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Cyber Bullying and Social Support in a College Population

Alicia Luscomb Autry
University of Mississippi

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CYBER BULLYING AND SOCIAL SUPPORT IN A COLLEGE POPULATION

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ALICIA LUSCOMB AUTRY

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ABSTRACT

Research has shown that bullying has detrimental effects for both bullies and victims. Data also indicates that bullying, especially chronic levels of bullying, during childhood may lead to lasting negative effects in adulthood. The recent introduction of bullying through electronic media has sparked interest in examining bullying with older adolescents and young adults, as early research on cyber bullying suggests that this is a growing problem in the young adult population.

The purpose of this study is to examine how perceived social support influences the relationship between cyber bullying and psychological functioning cyber bullying in the college population. A sample of undergraduate students was administered measures of cyber bullying victimization and perpetration, perceived social support, and psychological distress.

Correlations suggested that cyber bullying victimization and perpetration were related to greater levels of depression, anxiety, and stress, and that higher levels of perceived social support were related to lower levels of cyber bullying victimization and perpetration. Moderation analyses revealed that for participants categorized as having high social support, as cyber bullying involvement increased (for both victims and perpetrators), stress also increased. This was not found for low social support participants. These findings suggest that cyber bullying is common in the college student experience and social support alone may not adequately buffer against negative psychological effects.

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I. INTRODUCTION

Bullying is a common experience for many children and adolescents. Generally defined, bullying is the repeated exposure to negative actions by others. "These negative actions can take the form of physical contact, verbal abuse, or making faces and rude gestures. Bullying entails an imbalance in strength between bullies and victim, which experts call an asymmetric power relationship" (Olweus, 2001 p.24). Spreading rumors and excluding the victim from a group are also common forms of bullying. Research suggests as many as 50-75% of children/adolescents have been bulling victims (Raskauskas & Stoltz, 2007; Li, 2007). Statistics also suggest that as many as 19.3% of children and adolescents have engaged in bullying behavior (Nansel et al., 2001).

Bullying may have adverse consequences for both bully and victim. Children/adolescents who have been victims of bullying report more symptoms of depression than their non victimized peers (Ybarra, 2004); experience more symptoms of stress (Newman, Holden, and Delville, 2003); and may engage in delinquent behavior such as skipping school, assaulting a peer, cheating on a test, or drinking liquor (Hinduja & Patchin, 2007). Children/adolescents who have bullied others report poor emotional bonds with caregivers, higher levels of substance abuse, and more delinquent behavior when compared with their non-bully peers (Ybarra & Mitchell, 2004).

Traditional bullying generally brings to mind elementary schoolyard threats, intimidation, and possibly fighting. However, with the advent of electronic media technology, many

youngsters are using cell phones and the internet as a means to threaten, harass, and embarrass peers. Electronic or cyber bullying has been defined as "willful and repeated harm inflicted through the medium of electronic text" (Patchin & Hinduja, 2006). Online bullies use text messaging, emails, social networking websites (such as Facebook or Myspace), defaming websites, and online "slam book" in order to harass or embarrass their victims. Research suggests as many as 30-50% of children and adolescents have been victims of cyber bullying (Patchin & Hinduja, 2006, Li, 2007).

The purpose of this work is to examine cyber bullying. Following a discussion of traditional forms of bullying and victimization, the epidemiology of this problem behavior and its impact on victim and perpetrator, cyber bullying will be examined. Additionally, the impact of social support on psychosocial health associated with cyber bullying/victimization will be discussed.

<u>Traditional Bullying</u>

Bullying is a relatively new area of research with definitions varying across researchers. Olweus (1977), one of the first researchers to examine bullying, defined bullying as repeated "violence or oppression", either mental and/or physical, by one or more peers against another. He has since expanded this definition, stating that bullying occurs when one or more people repeatedly expose another to negative actions, making it difficult for the victim to defend him/herself due to a power imbalance (Olweus 1995).

Rivers and Smith (1994) identified bullying behaviors as a subset of aggression that relies on an imbalance of power between the bully and victim and are repetitive in nature. Bullying behaviors included direct physical aggression, direct verbal aggression, and indirect aggression.

Bullying was defined by Slee (1994) as a type of aggression which was repetitive, deliberately hurtful, and involved an imbalance of strength. Hunter, Boyle, and Warden (2007) suggested that bullying is a type of peer-victimization that adds the features of intent to harm and imbalance of power.

