on social media during the pandemic, with loneliness being a significant predictor of excessive social media usage (Boursier et al., 2020).

Significantly, social networking sites were correlated with loneliness during the pandemic; loneliness was positively correlated with social networking site addiction ($r = .26$), but it was negatively associated with the usage of social networking sites ($r = 0.19$; Tuck & Thompson, 2021). As Lisitsa et al. (2020) reported, an increase in social media and a decrease in social support seeking were significant predictors of loneliness during the pandemic. Stated differently, if individuals feel lonely, they may engage more on social media with the aim of increasing social connectedness (Varghese & Pistole, 2017).

**The COVID-19 Pandemic and Perceived Social Isolation**

Humans are a social species, and at the most primitive level, they require interactions with other human beings to survive (Cacioppo & Hawkley, 2009). Scholars and practitioners have characterized social support as a determinant of health, and in recent years, they have retrospectively declared social isolation pernicious to the well-being of individuals (Smith et al., 2020). Although there is no consensus on the measurement of social isolation, it is generally investigated through either the quantity or quality of social relationships.

The measurement that refers to the amount of interaction is defined as external or objective social isolation and is often quantitatively captured through the frequency of contact. At the same time, internal or perceived social isolation refers to a subjective evaluation of a deficit in social contacts (Nazzal et al., 2017). Considering the loss of employment or the reduction of mobility as potential factors for isolation, most perceived social isolation research focuses on the older population (Clair et al., 2021; Child & Lawton, 2019). Although perceived social isolation is often measured in later life, it is not limited to a specific age category (De Jong Gierveld & Van Tilburg, 2006). Notably, whereas young adults generally have a substantial network of social ties, some studies revealed that young adults have high levels of loneliness (Clair et al., 2021; Child & Lawton, 2019).

Perceived social isolation is the subjective perception of the quality of social ties. It includes obnoxious feelings caused by insufficient relationships or situations in which the desired intimacy is not given (De Jong Gierveld & Van Tilburg, 2006). Perceived social isolation is usually inimical to individuals, potentially causing poorer cognitive performance, cognitive decline, negativity, or depressive symptoms. Regardless of its accuracy of the perceived social isolation, it may further decrease philanthropic actions and life satisfaction and result in an

increasingly negative perception of others (Cacioppo & Hawkley, 2009). In other words, perceived social isolation can influence the social well-being and emotional fulfillment of individuals (De Jong Gierveld & Van Tilburg, 2006; Hughes et al., 2004).

It is necessary to distinguish between objective and subjective social isolation, considering that individuals with abundant relationships can feel isolated, whereas others can feel embedded even when they have limited social connections (Clair et al., 2021; Ma et al., 2020). This is not to say that the quantity of social interaction cannot influence the quality of social relationships. However, Hughes et al. (2004) found a low variance between objective and subjective social isolation. Perceived social isolation may be further influenced by factors that are unrelated to the number of social interactions, including cultural context, genetic predisposition, or early experiences (Cacioppo & Hawkley, 2009).

Perceived social isolation is often colloquially referred to as loneliness, but some scholars differentiate between social isolation and loneliness. Specifically, *social isolation* refers to alienation when there are fewer relationships than desired, whereas *loneliness* occurs when social connections are perceived as limited. Although distinct, these two issues tend to coincide and are often entangled (Matthews et al., 2016). Moreover, being alone does not necessarily yield feeling isolated or not belonging; rather, "these feelings [. . .] are thought to reflect the discrepancy between one's desired and one's actual relationships" (Hughes et al., 2004, p. 657).

Considering recent measures to curtail the spread of COVID-19, including lockdowns and social distancing, scholars assume that perceived social isolation is potentially surging. A study with 467 undergraduate students from a Canadian university and 336 adults from the United States and United Kingdom found that some participants experienced a dramatic decline in social connectedness during the pandemic, but most of the sample remained connected. After

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controlling for social relationships before the pandemic, the effect of the pandemic on loneliness was not significant among the samples (Folk et al., 2020).

In an online survey involving 303 college students, Labrague et al. (2021) reported that the COVID-19 pandemic has resulted in a significant increase in feelings of loneliness. Loneliness was prevalent among the sample, with 56.7% of students experiencing moderate loneliness and 23.6% feeling severely lonely. Mainly, young students and female students reported more loneliness than their older and male counterparts did during the pandemic (Labrague et al., 2021). In Clair et al.'s (2021) study, young adults (18–29 years of age) experienced more perceived social isolation than any other age group among adults (30–84 years of age). This social isolation was further related to a decline in life satisfaction and increased substance usage (Clair et al., 2021).

While there is general support for higher feelings of perceived social isolation during the pandemic, this may further influence cyber engagement, including cyberbullying (Hughes et al., 2004; Newman et al., 2005). As illustrated in the literature, traditional bullying victims are often isolated from their peers, potentially because perpetrators focus only on individuals who are disconnected from their peers or because peers tend to avoid victims of bullying (Newman et al., 2005).

With respect to cyberbullying, the importance of perceived social isolation for it is inconsistent. For instance, Brewer and Kerslake (2015) emphasized the importance of loneliness for research considering that it is prevalent phenomenon in the world. Their study found that a combination of loneliness, decreased empathy, and low levels of self-esteem can predict cyberbullying experiences, but loneliness alone is not a strong predictor of cyberbullying (Brewer & Kerslake, 2015). Interestingly, Varghese and Pistole (2017) reported a high level of

depression and loneliness in cyberbullying victims. Sahin (2012) also detected a significant relationship between loneliness and cyberbullying victimization but no significant correlation between loneliness and perpetration.

The current study focused on perceived social isolation to measure the subjective perception of people's social worlds using the Revised University of California, Los Angeles (R-UCLA) Loneliness Scale. Research has shown that the R-UCLA Loneliness Scale is a reliable and valid measurement of perceived social isolation (De Jong Gierveld & Van Tilburg, 2006; Ma et al., 2020). The scale was developed by Russell et al. (1978), and it measures feelings of loneliness or social isolation (see also Sahin, 2012).

The study further examined whether perceived social isolation has influenced cyberbullying involvement and social media usage during the pandemic. Boursier et al. (2020) suggest that lockdowns cause feelings of loneliness and lead people to increasingly engage with social media to seek social belonging; the aim of doing so is to reduce the deficit between desired and actual social contact (Mikkola et al., 2020; see also Lisitsa et al., 2020). Indeed, young adults between 18–34 years old reported more social media usage and loneliness than older adults during the pandemic (Lisitsa et al., 2020). Consequently, individuals predisposed to loneliness might increase technology usage to isolate themselves from others, or lonely individuals may engage more on social media to increase social connectedness (Sahin, 2012; Varghese & Pistole, 2017).

Ultimately, it is necessary to examine the correlation between social media usage, and feelings of loneliness among young adults, considering that this age category generally indicates high levels of loneliness and social media presence (Lisitsa et al., 2020). The study focused on young adults to examine the link between their cyberbullying experiences with the time spent on

social media and perceived social isolation to examine the pandemic's effect on this age group's

well-being

**Chapter 3 Theoretical Framework: Explanation of Cyberbullying through Routine Activity Theory and Barlett Gentile Cyberbullying Model**

The development of technology and its usage have important effects on cyberbullying. Internet and social media saturation have provided substantial opportunities for offenders to find suitable targets and engage in cyberbullying (Mikkola et al., 2020). With this proliferation of technology, theoretical concepts are necessary to understand and predict cyberbullying. These concepts have potential implications for intervention and prevention strategies (Barlett et al., 2019). Although cyberbullying is generally viewed as a severe public health threat, at the same time, it is considered a neglected area of cybervictimization research (Arntfield, 2015). Both routine activity theory and Barlett Gentile cyberbullying model are viable theoretical frameworks for assessing cyberbullying (Herrero et al., 2021; Mikkola et al., 2020). The Barlett Gentile cyberbullying model is a promising theory designed explicitly for cyberbullying perpetration and customized to its unique characteristics and environment.

**Routine Activity Theory (RAT)**

Among the most widely used theories for studying cybercrimes is the RAT. While RAT was initially developed to explain the surge in US crime rates after World War II, the theory is increasingly adapted to the context of cybercrimes (Arntfield, 2015; Kigerl, 2012). RAT is viewed as one of the most influential criminology theories, proposing that a criminal event is simplified as offender plus target minus guardianship equals crime (Tewksbury & Mustaine, 2010; Turvey & Freeman, 2014; Yar, 2005).

Cohen and Felson (1979) first postulated RAT to address the drastic increase in crime rates during the postwar period. The theory posits that profound alterations in routine activities enable more opportunities for 1) a suitable target, 2) a motivated offender, and 3) the absence of capable guardianship to converge. The convergence of the three elements in time and space is fundamental, and the absence of one element is sufficient to prevent criminal activities (Cohen & Felson, 1979; Warr, 2017). Following this approach, a crime cannot occur when an effective guardianship is present, even when a motivated offender and a suitable target meet in a spatiotemporal setting (Wilcox, 2015). This coexistence in a spatial and temporal location is declared a hotspot. The hotspot for traditional bullying is generally assigned to the school setting, whereas cyberspace is the setting for cyberbullying incidents (Choi et al., 2019a).

Since World War II, routine activities have dramatically shifted from household to non-household activities and have increased the likelihood of convergence between victims, offenders, and guardianship (Cohen & Felson, 1979). Routine activities are defined as "any recurrent and prevalent activities which provide for basic population and individual needs, whatever their biological or cultural origin" (Cohen & Felson, 1979, p. 593). They can occur at residences, places of employment, or represent other activities away from home, including theater visits or traveling to work, and they are considered prevalent in daily life (Cohen & Felson, 1979).

According to RAT, college attendance, the rise of women in the workforce, and a tendency to pursue more leisure away from home have led to increased exposure to motivated offenders, enabled more suitable targets, and resulted in less property protection. This made certain crimes more likely, including burglary, but at the same time, it increased the risk of being victimized in the context of other crimes, such as robbery (Tewksbury & Mustaine, 2010). Such

factors as eating out or being single increase the risk of victimization by enabling more

opportunities for victims and offenders to engage (Tewksbury & Mustaine, 2010). In other

words, legal routine activities enable the occurrence of criminal activities (Wilcox, 2015).

Following Turvey and Freeman (2014), a suitable target is declared vulnerable based on

the offender's perception of the target's value, visibility, accessibility, or inertia (Choi et al.,

2019a). *Value* refers to the value an offender assigns to a coveted goal. *Visibility* is defined as the

visibility of the object the offender desires to obtain. Furthermore, *accessibility* is the

accessibility of the target (i.e., living in a specific neighborhood), and *inertia* is the physical

aspect of a person and good or the impediments resulting in viewing the target as less valuable

(Leukfeldt & Yar, 2016). Significantly, the focus of RAT is directed toward victims rather than

offenders, with offenders assumed to be omnipresent and perpetually motivated (Renzetti, 2008).

RAT is an established valid theory tested in numerous physical contexts, including

homicide or automobile theft (Leukfeldt & Yar, 2016). The theory was originally intended for

situations in which a motivated offender and a suitable target meet physically (Mikkola et al.,

2020). Consequently, law enforcement or surveillance cameras are considered capable and

effective guardians and can potentially prevent crimes by intervening. While family members or

bystanders can function as capable guardians, their proximity to institutions, including a police

station, can further serve as guardianship (Kigerl, 2012; Turvey & Freeman, 2014; Warr, 2017).

The internet provides abundant opportunities for motivated offenders with the appropriate

technical skills to engage with suitable targets (Kigerl, 2021). Supporting this claim, Choi et al.

(2019b) found that using technology routinely can increase the likelihood of cyberbullying

victimization. Besides its use to facilitate crimes, technology can also serve as capable

guardianship; the ability to block individuals on social media and the presence of witnesses on

social networking sites are an example of effective guardianship in the online environment (Choi et al., 2019a).

In a study concerned with the association between online routines and identity theft victimization, Reyns (2013) concluded that RAT is also suitable to explain crimes occurring at a distance, defined as the victim and offender not sharing a physical location. Although cybervictims, offenders, and guardians may not traditionally converge in a physical space, scholars stress the value of RAT for cybercrimes (Mikkola et al., 2020). The difference in "space and time will change the nature of the crime but not its meaning" (Mikkola et al., 2020, p. 4).

Similarly, researchers claim that RAT is applicable to cyberspace, with online networks (i.e., cyberspace) substituting for physical convergence (Arntfield, 2015). While RAT has been applied to various cybercrimes in the last decades, some scholars claim that the theory is less suitable for cybercrimes, considering the strict interpretation of the coexistence of target and offender in space and time (Herrero et al., 2021; Mikkola et al., 2020). For instance, in online fraud cases, the offender may contact the target without convergence in time and space, as postulated by the theory (Reyns et al., 2011).

When the theory is tested in cyberspace, the research findings present mixed results. Leukfeldt and Yar (2016) identified 11 studies assessing RAT for cybercrimes, with each study operationalizing the RAT elements differently. The element of target visibility was measured in all studies, guardianship in most, and target accessibility was solely included in some studies. Five studies indicated RAT to be a valuable theory for assessing cybervictimization (i.e., consumer fraud or threat), whereas six showed that the theory could not explain cybervictimization (i.e., online harassment). Despite the lack of consensus on the measurement of RAT, the constructs of target visibility and routine online activities are generally significant

predictors of cybervictimization. In contrast, guardianship and the assigned value have weak explanatory power for cybervictmization (Leukfeldt & Yar, 2016).

Leukfeldt and Yar (2016) also assessed RAT for computer-focused, interpersonal, and financial crimes and discovered support for some elements of RAT. The study focused on measuring value, inertia, visibility, accessibility, and guardianship as central elements of RAT and revealed that visibility, including frequency of internet usage and online activities, significantly increased the likelihood of victimization (Leukfeldt & Yar, 2016).

Relating RAT to cyberbullying, cyberbullying can occur when motivated offenders, a suitable target, and a network with low guardianship converge (Reyns, 2013). Specifically, social media should be considered a primary tool for converging suitable targets and motivated offenders in cyberspace. Social media usage and increased online interactions are likely to result in a high risk for victimization based on the frequency of the usage and exposure to the motivated offender (Arntfield, 2015).

In addition, in the context of cyberbullying, motivated offenders can often maintain anonymity in cyberspace, and at the same time, they can be involved in virtual communities, including Facebook. Facebook is often described as "a deviant cybercommunity," and to a certain extent, it permits deviance and the convergence of suitable targets and motivated offenders, as outlined by RAT (Arntfield, 2015, p. 380). Despite this, Holt and Bossler (2008) suggested that spending time on the internet does not influence cyberharassment experiences per se; instead, being involved in specific settings may increase the likelihood of victimization.

Although there is no consensus on the measurements of the RAT elements in the cyberbullying literature, some variables are commonly utilized for the phenomenon. Suitability is generally measured through the vulnerability of targets—namely, the individual's online

activities and the availability of their personal information in cyberspace. In comparison, guardianship is generally identified as protective software. However, scholars have emphasized the limitations of protective software for cyberharassment incidents. Cyberharassment or cyberbullying can occur via social media or email, making antivirus software often less valuable and effective for prevention purposes (Navarro & Jasinski, 2012). Aizenkot (2021) measured exposure to motivated offenders in terms of social networking site usage, time spent online, and the number of social networking friends. The target suitability referred to disclosing personal information, whereas the capable guardianship variable included but was not limited to the presence of human beings on social networking sites (Aizenkot, 2021).

