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The Association of Different Cyber-Victimization Types With Current Psychological and Health Status in Southern Appalachian Communities

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Research on cyber-victimization has primarily focused on cyberbullying conducted in urban and suburban (metropolitan) settings. We explore a range of cyber-victimizations, including financially motivated offenses and cyberbullying, and their associations with current psychological and health status in a nonmetropolitan sample from southern Appalachia. The forms of cyber-victimization were drawn from focus groups and interviews, and then self-report data on 14 types of cyber-victimization were collected from 478 individuals (57.1% female; age $M = 36.44$, $SD = 16.61$). Approximately 3 out of 4 participants (74.7%) reported experiencing at least one cyber-victimization. Cyber-victimization made many participants feel “very upset” (average 55.7%). Many forms of cyber-victimization were associated with elevated trauma symptoms, and lower subjective well-being and health-related quality of life. Cyber-victimization is common in this southern Appalachian community, with financially motivated incidents leading to higher prevalence rates than found in many other studies. In these data, numerous specific types of victimization, including cyber-theft, fraud, and legal-but-intrusive privacy invasions, were associated with worse psychological and physical health. More research is needed on technology-mediated victimization and these types of victimization should be more routinely included in violence assessments.

Keywords: cyberbullying; technology; youth; rural; cyber-theft

As people become more reliant on digital technology such as computers, tablets, and cell phones (Pew Research Center, 2017a), victimization has become more technologically based (Tcherni et al., 2016). Perpetrators constantly develop new, innovative, and anonymous ways to access people's money and personal information and find ways to stalk or bully them (Aimeur & Schonfeld, 2011; Jones et al., 2013). For cyberbullying, it is well established that online bullying has serious psychological consequences, much like in-person bullying (Hinduja & Patchin, 2010; Kowalski et al., 2014). However, other forms of cyber-victimization, that is technologically mediated victimization using devices as such as computers or cell phones, have received less research attention. Cyber-victimization is a subset of victimization, which are intentionally committed, unwanted, nonessential, and harmful experiences (Hamby, 2017). The constantly evolving nature of technology and digital behavior requires researchers to continually evaluate the ways that technology is involved in victimization. There have been numerous calls to better identify the full range of victimizations that people experience in order to better understand the impact of victimization on psychological and physical functioning (e.g., Finkelhor et al., 2007; Hamby, Schultz, & Elm, 2020). The purpose of this article is to explore a range of different cyber-victimizations in a southern Appalachian, nonmetropolitan region, using cyber-victimizations that were identified in qualitative work and then followed with a survey. The study examines the association of multiple cyber-victimization types with multiple indicators of psychological and physical health, expanding the range of indicators considered, including not only psychological symptoms but also measures of subjective well-being and physical health-related quality of life.

EXISTING KNOWLEDGE ON CYBER-VICTIMIZATION

As of 2016, 88% of U.S. adults use the Internet and 77% use a smartphone (Pew Research Center, 2017a), making the vulnerability to cyber-victimization nearly ubiquitous. Current estimates suggest that cyberbullying and online harassment alone affect as many as two out of five people in the United States (Duggan, 2017). There has been considerable research on cyberbullying and related forms of online harassment, especially among youth (Hinduja & Patchin, 2008; Ševčíková et al., 2012; Wang et al., 2009). This research shows that cyberbullying is a negative and traumatizing experience and is associated with immediate upset as well as suicidal ideation, trauma symptoms, and other longer-term adverse outcomes (Hinduja & Patchin, 2010; Staude-Müller et al., 2012). Recent research has also shown adverse impacts on subjective well-being (Heiman et al., 2017; Tan, 2016).

Research on cyberbullying has also contributed to a better understanding of what constitutes victimization, as it has been increasingly recognized that online insults, harassment, and other unwanted communication have similar effects as in-person equivalents (Hinduja & Patchin, 2010). Thus, research on cyberbullying has been part of a trend recognizing that victimization does not require an in-person confrontation and that the mode of offending is not a key factor driving impact. It is now widely accepted that cyberbullying and other forms of online harassment are important forms of victimization (Duggan, 2017).

Identity Theft and Other Financially Motivated Offenses

Like bullying, other victimizations that can occur offline can also occur online. Financially motivated cyber-victimizations include identity theft, monetary theft, and fraudulent

or misleading solicitations, and can take many forms, such as stealing someone's financial information, using someone's social security number, or using scams or frauds of various types to trick people into handing over money or information (Aimeur & Schonfeld, 2011). The goal of these behaviors is typically monetary gain but can also include other motives such as evading the authorities. Formal complaints regarding financially motivated scams are at a very high level, reaching 22,000 per month, according to federal U.S. data (Internet Crime Complaint Center, 2014). Surprisingly, despite the public interest in these types of crimes, the research base on them is rather limited.