In an attempt to establish a central definition of bullying, Greene (2000) compiled a list of features common to definitions of bullying. These features include: a) the bully intends to cause harm and/or inflict fear in the victim, b) there is repeated aggression toward the victim, c) bullying is not provoked by the victim with verbal or physical aggression, d) behavior occurs in familiar social groups, and e) there is a real or perceived difference of power that the bully has over the victim. Bullying behavior can be described as being either overt (e.g. direct physical aggression, physical or verbal threats) or covert (e.g. spreading rumors, excluding the victim from a social group or activity, or social rejection).

It has been difficult to determine an accurate overall prevalence rate of traditional types of bullying due to differences across researchers with respect to the manner in which it has been defined and measured. Despite this issue, studies suggest bullying to be a significant problem. Solberg and Olweus (2003) sought to determine the estimated prevalence of school bullying using a large sample of Norwegian students in grades 5 through 9. Data used in their study were taken from a larger project conducted by Olweus in 1997. Students were administered the revised version of the Olweus Bully/Victim Questionnaire as well as measures looking at social disintegration in class/peer group, global negative self-evaluations, depressive tendencies, general aggression, and antisocial behavior. Analyses revealed 10% of the students were victims of bullying, 6.5% bullied others, and 1.6% were "bully-victims" (students who were both bullying victims and perpetrators). The authors suggested that for a student to be classified as a

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bully or bullying victim for prevalence estimation purposes, the most useful cut off point for frequency is "2 or 3 times a month". This figure was based on their findings that indicated the victims (based on this cut off) showed much higher rates of social disintegration, negative self evaluation, and depression when compared to non victims. Bullies who were identified using these cut offs were shown to have much higher scores on the measures of general aggression and antisocial behavior when compared to non bullies.

Rivers and Smith (1994) examined prevalence, age and sex differences for various types of bullying (direct physical, direct verbal, and indirect). A sample of over 7,000 primary and secondary school children in Great Britain completed questionnaires about bullying behavior during the previous school term. Analysis revealed that for primary school students 29% of boys and 24% of girls reported being victims of direct physical bullying, 41% of boys and 39% of girls were victims of direct verbal bullying, and 18% of boys and 25% of girls were victims of indirect bullying (e.g. spreading rumors, excluding victim from group, etc.). For secondary school students, 11% of boys and 5% of girls were victims of direct physical bullying, 23% of boys and 24% of girls were victims of direct verbal bullying, and 8% of boys and 10% of girls were victims of indirect bullying. It was suggested that indirect bullying may be more effective for girls rather than boys due to the tendency of girls to have smaller, closer knit social groups which would result in typical indirect bullying strategies being more hurtful and "effective".

Olafsen and Viemerö (2000) surveyed a large group of 10-12 year old 5th and 6th grade students about experiences with bullying (victimization and perpetration) and coping with stressful encounters. Analyses revealed 17% of students surveyed indicated being victims of bullying, 4.1% indicated being bullies, and 2.2% indicated being bully/victims. Significantly more boys than girls endorsed being a bully, but there was no gender difference for being a

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victim. The authors suggested that research should focus on bullies and bully/victims as the findings indicate personal characteristics are not sufficient to predict victimization.

Perren and Hornung (2005) sought to determine the prevalence of bully victimization and perpetration along with the prevalence and co-occurrence of criminal victimization and violent delinquency behaviors among adolescents in Switzerland. A large sample of 7th and 9th grade students completed a questionnaire assessing bullying involvement (perpetrator or victim, what kind of bullying, and frequency), criminal victimization, violent delinquent behavior, acceptance by peers, and family support. Analyses revealed 4% of participants were victims of bullying, 6% were bullies, and 3% were bully/victims. Additionally, data indicated a positive association between bullying (victimization and perpetration), and criminal victimization and violent delinquency. It was suggested that poor family relationships is a possible risk factor for being a bully, whereas poor social relationships with peers is a possible risk factor for being a victim of bullying.

Consequences of Traditional Bullying

Bullying has often been thought of as just another part of childhood that kids will "outgrow" Unfortunately, research suggests there are severe and long lasting consequences to bullying involvement that may persist into adulthood.

Using a sample of undergraduate men and women, Tritt and Duncan (1997) sought to determine the impact of childhood bullying on self-esteem and loneliness in adulthood. Participants completed questionnaires about peer relations (e.g. bullying), self-esteem, and loneliness. Analyses revealed significantly higher levels of loneliness for bullying victims and

perpetrators but only the victims indicated an impact on self-esteem. The authors suggested bullying a peer may inflate a perpetrator's sense of "self worth".