When RAT was tested for cyberbullying, the results partially supported the theory (Aizenkot, 2021; Hawdon et al., 2017; Reyns et al., 2011). Accordingly, research found that the more time individuals spend online or engage in risky online behavior, the more likely they are to become a suitable target for the offender and therefore experience cyberbullying (Kigerl, 2012). Among 935 U.S. teenagers, guardianship was not a significant predictor of cyberbullying, but filtering software showed promising results for future prevention strategies. Specifically, the study concluded that suitability (i.e., research activities or social networking sites) and availability (i.e., time spent online) were strongly correlated with cyberbullying.

The study further discovered that RAT is valuable for cyberbullying and can predict 15.4% to 30% of college students' variance in cyberbullying experiences (Navarro & Jasinski, 2012). Mesch (2009) further included such variables as the demographic of parents and found that RAT predicted 23% of cyberbullying incidents. Under a study of 483 first-year students in the United States, exposure to offenders and target suitability predicted the likelihood of cybervictmization (Mikkola et al., 2020). Specifically, engaging on social networking sites and

participating in chat rooms were activities associated with an increased risk of cyberbullying victimization. The study also discovered that parental participation decreases the likelihood of cyberbullying experiences (Mesch, 2009; see also Navarro & Jasinski, 2012). By contrast, Aizenkot (2021) found that RAT could only predict 8.3% of the variance in cyberbullying victimization among middle and high school students, indicating that other variables likely influence the victimization.

Notably, scholars have stressed that studies tend to measure the RAT constructs independently rather than considering the coexistence of all three measurements. Since cyberbullying can occur without sharing a temporal setting, the importance of convergence and subsequent criticism might become less relevant for testing RAT in cyberspace (Aizenkot, 2021).

RAT literature supports the notion that social media usage during the pandemic will likely increase the risk of cyberbullying victimization (Barlett et al., 2021b; Navarro & Jasinski, 2012). Accelerated social media usage and online activities may potentially provide the motivated offender with more suitable targets. Yet, following Holt and Bossler (2008), the specific settings are also essential to consider rather than solely measuring online time. Victims may reveal or share more personal information during the pandemic, thereby presumably heightening the risk of victimization. For instance, individuals may be willing to provide private information via social media posts or content to replace offline relationships during a pandemic.

As noted above, using software as a capable guardianship shows weak effects in diminishing the occurrence of cyberbullying (Navarro & Jasinski, 2012). Based on the inclusion of perceived social isolation in the current study, future research could examine the value of social isolation for the lack of guardianship. For instance, Mikkola et al. (2020) utilized the UCLA three-item Loneliness Scale to proxy for the absence of guardianship. All the RAT factors

(i.e., motivated offender, target suitability, and absence of guardianship) were associated with cybervictimization. In addition, all RAT elements were considered mediators in the relationship between low self-control and cybervictmization (Mikkola et al., 2020).

As Mikkola et al. (2020) argued, other factors beyond the three elements of RAT may considerably influence the occurrence of cyberbullying. In response to this view, researchers expanded RAT and increasingly utilized new approaches to measure cybervictimization (Aizenkot, 2021). For instance, Cohen et al. (1981) combined RAT with lifestyle exposure theory, a theory that was initially developed to explain the risk of victimization by demographic groups (Wilcox, 2015). Accordingly, Lifestyles-RAT posits that lifestyles and routine activities make victimization more likely and vary across demographics. The theory assumes that the following factors determine the risk of victimization: 1) exposure to potential offenders, 2) lack of capable guardianship, 3) proximity to the offender, and 4) target suitability (Choi et al., 2019a; Cohen et al., 1981; Wilcox, 2015).

When Lifestyles-RAT is tested in an online environment, risky online activities and online exposure tend to increase the risk of victimization. A study involving college students ($N$ = 974) revealed that engaging in online deviance (i.e., harassment), interacting with deviant peers (i.e., proxy for the absence of guardianship), and online proximity to offenders (i.e., adding strangers as friends) were significant predictors of cyberstalking victimization (Reyns et al., 2011). Contrarily, other studies concluded that among the considered lifestyles, only involvement in performing arts was a predictor of cyberbullying victimization (Aizenkot, 2021). Similarly, Holt and Bossler (2008) supported the view that involvement in computer crime or deviance was a predictor for cyberharassment victimization.

A new version of RAT, Cyber-RAT, was explicitly developed by Choi (2008) for the online environment. The theory postulates that a lack of online guardianship and an increased prevalence of online lifestyles predict computer crimes victimization. When Choi et al. (2019b) tested the theory, they found that online lifestyles were linked to the risk of cyberbullying victimization, whereas digital guardianship was not. They elucidated that cyberbullying differs considerably from traditional bullying, and further research is needed on suitable theoretical frameworks for cyberbullying victimization (Aizenkot, 2021; Choi et al., 2019b).

Given these characteristics, routine activities models have some limitations. According to Mikkola et al. (2020), regardless of the support for RAT, other factors—including self-control or the user's relationship with electronic devices—are essential to consider when it comes to understanding cybervictimization (Herrero et al., 2021). The potential for Cyber-RAT to contribute to cyberbullying research should be further examined with the inclusion of additional factors, such as low self-control.

In general, RAT assumes the existence of rational offenders. Offenders would weigh the potential costs and benefits and make rational choices (Acker, 2003; Kitteringham & Fennelly, 2020). However, the presumption of rational decision-making is problematic, and as summarized by Kitteringham and Fennelly (2020), offenders "may be under the influence of drugs or alcohol or, for whatever reason, they may simply not care about the security measure" (p. 211). Motivated offenders may also not be aware of the presence or absence of guardianship (Kitteringham & Fennelly, 2020). Further, specific crimes, including murder, are often the result of an impulsive act rather than a rational decision, making the underlying assumption of RAT more intricate (Acker, 2003).

Another presumption in RAT is that activities at home are associated with less victimization. This may hold for some types of victimization, potentially leading to an underestimate of household activities (Renzetti, 2008). For instance, Harrell (2012) found evidence of an increase (from 17% to 26%) in violent victimization in private spaces, indicating that household activities can also lead to victimization. Researchers concerned with cybercrimes often substitute online activities for non-household ones, as initially postulated by RAT, to make the theory more applicable to the online environment; they have found support for the claim that online activities serve as a predictor for cybervictimization (Choi et al., 2019b).

Despite the positive attributes of the theory, methodological concerns about RAT persist, including variability in research design and methodological sensitivity (Pratt & Cullen, 2005). For instance, there is no consensus on what should be defined as a vulnerable target, motivated offender, or capable guardianship; thus, diverse or even contradictory research findings could potentially be generated because of different definitions taken up in the literature (Tewksbury & Mustaine, 2012).

Although some studies have shown promising results for online activities and time spent online as predictors of cyberbullying victimization, more research on RAT and its related models is needed, particularly in an era of increased social media usage (i.e., during the pandemic). Alternatively, considering the prevalence of cyberbullying perpetration, specially designed theories for perpetration, including the BGCM, might be imperative for prevention and intervention purposes.

**The Barlett Gentile Cyberbullying Model (BGCM)**

The possibility of anonymity and the redundancy of physical strength in cyberbullying incidents distinguishes it from traditional bullying, resulting in scholarly demands for theories

explicitly contrived for cyberbullying and its unique characteristics (Ansary, 2020). For instance, considering content sharing, an element of repetition in traditional bullying that may take on a new meaning in cyberspace (Barlett et al., 2019). While theories are often indispensable for comprehending societal issues, theories regarding the perpetration of cyberbullying are greatly limited (Barlett, 2017).

Despite the general paucity of conceptual frameworks, some theories, including General Strain Theory or the General Aggression Model, are increasingly adapted to the context of cyberbullying (Barlett, 2017). However, Barlett (2017) claimed that such theories are not designed for an online environment and fail to differentiate between traditional bullying and cyberbullying. To the best of the author's knowledge, the BGCM is the only model for predicting the perpetration of cyberbullying while recognizing the disparities between traditional bullying and cyberbullying (Barlett et al., 2019).

The BGCM is a psychological model for predicting cyberbullying perpetration and is viewed as a combination of aggression and learning theories (Barlett & Gentile, 2012; Barlett, 2017). The BGCM consists of four postulates and is grounded in the general aggression and learning models (Barlett & Gentile, 2012). The first postulate addresses the learning of cyberbullying behavior in one's early years. The aggressor learns with each cyberattack that cyberbullying makes physical strength unnecessary, no physical harm is caused by online bullying, and it eliminates the need to view the victim's harm.

Perpetrators can also remain anonymous in cyberspace, making it arduous for law enforcement or guardians to identify cyberbullying perpetrators. Further cyberaggression experiences will internalize learning outcomes, including the absence of physical strength, and subsequently become automatic (Barlett, 2017). The first postulate is viewed as fundamental,

considering that "BGCM posits that the learning processes that are germane to causing future cyberbullying start with a single positively reinforced cyber-attack" (Barlett, 2017, p. 273).

As outlined in the second postulate, when learning outcomes are internalized and behavior is positively reinforced, attitudes toward cyberbullying will likely follow (Barlett, 2017). Influenced by aggression and learning models, Barlett and Gentile (2012) propose that the belief in the irrelevance of muscularity in online bullying (BI-MOB) and the perception of anonymity are learned consequences of cyberbullying incidents. After continued learning opportunities, the characteristics of BI-MOB and anonymity are positively reinforced and likely result in positive attitudes (Barlett & Gentile, 2012; Barlett, 2017; Barlett et al., 2019).

Stated differently, when BI-MOB and anonymity are learned and reinforced, positive attitudes toward cyberbullying are subsequently formed (Barlett & Gentile, 2012). Once attitudes are established, they become a personality trait (Barlett & Gentile, 2012). Supported by research, other individuals' reinforcement of cyberbullying highly correlates with pro-cyberbullying attitudes (Barlett, 2017). Barlett and Gentile (2012) showed that reinforcement was associated with positive attitudes toward cyberbullying and the subsequent perpetration of cyberbullying.

Postulate three proposes that attitudes predict cyberbullying behavior, with relevant literature indicating that attitudes can predict subsequent cyberbullying behavior (Barlett, 2017). For instance, a study among 271 middle school students discovered that positive attitudes toward the perpetration of cyberbullying were significant predictors for later cyberbullying behavior (Wright, 2014). Similarly, a study of undergraduate students ($N = 405$) discovered that attitudes toward bullying behavior predicted cyberbullying experiences (Boulton et al., 2012).

Following the BGCM, the perception of anonymity and BI-MOB predict the establishment of positive attitudes toward cyberbullying. In turn, these positive attitudes and

cyberbullying reinforcement predict subsequent cyberbullying behavior (Barlett & Gentile, 2012; Barlett & Gentile, 2017). The following is a simplified formula for describing cyberbullying behavior: BI-MOB plus perception of anonymity leads to positive attitudes toward cyberbullying and subsequent cyberbullying perpetration.

The application of previous theories to cyberbullying has failed to distinguish between cyberbullying and traditional bullying. Consequently, postulate four states that the BGCM is more suitable for cyberbullying than traditional bullying. This is not to say that BGCM ignores the correlation between both phenomena; instead, the learning outcomes, including anonymity and BI-MOB, are uniquely attributed to cyberbullying incidents (Barlett, 2017). Similarly, the model presumes an association between cyberbullying victimization and perpetration. In 2012, Barlett and Gentile (2012) verified a strong correlation between the perpetration of cyberbullying and victimization among university students $(N = 493, r = .74, p < .01)$.

When Barlett and Gentile (2012) tested the model, the repeated learning of power imbalances and anonymity was significantly associated with positive attitudes. In turn, positive attitudes and reinforcement were mediators for the perpetration of cyberbullying (Barlett & Gentile, 2012). However, the study's design could not validate the temporal assumptions of the BGCM model. Barlett et al. (2017) conducted a three-wave longitudinal study with young adults $(N = 161)$. Wave 1 included BI-MOB and the perception of anonymity. Wave 2 included attitudes toward cyberbullying, and Wave 3, cases of cyberbullying perpetration. The study found that Wave 1 predicted Wave 2, and Wave 2 predicted Wave 3 (Barlett et al., 2017).

Other studies affirm that BGCM is a valid measurement for cyberbullying while allowing the differentiation between cyberbullying and traditional bullying (Barlett et al., 2017; see also Barlett & Kowalewski, 2019; Barlett et al., 2021c). Barlett et al. (2021c) conducted a study with

adults ($N = 1,592$) from seven countries, including Germany and Japan, to examine the theory's validity in other cultural contexts. The study revealed the applicability to individualistic (i.e., declared independent from others) and collectivistic cultures (i.e., categorized as connected to others). Interestingly, the link between BI-MOB and attitudes, as well as attitudes and behavior in individualistic cultures (i.e., the US), was more substantial than collectivistic ones (i.e., Japan; Barlett et al., 2021c). Considering the predominant relationship between traditional bullying and cyberbullying in research, the model may neglect the influence of traditional bullying on cyberbullying (Ansary, 2020).

Similarly, the model's previous limitation was its lack of testing within periods of social disruption, including the pandemic (Barlett et al., 2021b). When Barlett et al. (2021b) tested the BGCM model before and during the COVID-19 pandemic, they discovered a significant difference among US adults. While there was a significant increase in BI-MOB, attitudes, and cyberbullying behavior, the perception of anonymity was not significant. Furthermore, the relationship of the elements within the BGCM was significant during the pandemic, with no significant link between attitudes and the perception of anonymity before the pandemic (Barlett et al., 2021b).

The BGCM is the first established theory for cyberbullying perpetration and is often applied to samples of young adults. Barlett and Helmstetter (2018) addressed this limitation by focusing their research on youths ($N = 145$) and found the BGCM germane as a predictor for cyberbullying behavior among youths. Based on the increased likelihood of cyberbullying among adolescents, more research on youths is recommended to utilize the model for appropriate invention strategies (Barlett et al., 2017).

Interestingly, BGCM has primarily been tested by Barlett and Gentile, potentially illustrating the need for further examination among other researchers (Ansary, 2020). The model may also fail to include other factors that influence the relationship between the postulates. For instance, Barlett et al. (2019) tested the influence of time spent online on the perception of technology access. They found that more technology time was correlated with attitudes toward cyberbullying and perpetration through BI-MOB. The perception of a country's technology was negatively correlated with cyberbullying attitudes and perpetration. Accordingly, as individuals have more technology usage, learning opportunities tend to increase. As for attitudes and subsequent behavior, the more cyberbullying is considered regular, the more time an individual might spend online (Barlett et al., 2019).

Despite the link between cyberbullying and self-control, guardianship, or cyberbullying history, the original theory may fail to include other factors, such as self-control or time spent online (Ansary, 2015; Barlett, 2012; Kowalksi et al., 2019). Furthermore, the construct of BI-MOB potentially intervenes with the measurement of attitudes toward cyberbullying, making the differentiation of the tenets more convoluted (Ansary, 2019).

The theory also assumes that one cyberattack by itself can initiate future cyberbullying behavior (Barlett, 2012). Yet, the theory fails to specify where and how individuals are exposed to their first learning experience. To cite only a few examples, it is not apparent whether individuals on social media or the darknet are more prone to the learning experience or even the relevance of active versus passive usage. More internet, social media usage, or perceived social isolation might lead to increased learning opportunities and be linked to cyberbullying exposure. While Barlett et al. (2019) included the time spent online in the BGCM model, exposure to

cyberbullying is presumed. Consequently, expanding this theory with new tenets and examining the initial cyberattack could potentially increase the model's explanatory power.