Even today, most research on victimization pays insufficient attention to financially motivated cyber-victimization (Tcherni et al., 2016). This is unfortunate, especially with the shifting profiles of crime. Online crime may account for as much as half of all criminal incidents in a year and the shift from offline to online crime may explain apparent declines in crime according to some surveys which only assess offline crime (Caneppei & Aebi, 2017). It is now estimated that the financial costs of online crime outstrip in-person thefts (Tcherni et al., 2016). That is not the only adverse impact of online crime. Existing data, albeit limited, suggest that these victimizations are associated with high levels of psychological distress and other adverse impacts, with some victims falling within the clinical range of depression and anxiety (Button et al., 2009; Sharp et al., 2003). Recent research has also shown that these other forms of cyber-victimization can have adverse effects on subjective well-being (Kaakinen et al., 2018). Most other existing documentation is limited to case studies (e.g., Deem, 2000) or items on financial loss embedded in longer surveys on online victimization (González & Orgaz, 2014; Mitchell et al., 2009). Research on the impact of in-person identity theft and fraud is also relatively scarce, but largely consistent with the few studies on cyber-theft and fraud (e.g., Glodstein et al., 2010). Some scholars have suggested that victim-blaming attitudes about susceptibility to online fraud are one cause of inattention to this problem (Cross, 2015). Despite the widespread prevalence of these offenses, little is known about specific types of cyber-theft and fraud.

Incorporating Cyber-Victimization Into a Comprehensive Model of Victimization

In recent years, much influential research on victimization has adopted comprehensive, wide-ranging models for assessing and defining victimization. These include the polyvictimization framework and the adverse childhood experiences approach (Felitti et al., 1998; Finkelhor et al., 2007; Hamby & Grych, 2013), both of which emphasize the cumulative burden of violence. Early approaches to this work began by incorporating types of victimization that were already well studied, such as caregiver maltreatment and in-person physical bullying. However, as these lines of research have progressed, it has been increasingly recognized that these "classic" victimization types do not capture the full burden of adversity for many people, and there have been efforts to better incorporate the true full range of victimizing experiences, for example by better incorporating peer and community violence (e.g., Cronholm et al., 2015; Wade et al., 2014; Hamby & Grych, 2013). With this study, we hope to contribute to this work with respect to the increasing phenomenon of cyber-victimization.

There is a long history of acts that were previously considered trivial being redefined as victimizing, including bullying and even domestic violence and child abuse. Historically, evidence of elevated trauma symptoms and similar adverse outcomes have been one of the main scientific approaches to demonstrating that acts should be considered victimizations,

especially including acts that may not cause serious physical injury, such as child sexual abuse and spanking (Dallam et al., 2001; Gershoff & Grogan-Kaylor, 2016). Trauma symptoms are also one of the main outcome indicators of much epidemiology on violence and victimization (e.g., Hamby et al., 2016).

Just as bullying, sexual harassment, and even family violence were neglected topics in early research on violence, even today there has been little attention to other sorts of financially motivated privacy intrusions, such as receiving solicitations that indicate that a company has been tracking your search history or knows your current debt status. These are also unwanted and nonessential intrusions for many people, and are intentional actions by the companies that pursue them (that is, they are not coincidentally or accidentally promoting the exact same shirt you looked at online the day before). Given that these privacy intrusions meet some elements of violent acts—they are intentional, unwanted, and nonessential—it is important to establish whether they are associated with any harms. Qualitative research in this community found that these sorts of invasions were frequently mentioned as problematic and distressing (Hamby et al., 2018).

Another challenge in documenting cyber-victimization has been the fast-paced nature of technological change. Many research studies reference out-of-date terms and platforms, such as chat rooms, Myspace and Instant Messaging, which, while still in existence, have become arguably irrelevant in the age of Facebook, Snapchat, Instagram, and Amazon Prime (e.g., Bhat, 2008; Hinduja & Patchin, 2010; Kowalski & Limber, 2007). Most importantly, smartphones have become the main device and source of Internet access for many individuals (Pew Research Center, 2017a), and some technology-mediated victimizations happen via texting or mobile applications, which people may not identify as “online” or even computer based. Thus, it is important to develop measures that focus on the nature of the victimization, which generally fall into established categories of interpersonal abuse, fraud, and theft, and to study these in ways that are flexible when the specific names and types of programs or hardware change.

Technology Use in Southern Appalachian and Rural Communities

Relatively little is known about patterns of cyber-victimization in rural and nonmetropolitan communities (communities outside cities and their suburbs), and even less on those specifically in southern Appalachia. In rural areas, scarcity of Wi-Fi hotspots and cell phone towers can make access to technology difficult. According to the Pew Research Center (2017a), compared to individuals living in urban or suburban areas, people living in the rural, nonmetropolitan United States are two times more likely to not use the Internet. Qualitative work has found that specifically in rural Appalachia, some residents are resistant to the privacy compromises demanded by modern technology (Hamby et al., 2018). Nonetheless, digital technology use is growing in the rural United States and is reported by a majority of rural residents (Pew Research Center, 2017b). As technology and internet use continues to rise in rural areas of the United States, these communities will become greater consumers of digital information, experience more enhanced connectivity to other communities around the world, and, unfortunately, will likely experience growing rates of cyber-victimization. More research needs to ensure that the evidence base includes individuals living in nonmetropolitan areas, to ensure our knowledge base reflects all internet and technology users.