Slee (1994) explored the association between anxiety and childhood bullying. A large sample of fourth-seventh grade children in Australia were administered a questionnaire about bullying tendencies, and several questions about their experiences with bullying. Analyses revealed 9.7% of the participants reported being victims of "serious" bullying (i.e. once or more times per week). A significant association between being a victim of serious bullying and social evaluation anxiety, social avoidance, and distress was observed. However, anxiety problems were not seen in bullying perpetrators. The authors suggested that peer acceptance is important to children/adolescents, and fear of negative evaluation (victimization) by peers may lead to significant anxiety.

Newman, Holden, and Delville (2005) explored some of the long-term consequences resulting from bullying in adolescence. A large sample of undergraduate students completed questionnaires about their experiences with bullying before and during high school. Measures of symptoms of stress and trauma were also administered. Analyses revealed that before high school, 33% of the students were bullied occasionally and 26% were bullied frequently. During high school, 25% were bullied occasionally and 9% were bullied frequently. Data indicated that frequency, duration, perceived isolation, and in some cases gender, all contributed to long term psychological impact of bullying. Generally, people who were bullied frequently and perceived more isolation reported significantly more stress symptoms. Relative to boys, girls tended to report more stress symptoms, but there were no gender differences for effects of isolation. It was suggested that chronic bullying victims are at an elevated risk for psychological problems. It was

also suggested that timing of victimization could be pertinent, as those who were victimized before, but not during high school had "recovered".

Tritt and Duncan (1997) surveyed a sample of undergraduate men and women in order to determine the impact of childhood bullying on adult loneliness and self esteem. The participants completed questionnaires about childhood peer relations and bullying, self-esteem, and loneliness. Approximately 12% of the participants were identified as bullies, 10% were victims of bullying, and the remaining 78% were referenced as "normals". Data revealed no difference between victims, bullies, and normals with regard to self-esteem in adulthood. However, both bullies and victims reported higher levels of loneliness compared to normals. Additionally, findings indicated a negative correlation between bullying victimization during childhood and self-esteem in adulthood. A positive correlation between childhood victimization and loneliness was also found. It was suggested that the act of victimizing peers may increase a bully's self-esteem or self-worth. It would be useful to determine if these esteem building strategies are used through adulthood as well.

Holt, Finkelhor, and Kantor (2007) surveyed a large sample of 5th grade students about victimization, bullying, and psychological functioning in order to determine the impact of multiple victimizations on psychosocial functioning and academic performance. Approximately 25% of the students were classified as "primarily peer victims" (i.e. bullying victims) and 10% were classified as "multiple victims", meaning they were victimized by peers as well as in other domains (e.g. family, crime, sexual, etc.). Primarily peer victims were at risk for serious psychological and academic problems. Multiple victims showed a higher risk for psychological, academic, and social difficulties. Suicidal ideation was found among approximately 33% of both

primarily peer victims group and the multiple victims group. While primarily peer victims experienced peer bullying, multiple victims group reported higher levels of peer bullying.

Research has shown bullying/victimization affects a significant group of children and adolescents resulting in a variety of consequences and psychological distress. While bullying was once thought to be part of childhood or a rite of passage, these consequences may have an impact that extends into adulthood.

Cyber Bullying

Cyber bullying is aggression using technological means. Cyber bullying involves victimizing targets through social networking sites, blogs, video uploads, instant messaging, text messaging, and cell phone technology. Reports of specific bullying behaviors have included: name calling, spreading rumors or lies, threats (vague and/or severe, including threatening to kill the victim), ignoring the victim, revealing confidential information about the victim, teasing or ridiculing the victim, and sexual harassment (Burgess-Proctor, Patchin, & Hinduja, 2007).

The prevalence rates of cyber bullying are more difficult to assess than prevalence rates of traditional bullying because cyber bullying has only recently become a focus of research. While various research teams have examined cyber bullying and its prevalence, some studies have only focused on a specific type of cyber bullying (e.g. internet only). As with traditional bullying, there are difficulties in obtaining accurate prevalence rates due to the use of different definitions and measures employed across researchers.

Kowalski and Limber (2007) sought to determine the prevalence of electronic bullying using a large sample of middle school children. Children were administered measures of bullying and victimization and a questionnaire about experiences with cyber bullying over the

last two months. Analyses revealed that 11% had been victims of electronic bullying, 7% had been both victims and perpetrators, and 4% had been perpetrators of electronic bullying. The authors suggested their results may underestimate prevalence rates of cyber bullying due to the limited time frame examined.