Assessing auxiliary elements that are potentially influential for cyberbullying experiences is essential, especially considering that factors beyond RAT or BGCM might provide explanatory power for cyberbullying incidents. Accordingly, the current study addressed the relationship between perceived social isolation, social media usage, and cyberbullying experiences.

By measuring the explanatory power of social media usage and perceived social isolation in relation to cyberbullying experiences during the pandemic, the study aims to provide findings that potentially inform future research testing of RAT or BGCM. As noted, both frameworks are often criticized because of their simplicity and might be improved through the inclusion of more tenets. When RAT and BGCM were assessed, some studies included technology or social media usage in their measurements and revealed a positive association with cyberbullying experiences. Specifically, operationalizing perceived social isolation as the absence of capable guardianship in RAT or as a facilitator for increased learning opportunities, as outlined in BGCM, may be promising.

**Chapter 4 Methodology**

A quantitative research design was used to shed light on the association between cyberbullying experiences, perceived social isolation, and social media usage. Quantitative methods allow researchers to conduct statistical analysis, the results of which have potential ramifications for policy or theory development (Guthrie, 2010; Lanier & Briggs, 2014). In April 2021, I administered an online survey that was available for one week, which formed the basis of this study (the survey instrument can be found in **Appendix B– Survey Instrument**). After one week, the survey had obtained sufficient responses based on the sample size and power calculations (see **Identification of Data** for more). [2] For the study, I compared cyberbullying experiences prior to (i.e., before March 2020) and during (i.e., since March 2020) the COVID-19 pandemic among college and university students.

Although the literature reveals mixed results regarding the relationship between cyberbullying and social isolation in general, I hypothesized that perceived social isolation likely increased cyberspace engagement, and along with it, cyberbullying experiences during the pandemic. Feelings of social isolation may result in more cyber-engagement and cyberbullying experiences (Brewer & Kerslake, 2015; Varghese & Pistole, 2017).

According to the relevant literature, the onset of the pandemic often increased feelings of social isolation, perpetration of cyberbullying, and social media usage. Specifically, perceived

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[2] The power analysis was calculated using G*Power, and the optimal sample size was based on the multiple linear regression calculation. For the multiple regression, the linear multiple regression fixed model, R squared deviation from zero, was used with $\alpha = .05$, power $= .90$, an effect size of .15, and three predictors. Hahs-Vaughn and Lomax (2020) support that .15 is a moderate effect size among researchers. G*Power results show that a total sample size of at least 119 was needed. The study sample consisted of 331 participants and therefore adequately powered.

social isolation tended to result in more social media usage during the pandemic (Barlett et al., 2021b; Boursier et al., 2020; Lisitsa et al., 2020). To the best of the author's knowledge, no study has examined whether perceived social isolation and social media usage mediate cyberbullying experiences, particularly victimization. The current study fills this gap in the literature.

**Population and Sample**

Past cyberbullying research has often focused on children and adolescents, spurring a recent increase in studies concerned with young adults in higher education (Arntfield, 2015; Giumetti et al., 2022). For the study, I limited my sample to currently enrolled college and university students ($N = 331$)[3] residing in the United States who were (at the time of the study) at least 18 years of age. Although all students (i.e., from freshman to graduate) were eligible to participate, English proficiency, literacy, and access to an electronic device were prerequisites.

In 2019, the total population of American college and university students was approximately 19.7 million (National Center for Education Statistics, 2021). The study participants were recruited through convenience sampling.[4] First, I sent an email recruitment script to students, professors, student organizations, and the student government at the University of Michigan-Dearborn. The university has a total of 8,331 students, with 6,335 undergraduates (76.2%), 1,976 graduates (23.7%), and 131 doctoral students (7.5%) from 83 birth countries. Among the undergraduate students, most are male (53.3%) and between the ages of 18 and 21 years. Of the university's graduate students (i.e., master's and doctoral students), 61.2% are male. Most graduate students are between 25 and 29 years old (The Regents of the University of Michigan, n.d.).

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[3] The final sample of 331 responses was predicted and selected from the original 3,840 survey responses (see Identification of Data).

[4] A convenience sample consists of subjects accessible to the researcher (Lanier & Briggs, 2014).

Increased access to students within and outside of the university was facilitated through the promotion of a shortened email script on social media platforms, including advertisements in student organizations and Greek Life groups.[5] In compliance with the terms of service of Facebook, Twitter, WhatsApp, and Instagram, the introductory social media script was distributed solely for research purposes. Through convenience sampling, I obtained 331 survey responses from college and university students.

**Survey Design**

Surveys are an established measurement tool in the field of social sciences and can be utilized in qualitative or quantitative research and often refer to data collection through questionnaires and interviews. When survey research includes statistical analysis, it is often labeled as quantitative research. Survey responses are represented as numerical values (i.e., coded) to enable the application of subsequent statistical analysis (Guthrie, 2010; Lanier & Briggs, 2014). Questionnaires are generally considered quantitative data as well, as they numerically represent attitudes or demographic data and often aim to generalize the results of a sample to a larger population. Questionnaires collect data by providing questions in the form of face-to-face interaction or are facilitated via telephones or the internet (Lanier & Briggs, 2014). In the study, I utilized a questionnaire that was administered online, referred to as an electronic questionnaire.

Compared to the interview, the objective of a questionnaire is generally to discover group patterns rather than conduct in-depth explorations (Guthrie, 2010; Lanier & Briggs, 2014). Surveys are generally beneficial for collecting attitudes or perceptions of individuals and often

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[5] Tagging was disabled to fulfill the Institutional Review Board requirement of social media recruitment.

enable data collection in a relatively brief period of time with reduced expenses. Surveys may also allow participants to reflect in a neutral and anonymous context on potentially sensitive or discomforting topics, such as cyberbullying (Lanier & Briggs, 2014).

When using survey methods it is essential to consider language barriers, ambiguity, and subjects' vocabulary levels due to the likelihood of misunderstandings. One approach to avoiding this is to pretest the survey with participants who are representative of the proposed sample, thereby determining if the survey is appropriate in its navigability and complexity. This is generally referred to as cognitive interviewing and is part of evaluating survey questions. I pretested this study with 20 college and university students, a similar group to the final sample, who indicated no concerns or confusion about the questions (Lanier & Briggs, 2014).

I created the survey with Qualtrics, a program for distributing online surveys, and it contained 34 (closed-ended and open-ended) questions. The survey duration was estimated to be 5–10-minutes, and the survey included Likert-scale, multiple-choice, and text entry question types. The first part of the survey was an informed consent form (see **Appendix A – Informed Consent Form**). By clicking *select* below it, participants were directed to the survey questions. At the beginning of the survey, I utilized screening questions, including age, residency, and which state respondents were studying in, to verify that the respondents met the study's eligibility requirements. In addition to this, I included a total of seven demographic questions in the survey and central for descriptive statistics of the sample.

In the survey, I measured social media usage through two questions, and perceived social isolation through four questions. Cyberbullying experiences were examined through eight identical statements in relation to both before and during the pandemic, and two questions focused on the role in cyberbullying incidents (i.e., witness, victim, and perpetrator) before and

during the pandemic. The cyberbullying statements were differentiated between four cyberbullying perpetration and four victimization statements. The survey concluded with a comments section for participants to share their feelings, perceptions, and suggestions.[6]

Obtaining a sufficient number of participants is generally an obstacle in survey research and providing incentives is one approach to increase survey participation (Lanier & Briggs, 2014). Consequently, at the end of the survey, participants were redirected to a separate contact form for the opportunity to participate in a raffle that was not connected to their survey responses. The raffle served as an incentive and required an email address to participate. Following the data collection phase, five participants were randomly selected and received a $50 Amazon e-gift card in December 2021.[7]

I saved the survey and raffle responses in a secure cloud storage and accessed them with a protected virtual private network (VPN) in accordance with the university security protection guidelines and policies. The data were purged from Qualtrics after survey completion. I also guaranteed anonymity by not collecting personally identifying information, including names or IP addresses. The exclusion of IP addresses in this case may have increased the likelihood of duplicate responses. Nevertheless, I decided that the value of anonymity outweighed the risk of repetition. Similarly, to enable voluntary participation, I excluded forced responses, and the participants were informed of their right to skip questions or terminate the survey at any time. For the sake of confidentiality of the research records, I stored the survey responses in a password-protected electronic format in accordance with the university data protection protocols.

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[6] One participant noted: "Just that it was a very good and well-constructed survey. I thought they were great questions."

[7] The gift cards were approved and reimbursed under the Exp+ Graduate Student Independent Research Grant.

The data utilized for this study reflect the initial responses of the sample, and to the best of my knowledge, disclose honest experiences. [8]

**Measures**

As Meter et al. (2021) stress, participants often lack necessary information, with their definition of cyberbullying generally reflecting individual experiences rather than a comprehensive view of the phenomenon. To minimize confusion regarding cyberbullying forms and classifications, I provided the following definition for participants: Cyberbullying is repeated use of electronic technology to harass, offend, or threaten someone.

Though this effort attempts to provide a simplified and generic definition of cyberbullying, it cannot illustrate the diversity of all cyberbullying forms. It must be noted that this might not affect the data on cyberbullying experiences before and during the pandemic, as they are based on existing measurements of cyberbullying. However, the self-declaration of subjects as witnesses, offenders, and perpetrators in cyberbullying incidents is potentially consciously and unconsciously influenced by the provided definition.

**Dependent and Independent Variables**

The dependent variable was cyberbullying experiences during the pandemic, and it was constructed using a scale consisting of eight items. The statements were adapted from Hinduja and Patchin's (2010) questionnaire for cyberbullying offending and victimization, with higher values indicating more cyberbullying experiences. Their questionnaire measured cyberbullying experiences within the last 30 days. The Cronbach's alpha was .74 for cyberbullying

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[8] This study was reviewed and deemed exempt by the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board (HUM00196011).

victimization and .76 for perpetration (Hinduja & Patchin, 2010). Participants in the current study received the following prompt:" Select one of the multiple-choice answers for each statement to describe your behavior or experiences during the pandemic (**During March 2020**)."

Participants in the study were instructed to select one of the multiple-choice answers for each statement to describe their behavior or experiences during the pandemic (i.e., since March 2020). The statements were differentiated between perpetration and victimization. For perpetration, the statements were:

P1) Posted something online about another person to make others laugh;
P2) Took a picture of someone and posted it online without their permission;
P3) Sent someone a text or instant message to make them angry or make fun of them;
P4) Posted something online to make someone angry or make fun of them.

Victimization was measured through:

V1) Been made fun of online
V2) Had something posted about you online that you did not want others to see
V3) Received a message that made fun of you;
V4) Had something posted about you online that made you upset.

The items were answered using a 5-point Likert scale and were coded as follows: Never (1); Once or Twice (2); A Few Times (3); Many Times (4); and Every Day (5).

The independent variables were cyberbullying experiences before the pandemic, social media usage, and perceived social isolation. For the cyberbullying experiences before the pandemic, participants were asked to select one of the multiple-choice answers for each statement to describe their behavior or experiences before the pandemic (i.e., before March 2020). The statements were identical to those relating to experiences during the pandemic and followed the same coding scheme: Never (1); Once or Twice (2); A Few Times (3); Many Times (4); and Every Day (5).

Social media usage data were captured through the question "How much time do you spend on social media platform(s) on average each day? Social media platforms include but are not limited to Twitter, WhatsApp, Pinterest, Snapchat, LinkedIn, and YouTube." The variable was coded as No Social Media (1); Less than 1 hour (2); 1–2 hours (3); 3–4 hours (4); 4–5 hours (5); 5–6 hours (6); 6–7 hours (7); and 8 or more hours (8). An additional question measured the influence of the pandemic on social media usage by noting the perception of participants: "How would you say has the pandemic influenced the amount of time you spend on social media platforms?" and was coded as Increased (1); The Same (2); Decreased (3); and Not Applicable (4).

Perceived social isolation was measured through an independent variable. Research has shown that the R-UCLA Loneliness Scale is a reliable and valid measurement of perceived social isolation (De Jong Gierveld & Van Tilburg, 2006; Ma et al., 2020). The R-UCLA scale was developed by Russell, Peplau, and Ferguson (1978) and measures feelings of loneliness or social isolation with a Cronbach's alpha of .96 (see also Sahin, 2012). Higher scores on the scale indicate more feelings of loneliness (Russell et al., 1978). While the R-UCLA scale consists of 20 items, the shortened version (the Three-Items Loneliness Scale) is a well-establishment measurement for more extensive surveys (De Jong Gierveld & Van Tilburg, 2006; Ma et al., 2020). The Three-Items scale is strongly correlated with the R-UCLA scale, making it a robust and reliable measurement for loneliness ($r$ = .82, p < .001; Hughes et al., 2004).

In the survey here, perceived social isolation was measured through Hughes et al.'s (2004) three-Item scale. Accordingly, the survey's three items were as follows:

I1) During the pandemic, how often do you feel that you lack companionship?;
I2) During the pandemic, how often do you feel left out?;
I3) During the pandemic, how often do you feel isolated from others?

The answer choices followed Hughes et al.'s (2004) and were coded as Never (1); Rarely (2); Sometimes (3); and Often (4). To measure whether participants perceive differences in social isolation due to the pandemic, the survey also included the question "How would you say has the pandemic influenced your feelings of loneliness/isolation?" Answer choices were coded as I have been feeling more lonely/isolated during the pandemic than before (1); The pandemic has not impacted my feelings of loneliness/isolation (2); and I have been feeling less lonely/isolated during the pandemic than before (3).

**Demographics and Additional Measurements**

Following the cyberbullying statements relating to before and during the pandemic, the perception of the role in cyberbullying incidents was identified using one question. The question is based on Smith and Yoon's (2012) questionnaire and focuses on participants' perceptions of their role(s) in cyberbullying incidents. Respondents were asked the question "Cyberbullying can appear in various forms. Based on your answers above, how would you define your role in cyberbullying before/during the pandemic? You may select more than one answer." The variable of the role was coded as Witnessed Cyberbullying (1); Victimized by Cyberbullying (2); Exhibited Cyberbullying Behavior (3); and None of the Above (4). Considering the likelihood of simultaneous roles, each role was dummy coded with 0 for each absence and 1 for presence. Measuring the role in cyberbullying with one question can cause issues, considering that often, participants cannot successfully grasp cyberbullying forms and incidents. Yet, for the sake of comparison with cyberbullying statements, the perception of this role is included in the descriptive statistics (Meter et al., 2021).

Although the demographics were not included in the bivariate analysis, I included seven variables (the state in which the respondent is studying, state of residency, age, gender, ethnicity,

country of birth, and year of study) to enable an examination of the sample. The state the respondent was studying in was determined by the question "Are you currently enrolled at the University of Michigan-Dearborn?", which was dichotomously coded as yes (1) and no (2). If no was selected, participants were asked, "In which state is your college or university located?" Answer choices included the 52 states and jurisdictions of the US and were coded alphabetically—for instance, Alabama (1) and Wyoming (52). The residency variable followed the same coding scheme, and age was coded as the two decimals provided by the respondents.