The Current Study

This study addresses several gaps in the research, including the limited information on financially motivated cybercrimes, the limited range of examined impacts, and the lack of data from Appalachia or other similarly insular communities. To add to the knowledge base, this study examined different types of cyber-victimization, including not only cyberbullying but also several forms of financially motivated offenses, in a large rural and non-metropolitan community sample from southern Appalachia. To identify the types of cyber-victimization experiences that were most of concern in this community, we first conducted focus groups and interviews to craft items and then developed a survey to assess them in a larger sample. We also expanded the number of correlates explored compared to previous literature, by examining upset immediately after the incident, current trauma symptoms, subjective well-being, and physical health-related quality of life. Prior research on this sample has indicated that the overall burden of digital victimization impacts participants (Hamby, Blount, et al., 2018) but there has been little prior study of whether this is true for all types of digital victimization or only specific subtypes. Finally, this study expands the data available from nonmetropolitan samples and data relying primarily on in-person recruitment strategies, which avoids skewing samples toward more experienced technology users. We hypothesized that cyber-victimization, including financially motivated incidents, would be associated with all indicators of adverse functioning.

METHOD

Participants

Data were collected from 478 participants, aged 12–75 years old ($M = 36.44$, $SD = 17.61$); ages 12–17 (8.7%), ages 18–29 (37.2%), ages 30–44 (21.4%), 45–59 (19.5%), and ages 60–75 (13.2%) from rural and nonmetropolitan communities in the southern Appalachian region of the United States, who completed a broader survey on digital privacy and security and character development in 2016. Over half (57.5%) of participants were female. Most (84.9%) of the sample identified as White/European American (non-Latino), 5.7% described themselves as African American/Black (non-Latino), 4.0% as more than one race, 3.6% as Latino/Latina (any race), 0.8% as Asian (non-Latino), and 0.8% American Indian/Alaska Native (non-Latino). Almost one-third of survey participants (29.3%) reported an annual income under \$20,000 per year, 33.3% reported earning \$20,000 to \$50,000, and 37.4% reported earning \$50,000 or more. Slightly more than half (54.6%) of participants lived in rural areas of southern Appalachia, with populations of less than 2,500 people, 32.7% reported living in small towns (nonmetropolitan) with a population of 2,500–20,000 people, and others (12.7%) lived in more populous areas.

In terms of technology access, most participants (98.3%) owned at least one device or shared one with family members, with the most common report being personal ownership of a smartphone without sharing with others (75.3%). This figure does not include access at workplaces, schools, and public libraries. The personal smartphone figure is very similar to the 77% reporting owning a smartphone in a recent national survey (Pew Research Center, 2017b). However, somewhat fewer participants in this relatively low-income sample report owning some sort of desktop or laptop computer than those in a recent national survey (67.7% in this sample vs. 78% in Pew Research Center, 2017b), indicating that more people

in this community are “smartphone dependent”—their phone is their primary access to the Internet. The participants in this sample are somewhat less intense users of some forms of technology. Consistent with being a more smartphone-dependent sample, 14% reported using a computer only a few times in their whole life, while another 8.9% reported using computers some but less than once a week, on average, indicating that approximately one in four participants are light users of computer-based technology. For example, 8.1% reported not using e-mail, and another 7.9% reported checking their e-mail less than once a week (84% checking their e-mail at least once a week on any device), but a recent national survey found that 88% of the sample checked e-mail just on their smartphones at least once a week (Smith, 2015).

Procedure

Participants were recruited through a range of advertising techniques. Most participants (65.7%) were recruited through word-of-mouth. Recruitment at local community events, such as festivals and county fairs, was the second most productive strategy, accounting for 21.3% of participants. The remaining 13% of participants were recruited through various other strategies, such as website advertisement and through local community organizations. This range of recruitment strategies, which resulted in 96% of the sample being recruited through in-person techniques, allowed us to reach segments of the population who are rarely included in psychological research, including those with limited Internet experience. The overall completion rate was 94%; technical problems and time limitations at events kept some individuals from completing the survey. The survey was administered as a computer-assisted self-interview, using the Snap11 software platform on computer tablets. Three individuals (0.59% of participants) could not read, so these participants completed the survey as an interview. On average, the survey took 31 minutes to complete. Each participant received a \$20 Walmart gift card and was provided with information on local community resources. Informed consent, including parental consent and youth assent for minors, was obtained for all participants. All procedures were IRB approved.

Measures

Missing data were very low (0%–2.3%), with the exception of household income, which was 7.5%, well under the recommended levels of Bennett (2001). Following standard data practices, missing data were imputed based on the responses to other items on the same scale but were not imputed for behavioral reports. Further details on each measure are below.

Cyber-Victimization. Cyber-victimization was assessed with 14 items (similar to those used by Duggan et al., 2014) a range of digital or cellphone-based adverse experiences, including cyberbullying (6 items) and cyber-theft, fraud, and privacy invasions (8 items). The instructions read: “The next questions ask about people who have contacted you online or on your phone. We mean anyone who contacted you over a phone, e-mail, app, computer, or other device.” These instructions were provided to specifically draw attention not only to online/computer-based incidents, but also to those that happened over a cell phone or other devices. See Table 1 for a description of the items for complete wording. The items were developed through a three-stage mixed methods process, with the most common and salient experiences first identified in focus groups, then vetted in individual in-depth interviews (see Hamby, Taylor, et al., 2018, for details on the qualitative research),

and finally revised and incorporated into the survey. One goal was to expand the items beyond the domain of cyberbullying. Item responses were assessed as “yes” or “no.”