A large sample of seventh grade students in urban area schools were surveyed about their experiences with victimization and perpetration in regards to traditional bullying and cyber bullying. Analysis revealed that nearly 25% of participants had been victims of cyber bullying and 15% were perpetrators of cyber bullying. Analyses also revealed that 54% of the students were bullying victims and nearly one-third had bullied others. It was suggested that cyber bullying may be on the rise (Li, 2007).

Ybarra and Mitchell (2007) conducted a study examining the prevalence and frequency of perpetration of internet harassment. Internet harassment was operationalized as using the "internet to harass or embarrass someone they were mad at" and/or making "rude or nasty comments to someone else online". A large sample of children and adolescents 10-17 years of age were surveyed via telephone concerning harassment perpetration, victimization, behavior problems, and internet use. Analyses revealed that 6% of the participants endorsed frequent perpetration of internet harassment, 6% endorsed occasional perpetration of internet harassment, and 17% endorsed limited internet harassment perpetration. It was suggested that internet harassment may introduce a different power structure which may result in an increase in the number of older adolescents engaging in this behavior.

Smith et al. (2008) administered measures of bullying, victimization, and cyber bullying to a small sample of students aged eleven to sixteen from schools in London. Focusing on their

experiences within the last two months, analyses revealed 6.6% of the participants had experienced cyber bullying often and 15.6% were cyber bullied once or twice. In a second study using similar procedures, Smith and colleagues found similar levels of bullying and that victims were cyber bullied most frequently by instant messages and phone calls (Smith et al., 2008).

Raskauskas and Stoltz (2007) explored electronic bullying and its prevalence among adolescents. A sample of 84 participants, ages 13-18, were administered measures of internet experiences. Analyses revealed 48.8% of youth surveyed indicated being victims of electronic bullying, and 21.4% indicated being electronic bullies. The authors suggested that relative to traditionally bullying, electronic bullying may contribute to high rates of bullying behavior because it allows victims to respond immediately to being bullied in anger, therefore intensifying the bully-victim interaction.

Juvonen and Gross (2008) surveyed a large group of adolescents ranging in age from 12 to 17 via a website about their experiences using various types of electronic communication and bullying. Analyses revealed 72% had been victims of cyber bullying at least once, and 19% had been cyber bullied repeatedly. The authors found large overlap (85%) between cyber bullying and bullying in schools. It was suggested that the internet allows bullies to reach their victims beyond the school yard.

While definitions and frequency vary across studies, it appears the prevalence of cyber bullying is quite high. Approximately 25-50% of children/adolescents have been victims of cyber bullying at least once, and in some more recent studies that percentage is higher. Traditional bullying is typically most likely to occur in younger grade levels and tends to decrease in occurrence as children get older. The frequency of cyber bullying appears to increase

with age (Ybarra & Mitchell 2007). Ybarra and Mitchell (2004) found that boys and girls were both just as likely to cyber bully others.

<u>Consequences of Cyber Bullying</u>

As with traditional bullying, cyber bullying also results in many negative consequences. Ybarra and Mitchell (2007) investigated bullying and its impact on health in adolescent victims and perpetrators. Using a large sample of youth between the ages of 10-17, harassment perpetration, psychosocial problems, behavior, and internet use were assessed. Analyses revealed a relationship between perpetration of harassment and behavior problems (i.e. aggression, rule breaking, and withdrawn/depressed) and some psychosocial problems. Adolescents were more likely to become victims of cyber bullying if they had bullied others online and cyber bullying perpetrators were more likely to report being victims of traditional bullying. The authors suggested that older youth who are perpetrators may have deficits in the social skills needed for typical adult development.

In a national telephone survey using a large sample of 10-17 year old youth and their caregivers, Ybarra and Mitchell (2004) administered measures of online harassment, caregiver-child relationship, psychosocial challenge, internet use, and youth characteristics. Analyses revealed 44% of cyber bullies had a very poor emotional bond with their caregivers. They also tended to report more frequent parental or caregiver discipline and less monitoring by caregiver. Data also revealed youth were significantly more likely to engage in cyber bullying perpetration if they engaged in delinquent behavior, frequent substance use, were victims of traditional bullying, and/or were victims of cyber bullying. The authors suggested that characteristics of the cyber atmosphere, such as anonymity in the cyber environment, lack of immediate consequences

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and instant feedback may contribute to cyber bullying behavior by youth who might not engage in traditional bullying behavior.