The variable of gender included the answer choices Transgender (1); Female (2); Male (3); Other (4); and Prefer Not to Answer (5). The question "Which of the following best describes you?" captured ethnicity and was coded as Latino/Hispanic (1); Black or African American (2); Native American/Alaskan Native (3); Native Hawaiian/Other Pacific Islander (4); Asian (5); White or Caucasian (6); Two or More (7); and Prefer Not to Answer (8). The country of birth variable was based on 196 answer choices—for instance, Afghanistan (1); Zimbabwe (195); and Prefer Not to Answer (196). Finally, the year of study was coded as Freshman (1); Sophomore (2); Junior (3); Senior (4); Graduate (5); and Prefer Not to Answer (6).

**Analytical Strategy**

Relevant research suggests that cyberbullying victimization rates are often higher than perpetration rates are (Giumetti et al., 2022; Varghese & Pistole, 2017). By incorporating cyberbullying victimization experiences, social media usage, and perceived social isolation, I attempted to assess the following research hypotheses for victimization:

> H1a: Cyberbullying victimization has increased during the COVID-19 pandemic.
> H2a: Social media usage is positively associated with cyberbullying victimization (both before and during the pandemic).
> H3a: Perceived social isolation is positively associated with cyberbullying victimization (both before and during the pandemic).

The perpetration hypotheses follow the same pattern and merely differ in that they replace "victimization" with "perpetration" and are as follows:

H1b: Cyberbullying perpetration has increased during the COVID-19 pandemic.

H2b: Social media usage is positively associated with cyberbullying perpetration (both before and during the pandemic).

H3b: Perceived social isolation is positively associated with cyberbullying perpetration (both before and during the pandemic).

To assess the association between victimization/perpetration experiences, perceived social isolation, and social media usage among young adults, models were estimated using R (version 4.1.1, 2021-08-10). Following the descriptive statistics, I used bivariate statistics to explore the differences between victimization and perpetration experiences before and during the pandemic, as outlined in H1a and H1b. Specifically, the bivariate relationships were examined using paired *t*-tests.

*T*-tests are statistical techniques used to compare the means or average of two groups to discover whether they are statistically different; significant differences are more likely with higher *t*-values. A paired *t*-test is employed when groups are paired in any way—for instance, in cases of before–after studies (i.e., cyberbullying experiences before and during the pandemic; Lanier & Briggs, 2014; Trajkovski, 2016).

Finally, simple linear regression and multiple linear regression models were estimated to assess H2a, H2b, H3a, and H3b. These models were concerned with the association between victimization/perpetration experiences and social media usage and perceived social isolation among the 331 students. Regression is a statistical procedure used to explore whether the dependent variable is predicted by the independent variable(s) (Lanier & Briggs, 2014). In other words, it is used to "see whether variation in an independent variable causes some of the variation in a dependent variable" (Trajkovski, 2016, p. 22). Notably, if categorical predictor

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variables have more than two levels, linear regression can be replaced with a two-way analysis of variance (ANOVA). Besides the *p*-values (used in the *t*-test and ANOVA), linear regression enables the calculation of estimates and confidence intervals (Pandis, 2016). In the study, I first modeled loneliness, social media usage, and victimization/perpetration experiences before the pandemic as individual predictors of victimization/perpetration experiences during the pandemic and subsequently combined them into a new model.

Applying parametric tests to Likert-scale data is not uncontroversial. As employed by the study, when Likert items are averaged, they can be viewed as intervals rather than ordinal data. As Norman (2010) summarizes, "[I]f […] and others are right and we cannot use parametric methods on Likert scale data, and we have to prove that our data are exactly normally distributed, then we can effectively trash about 75% of our research on educational, health status and quality of life assessment" (p. 627). Norman (2010) also finds that parametric statistics are robust, even when data are not normally distributed or are comprised of Likert-scale items (Norman, 2010).

**Identification of Data**

In April 2021, I administered the survey and received 3,840 responses within one week. Considering the dramatic increase in survey participants after the second day and the similarity of responses, I determined that fraudulent responses in the form of bot responses among the datasets were likely. The high number of participants in such a short timeframe, the duration, and the time of day when the survey was completed all suggested bot responses. I conducted a preliminary analysis to investigate bot-driven responses to clean the data. Based on the guarantee of anonymity, it was not possible to compare respondents' Internet Protocol (IP) addresses to identify repeat participants and potential fraudulent responses. Thus, a second predominant

approach was adopted, which distinguishes fraudulent data by identifying respondents with brief

survey durations, referred to as "speeders." Speeders are often defined as those who complete

studies 20%–30% faster than the median or mean time of all the respondents. However, using

this approach, when the median and the mean for the first two days were calculated, I could only

omit 73 observations from the dataset, suggesting that merely a small amount of speeders were

among the dataset.

Independently, missing values, the comment section of the survey, and the survey

duration were also insufficient to identify fraudulent data. A focus solely on either one would

likely resulted in an arbitrary categorization, considering that the sections individually were not a

good indicator for fraudulent data. Accordingly, I developed a machine learning model using

MATLAB to acknowledge the relationship between numerous variables. To develop the machine

learning model, an initial manual categorization of legitimate and fraudulent data was necessary.

Leaving aside the speeders from the first two days, I declared 57 responses as legitimate,

considering that no anomalies were detectable in them. Specifically, I did not perceive the

answers in the additional comment section of the 57 responses as fraudulent (see **Table 1** for

examples of fraudulent data). An example of one such participant comment is as follows:

> Most of my answers related to me talking to my friends, I've found our attitudes towards
>
> each other have felt more aggressive during the pandemic than before. I think it's mainly
>
> isolation getting to everyone, and I feel more arguments have broken out among me and
>
> friends.

I viewed non-responders with completion progress under 25% and speeders as potentially

fraudulent. This is not to say that the responses were fraudulent per se, but it indicated to

MATLAB that these responses had a high probability of fraudulent activity. Following this

approach, I characterized responses with similar or identical comments that had similar durations and were made at the same time of day as illegitimate (see **Table 1** for examples of fraudulent data).

**Table 1**

Identification of Similar and Fraudulent Data

| Start Date | Duration (Minutes) | Age (years) | Year of Study | Comment Section |
|---|---|---|---|---|
| 4/22/2021 0:50 | 0 | 32 | Senior | Hope to improve the quality of the network do not become an individual |
| 4/22/2021 1:08 | 9 | 25 | Sophomore | Hope to improve the quality of the network do not become an individual |
| 4/22/2021 17:54 | 25 | 19 | Freshman | Hope to produce more interesting software |
| 4/22/2021 17:54 | 25 | 19 | Freshman | Hope to produce more interesting software |
| 4/22/2021 17:54 | 23 | 19 | Freshman | Hope to produce more interesting software |
| 4/22/2021 17:57 | 24 | 19 | Freshman | Hope to produce more interesting software |
| 4/22/2021 17:55 | 24 | 19 | Sophomore | Hope to produce more interesting software |
| 4/22/2021 17:55 | 25 | 20 | Sophomore | Hope to produce more interesting software |
| 4/22/2021 17:55 | 25 | 20 | Sophomore | Hope to produce more interesting software |
| 4/22/2021 22:32 | 34 | 20 | Sophomore | After finishing the question just now, I realized that I had inadvertently cyberbullied |
| 4/22/2021 22:32 | 34 | 20 | Sophomore | After finishing the question just now, I realized that I had inadvertently cyberbullied |
| 4/22/2021 22:32 | 34 | 20 | Sophomore | After finishing the question just now, I realized that I had inadvertently cyberbullied |

My final categorization of survey responses—including 1,113 fraudulent responses and 57 legitimate ones—was imported into MATLAB (version R2018b). For simplicity, I omitted variables created by Qualtrics, including response ID and user language, from the MATLAB calculations. In the classification learner of MATLAB, the data were analyzed by focusing on the initial legitimate and fraudulent categorization and their associated rows. MATLAB utilized a folding model by folding the data five times, as well as selecting 75% of raw data and backtesting them against the other 25%. Both models showed an accuracy of 98%. Considering the elevated level of accuracy, a fine decision tree model with 98% accuracy was selected. The model could predict fraudulent responses with an accuracy of 98% and legitimate responses with an accuracy of 100%; the model declared legitimate responses false in less than 2% of cases.

Subsequently, I imported the entire dataset of 3,840 data into the model to predict legitimate and fraudulent responses. While the prediction power of the model was limited by my initial categorization of legitimate and fraudulent data, the model declared 1,320 responses false and 335 accurate. Furthermore, among the 335 accurate responses, four participants violated the study's age requirements and were excluded from the dataset. I also recoded some variables (i.e., year of study or ethnicity), whereas others, including *Distribution Channel*, *User Language*, *Response Type*, *Recorded Date*, *Response Type*, *Progress*, and *Finished*, were erased based on their irrelevance for the study. **Figure 1** shows the proportion of the final sample of the initial dataset. The final sample consisted of 331 responses and was utilized in the subsequent data analysis.

**Figure 1**

Proportion of Final Sample in the Dataset

### Dataset

- 331 9%
- 4 .1%
- 3320 91%

- Fraudulent Data
- Under 18
- Final Dataset
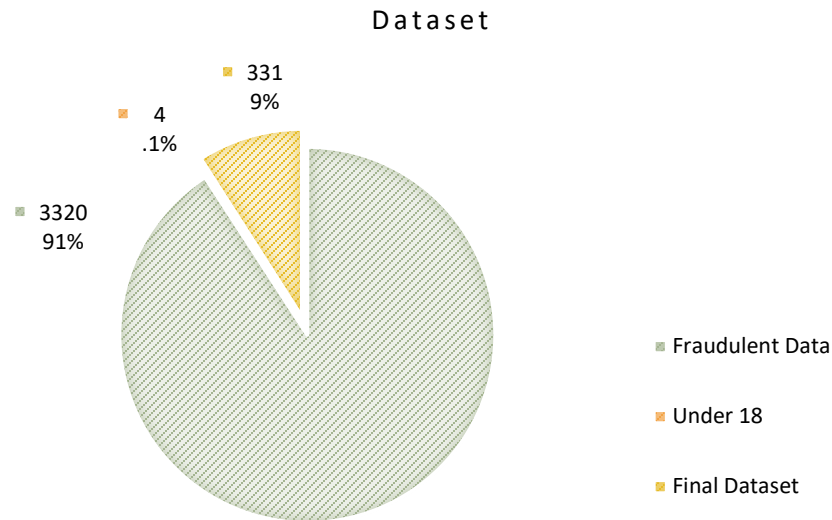
**Conclusion**

    In this study, I applied a quantitative approach based on survey responses from college

and university students ($N = 331$) to discover patterns rather than examine in-depth experiences.

It was hypothesized that cyberbullying experiences have increased and that perceived social

isolation and social media usage have been positively associated with cyberbullying experiences

before and during the COVID-19 pandemic. The dependent variables represented cyberbullying

victimization or perpetration during the pandemic, whereas the independent variables were social

media usage, victimization or perpetration before the pandemic, and perceived social isolation.

To measure the relationship between the variables, I used paired $t$-tests and standard regression

for the data analysis. Considering the sampling, I do not claim to have a representative sample of

college and university students in the United States. Yet, the results can serve as a basis for

further research with practical ramifications for scholars and practitioners by emphasizing the

potential importance of social isolation for cyberbullying research and the necessity for future

research among young adults during the COVID-19 pandemic.

## Chapter 5 Research Findings

The study sought to quantitatively examine cyberbullying experiences and their association with social media usage and perceived social isolation before and during the COVID-19 pandemic. The data were derived from college and university students and evaluated using a $t$-test, correlation analysis, and regression analysis.

The sample of college and university students residing in the US ($N = 331$) was recruited through professors, students, organizations, and social media. Approximately two-thirds ($n = 254$) reported the United States as their birthplace, followed by India (4.5%, $n = 15$), Armenia (1.8%, $n = 6$), and Canada (1.2%, $n = 4$). The respondents' ages ranged from 18 to 55 years, with a mean of 24 years ($SD = 5.55$). Most of the sample were students at the University of Michigan-Dearborn (91.2%, $n = 302$).

**Table 2** shows that students 18–24 years of age (60.4%), women (69.4%), white or Caucasian students (45.3%), and sophomores (23.9%) represented the largest proportions in the sample. This is consistent with the institutional data of the University of Michigan Dearborn. Most UM-Dearborn students (66.3%) are between 18 and 29 years of age, and 62.5% of the university's students consider themselves white. The majority of the UM-Dearborn students are Michigan residents (86.2%) and male. Contrary to the institutional data, most of the current study sample were women (Regents of the University of Michigan, n.d.).

**Table 2**

Demographic Data of the Sample

| Variables | *N* | % |
|---|---|---|
| Age (years) | | |
| 18−24 | 230 | 69.4 |
| 25−34 | 86 | 26.0 |
| 35−55 | 15 | 4.5 |
| Gender | | |
| Female | 200 | 60.4 |
| Male | 126 | 38.1 |
| Other | 4 | 1.2 |
| Ethnicity | | |
| White or Caucasian | 150 | 45.3 |
| Native American and Alaskan Native [a] | 52 | 15.7 |
| Black or African American | 45 | 13.6 |
| Asian | 33 | 10.0 |
| Year of Study | | |
| Sophomore | 79 | 23.9 |
| Senior | 75 | 22.7 |
| Graduate | 70 | 21.1 |
| Junior | 55 | 16.6 |
| Freshman | 46 | 14.0 |

*Note.* $N = 331$. Percentages may not equal 100 because of the exclusion of 'prefer not to answer' choices, missing values, or rounding.

[a] The arrangement of the answer choices (i.e., white or Caucasian choice was listed below Native Americans) may have resulted in misinterpretation of ethnicities and potentially caused the high proportion of Native Americans and Alaskan Natives in the sample. Considering that the University of Michigan has approximately .2% of native Hawaiian, American Indian, and Alaskan Native students, an inappropriate selection of ethnicities is likely (Regents of the University of Michigan, n.d.).

**Social Media Usage**

Social media usage generally remained high during the pandemic. Of the sample, most participants (38.4%, $n = 127$) used social media platforms for 3–4 hours each day. A lesser proportion (18.7%, $n = 62$) reported a daily usage of 4–5 hours. Among the participants, 10.0% ($n = 30$) used social media for more than 5 hours each day, whereas 5.1% ($n = 17$) reported a daily social media use of less than one hour or had no daily social media usage (see **Table 3** for descriptive statistics of the variable). Most participants (70.1%, $n = 234$) also said that the pandemic had increased the amount of time spent on social media. Only 19 respondents (5.7%) emphasized that their social media usage decreased as a ramification of the COVID-19 pandemic.