Reactions to Cyber-Victimization. If participants reported experiencing a type of cyber-victimization, they were then asked to report how upset they felt after experiencing that form of cyber-victimization. Participants’ reactions to these cyber-victimizations were assessed on a three-point scale from “not at all upset” to “very upset.” This is similar to the incident reaction question that has been used in the National Survey of Children’s Exposure to Violence (Hamby et al., 2013).

Trauma Symptoms. Eight psychological symptoms associated with post-traumatic stress disorder and other anxiety and mood disorders (adapted from Briere, 1996; Finkelhor et al., 2007) were assessed on a four-point scale from “never” to “almost all the time,” anchored in zero. Sample items include “Feeling lonely in the last month,” and “Feeling stupid or like a bad person in the last month.” Scores were standardized and combined into one scale score, with a mean of 0 and *SD* of 1, with higher scores indicating more trauma symptoms. Internal consistency was .89 and convergent validity, in the form of correlations with theoretically related constructs, has been established in other samples (author citation).

Subjective Well-Being (Hamby et al., 2018). Four items assessing one’s satisfaction with the quality of life were developed using focus group and interview input, as well as a review of other measures (Battista & Almond, 1973; Diener et al., 1985; Pavot & Diener, 1993; Pearlin & Schooler, 1978; Rosenberg, 1965;). A sample item is “I am happy with myself.” Responses were based on a four-point scale from “not all true about me” to “mostly true about me.” Scores were summed and then standardized, with a mean of 0 and *SD* of 1, with higher scores indicating more subjective well-being. Internal consistency was .87, and the bivariate correlations with post-traumatic growth and trauma symptoms were .52 and $-.43$, respectively. Other convergent validity, in the form of correlations with theoretically related constructs, has been established in other samples (Hamby et al., 2018).

Physical Health-Related Quality of Life. Five items assessing physical health and well-being were adapted from the 14-item “Healthy Days Measure” used by the U.S. Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 2000). We selected items which broadly assess physical health: three from the Healthy Days Core module, one from the Activities Limitation module, and one from the Healthy Days Symptoms module. Items use a five-point scale measuring frequency with the past 30 days, ranging from “0 days” to “Every day or almost every day,” except for the item on self-reported general health which ranged on a five-point scale from “poor” to “excellent.” A sample item is, “During the past 30 days, how many days was your physical health, which includes physical illness and injury, not good?” Scores were summed and then standardized, with a mean of 0 and *SD* of 1, with higher scores indicating higher health-related quality of life. Internal consistency was .79. Convergent validity has been established in other samples (Hamby et al., 2018).

Demographics included items that asked about age, gender, household income, and ownership and use of technology devices.

Data Analysis

Descriptive statistics were used to describe the sample and to determine the frequency with which participants experienced different forms of cyber-victimization, as well as how often participants claimed they were or were not upset by these experiences. We also report

bivariate correlations among the variables. Analyses of covariance (ANCOVAs) were conducted to determine whether significant differences in reported trauma symptoms, physical health, and subjective well-being (all measured at the scale level) existed between those who did and did not experience each form of victimization, after adjusting for age, gender, and household income. All statistical analyses were conducted using SPSS version 25.

RESULTS

Frequencies of Victimization

Approximately three out of every four participants (74.7%) reported experiencing at least one form of cyber-victimization.

Financially Motivated Cyber-Theft, Fraud and Privacy Invasions. More than two-thirds of participants (68.6%) reported experiencing at least one form of financially motivated victimization. Two forms of cyber-theft were relatively rare (reported by less than 5%) of the sample, but still affected a notable proportion of the population: getting tricked into giving money and getting tricked out of credits or money in an online game (see Table 1). In contrast, privacy intrusions were more commonly reported: 52.0% of victims experienced apps or programs that demanded more information than people wanted to share in order to access them, and 35.6% of victims received solicitations that included personal information (such as obtained from search history). Most other items were reported by 6%–13% of the sample, including various forms of digital identity theft, fraud, and stalking. These indicate a substantial public problem.

Cyberbullying/Harassment. Two out of every five participants (40.6%, $n = 194$) reported experiencing at least one type of cyberbullying victimization or similar form of interpersonal harassment. The most common form of cyberbullying was getting sent large numbers of unwanted messages, reported by more than one in four (Table 1). The least common was being kept out of an online group, with most forms of cyberbullying reported by 9%–15% of the sample.

Participants' Immediate Distress After Cyber-Victimization

Financially Motivated Cyber-Theft, Fraud, and Privacy Invasions. On average, more than half of participants (58.0%) reported being “very upset” after a financially motivated victimization. Although being tricked into giving money was the least common form of cyber-theft, it was the most upsetting type, as 81.8% of people who experienced this victimization were “very upset” by it. Having one’s information or money stolen from hacking was the second most upsetting form of victimization, as 77.2% of individuals experiencing this victimization were “very upset.” Moreover, those who reported being tricked into giving personal information, a form of cyber-theft, left 64.9% of people feeling “very upset.” Having to share too much information to get needed apps or programs, which was the most common form of privacy invasion reported by victims, was the least upsetting, with 28% of people experiencing this victimization reporting that they were “very upset,” although only 2.8% of people said that this invasion of privacy did not upset them at all. See Table 1.