Ybarra (2004) surveyed youth ages 10-17 on internet harassment, depressive symptoms, internet use, substance use, peer relationships, psychosocial challenges (e.g. recent move, family death, parental divorce, etc), and demographics. Analyses revealed 13.4% of the cyber bullying victims indicated symptoms of major depression, and 16.5% reported symptoms of minor depression. Nearly 30% of cyber bullying victims indicated they were extremely or very upset as a result of bullying. Major depressive symptomology significantly increased the odds of being victimized by cyber bullying for males. The authors were surprised this relationship was not observed for females, as male and female rates of cyber bullying victimization did not differ. It was suggested that major depression symptomology could impact perception of threat, resulting in these youth perceiving higher incidences of cyber bullying interactions.

Hinduja and Patchin (2007) examined the offline consequences (e.g. emotional/psychological distress and negative behavioral outcomes such as drug and alcohol use, shoplifting, and skipping school) of cyber bullying victimization using a large sample of adolescents (average age of 14.7). Participants completed measures of cyber bullying victimization, strain, and offline problem behaviors. Analyses revealed anger (30% of victims) and frustration (34% of victims) were the most common emotional responses to cyber bullying victimization. Relative to non-victims, cyber bullying victims were significantly more likely to report engaging in problem behaviors, most commonly reported being drinking liquor, cheating on a school test, skipping school, and assaulting a peer.

<u>Social Support</u>

The impact of social support or lack of social support on psychological distress, resiliency, and health has been a focus of research for decades across a variety of diverse populations. Researchers have examined social support and its effects on populations affected by natural disasters, economic hardships, significant life transitions, medical problems and chronic stress (Lepore, Evans, & Schneider, 1991; Lowe, Chan, & Rhodes, 2010; Lepore, 1992). A strong social support network and high levels of perceived social support have consistently been shown to have protective factors against psychological distress (Lepore, 1992; Lowe, Chan, & Rhodes, 2010) and are associated with lower levels of depression and anxiety symptoms (Zimet, Dahlem, Zimet, & Farley, 1988).

Lepore (1992) examined perceived social support across various social domains (roommates versus friendship, not living together) and whether support in one domain would result in buffering psychological distress in another domain. College students were administered measures of perceived social support, social conflict, and psychological distress. Findings indicated high levels of perceived social support from friends can buffer psychological distress from social conflict with roommates and vice versa. Results were consistent with previous studies, finding lower levels of psychological distress when high levels of perceived social support.

Aanes, Mittelmark, and Hetland (2010) examined a lack of social connectedness as a mediating factor in the relationship between interpersonal stress and psychological distress. A random sample of participants ages 40-47, derived from a large health study in Norway, completed measures of interpersonal stress, loneliness, and health outcomes. It was hypothesized

that there are direct, as well as indirect, paths of interpersonal stress that lead to depressive symptoms, anxiety symptoms, and somatic symptoms, and can be mediated by loneliness. Analyses revealed significant correlations between interpersonal stress and psychological distress as well as somatic symptoms. Loneliness appeared to impact depressive symptoms and somatic symptoms differently. Results indicated that for depressive symptoms, 75% of the total effect was mediated by loneliness as compared to 40% of the total effect with somatic symptoms. It was suggested that these findings support the notion (introduced within belongingness literature) that depression can be a result of "threats in the social environment".

Lepore, Evans, and Schneider (1991) explored the role of perceived social support as both a moderator and mediator in the relationship between stress and psychological distress. Using a crowded living environment, perceived social support was examined under short term stress conditions as well as chronic stress situations. A sample of college students living in off campus apartments were surveyed about household crowding, perceived social support from roommates, and psychological distress at various points over a total of 8 months. Results indicated that after 2 months, there was no increase in psychological distress for students with high levels of perceived social support (buffering effect). However, students who had low levels of perceived social support displayed an increase in psychological distress as a result of the stressful conditions of overcrowding. After 8 months, perceived social support was no longer independent from the stress of crowding, and did not exhibit the same buffering effects. The role of perceived social support changed from a moderator to a mediator over time. It was suggested that for short time periods, increased social interactions occurring as a result of overcrowding are interpreted differently. Students with high levels of social support see the increase in social interaction as more positive, while students with low levels of social support see these

interactions more negatively, even threatening, and feel less in control. The stressful conditions of overcrowding over a longer, chronic period of time can break down and diminish perceived social support, leading to increased psychological distress.