**Table 3**

Variables and Descriptive Statistics

| Variable | N | M | SD | Min | Max |
|---|---|---|---|---|---|
| Victimization Before (α = .88) | | | | | |
| Been made fun of online | 330 | 2.31 | 1.23 | 1 | 5 |
| Had something posted about you online that you did not want others to see | 329 | 2.15 | 1.23 | 1 | 5 |
| Received a message that made fun of you | 330 | 2.56 | 1.21 | 1 | 5 |
| Had something posted about you online that made you upset | 329 | 2.21 | 1.23 | 1 | 5 |
| Overall Scale Average | 331 | 2.31 | 1.06 | 1 | 4.75 |
| Victimization During (α = .89) | | | | | |
| Been made fun of online | 330 | 2.20 | 1.21 | 1 | 5 |
| Had something posted about you online that you did not want others to see | 329 | 2.12 | 1.18 | 1 | 5 |
| Received a message that made fun of you | 328 | 2.47 | 1.27 | 1 | 5 |
| Had something posted about you online that made you upset | 329 | 2.18 | 1.26 | 1 | 5 |
| Overall Scale Average | 330 | 2.24 | 1.07 | 1 | 4.75 |
| Perceived Social Isolation (α = .84) | | | | | |
| Feeling a lack of companionship | 331 | 2.52 | .96 | 1 | 4 |
| Feeling left out | 329 | 2.37 | .90 | 1 | 4 |
| Feeling isolated from others | 330 | 2.47 | .98 | 1 | 4 |
| Overall Scale Average | 331 | 2.46 | .83 | 1 | 4 |
| Social Media Usage During | 331 | 4.03 | 1.12 | 1 | 8 |
| Pandemic Influence | | | | | |
| Social Isolation | 325 | 1.51 | .58 | 1 | 3 |
| Social Media Usage | 320 | 1.37 | .63 | 1 | 4 |
| Perception as Victim | | | | | |
| Before | 82 | .25 | .43 | 0 | 1 |
| During | 86 | .26 | .44 | 0 | 1 |

Note. $N = 331$.

**Perceived Social Isolation**

The research findings suggest that feelings of perceived social isolation are generally high during the pandemic. **Figure 2** provides the descriptive statistics of the perceived social isolation items (minimum and maximum values are found in **Table 3**). Of those participating in the study, most revealed that during the pandemic, they sometimes felt they lacked companionship (38.7%, $n = 128$), felt left out (35.6%, $n = 118$), or felt isolated from others (34.1%, $n = 113$). A small proportion said they had never experienced any of these feelings during the pandemic. For instance, 17.8% of participants never felt they lacked companionship during the pandemic, while most (82.2%) reported that they rarely, sometimes, or often lacked it. Supported by the question about the influence of the pandemic on feelings of loneliness and isolation, 51.7% ($n = 171$) of the sample felt more lonely/isolated during the pandemic than they had before, and 42.6% ($n = 141$) revealed that the pandemic had not affected feelings of loneliness/isolation. In contrast, a small proportion (3.9%, $n = 13$) felt less lonely/isolated during the pandemic than they had before.

**Figure 2**

Descriptive Statistics of Perceived Social Isolation During the Pandemic



Perceived Social Isolation During the Pandemic
*% of participants that experienced each of the following*
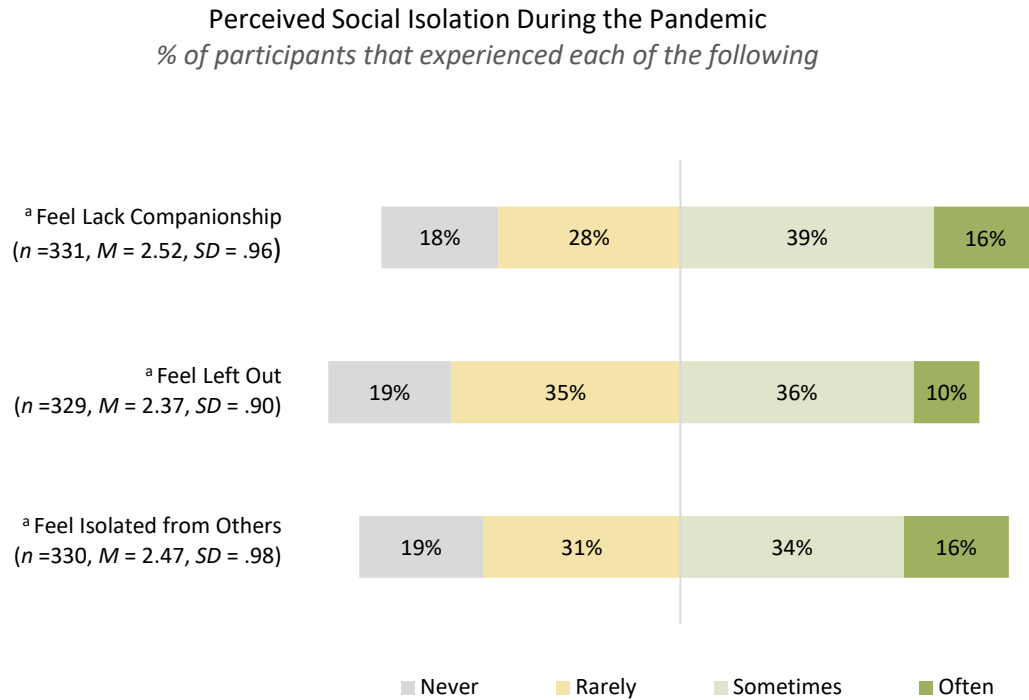
Note. $N = 331$. Percentages may not equal 100 due to the exclusion of missing values or rounding.
[a] Items are based on the Three-Items Loneliness Scale.

**Hypothesis one**

**Cyberbullying Victimization**

The study examined what relationship, if any, exists between cyberbullying victimization before and during the pandemic. Hypothesis 1a predicted that victimization increased during the COVID-19 pandemic. When the hypothesis was tested, the research findings indicated a marginal decline rather than an increase.

Changes in cyberbullying victimization were observed in the absence of cyberbullying experiences and daily experiences. For the former one, **Figure 3** and **Figure 4** reveal that the percentage of individuals who never experienced victimization often increased during the pandemic. For instance, 35% ($n = 116$) reported never being made fun of online before the pandemic, but a higher proportion (41%, $n = 135$) stated that they had never experienced this behavior during the pandemic. Similarly, fewer people ($-5\%$) experienced being made fun of online every day and having something posted about them that they did not want others to see during the pandemic.

**Figure 3**

Cyberbullying Victimization Statements Before the Pandemic



Cyberbullying Victimization Before the Pandemic
*a % of participants that experienced each of the following*
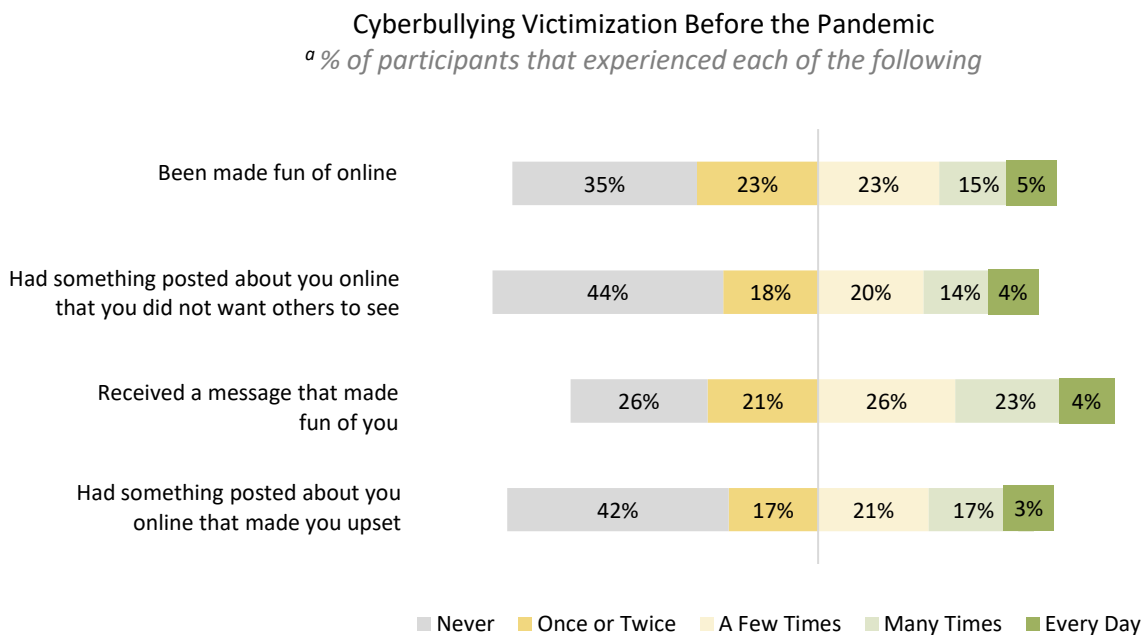
[a] Percentage may not equal 100 considering the rounding of numbers.

**Figure 4**

Cyberbullying Victimization Statements During the Pandemic

Cyberbullying Victimization During the Pandemic
*ᵃ % of participants that experienced each of the following*

| Statement | Never | Once or Twice | A Few Times | Many Times | Every Day |
|---|---|---|---|---|---|
| Been made fun of online | 41% | 19% | 22% | 15% | 0% |
| Had something posted about you online that you did not want others to see | 43% | 19% | 20% | 15% | 0% |
| Received a message that made fun of you | 31% | 22% | 20% | 20% | 5% |
| Had something posted about you online that made you upset | 44% | 17% | 22% | 12% | 5% |

■ Never   ■ Once or Twice   ■ A Few Times   ■ Many Times   ■ Every Day

.
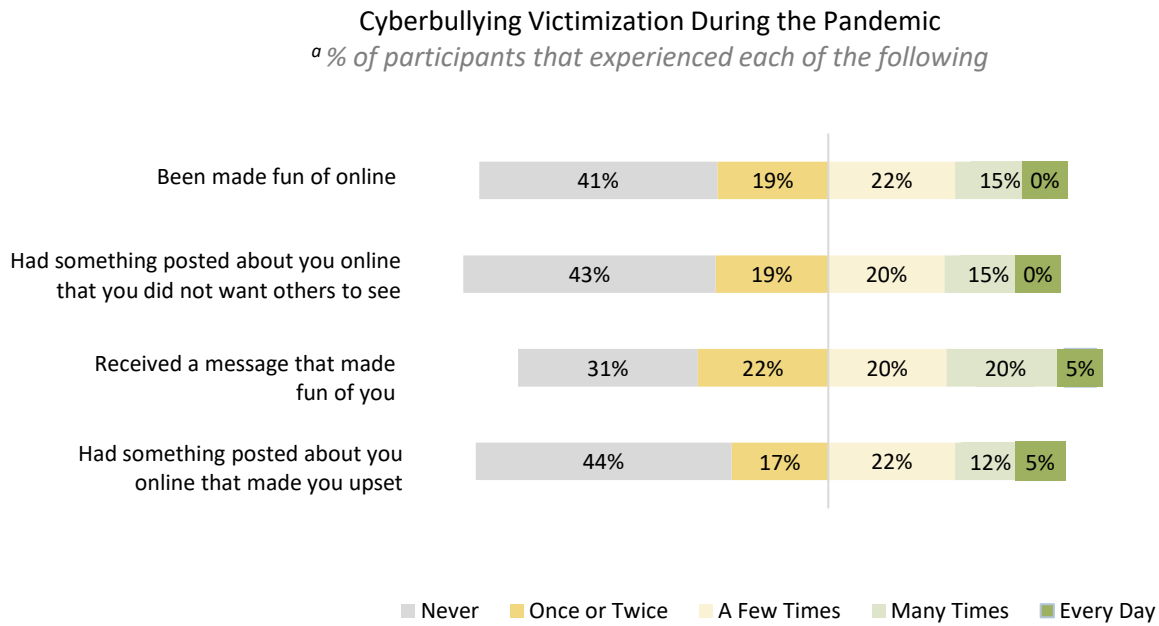
ᵃ Percentage may not equal 100 considering the rounding of numbers.

Interestingly, daily victimization experiences also increased during the pandemic. More participants reported receiving a message that made fun of them (+1%) and having something posted about them online that made them upset (+2%) during the pandemic. For the *once or twice* answer choice, 19% (*n* = 64) said they had had something posted about them that they did not want others to see once or twice during the pandemic. This represented an increase of 1% compared with before the pandemic.

Although participants revealed fewer victimization experiences during the pandemic, the majority of the sample reported victimization experiences at least once, both before and during the pandemic. The statement received a message that made fun of you showed that 72% (*n* =

244) of the sample experienced it at least once or twice before the pandemic and 67% ($n = 226$)

during the pandemic. This shows that victimization declined but remained high.

Considering all the findings, **Figure 3** and **Figure 4** show that despite the increase in

daily experiences during the pandemic, a general decline in victimization is suggested. The

average for victimization statements before ($M = 2.31$, $SD = 1.05$) was also greater than

victimization during the pandemic ($M = 2.24$, $SD = 1.07$), illustrating a potential decline in

cybervictimization.

**T-tests.** Given the differences between the average between victimization before and

during the pandemic, one-sided paired $t$-tests were utilized in R using the $t$-test function. Not

surprisingly, for a left-tailed $t$-test, the null hypothesis could not be rejected; the average of

cybervictimization before was higher than during the pandemic.[9] Stated differently,

cybervictimization experiences during the pandemic did not increase, $t$ (329) = 2.79, $df = 329$,

$††p =. 997$.

By contrast, the victimization experiences before the pandemic significantly decreased

during the pandemic in a right-tailed $t$-test, $t$ (329) = 2.79, $df = 329$, $††p = .002$, Cohen's delta ($d$)

= .15. Considering Cohen's delta, $d = .15$ is interpreted as a .15 standard deviation difference

between victimization before and during the pandemic (Hahs-Vaughn & Lomax, 2020).

Although the $t$-tests suggested marginal differences (i.e., $d = .20$ is considered a small effect size;

---

[9] A two-sided paired sample $t$-test was also performed to test for statistical significance between victimization experiences. The null hypothesis assumed no significant difference between the means of victimization statements before and during the pandemic. The results of the paired samples $t$-test showed marginally significant differences among the college and university students before and during the pandemic.

There was a significant difference between cybervictimization statements before ($M = 2.31$, $SD = 1.05$) and cyberbullying victimization during the pandemic ($M = 2.24$, $SD = 1.07$), $t$ (329) = 2.79, $p = .006$, $d = .15$. The mean difference between cybervictimization before and during the pandemic was .075 (95% CI: .02 to .12). The $p$-value was less than the significance level of alpha .05, resulting in the rejection of the null hypothesis.

Hahs-Vaughn & Lomax, 2020), cybervictimization was statistically significantly higher before the pandemic.

When participants were asked about their role in cyberbullying incidents, including being a witness, victim, or perpetrator, victimization increased by more than 1% (24.8% to 26.2%, $n = 82$ to 86) during the pandemic (see **Table 3** for more details).[10] A paired two-sided $t$-test was used to compare the differences between the self-declaration of a victim between the two timeframes. There was no significant difference between the victimization self-declaration before ($M = .24$, $SD = .43$) and during the pandemic ($M = .26$, $SD = .44$), $t(330) = -.069$, †$p = .49$.[11]

**Regression.** The paired $t$-test results for the cyberbullying victimization experiences indicated statistical significance. Simple linear regression was further applied to examine whether cyberbullying experiences before predicted victimization experiences during the pandemic. The research findings suggest that victimization experiences before the pandemic are a good predictor of victimization experiences during it.[12]

**Table 4** also shows the unstandardized coefficient ($B$) intercept and standardized regression coefficients ($\beta$) for cyberbullying victimization before, social media usage, and perceived social isolation. Accordingly, **Table 4** reveals that experience before explained 80.1% of the total variation in victimization during the pandemic, $F(1, 328) = 132$, $p < .001$, $R^2 = .80$.

---

[10] Interestingly, fewer people witnessed cyberbullying during the pandemic ($-2\%$; 44.4% to 42.6%, $n = 147$ to 141). A decrease in witnesses is potentially explained by the phenomenon of the diffusion of responsibility or increased anonymity. Since more individuals are on social media, individuals may be less likely intervene in cyberbullying incidents as other bystanders are perceived to bear more responsibility, and thus the individual may feel less obligated to intervene.