Cyberbullying. The most upsetting cyberbullying victimization was having someone tell lies or spread rumors online, as 67.2% of victims were “very upset.” The second most distressing form of cyberbullying was getting impersonated online, which 66.7% of victims

described as very upsetting. The least upsetting form of cyberbullying was also the item least likely to have been experienced by participants (being kept out of online groups), as 22.9% of participants experiencing this victimization were “very upset” (though 0% said this experience did not make them feel upset at all). See Table 1.

TABLE 1. Prevalence Rates and Percentages of Individuals “Very Upset” After Cyber-Victimizations

Percentage (%) of victims	Prevalence rate (%)	Who were “very upset”
Cyber-theft, fraud, or privacy invasion		
Apps or programs demanding too much information	52.0	28.0
Ads or offers that include personal information	35.6	34.5
Someone used my login without my permission	12.7	61.7
Tricked into giving personal information	12.4	64.9
Information or money stolen from hacking	12.1	77.2
Someone tracked my location online	6.7	53.3
Tricked out of items, money, or credits in an online game	3.4	62.5
Tricked into giving money	2.3	81.8
At least one financially motivated cyber-victimization	68.6	
Average percentage “very upset” across financially motivated incidents		58.0
Cyberbullying/harassment		
Someone sent me a lot of messages that I didn’t want	26.7	39.7
Someone said mean things about me online	14.5	61.8
Someone told lies or spread rumors about me online	12.9	67.2
Someone forwarded embarrassing texts or pictures	12.1	57.9
Someone pretended to be me	9.6	66.7
Someone kept me out of online groups	7.5	22.9
At least one cyberbullying victimization	40.6	
Average percentage “very upset” across bullying incidents		52.7
Any cyber-victimization	74.7	
Average percentage “very upset” across all incidents		55.7

Cyber-Victimization and Current Psychological and Health Status

Correlations among forms of cyber-victimization, indicators of psychological and health status, age, gender, and household income are reported in Table 2. Age, gender, and household income were generally more closely correlated with indicators of psychological and health status

Financially Motivated Victimization. Several financially motivated acts were associated with elevated trauma symptoms, poorer health-related quality of life, and lower subjective well-being, after adjusting for age, gender, and household income. This included some forms of privacy invasions that are currently legal but were still associated with higher levels of trauma symptoms and reports of poorer health and subjective well-being. People who reported any lifetime experience of receiving ads or offers with personal information or apps or programs that required too much information in order to use scored significantly higher on our trauma symptoms scale than people not reporting these. The largest effect size was for the association between receiving ads or offers with personal information and trauma symptoms, which explained 6% of the variance in trauma symptoms (see Table 3). Similarly, having information or money stolen from hacking and having one's location tracked online were associated with significantly lower scores on multiple indicators of psychological and health status, after controlling for age, gender, and income. Someone using respondent's login without permission was not significantly associated with any outcome. Being tricked into giving personal information was not associated with adverse psychological and health status. Having been tricked out of value in an online game or tricked out of money were not associated with psychological and health status, although for these two types of incidents, this could be due in part to floor effects from low base rates for the two items. All means and standard deviations were in the hypothesized direction. See Table 4.

Cyberbullying/Interpersonal Harassment. All cyberbullying items were significantly associated with higher reports of trauma symptoms, and several were also associated with other indicators of psychological and health status. Respondents who reported someone had said mean things online, had someone pretend to be them, and kept them out of online groups had lower scores on all three indicators of psychological and health status. The largest effect size was between reporting someone had said something mean about them online and trauma symptoms, explaining 7% of the variance in trauma symptoms. See Table 3. Spreading rumors and forwarding embarrassing texts or pictures were associated with lower subjective well-being as well as higher trauma symptoms. See Table 4.

Given the wide age range of the sample, we also explored moderation of age for the association between cyber-victimization and trauma symptoms but found no significant moderator effects for age (all $p > .05$).

DISCUSSION

The results of this study demonstrate that many forms of online abuse, theft, fraud, and intrusiveness are associated with poorer psychological and physical health. To our knowledge, this is the first study to document associations of several different forms of financially motivated offenses with multiple indicators of distress and functioning, including immediate upset after the incident, subjective well-being, trauma symptoms, and physical health-related quality of life. Even for cyberbullying and online harassment, much more widely studied phenomena, this study is among the first to demonstrate that the adverse correlates

of victimization extend beyond trauma symptoms to lower subjective well-being and lower health-related quality of life (after controlling for age, gender, and household income). Recent conceptual work on polyvictimization, adverse childhood experiences, and related approaches has called for more comprehensive assessments of victimization burden (Felitti et al., 1998; Finkelhor et al., 2007; Wade et al., 2014; Hamby et al., 2020). These data suggest that many forms of cyber-victimization create burdens on psychological and health status that may warrant their inclusion in our understanding of the full scope of victimization.