<u>Social Support with Bullying</u>

While it has been well documented that social support may have buffering effects against negative psychological outcomes, few studies have examined social support with respect to bullying. Perren and Hornung (2005) investigated the impact of peer and family relationships on bullying and delinquency. A large sample of Swiss adolescents (grades 7 and 9) were administered questionnaires to assess peer acceptance, family support, frequency and type of bullying involvement, frequency and type of involvement with juvenile delinquency/criminal victimization. Data revealed significantly lower family support for bullies as compared to non-involved peers. Although not statistically significant, bully-victims reported lower family support. Support and acceptance from peers also impacted bullying involvement. Compared with bullies and non-involved peers, bullying victims and bully-victims both reported significantly lower levels of peer acceptance. Data revealed some overlap in bullying and juvenile delinquency. It was suggested that family relationships seem more impaired for bullying perpetrators, and both victims and perpetrators of juvenile delinquency. Peer relationships appear to be more impaired for victims of bullying.

Holt and Espelage (2007) surveyed a sample of middle and high school students to explore the relationship between perceived social support and bullying. Students were administered measures of bullying, victimization, psychological functioning, perceived maternal social support, and peer social support. Analyses revealed greater levels of perceived social

support for uninvolved youth, victims, and bully-victims. However, data revealed that bully-victims and victims who endorsed high levels of social support also reported higher levels of anxiety and depression. It was suggested that this could be due to bully-victims and victims not effectively using their social support, not accurately perceiving social support, or having higher levels of social support but alongside negative friendships resulting in a lack of buffering against the negative aspects of bullying.

Research suggests that overall, bullies and uninvolved youth report higher levels of social support than victims of bullying and bully-victims. There appears to be some inconsistency with the level of moderation for negative psychosocial functioning provided solely by perceived social support. Researchers have presented a variety of possible explanations for the relationship between social support and bullying across various situations but are in agreement that further research is needed to understand the role of social support in bullying.

Research has shown that bullying has detrimental effects for both bullies and victims. Data also indicates that bullying, especially chronic levels of bullying, during childhood may lead to lasting negative effects in adulthood. Previous research on traditional bullying has shown a general decline in the rates of bullying as age increases. However, the recent introduction of bullying through electronic media has sparked interest in examining bullying with older adolescents and young adults, as early research on cyber bullying suggests that this is a growing problem in the young adult population. Unfortunately, very few studies (Tritt & Duncan, 1997; Newman, Holden, & Delville, 2005) have explored bullying and bully victimization among this population. Data from the few studies indicates cyber bullying is a problem for a percentage of college students. The purpose of this study is to examine cyber bullying in the college population. College students will be assessed for bullying and being victims of bullying via

electronic media. In addition, the relationship between social support, the rates of bullying, and the impact of being a bully/victim will be examined. It is expected that incidences of bullying and bully victimization will be seen in college population. Previous research has found that social support can provide a buffer against negative psychological distress (Lepore, 1992; Lepore, Evans, & Schneider, 1991; Perren & Hornung, 2005). It is expected that higher levels of perceived social support will moderate the relationship between psychological distress and bullying and victimization.

II. METHODS

Participants

      Participants were 117 undergraduate students from a public university in the southeastern United States. Four participants were removed from the sample because they did not fall within the proposed age range. The resulting sample of 113 participants was predominantly female (84.4%) and had an average age of 18.74, with 67.9% of the sample being Caucasian, 25% African American, 4.5% Hispanic/Latino, 1.8% Asian, and 1% reported as other. Additionally, 40.2% of the sample endorsed sorority/fraternity involvement, 54.5% endorsed involvement with other social groups, 95.5% reported owning a smart phone, and 98.2% reported using social media.

Measures

Demographics

      Participants completed a short questionnaire providing demographic data such as age, sex/gender, race/ethnicity, years in college, membership/involvement in sorority or fraternity, membership in other social groups (either on or off campus), and types of electronic communication used/owned (i.e. smart phone).

Indirect Aggression Scale – Target Version and Aggressor Version

The Indirect Aggression Questionnaire – Target (IAQ-T; Forest, Eatough, & Shelvin, 2005) was designed to measure the frequency an individual experiences being the target of indirect aggression over the last 12 months. The Indirect Aggression Questionnaire – Aggressor (IAQ-A; Forest, Eatough, & Shelvin, 2005) was designed to measure the frequency an individual engages in indirect aggression perpetration. The IAQ-T and IAQ-A each contain 25 items and are both composed of 3 subscales; social exclusionary behavior (10 items), malicious humor behaviors (9 items), and guilt induction behaviors (6 items). Using a 5-point response scale, participants endorse the frequency of victimization (IAQ-T) or perpetration (IAQ-A). Item scores are summed and higher scores indicate higher frequency of victimization or perpetration. The IAQ-T subscales have been found to have good internal consistency; social exclusion ($\alpha = .89$), malicious humor ($\alpha = .87$), and guilt induction ($\alpha = .81$). Subscales on the IAQ-A have also been found to have good internal consistency; social exclusion ($\alpha = .82$), malicious humor ($\alpha = .84$), and guilt induction ($\alpha = .81$). In addition to the original instructions asking for self-report of aggression over the previous 12 month period, participants were asked to answer each item in reference to cyber bullying experiences.