[11] A left-tailed $t$-test was also not statistically significant

[12] Variance inflation factor values above 5 or 10 are considered to represent a problematic amount of collinearity. All values in the study were below 5, illustrating that multicollinearity was not an issue (James et al., 2017).

**Table 4**

Linear Regression Analysis Summary for Predicting Victimization During the Pandemic

| Variables | $B$ | 95% CI | | B | $SE$ | $t$ | $p$ |
|---|---|---|---|---|---|---|---|
| | | LL | UL | | | | |
| Victimization Before | | | | | | | |
| Intercept | .14* | .01 | .26 | | .06 | 2.14 | .03* |
| Victimization Before | .91** | .86 | .96 | .90 | .02 | 36.42 | <.001*** |
| R² | .80** | | | | | | |
| Social Media Usage | | | | | | | |
| Intercept | 2.11** | 1.67 | 2.54 | | .22 | 9.50 | <.001*** |
| Social Media Usage | .03 | −.07 | .14 | .03 | .05 | .63 | .52 |
| R² | .001 | | | | | | |
| Perceived Social Isolation | | | | | | | |
| Intercept | 1.21** | .87 | 1.56 | | .18 | 6.88 | <.001*** |
| Perceived Social Isolation | .42** | .28 | .55 | .32 | .07 | 6.16 | <.001*** |
| R² | .10** | | | | | | |

Note. $N = 331$. *$p < .05$ **$p < .01$ ***$p < .001$. CI = confidence interval for B; LL = lower limit; UL = upper limit.

In line with the Cohen standard, the effect size of $R^2 = .80$ is considered a large effect size (Hahs-Vaughn & Lomax, 2020). The unstandardized slope (.91) of victimization is significantly different from zero ($t = 36.42$, $df = 328$), and the confidence interval around the unstandardized slope (.86, .96) confirms that experiences before are a significant predictor of the during experiences. In line with the results, **Table 5** displays that cyberbullying victimization before and during the pandemic are highly correlated, with a Pearson correlation coefficient ($r$), $r (328) = .89$, $p < .01$. The Pearson correlation coefficient at and above .50 is considered a large effect size (Hahs-Vaughn & Lomax, 2020). Although victimization experiences are a good predictor for

experiences during the pandemic, hypothesis 1a was not supported; instead, the findings indicated a marginal decline in cyberbullying victimization during the pandemic.

**Table 5**

Pearson's Correlation for Study Variables and Victimization

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1) Victimization During | – | .03 | .32** | .89** |
| 2) Social Media Usage | .03 | – | .02 | −.00 |
| 3) Isolation | .32** | .02 | – | .34** |
| 4) Victimization Before | .89** | −.00 | .34** | – |

Note. *p* < .05 **p* < .01.

**Cyberbullying Perpetration**

For cyberbullying perpetration experiences, the victimization hypotheses were adapted to the context of offending. Accordingly, hypothesis 1b predicted that cyberbullying perpetration increased during the COVID-19 pandemic. When tested, a statistically significant increase in perpetration during the COVID-19 pandemic was not supported by the analysis.

Research suggests that cyberbullying victimization is more prevalent than perpetration is (Giumetti et al., 2022; Varghese & Pistole, 2017). This is supported in the current study in that more participants generally revealed experiencing more cyberbullying than exhibiting it. The self-declaration of participants as victims also showed higher prevalence rates than perpetrators (see **Figure 3**, **Figure 4**, **Figure 5**, **Figure 6**, **Table 3**, and **Table 6**)

**Figure 5**

Cyberbullying Perpetration Statements Before the Pandemic

Cyberbullying Perpetration Before the Pandemic
*ᵃ % of participants that experienced each of the following*

| Statement | Never | Once or Twice | A Few Times | Many Times | Every Day |
|---|---|---|---|---|---|
| Posted something online about another person to make others laugh | 37% | 23% | 22% | 16% | 2% |
| Took a picture of someone and posted it online without their permission | 51% | 18% | 16% | 13% | 2% |
| Sent someone a text or instant message to make them angry or make fun of them | 41% | 18% | 22% | 18% | 2% |
| Posted something online to make someone angry or make fun of them | 46% | 18% | 18% | 12% | 5% |

■ Never  ■ Once or Twice  ■ A Few Times  ■ Many Times  ■ Every Day

ᵃ Percentage may not equal 100 considering the rounding of numbers.

**Figure 6**

Cyberbullying Perpetration Statements During the Pandemic

### Cyberbullying Perpetration During the Pandemic
*ᵃ % of participants that experienced each of the following*



| | Never | Once or Twice | A Few Times | Many Times | Every Day |
|---|---|---|---|---|---|
| Posted something online about another person to make others laugh | 40% | 19% | 21% | 15% | 5% |
| Took a picture of someone and posted it online without their permission | 49% | 18% | 19% | 10% | 4% |
| Sent someone a text or instant message to make them angry or make fun of them | 41% | 17% | 22% | 16% | 3% |
| Posted something online to make someone angry or make fun of them | 46% | 18% | 18% | 13% | 5% |

ᵃ Percentage may not equal 100 considering the rounding of numbers.

**Table 6**

Perpetration and Descriptive Statistics

| Variable | *n* | *M* | *SD* | Min | Max |
|---|---|---|---|---|---|
| Perpetration Before (α = .91) | | | | | |
| Posted something online about another person to make others laugh | 331 | 2.23 | 1.17 | 1 | 5 |
| Took a picture of someone and posted it online without their permission | 330 | 1.98 | 1.17 | 1 | 5 |
| Sent someone a text or instant message to make them angry or make fun of them. | 330 | 2.22 | 1.23 | 1 | 5 |
| Posted something online to make someone angry or make fun of them | 328 | 2.08 | 1.22 | 1 | 5 |
| Overall Scale Average | 331 | 2.12 | 1.07 | 1 | 4.75 |
| Perpetration During (α = .92) | | | | | |
| Posted something online about another person to make others laugh | 330 | 2.26 | 1.26 | 1 | 5 |
| Took a picture of someone and posted it online without their permission | 329 | 2.01 | 1.19 | 1 | 5 |
| Sent someone a text or instant message to make them angry or make fun of them. | 329 | 2.22 | 1.22 | 1 | 5 |
| Posted something online to make someone angry or make fun of them | 328 | 2.08 | 1.21 | 1 | 5 |
| Overall Scale Average | 330 | 2.14 | 1.10 | 1 | 5 |
| Perception as Perpetrator | | | | | |
| Before | 47 | .14 | .35 | 0 | 1 |
| During | 59 | .17 | .38 | 0 | 1 |

Note. *N* = 331.

Similar to the results for victimization, for perpetration, some experiences increased during the pandemic (**Figure 5** and **Figure 6**). Notably, 51% (*n* = 167) of the sample stated that

they took a picture of someone and posted it online without their permission at least once or twice during the pandemic, representing an increase of 2% from before the pandemic.

Although the experiences before and during the pandemic remained relatively stable, the daily perpetration experiences were noteworthy. The everyday experiences of the statement posting something online about another person to make others laugh increased by 3% during the pandemic. Taking a picture of someone and posting it online without their permission increased by 2%. This was further supported by the findings of the self-declaration of the participants as engaging in cyberbullying. Compared with before the pandemic, 14.1% ($n = 47$) of the sample categorized themselves as offenders compared with 17.8% ($n = 59$) during the pandemic ($+ 4$; see **Table 6** for the descriptive statistics).

**T-tests.** These findings suggest that perpetration experiences generally increased during the pandemic. This is also represented in the total average increase from perpetration statements before ($M = 2.13$, $SD = 1.07$) to during the pandemic ($M = 2.14$, $SD = 1.11$). A $t$-test was used to measure whether the average of the statement before was significantly less than the perpetration statement's mean during the pandemic. A left-tailed paired $t$-test was utilized to test for statistical significance.

The results of the $t$-test indicated that perpetration experiences before and during the pandemic were not statistically significant, $t$ (329) $= -.45$, $df = 329$, ††$p = .32$. Similarly, a paired, two-sided $t$-test also indicated that cyberbullying perpetration experiences before and during the pandemic are not significantly different from each other, $t$ (329) $= -.45$, $df = 329$, †$p = .65$, $d = .04$. Given that, a statistically significant increase in perpetration during the COVID-19 pandemic was not supported by the analysis.

**Hypothesis two and three**

**Cyberbullying Victimization**

The study further examined what relationship, if any, exists among cyberbullying victimization experiences before and during the pandemic, perceived social isolation, and social media usage. Hypothesis 2a proposed a positive association between social media usage and cyberbullying victimization experiences before and during the pandemic. Hypothesis 3a postulated a positive association between perceived social isolation and victimization before and during the pandemic. The research findings did not support hypothesis 2a, while partially supported hypothesis 3a – perceived social isolation was a significant predictor for victimization during the pandemic but nullified when experiences before the pandemic were included.

In accordance with the results, **Table 5** showed no significant correlation between social media and cyberbullying victimization or perceived social isolation. As shown in **Table 5**, perceived social isolation was significantly correlated with victimization before, $r$ (329) = .34, $p$ < .01, and during the pandemic, $r$ (328) = .32, $p$ < .01. Effect sizes of the Pearson correlation coefficient of .34 and .32 are considered medium effects, suggesting that the degree of relationship between perceived social isolation and victimization experiences before and during the pandemic is moderate (Hahs-Vaughn & Lomax, 2020).

**Table 4** also indicated that perceived social isolation was a significant predictor for victimization during the pandemic, $F$ (1, 328) = 38, $p$ < .001, $R^2$ = .10. The multiple $R^2$ values for perceived social isolation indicated that a proportion of variance (10%) in victimization during the pandemic could be explained by perceived social isolation (see **Table 4** for details). Following Hahs-Vaughn and Lomax (2020), effect sizes of $R^2$ = .09 to .24 are considered medium effect sizes.

The standard multiple regression was performed between cyberbullying victimization during (i.e., dependent variable) and social media usage, perceived social isolation, and victimization experiences before (i.e., independent variables) using the lm function in R. Supported by the multiple regression, social media usage was not significant, whereas perceived social isolation was (**Table 7**). Accordingly, perceived social isolation significantly predicted victimization experiences during the pandemic, $F(2, 327) = 19.09$, $p < .001$, $R^2 = .10$. victimization before was included in model 2, perceived social isolation was no longer significant (see **Table 7**). In model 2, cyberbullying victimization before remained a strong predictor of victimization during the pandemic. The unstandardized slope for victimization before (.90) is not equal to zero, $t = 34.1$, $df = 326$, and the confidence interval around the unstandardized slope is (.85, .95).

**Table 7**

Multiple Linear Regression of Predicting Victimization During the Pandemic

| Variables | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | $B$ | $\beta$ | SE | $B$ | $\beta$ | SE |
| Intercept | 1.11** | | .26 | −.05 | | .13 |
| Social Media Usage | .02 | .03 | .05 | .04 | .04 | .02 |
| Perceived Social Isolation | .42** | .32 | .06 | .02 | .02 | .03 |
| Victimization Before | | | | .90** | .89 | .02 |
| $R^2$ | .10** | | | .80** | | |

*Note.* $N = 331$. * $p < .05$ ** $p < .01$.

The multiple $R^2$ of model 2 remained at .80 and could predict a sizable proportion of cyberbullying victimization during the pandemic, $F(3, 326) = 444.4$, $p < .001$, $R^2 = .80$. This

suggests that the effect of perceived social isolation was nullified when prior victimization experiences were included in the model. Given this result, the regression analysis and correlation results with the cor.test function in R did not support a significant positive association between social media usage and cyberbullying victimization experiences before and during the pandemic.[13]

The results of linear regression and correlation of study variables suggested a significant positive relationship between perceived social isolation and cyberbullying victimization before and during the pandemic, as outlined in hypothesis 3a. Yet, when tested in multiple linear regression with cyberbullying victimization before, the effect of perceived social isolation was no longer statistically significant. These results show that victimization experiences before the pandemic were, in general, more predictive than feelings of social isolation for experiences during the pandemic.

**Perpetration Experiences**

Hypothesis 2b proposed a positive association between social media usage and perpetration experiences before and during the pandemic. Hypothesis 3b predicted a positive association between perceived social isolation and experiences of perpetration before and during the pandemic. Although the results were slightly higher for perpetration compared to victimization, hypothesis 2b was not substantiated, while hypothesis 3b was partially supported – perceived social isolation remained a significant individual predictor for perpetration during the pandemic.

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[13] Notably, including the before-pandemic-perpetration experiences resulted in improved model and $R^2$, $F_{(4, 325)} = 402.4$ $p < .001$, $R^2 = .83$.

Hypotheses 2b and 3b were tested using linear regression and correlation. In line with the victimization findings, the perpetration before was a significant predictor for perpetration during the pandemic, $F (1, 328) = 1650$, $p < .001$, $R^2 = .83$. **Table 8** shows that 83% of the variance in perpetration experiences during the pandemic is explained by perpetration before it, illustrating a small increase (+3%) in variance compared with victimization. Similar to the victimization results, social media was not a significant predictor, whereas perceived social isolation was a significant one. Perceived social isolation explained 11% of the total variation in perpetration experiences during the pandemic, $F (1, 328) = 42.7$, $p < .001$, $R^2 = .11$

**Table 8**

Linear Regression Analysis Summary for Predicting Perpetration During the Pandemic

| Variables | *B* | 95% CI | | B | *SE* | *t* | *P* |
|---|---|---|---|---|---|---|---|
| | | LL | UL | | | | |
| *Perpetration Before* | | | | | | | |
| Intercept | .14* | .02 | .24 | | .06 | 2.40 | .001* |
| Perpetration Before | .94** | .90 | .99 | .91 | .02 | 40.6 | <.001*** |
| R² | .83** | | | | | | |
| *Social Media Usage* | | | | | | | |
| Intercept | 1.91** | 1.46 | 2.36 | | .22 | 8.37 | <.001*** |
| Social Media Usage | .03 | −.05 | .17 | .06 | .05 | 1.07 | .28 |
| R² | .003 | | | | | | |
| *Perceived Social Isolation* | | | | | | | |
| Intercept | 1.03** | .67 | 1.38 | | .18 | 5.69 | <.001*** |
| Perceived Social Isolation | .42** | .32 | .59 | .34 | .07 | 6.53 | <.001*** |
| R² | .11** | | | | | | |

Note. $N = 331$. *$p < .05$ **$p < .01$ ***$p < .001$. CI = confidence interval for B; LL = lower limit; UL = upper limit.

Although the correlation for the study variables remained similar to the victimization findings, the correlation was slightly higher for perpetration experiences before and during the pandemic, $r(328) = .91$, $p < .01$. Perceived social isolation also correlated moderately with perpetration experience before, $r(329) = .37$, $p < .01$, and during the pandemic, $r(328) = .34$, $p < .01$ (see **Table 9**; Hahs-Vaughn & Lomax, 2020).

**Table 9**

Pearson's Correlation for Study Variables and Perpetration

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1)  Perpetration During | − | .05 | .34** | .91** |
| 2)  Social Media Usage | .05 | − | .02 | −.00 |
| 3)  Isolation | .34** | .02 | − | .37** |
| 4)  Perpetration Before | .91** | −.00 | .37** | − |

Note. *$p < .05$ **$p < .01$.