Perhaps most surprisingly, based on our prior qualitative work (Hamby, Smith, et al., 2018), we included indicators of legal but still intrusive privacy invasions. In our qualitative work, we found many people expressed distress over increasingly common incidents such as receiving advertisements that show a knowledge of an individual's prior search history or credit record, and being required to disclose a great deal of personal information in order to get access to desired programs or "apps." These were the two most common incidents in our survey of 14 types of cyber-victimization, and both were associated with all three indicators of current psychological and health status, trauma symptoms, lower subjective well-being, and lower health-related quality of life. If replicated, these findings may call for a reconsideration of what sorts of online and cell phone experiences are contributing to people's total burden of victimization. The perception that these are harmless or minor hassles is not borne out by these data, at least in this community.

Our results are consistent with numerous studies on cyberbullying (Duggan, 2017; Hinduja & Patchin, 2008; 2010; Kowalski et al., 2014), while also extending previous findings to health-related quality of life and subjective well-being. The literature on the impact of cyber-theft and fraud is relatively limited in comparison, but our findings are consistent with existing research (Button et al., 2009; Kaakinen et al., 2018; Sharp et al., 2003). Many of these studies have relied on the same indicators that are common in the broader field of violence research to show that experiences should be considered victimization. Trauma symptoms are one of the main outcome indicators in the field and have especially been relied upon for types of offenses that either rarely produce physical injury or for which some normative acceptance has existed at some point in history (e.g., Dallam et al., 2001; Gershoff & Grogan-Kaylor, 2016). There is little doubt that the cyber intrusions studied here (apps or programs demanding too much information or ads or offers that include personal information) are conducted intentionally, are not necessary, and are unwanted by the recipient. If they are, as indicated in these data, also harmful to the recipients, then they meet criteria for a victimization (Hamby, 2017).

The rates of cyberbullying and other interpersonal harassment victimizations reported here are very similar to national data collected the same year—approximately 40% (Duggan, 2017). However, data that only focus on online harassment appears to be substantially undercounting cyber-victimization experiences, because more than two in three participants experienced some financially motivated cyber-victimization, leading to approximately three in four participants reporting some form of cyber-victimization. Some of these incidents may be more common in our sample. A previous national study found that less than 1% reported losing money or personal property online (Mitchell et al., 2013), but we found that approximately 12% had information or money stolen through hacking, 3% lost value in online games, and 2% had been tricked out of money. Future research should determine if more comprehensive questions lead to similarly higher rates in other samples.

Other contributions of this study are that it is one of the first to have been conducted in a nonmetropolitan, largely low-income community in southern Appalachia, and one of

TABLE 2. Correlations Among Type of Cyber-Victimization, Psychological and Health Indicators, and Demographics

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Scale <i>M(SD)</i>
1. Age	–	.20	.02	-.18	.08	-.20	.12	-.01	-.05	.07	.01	-.02	.00	.06	.06	-.09	-.09	-.06	.05	-.12	36.44 (17.61)
2. Gender	–	–	-.20	-.02	.06	-.09	.01	-.06	-.04	.00	.03	-.11	.00	-.04	-.05	-.03	-.04	.01	-.06	-.09	1.57 (.50)
3. Income	–	–	–	-.14	.14	.30	.06	-.03	-.10	-.05	.05	-.11	-.02	-.15	-.07	-.15	-.12	-.12	-.08	-.01	6.11 (2.97)
4. Trauma symptoms	–	–	–	–	-.43	-.29	.10	.23	.11	.07	.15	.12	.03	.08	.12	.30	.17	.17	.18	.16	15.84 (5.89)
5. Subjective well-being	–	–	–	–	–	.34	-.11	-.19	-.06	-.09	-.10	-.12	.03	.05	-.05	-.22	-.12	-.16	-.18	-.11	13.88 (2.59)
6. Physical health	–	–	–	–	–	–	-.12	-.11	-.13	-.08	-.16	-.09	-.01	-.02	-.07	-.21	-.08	-.02	-.26	-.06	20.26 (4.22)
7. Apps demanding too much information	–	–	–	–	–	–	–	.29	.17	.15	.11	.09	.04	.01	.19	.18	.14	.10	.18	.03	.52 (.50)
8. Ads or offers that include personal information	–	–	–	–	–	–	–	–	.10	.13	.08	.19	.01	.06	.19	.18	.20	.10	.17	.13	.36 (.48)
9. Someone used my login without my permission	–	–	–	–	–	–	–	–	–	.19	.21	.13	.00	.03	.21	.27	.14	.21	.36	.04	.13 (.33)
10. Tricked into giving personal information	–	–	–	–	–	–	–	–	–	–	.22	.18	.07	.16	.14	.20	.12	.21	.24	.07	.12 (.33)
11. Information or money stolen from hacking	–	–	–	–	–	–	–	–	–	–	–	.11	.11	.03	.15	.13	-.01	.15	.26	.07	.12 (.33)
12. Someone tracked my location online	–	–	–	–	–	–	–	–	–	–	–	–	.04	.13	.22	.33	.28	.24	.17	.25	.07 (.25)

(Continued)