The Multidimensional Scale of Perceived Social Support

Many researchers have found perceived social support to be superior to objectively measured social support as a predictor of psychological status. While many of the previously developed measures determined objective levels of social support and/or targeted very few sources of social support, the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) was designed to assess perceived social support from 3 distinct sources; family, friends, and significant others. The MSPSS is comprised of 12 items and uses a rating scale of 1-7 for each item; ranging from very strongly disagree to very strongly

agree. It contains 3 subscales, each containing 4 items and measuring a different source of social support (family, friends, and significant others). Average scores are calculated for each subscale, as well as an average for all items. Higher scores indicate higher levels of perceived social support from each domain (family, friends, and significant others) and overall. The MSPSS has demonstrated good internal reliability ($\alpha = .88$) and test-retest reliability ($\alpha = .85$). Good construct validity has also been demonstrated for this measure.

Depression Anxiety Stress Scales, 21 Items

The DASS-21 is a 21 item instrument, developed to be a shorter version of the original DASS (a 42 item questionnaire), which measures levels of depression, anxiety, and stress symptoms for individuals. Antony et al. (1998) suggested the DASS-21 has many advantages over other similar measures, including the original DASS, due to its apparent ability to better distinguish depression and anxiety more independently. The DASS-21 consists of 3, 7 item scales; Anxiety, Depression, and Stress. Participants use a rating scale of 0-3 to endorse severity/frequency of symptoms based on the statement presented for each item. Item scores will be summed for each subscale and multiplied by 2; resulting in individual scores for depression, anxiety, and stress. Each score will fall into one of the categories of severity (normal, mild, moderate, severe, or extremely severe). Good internal consistency was demonstrated for each of the subscales; Depression ($\alpha = .94$), Anxiety ($\alpha = .87$), and Stress ($\alpha = .91$). Good concurrent validity has also been demonstrated for this measure.

Procedure

Participants were recruited through the PSPM (Subject Participants Manager) system used by the psychology department. Students enrolled in psychology courses received research

participation credit in exchange for their participation. Participants completed the study online through the use of Qualtrics, a web based survey system. Participants were contacted via email and directed to the link for the survey. Prior to beginning completion of the survey, participants viewed a letter of informed consent. The letter of informed consent briefly described the study, confidentiality of responses, and any potential risks and benefits. Participants had the right to withdraw from the study at any time without penalty by simply closing the browser window. At the conclusion of the survey, participants were thanked for their participation and given instructions to receive research participation credit.

III. RESULTS

Preliminary Analysis

Prior to conducting analyses, four subjects were removed due to age. One 17 year old and three participants over the age of 30 years were removed as they did not fall within the proposed age range. Distributions of continuous variables were examined for normality. One outlier more than 3.5 standard deviations from the mean on IAQ-A total was removed from analyses. Following removal of the outlier, distributions were approximately normal. Data were collected using Qualtrics (Qualtrics, Provo, UT) ensuring there were no missing values or errors in data entry. Reliability and descriptive statistics were obtained for all measures and are shown in Table 1. A correlation matrix was computed in order to examine relationships among variables of interest (Table 2). As expected, a number of significant relationships were observed. The IAQ-A Total and IAQ-T Total are significantly related to the DASS subscales and UCLA Loneliness Scale. Additionally, there were significant negative relationships observed between the IAQ-A Total and IAQ-T Total and the MSPSS Total.

Table 1

Descriptive Statistics for Key Variables

	Mean	SD	A
DASS-21 Depression	8.43	9.610	.909
DASS-21 Anxiety	7.32	8.233	.844
DASS-21 Stress	11.59	8.625	.818
MSPSS – SO	5.77	1.606	.945
MSPSS – FAM	5.92	1.459	.948
MSPSS – FRI	5.75	1.416	.960
MSPSS – Total	5.81	1.364	.965
IAQ-A Total	35.54	12.542	.953
IAQ-T Total	39.71	16.009	.964
UCLA LS	40.96	11.670	.