Multiple linear regression showed a non-significant difference in perceived social isolation when cyberbullying perpetration before was included to predict the experiences during the pandemic. Notably, the results of the models were slightly larger for perpetration than for cyberbullying victimization (see **Table 10**).

**Table 10**

Multiple Linear Regression of Predicting Perpetration During the Pandemic

| Variables | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | $B$ | $\beta$ | $SE$ | $B$ | $\beta$ | $SE$ |
| Intercept | .83** | | .27 | −.08 | | .12 |
| Social Media Usage | .05 | .05 | .05 | .05 | .05 | .02 |
| Perceived Social Isolation | .45** | .34 | .06 | .00 | .00 | .03 |
| Perpetration Before | | | | .94** | .91 | .02 |
| $R^2$ | .11** | | | .84** | | |

Note. $N = 331$. * $p < .05$ ** $p < .01$.

**Conclusion**

Considering the research findings for victimization, although hypothesis 1a was not supported, the *t*-tests indicated a significant difference between cyberbullying victimization before and during the pandemic, with the experiences during the pandemic being significantly less than experiences before the pandemic. It was hypothesized that cyberbullying victimization experiences increased among the young adults in the current study and was not substantiated by the research findings.

The positive association between social media and the variables (i.e., victimization before and during the pandemic and perceived social isolation), as outlined in hypothesis 2a, could not be supported with either correlation or regression. Hypothesis 3a assumed a positive association between perceived social isolation and victimization experienced before and during the pandemic. When hypothesis 3a was tested, linear regression and correlation suggested significant effect sizes. However, these effects were not significant when victimization before the pandemic

was incorporated into a multiple linear regression model. Still, perceived social isolation was an individual predictor for victimization during the pandemic.

Consistent with the research findings on victimization, hypothesis 1b was not supported for perpetration experiences. Although the descriptive statistics suggested an increase in perpetration, they were deemed not significant in the analysis. Following the descriptive statistics, the increase in perpetration was in opposition to the decrease in victimization during the pandemic. Hypothesis 2b was also not substantiated, illustrating that social media frequency was not significantly relevant in the analysis. For hypothesis 3b, when the perpetration before-pandemic was included in the model, perceived social isolation remained non-significant. In line with victimization, without the experiences before the pandemic, perceived social isolation was a moderate predictor for perpetration during the pandemic. Overall, some of the key findings of the study were that cyberbullying victimization decreased. In addition, perceived social isolation was a significant predictor of cyberbullying perpetration and victimization during the pandemic when pre-pandemic experiences were omitted.

## Chapter 6 Discussion

The current study sought to quantitatively address the gap in the literature concerning the relationship between cyberbullying experiences, perceived social isolation, and social media usage during the COVID-19 pandemic. This research took a closer look at what relationship, if any, exists between college and university student variables. It was hypothesized that cyberbullying experiences, victimization, and perpetration have increased during the COVID-19 pandemic, and perceived social isolation is positively associated with cyberbullying experiences and social media usage.

**Hypothesis one**

**Cyberbullying Victimization**

It was hypothesized that cyberbullying victimization increased during the pandemic. Some studies, including the School Crime Supplement of the National Crime Victimization Survey, indicate a general increase in victimization over the last two decades (Oudekerk et al., 2019). As emphasized throughout this thesis, estimates of cyberbullying victimization among young adults can vary across studies, and caution must be exercised in determining a general pattern over time, considering the limited comparability between the studies (see Cyberbullying Research Center, n.d, for more).

However, the research findings did not support hypothesis 1a. While the participants' perceptions of being victims increased during the pandemic, when tested, this was deemed statistically nonsignificant. Similarly, the research findings did not support an increase in

cyberbullying victimization, as measured by the victimization statements. While some victimization experiences, including daily experiences, were accelerated during the pandemic, the remaining experiences suggested a general decline. Contrary to hypothesis 1a, the results suggested a marginal but significant decline in cyberbullying victimization from before to during the pandemic. The results revealed that young adults experienced less victimization during the pandemic.

In line with these research findings, Giumetti et al. (2022) discovered that although nearly half of an adult sample had experienced cyberbullying during the pandemic, this represented a decline compared to before the pandemic. A German study also found that the pandemic had not influenced the frequency of cyberbullying victimization (Schunk et al., 2022).

Despite the increase in social media use among the current study's sample, the decrease in victimization is potentially explained by individuals' behaviors. Holt et al. (2008) argued that the amount of time spent on social media does not necessarily influence cybervictimization per se; rather, it depends on the online settings in which individuals are involved. During the pandemic, individuals might have increased their passive social media usage by increasingly using social media to watch videos or obtain necessary information rather than actively engaging in commenting or discussions with other users.

Some social media sites might also be safer than others, depending on the activity they engage in, indicating that people could potentially be engaged in safer online behavior during the pandemic. For instance, social networking sites were presumably used to communicate with family or friends during lockdowns, compared to using social media forums to exchange ideas with strangers. This may potentially explain the increase in social media use and, at the same time, the decrease in victimization experiences. Future research on cyberbullying victimization

during the pandemic could include measures of participants' activities to better understand which online activities are prevalent and associated with cyberbullying rather than the frequency of usage.

**Cyberbullying Perpetration**

It was hypothesized that perpetration increased during the pandemic. The research findings on perpetration revealed that the self-declaration of exhibiting cyberbullying increased. Similarly, the perpetration statements showed more perpetration experiences during the pandemic. While the research findings suggested an increase in perpetration, they were not statistically significant when tested.

These results contradict Barlett et al.'s (2021b) findings, which revealed that cyberbullying perpetration significantly increased among adults as a ramification of the pandemic. They further argued that accelerated perpetration experiences were likely based on increased internet usage during the pandemic (Barlett et al., 2021b). Yet, the differences between cyberbullying perpetration experiences before and during the pandemic in the current study were marginal, suggesting that a larger sample might have discovered significant differences in perpetration. In this case, increasing time spent online could be associated with more cyberbullying perpetration if the individuals engaged in riskier behavior, including posting pictures of others without their permission.

However, considering that the current study's results were nonsignificant, the importance of the setting and the internet user domain rather than merely increasing the time spent online may also hold for perpetration. Another explanation could be based on the changes brought about by the pandemic, including taking care of family members, buying groceries, and

assisting with household activities, which might have led to dwindling cyberbullying engagement and motivation.

**Hypothesis two**

**Cyberbullying Victimization**

It was hypothesized that there is a positive association between social media usage and cyberbullying victimization both before and during the COVID-19 pandemic. Several conclusions can be drawn from the current study's findings on social media usage. In line with the related literature, the time spent online dramatically increased during the pandemic (Lemenager et al., 2021), and the current study found that the majority of the participants reported that they had increased their social media usage due to the onset of the pandemic.

Studies indicate that feeling lonely during the pandemic potentially leads to more social media usage to seek social belonging (Boursier et al., 2020; Mikkola et al., 2020). However, Giumetti et al. (2022) found that technology use was not a significant predictor of victimization among college students.[14] In accordance with Giumetti et al. (2022), the current study found no linear or positive association between social media usage and victimization experiences.

Therefore, social media was a nonsignificant predictor of cyberbullying victimization during the pandemic, and it has no statistically significant correlation with victimization before or during the pandemic or perceived social isolation. The absence of significance between social media and perceived social isolation might suggest that isolated individuals may not necessarily increase technology usage to seek social connectedness (Sahin, 2012; Varghese & Pistole, 2017).

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[14] In this context, caution must be exercised. Technology usage does not necessarily translate into social media usage. Technology use can include more than social media usage, making comparisons convoluted. The definition of technology can vary greatly across studies.

While the current study did not include the online activities that people engaged in, the increased usage of social media and the amount of time people spent on social media potentially indicated that people are engaging in high levels of online activities. Still, as noted above, the lack of significance might be explained by the particular activities the participants were engaged in online, such as passive usage.

Literature related to adolescents reveals that youth with more access to technology are at a greater risk of cyberbullying victimization (Holt et al., 2016). The divergent results for cyberbullying victimization among young adults could be explained by the assumption that young adults might be less involved in activities unrelated to school activities than secondary students (Giumetti et al., 2022). Alternatively, college and university students may also use less social media than adolescents, indicating that the results of studies on youth samples might differ considerably from the results of studies on postsecondary student samples, potentially explaining the insignificance of social media usage in the current study.

**Cyberbullying Perpetration**

The current study's findings did not support hypothesis 2b; that is, social media usage is positively associated with cyberbullying victimization (both before and during the pandemic). Cyberbullying perpetration did not increase with increasing social media usage. This is incongruent with Barlett et al.'s (2019) findings of a positive association between cyberbullying perpetration and social media usage. In the current study, social media usage showed a lack of statistically significant correlation with any of the variables, which indicated that it was not a good predictor of cyberbullying perpetration during the pandemic.

Given the potential explanation for victimization and the insignificance of social media usage, what young adults engage in on social media could be more relevant than how much time

they spend on social media. Also, specific activities might increase the likelihood of cyberbullying perpetration.

Although the correlation was not significant, there was a small positive correlation between social media usage and cyberbullying during the pandemic, indicating that some marginal differences may exist in the population. The correlation between social media usage and perpetration was also slightly higher than that between social media usage and victimization, showing that social media remained a nonsignificant predictor of perpetration during the pandemic. This is in accordance with related literature that shows a strong relationship between social media usage and cyberbullying (Kraft & Wang, 2010; Marengo et al., 2021).

Chen et al. (2017) discovered a stronger association between social media usage and perpetration and victimization for minors compared to adults. Explanations for this could include that secondary students might experience more group pressure to engage in cyberbullying. For instance, Shim and Shin (2016) found that high school students with neutral or positive attitudes toward cyberbullying increasingly engaged in cyberbullying behavior with high peer pressure. This may explain the increased relevance of technology for cyberbullying experiences among minors compared to its decreased relevance among young adults in the current study.

**Hypothesis three**

**Cyberbullying Victimization**

It was hypothesized that there is a positive association between perceived social isolation and cyberbullying victimization both before and during the COVID-19 pandemic. The findings indicated that feelings of perceived social isolation dramatically increased among young adults during the pandemic. Most of the participants reported feeling lonely as an outcome of the pandemic. However, as supported by the relevant literature, young adults generally perceive

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feeling socially isolated, including pre-pandemic (Hughes et al., 2004; Newman et al., 2005). Although the literature also reveals mixed results for cyberbullying victimization and perceived social isolation, the current study's findings suggest that perceived social isolation was a statistically significant individual predictor of victimization during the pandemic (see Brewer & Kerslake, 2015).

The significance of perceived social isolation could potentially stem from the assumption that victims are often isolated from their peers, therefore, making them attractive to perpetrators. Following this approach, individuals might differ in their predisposition to loneliness. Another explanation might be that peers avoid individuals who often experience cyberbullying, causing victims to feel socially isolated (Newman et al., 2005). In other words, individuals already feeling lonely might be at heightened risk for cyberbullying, or cyberbullying is a catalyst for social isolation.[15]

In the current study, perceived social isolation was also moderately correlated with victimization both before and during the pandemic. Based on the statistical significance of perceived social isolation as an individual predictor, future research might benefit from including perceived social isolation in cyberbullying models. Considering that perceived social isolation was a significant predictor of victimization, a larger sample size might reveal statistical significance, even when cyberbullying victimization before the pandemic is included in the model.

Nevertheless, when cyberbullying victimization before the pandemic was included in the current study's analysis, the effect of perceived social isolation was nullified. Similarly, the current study found a moderate rather than a large effect size, illustrating that future studies

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[15] Further, this dichotomy might occur simultaneously.

might benefit from combining loneliness with measurements of depression, low self-esteem, and empathy (Brewer & Kerslake, 2015).

**Cyberbullying Perpetration**

The literature indicates that loneliness is a significant predictor of cyberbullying victimization, but not necessarily of perpetration (Varghese & Pistole, 2017). The current study's research findings suggest that perceived social isolation was a significant predictor of perpetration during the pandemic, which was marginally higher than for victimization. Similarly, the correlation was slightly higher between perceived social isolation and cyberbullying perpetration both before and during the pandemic.

Despite this, the effect size remained moderate for perpetration, which was slightly different from the victimization effect size. This was also observable when perpetration before the pandemic was included in a model with perceived social isolation. The lack of significance of perceived social isolation with experiences before the pandemic remained; however, the model showed a marginally better fit than the victimization model.

The pandemic's ramifications might explain the inconsistency between the existing literature and the current study's findings. During the pandemic, feelings of social isolation may be influenced by decreased feelings of life satisfaction and happiness, low self-esteem, or stress. One explanation could be that the pandemic causes a decline in life satisfaction or lowers self-esteem, potentially leading to individuals feeling more socially isolated. In line with this, researchers have found that college students experience decreased life satisfaction during the pandemic (Xiao et al., 2022). Considering this, future cyberbullying research during the pandemic may benefit from testing life satisfaction, self-esteem, stress, and isolation to better understand cyberbullying.

**Theoretical Implications**

**The Routine Activity Theory**

Routine activity theory (RAT) for crime and the Barlett Gentile cyberbullying model (BGCM) are promising frameworks for assessing cyberbullying. Theoretical frameworks are increasingly needed to better understand the phenomenon of cyberbullying and potential implications for future prevention and intervention strategies.

RAT proposes that cyberbullying results from the convergence of a suitable target, a motivated offender, and the absence of capable guardianship. Studies applying RAT to cyberbullying victimization show that social media is essential for the convergence of motivated offenders and suitable targets in cyberspace (Arntfield, 2015). Moreover, the frequency of internet usage potentially increases the likelihood of victimization by increasing the visibility of a target (Choi et al., 2019a; Leukfeldt & Yar, 2016).

A three-item loneliness scale (i.e., perceived social isolation in the current study), also declared to be a strong predictor of cybervictimization, warrants further exploration of perceived isolation as a proxy for a lack of guardianship, as outlined by RAT (Mikkola et al., 2020). Consistent with Mikkola et al. (2020), the current study found that perceived social isolation was a significant predictor of cyberbullying victimization during the pandemic when victimization experiences before the pandemic were excluded.

In contrast, in the current study, the frequency of social media usage was not statistically significant for any cyberbullying experience. This non-significance of social media might be partially caused by not including what the individuals were engaging in on social media. Relevant literature shows that participating in chat rooms makes cyberbullying victimization likelier (Mesch, 2009). Similarly, online lifestyle activities, including internet chatting and the

usage of social networking sites, heighten the risk of cyberbullying victimization (Choi et al., 2019b). Internet chatting or risky online behavior, including sharing content, may increase the likelihood of victimization more than the frequency of social media usage. That being said, frequency and risky behavior may overlap in some cases, illustrating that the measures are not necessarily mutually exclusive.

According to the tenets of RAT, a crime cannot occur unless three elements converge in time. Although perceived social isolation may serve as a lack of capable guardianship during the pandemic, cyberbullying is unlikely to occur when either a motivated offender or a suitable target is absent. Similarly, not engaging in risky online behavior despite increasing social media usage is unlikely to lead to the convergence of a target and an offender, suggesting that the frequency of social media use may not adequately predict cyberbullying victimization.

The assumption of an absence of convergence might be further supported by the current study's research finding of no statistically significant increase in victimization during the pandemic. Based on the tenets of RAT, the decline in cyberbullying victimization during the pandemic indicates that the likelihood of the convergence of the required elements was potentially reduced or even absent among young adults.