TABLE 2. Correlations Among Type of Cyber-Victimization, Psychological and Health Indicators, and Demographics (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Scale <i>M(SD)</i>
13. Tricked out of items/money/-credits in an online game														.29	-.03	.02	.03	.18	.14	.13	.03 (.18)
14. Tricked into giving money															-.03	.02	-.02	.12	.05	.06	.02 (.15)
15. Someone sent me a lot of messages I didn't want																.22	.21	.21	.28	.13	.27 (.44)
16. Someone said mean things about me online																	.60	.34	.28	.26	.15 (.35)
17. Someone told lies or spread rumors about me online																		.34	.22	.21	.13 (.34)
18. Someone forwarded embarrassing pictures																			.27	.27	.12 (.33)
19. Someone pretended to be me																				<i>.11</i>	.10 (.29)
20. Someone kept me out of online groups																					.07 (.26)

Note. Italics indicates significance at .05 level. Bold indicates significance at .01 level. Income was categorized on a 1 (*\$5000 or less*) to 10 (*More than \$100,000*) scale. The mean for income indicates participants reported earning an average of about \$30,000 to less than \$40,000 a year. The means and standard deviations reported for trauma symptoms, subjective well-being, and physical health are indicative of the scores before they were standardized.

TABLE 3. F-Values and Effect Sizes for Analyses of Trauma Symptoms, Subjective Well-Being, and Physical Health-Related Quality of Life as a Function of Cyber-Victimization

	Trauma Symptoms		Subjective Well-being		Health Related Quality of Life	
	F	η^2	F	η^2	F	η^2
Financially motivated cyber-theft, fraud, or privacy invasions						
Apps or programs demanding too much information	8.00**	.018	8.17**	.019	8.28**	.019
Ads or offers that include personal information	25.72***	.057	14.53***	.033	5.24*	.012
Someone used my login without my permission	1.77	.004	.90	.002	3.78	.009
Tricked into giving personal information	1.79	.004	2.51	.006	1.06	.002
Information or money stolen from hacking	8.74**	.020	4.69*	.011	16.92***	.038
Someone tracked my location online	5.88*	.014	4.18*	.010	2.77	.006
Tricked out of items/money/credits in an online game	.43	.001	.60	.001	.01	.000
Tricked into giving money	2.35	.005	2.58	.006	.60	.001
Cyberbullying/harassment						
Someone sent me a lot of messages that I didn't want	7.08**	.016	1.04	.002	.97	.002
Someone said mean things about me online	32.99***	.073	17.98***	.041	15.98***	.037
Someone told lies or spread rumors about me online	9.88**	.023	3.90*	.009	1.94	.005
Someone forwarded embarrassing texts or pictures	8.17**	.019	8.22**	.019	.39	.001
Someone pretended to be me	12.08**	.028	11.69**	.027	25.07***	.056
Someone kept me out of online groups	8.95**	.021	5.08*	.012	4.91*	.011

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

TABLE 4. Trauma Symptoms, Subjective Well-Being, and Physical Health-Related Quality of Life as a Function of Cyber-Victimization

	Trauma Symptoms			Subjective Well-Being			Physical Health					
	Victim	Nonvictim	Victim	Nonvictim	Victim	Nonvictim	Victim	Nonvictim				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Financially motivated cyber-theft, fraud, or privacy invasions												
Apps or programs demanding too much information	.10 ^{**}	1.01	-.11	1.00	-.11 ^{**}	1.04	.13	.92	-.13 ^{**}	1.09	.16	0.89
Ads or offers that include personal information	.32 ^{***}	1.03	-.18	.96	-.24 ^{***}	1.08	.15	.90	-.15 [*]	1.05	.09	0.98
Someone used my login without my permission	.23	1.01	-.03	1.01	-.17	1.24	.03	.95	0.29	1.20	.05	0.98
Tricked into giving personal information	.15	1.16	-.02	.99	-.20	1.13	.03	.97	0.20	1.17	.03	0.98
Information or money stolen from hacking	.35 ^{**}	1.11	-.05	.98	-.25 [*]	1.21	.03	.96	-.46 ^{***}	1.26	.07	0.95
Someone tracked my location online	.47 [*]	1.09	-.04	.00	-.41 [*]	1.23	.03	.97	-.33	.96	.03	1.01
Tricked out of items/money/-credits in an online game	.17	1.09	.00	1.01	.19	.87	-.01	1.00	-.05	1.08	.00	1.01
Tricked into giving money	.52	1.23	-.01	1.00	.33	.58	-.01	1.00	-.14	1.26	.01	1.00

(Continued)

TABLE 4. Trauma Symptoms, Subjective Well-Being, and Physical Health-Related Quality of Life as a Function of Cyber-Victimization (Continued)

	Trauma Symptoms		Subjective Well-Being				Physical Health					
	Victim <i>M</i>	Nonvictim <i>SD</i>	Victim <i>M</i>	Nonvictim <i>SD</i>	Victim <i>M</i>	Nonvictim <i>SD</i>	Victim <i>M</i>	Nonvictim <i>SD</i>	Victim <i>M</i>	Nonvictim <i>SD</i>		
<i>Cyberbullying/harassment</i>												
Someone sent me a lot of messages that I didn't want	.22**	1.06	-.07	.98	-.09	1.08	.04	.94	-.13	1.18	.05	0.95
Someone said mean things about me online	.74***	1.03	-.12	.96	-.55***	1.20	.10	.92	-.51***	1.15	.09	0.97
Someone told lies or spread rumors about me online	.48**	1.13	-.06	.97	-.31*	.96	.05	.98	-.22	.97	.04	1.02
Someone forwarded embarrassing texts or pictures	.44**	1.20	-.05	.97	-.42**	1.26	.05	.94	.04	.97	.00	1.02
Someone pretended to be me	.52**	1.24	-.05	.97	-.56**	1.48	.05	.92	-.88***	1.35	.09	0.94
Someone kept me out of online groups	.55**	1.19	-.05	.97	-.37*	1.26	.05	.94	-.25*	1.10	.03	1.00

* $p < .05$. ** $p < .01$. *** $p < .001$. For each line of the table, victim and nonvictim refer to answers about that specific form of victimization.

the few recent studies that primarily recruited offline. The resulting sample includes more people who are relatively light users of digital technology than recent national samples, but nonetheless victimization rates are similar or higher to other recent data. The Appalachian region is known for valuing privacy (Woodard, 2011), and it is possible that residents here find privacy intrusions more disturbing than others might in other cultural contexts. However, the rates and impact of cyberbullying, a much more highly studied phenomenon, are similar to those found in other studies, so it seems likely that theft, fraud, and invasions of privacy will also be distressing in most U.S. communities. More research should explore this issue.

Strengths and Limitations

We successfully fulfilled a goal of this study by reaching Internet and technology users who are not often included in research regarding technology and the Internet. Participants in our study were from southern Appalachia, so future research should investigate these issues in other communities. Although our data are largely consistent with demographics from this region, future research might especially focus on expanding the racial and ethnic diversity of this database. This was an exploratory cross-sectional survey, but future research would also benefit from longitudinal research, especially now that these findings indicate that a much wider range of cyber-victimization experiences are associated with worse psychological and physical health than has previously been studied. A strength of the study is the inclusion of financially motivated offenses and cyberbullying in the same sample. There exist other forms of cyber-victimization not included in our survey, such as sex trafficking, although we are confident that we have covered a wide range of interpersonal victimizations, as they were identified during both focus groups and in-depth cognitive interviews in this community (Hamby, Smith, et al., 2018). The adoption of other measurement approaches, including more fine-grained assessments of upset and other indicators, would also be helpful in future research. Because in-depth investigations of this wide range of cyber-victimizations are lacking, we ran numerous ANCOVAs. This raises the possibility of Type I errors (i.e., false positives). As a result, statistical significance should be interpreted with caution. Future studies should attempt to replicate the findings of this study.

Implications and Future Directions

There are other types of financially motivated privacy intrusions that could be studied. Past qualitative work indicates that many people are frustrated by unsolicited and repeated sales calls and do not answer calls from unknown numbers. It would be useful to identify a continuum of burden, from incidents that are probably best described as minor daily hassles that have no lasting harm, to serious forms of identity or property theft that can take months or even years of paperwork and legal steps to untangle. Future research should explore other possible parameters of the impact of cyber-victimization and could include other potential correlates such as healthcare access.

Though some forms of cyber-victimization are not illegal, these results, if replicated, could call for a shift in current social norms for online behavior. Many forms of behavior, such as bullying and spanking, were once considered normative, but have since been recategorized as abusive. These acts have been recognized as abusive because they have been found to cause lasting harm, sometimes even lasting decades (Alschul et al., 2016; Gershoff & Grogan-Kaylor, 2016; Hamby, 2017). Previous research on bullying and corporal punishment used indicators of trauma symptoms to help shift social norms with scientific

documentation of impact. Though replication is a must, these findings suggest that some seemingly innocuous online behaviors may one day be better recognized as victimizations.

Many prevention and intervention programs need to be updated to better incorporate cyber-victimization. The results of the current study, if replicated, could suggest the need for policy changes regarding how internet advertisers can collect and use personal information. We hope these results encourage more study on the effects of these types of victimizations, with a goal of protecting Internet users from forms of cyber-theft, privacy invasion, and cyberbullying. Forms of cyber-victimization, legal and illegal, should be topics of concern in law practice and clinical work. As offending moves online and more people adopt technology, the field needs to do more to recognize cyber-victimization as part of one's total burden of victimization. Emerging research indicates that cyber-victims are often unhappy with the criminal justice and social service response (Cross, 2018) and more needs to be done to identify and respect their needs and recognize that these experiences can be very distressing. We hope that the current study can encourage digital consumers to become more aware of the potential victimizations that are possible to experience online and to become advocates for prevention and intervention for cyber-victimization. Experiences of cyber-victimization, like other much-studied forms of victimization, are unfortunately common and potentially traumatic occurrences.

Conclusion

We wish to stress the importance of including experiences of cyber-victimization in conversations regarding victimization and trauma experienced throughout the life span. We hope these findings will encourage digital consumers and developers to consider the negative and traumatizing effects associated with common experiences online. It will be crucial to continue efforts of research and prevention, given that the internet and related technology changes rapidly. As technology advances and internet and technology consumer behavior change with it, we should be constantly reconsidering what aspects of digital experiences may be adding to one's burden of victimization.

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