Future research should consider incorporating individuals' online activities. As noted, Cyber-RAT posits that cybervictimization is predicted by the absence of online guardianship and by online lifestyles (Choi et al., 2019b). The initial RAT was a simplified approach to explain crime occurrence, and expanded approaches, including Lifestyles-RAT, seem promising for a comprehensive understanding of cyberbullying victimization. Lifestyles-RAT focuses on 1) exposure to potential offenders, 2) lack of capable guardianship, 3) proximity to the offender, and 4) target suitability (Choi et al., 2019a; Cohen et al., 1981; Wilcox, 2015). For instance,

Reyns et al. (2011) indicated that contact with deviant peers as a proxy for the absence of guardianship and adding strangers as friends for online proximity were significant predictors of cyberbullying victimization.

Considering Reyns et al. (2011) findings, measuring a suitable target, motivated offenders, and the absence of guardianship are unlikely to capture all the important factors that influence cyberbullying involvement in the current technology era. RAT provides a generic explanation of crime occurrence and has enabled scholars and practitioners to contemplate crime as the result of convergence rather than an individual's decisions. RAT may benefit from including other components, such as lifestyle and self-control (Choi et al., 2019a). Notably, RAT was not explicitly designed to address cyberbullying; therefore, Barlett and Gentile (2012) introduced the BGCM for cyberbullying perpetration to establish a theory applicable to the unique circumstances of cyberbullying.

**The Barlett Gentile Cyberbullying Model**

Studies addressing cyberbullying perpetration are limited (Barlett, 2017). However, the BGCM posits that positive attitudes are established when the irrelevance of muscularity in online bullying and perceived anonymity are internalized and reinforced. Once these attitudes are established, cyberbullying perpetration occurs.

Despite the current study solely addressing the measurement of cyberbullying behavior (i.e., perpetration), the study's findings might hold important implications for research using the BGCM. The current study suggests that perceived social isolation should be considered in subsequent research. Although the current study did not indicate a significant increase in perpetration, perceived social isolation may potentially facilitate increased learning opportunities

during the pandemic, and it is through more learning opportunities that attitudes are developed, resulting in more cyberbullying perpetration (Barlett, 2019).

Interestingly, although the current study indicated no direct effects of social media on cyberbullying experiences or feelings of perceived social isolation, studies have acknowledged that time spent on social media and stress can act as mediators in the relationship between the tenets of the BGCM during the pandemic (Barlett et al., 2021; see Barlett, 2019, for more). More social media usage may predict perceived anonymity and irrelevance of muscularity in online bullying, which influence attitudes and subsequent cyberbullying behavior. As supported by Barlett (2019), more longitudinal evidence is required to determine whether the time individuals spend on social media should be incorporated into the model.

While the BGCM is the first established theory for cyberbullying perpetration and is essential for consistent scientific investigations, the model may benefit from including mediators or risks that make learning opportunities likelier. Variables such as low self-control or perceived social isolation show promising results for assessing cyberbullying perpetration (Kowalski et al., 2019). More research on the explanatory power of perceived social isolation for increased learning opportunities for cyberbullying is required. Although RAT and the BGCM are concerned with cyberbullying perpetration or apply to cyberbullying, to date, a holistic theoretical model for cyberbullying (i.e., victimization and perpetration) is lacking, and this might be hindered by the scarcity of consensus in the cyberbullying literature (i.e., definitions, forms, and measurements; Aizenkot, 2021).

**Limitations of the Study and Future Research Directions**

This study sought to address the lack of research on the association between cyberbullying experiences, social media usage, and perceived social isolation during the

COVID-19 pandemic. However, it is acknowledged that no study, including the current one, is without limitations.

First, based on the method of convenience sampling adopted by the current study, one should be careful when generalizing the results. Also, most of the sample were students at a Midwestern university, meaning caution must be exercised when making inferences to all university and college students in the United States. Generalization to another population segment is also problematic, considering that the research showed divergent results for cyberbullying among young adults and youths, even when random sampling is applied.

Second, the survey was based on the participants' self-reported findings. The participants were asked about their experiences both before and during the pandemic, defined as prior to and after March 2020. Reflecting on their experiences in this single survey, rather than employing two surveys (i.e., one for each period), might have resulted in underestimating or overestimating cyberbullying experiences (Schunk et al., 2022). Similarly, the use of other timeframes, such as studies concerned with cyberbullying experiences in 2022 instead of 2021, may provide divergent results. Therefore, future research on the influence of the pandemic on cyberbullying over a more extended period is warranted.

Self-reported studies may highlight concerns about social desirability, or memory may be an issue. Although this is a general concern in all survey research, reflecting on cyberbullying experiences might have led to inaccurate memory retrieval and recollection. Also, human memory is malleable, and the retrieval of memories is not a neutral process; it is susceptible to distortion, including remembering occurrences that never took place. Simply put, memories are not "foolproof" (Nichols & Loftus, 2019).

Third, the current study did not include mediator variables, including self-esteem, self-control, depression, life satisfaction, and stress. Researchers have discovered links between cyberbullying and depression, loneliness, and self-esteem (Varghese & Pistole, 2017). More research is needed on the relationships between these variables during the pandemic. As noted, future research on perceived social isolation and the types of activities people engage in online during the pandemic is also warranted.

This study aimed to identify patterns rather than in-depth experiences. However, for a potentially richer understanding of cyberbullying among young adults, future research should also apply a qualitative or mixed-methods approach to examine experiences during the COVID-19 pandemic in greater depth (Guthrie, 2010; Lanier & Briggs, 2014). For instance, one participant stressed that "generally, I have seen an increase in cyberbullying during the pandemic due to increased social media usage," showing that qualitative research may enable a more profound understanding of individual experiences.

Despite these limitations, to the best of the author's knowledge, the current study is the first to explore the relationships between cyberbullying experiences, perceived social isolation, and social media usage among young adults, particularly during the pandemic. This study addresses an emerging area, considering that young adults have shown high levels of loneliness and social media usage even in pre-pandemic times (Varghese & Pistole, 2017). The findings of this study have important implications for scholars, practitioners, and future research directions.

**Chapter 7 Conclusion**

The ramifications of the COVID-19 pandemic have resulted in college and university students relying heavily on electronic devices, potentially influencing their engagement in cyberbullying behavior. Using a quantitative approach, the current study sought to explore the relationships between social media usage, perceived social isolation, and cyberbullying experienced both before and during the COVID-19 pandemic. The data for this study were derived from 331 college and university students currently enrolled in American universities.

In accordance with the relevant literature, the research findings revealed higher levels of cyberbullying victimization than perpetration both before and during the pandemic. The current study also suggested a significant decline in cyberbullying victimization, whereas no significant increase in perpetration experiences was indicated. One explanation might be that individuals increasingly engaged in safer online behavior or experienced a lack of motivation for perpetration during the pandemic.

Surprisingly, social media usage had no relationship with perceived social isolation or cyberbullying experiences both before and during the pandemic. In line with the hypothesis, perceived social isolation was a significant individual predictor of cyberbullying experiences during the pandemic and was positively associated with cyberbullying experiences both before and during the pandemic, potentially illustrating its importance for future research directions.

Despite the decline in victimization and no significant increase in perpetration, most of the sample had experienced cyberbullying victimization or perpetration at least once before and during the pandemic.

This is significant considering that the relevant literature shows the deleterious outcomes and effects of cyberbullying. The results suggest that colleges and universities should be vigilant in terms of increased perceived social isolation and cyberbullying experiences during the pandemic, illustrating that continued research on cyberbullying during the pandemic is needed.

This study contributes significantly to the fields of criminology and criminal justice, and psychology with implications for developing age-specific intervention and prevention strategies of interest to practitioners and scholars alike. While the restricted sampling makes inferences to other college and university students limited, the findings have important implications for counseling services, health researchers, and practitioners in college and university settings and serve as a basis for future research. The current study aims to raise awareness of cyberbullying in postsecondary education during the pandemic, and it suggests that young adults are feeling more isolated and are increasingly using social media, showing the severity of the effects of the COVID-19 pandemic on young adults.

At the time of writing, the COVID-19 pandemic, declared a severe public health threat, is ongoing. Considering that reliance on technology is accelerating rather than declining, more research is required on the long-term consequences of the pandemic on perceived social isolation and cyberbullying among young adults. Ongoing research on cyberbullying is essential, based on the assumption that universities and colleges may increasingly offer online classes in the future. Precautions must be taken to ensure that feelings of social isolation are reduced by increasingly recognizing the severity of cyberbullying, even in postsecondary education.

# Appendices

## Appendix A – Informed Consent Form

Cyberbullying during COVID-19 Pandemic: Relation to Perceived Social Isolation

HUM00196011

Principal Investigator: Nadya Stefani Petri, B.A., University of Michigan-Dearborn

Faculty Advisor: Brenda Whitehead, Ph.D., University of Michigan-Dearborn, and Maya Barak, Ph.D., University of Michigan-Dearborn

You are invited to participate in a research study about the pandemic's influence on cyberbullying. To participate, you must be 18 years of age or older, a currently enrolled college or university student, and residing in the United States of America. The purpose of the study is to measure the level of cyberbullying victimization and offending, social isolation, and the use of social media during the current COVID-19 pandemic. If you agree to be part of the research study, you will be asked to complete a web-based survey and report your personal experiences with cyberbullying before and during the pandemic. The survey will take approximately 10 minutes to complete.

### Benefits of the Research

Although you will not directly benefit from being in this study, your participation will contribute information to the development of prevention strategies and our understanding of cyberbullying in general, thereby expanding knowledge in the fields of criminology, criminal

justice, and psychology. Moreover, you will have the opportunity to reflect on cyberbullying in an anonymous and neutral context.

## Risks and Discomforts

You may be exposed to some risks by being in this study, despite the researcher's best efforts to minimize the risks. Some of the questions in this survey may be sensitive and/or cause emotional discomfort.

## Compensation

After completing the survey, you have the chance to win a $50 Amazon gift card. To participate, you must enter your email address on a separate contact form, but the participation cannot be linked to your survey responses. Your email address will not be made available to other people and will be deleted after the drawing.

Participation in this survey is entirely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose not to answer or skip any survey question for any reason. Survey responses are anonymous and confidential. The researcher will protect the confidentiality of your research records by storing the survey responses in a password-protected electronic format in accordance with the University of Michigan-Dearborn's data protection protocols. To guarantee that your responses cannot be linked to you, the data will be coded and stored so that no one can identify you. Information collected in this project will be published and may be shared with other researchers, but the researcher will not share any information that could identify you.

If you have questions about the study and its procedures at any time or are interested in the results of the study, please contact:

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As part of their review, the University of Michigan Institutional Review Board Health Sciences and Behavioral Sciences has determined that this study is no more than minimal risk and exempt from on-going IRB oversight.

**Appendix B– Survey Instrument**

By clicking next you will be taken to the survey

**Option**: Participants may click "next."

1) Are you currently enrolled at the University of Michigan-Dearborn?

**Options**: Yes, No (If "No" is selected, question 2 will appear)

2) In which state is your college or university located?

**Options**: Drop-down includes 50 states and Prefer not to answer.

3) What is your age?

**Option**: Each participant can provide two or three numerals because participants must be 18

years or older

4) In which state do you currently reside?

**Options**: Drop-down includes 50 states and Prefer not to answer.

5) How much time do you spend on social media platform(s) on average each day? Social

media platforms include but are not limited to Twitter, Instagram, WhatsApp, Pinterest,

Snapchat, LinkedIn, and YouTube.

**Options**: I do not use social media, Less than 1 hour, 1–2 hours, 3–4 hours, 4-5 hours, 6-7 hours,

8 or more hours.

6) How would you say the pandemic has influenced the amount of time you spend on social

media platforms?

**Options**: Increased, The same, Decreased, Not applicable

7) During the pandemic, how often do you feel that you lack companionship?

8) During the pandemic, how often do you feel left out?

9) During the pandemic, how often do you feel isolated from others?

**Options**: Never, Rarely, Sometimes, Often

10) How would you say the pandemic has influenced your feelings of loneliness/isolation?

**Options**: I have been feeling more lonely/isolated during the pandemic than before; The pandemic has not impacted my feelings of loneliness/isolation; and I have been feeling less lonely/isolated during the pandemic than before.

The following questions are about your cyberbullying experiences. You may skip the questions, take a break, or stop the survey at any time. Cyberbullying can be defined as the intentional and repeated use of electronic technology to harass, offend, or threaten somebody.

Select one of the multiple-choice answers for each statement to describe your behavior or experiences before the pandemic (**before March 2020**).

11) Posted something online about another person to make others laugh

12) Been made fun of online

13) Took a picture of someone and posted it online without their permission

14) Had something posted about you online that you did not want others to see

15) Sent someone a text or instant message to make them angry or make fun of the

16) Received a message that made fun of you

17) Posted something online to make someone angry or make fun of them

18) Had something posted about you online that made you upset

**Options**: Never, Once or Twice, A Few Times, Many Times, Every Day

19) Cyberbullying can appear in various forms. Based on your answers above, how would you define your role in cyberbullying before the pandemic? (You may select more than one answer)

**Options**: Witnessed cyberbullying, Victimized by cyberbullying, Exhibited cyber-bullying behavior, None of the above. Participants can select more than one answer. The "none of the above" choice cannot be combined with other choices.

Select one of the multiple-choice answers for each statement to describe your behavior or experiences during the pandemic (**since March 2020**).

20) Posted something online about another person to make others laugh

21) Been made fun of online

22) Took a picture of someone and posted it online without their permission

23) Had something posted about you online that you did not want others to see

24) Sent someone a text or instant message to make them angry or make fun of them

25) Received a message that made fun of you

26) Posted something online to make someone angry or make fun of them

27) Had something posted about you online that made you upset

**Options:** Never, Once or Twice, A Few Times, Many Times, Every Day

28) Based on your answers above, how would you define your role in cyberbullying during the pandemic? (You may select more than one answer)

**Options**: Witnessed cyberbullying, Victimized by cyberbullying, Exhibited cyber-bullying behavior, None of the above. Participants can select more than one answer. The "none of the above" choice cannot be combined with other choices.

The last few questions are about your gender, ethnicity, country of birth, and class standing.

29) What gender do you identify as?

**Options**: Transgender, Male, Female, Other (please specify) (participant can explain their gender), Prefer not to answer

30) Which of the following best describes you?

**Options**: Latino or Hispanic, Black or African American, Native American or Alaskan Native, Native Hawaiian or Other Pacific Islander, Asian, White or Caucasian, Two or more, Prefer not to answer.

31) What is your country of birth?

**Options**: Drop-down list includes 195 countries and Prefer not to answer.

32) What category best defines your student status?

**Options**: Freshman, Sophomore, Junior, Senior, Graduate, Prefer not to answer

33) Is there anything else you would like to share?

**Options**: Each participant can enter text.

34) Thank you for your participation. Would you like to enter a raffle for the chance to win a $50 Amazon gift card? Your email address is required for participation but cannot be connected to your survey responses.

**Options**: Yes (the respondents will be redirected to a separate raffle contact form), No (the survey ends)

The raffle contact form is designed as follows:

You can now sign up to be entered into a raffle drawing for a $50 Amazon gift card. Please enter your email address below. Your email address cannot be linked to your survey responses. If your email address is drawn, you will be notified by email after the survey period. Thank you again for participating.

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