Table 2

Bivariate Relationships Among Measures

	1	2	3	4	5	6	7	8	9	10
1.**DassDep**	-	.656**	.716**	-.322**	-.339**	-.334**	-.363**	.403**	.457**	.639**
2.DassAnx		-	.803**	-.061	-1.99*	-.026	-.104	.275**	.295**	.357**
3.DassStress			-	-.067	-.184	-.082	-.120	.202*	.303**	.462**
4.MspssSO				-	.734**	.746**	.912**	-.371**	-.153	-.474**
5.MspssFAM					-	.776**	.913**	-.359**	-.158	-.429**
6.MspssFRI						-	.915**	-.402**	-.291**	-.508**
7.MspssTotal							-	-.413**	-.217**	-.514**
8.IAQATotal								-	.546**	.350**
9.IAQTTotal									-	.469**
10.UCLALS										-

Prevalence of Cyber Bullying

Prevalence for cyber bullying victimization and perpetration was determined for participants. Participants were asked to indicate frequency of cyber bullying over the past 12 months using a 5-point response scale (Never, Once or Twice, Sometimes, Often, and Regularly). To determine prevalence, the highest rating on any question for each scale and within each subscale was identified for each participant. These prevalence ratings for each total scale and the three subscales are presented in Table 3.

Table 3

Prevalence of Cyber Bullying Perpetration and Victimization (percentages)

	Never	Once or Twice	Sometimes	Often	Regularly
IAQA Total	**21.4**	**25.9**	**22.3**	**22.3**	**8.0**
IAQA SE	30.4	31.3	20.5	11.6	6.3
IAQA MH	30.4	30.4	17.9	17.0	4.5
IAQA GI	41.1	23.2	27.7	5.4	2.7
IAQT Total	**17.0**	**25.0**	**33.0**	**17.0**	**8.0**
IAQT SE	20.5	30.4	31.3	12.5	5.4
IAQT MH	35.7	19.6	29.5	10.7	4.5
IAQT GI	41.1	21.4	26.8	8.0	2.7

Frequencies were obtained for all participant responses on individual items for perpetration (Table 4) and victimization (Table 5).

Table 4

Indirect Aggression Scale – Aggressor Version Item Responses (percentages)

Item	Never	Once or Twice	Sometimes	Often	Regularly
Social Exclusionary					
4. Withheld information from them that the rest of the group is let in on	58.0	20.5	14.3	5.4	1.8
5. Purposefully left them out of activities	67.0	20.5	6.3	4.5	1.8
6. Made other people not talk to them	86.6	7.1	4.5	0.9	0.9
7. Excluded them from a group	68.8	24.1	5.4	0.9	0.9
10. Used private in-jokes to exclude them	69.6	20.5	8.9	0.0	0.9
13. Spread rumors about them	82.1	10.7	4.5	1.8	0.9
17. Made them feel that they don't fit in	83.9	14.3	1.8	0.0	0.0
19. Stopped talking to them	53.6	20.5	17.0	7.1	1.8
21. Omitted them from conversations on purpose	73.2	16.1	6.3	2.7	1.8
25. Turned other people against them	84.8	11.6	3.6	0.0	0.0
Malicious Humor					
2. Used sarcasm to insult them	45.5	23.2	16.1	12.5	2.7
9. Made negative comments about their physical appearance	75.0	16.1	6.3	1.8	0.9
12. Imitated them in from of others	72.3	14.3	10.7	1.8	0.9
14. Played a nasty practical joke on them	85.7	6.3	5.4	2.7	0.0
15. Done something to try and make them look stupid	77.7	14.3	7.1	0.9	0.0
18. Intentionally embarrassed them around others	83.9	11.6	4.5	0.0	0.0
22. Made fun of them in public	82.1	9.8	6.3	0.9	0.9
23. Called them names	70.5	16.1	9.8	3.6	0.0
24. Criticized them in public	75.9	13.4	8.9	1.8	0.0
Guilt Induction					
1. Used my relationship with them to try and get them to change a decision	60.7	20.5	17.0	0	1.8
3. Tried to influence them by making them feel guilty	57.1	23.2	13.4	4.5	1.8
8. Used their feelings to coerce them	75.0	17.9	5.4	0.9	0.9
11. Used emotional blackmail on them	88.4	7.1	4.5	0.0	0.0
16. Pretended to be hurt and/or angry with them to make them feel bad about him/her-self	67.9	19.6	10.7	1.8	0.0
20. Put undue pressure on them	80.4	14.3	2.7	2.7	0.0

Table 5

Indirect Aggression Scale – Target Version Item Responses (percentages)

Item	Never	Once or Twice	Sometimes	Often	Regularly
Social Exclusionary					
1. Made other people not talk to me	72.3	17.0	9.8	0.9	0.0
2. Withheld information from me that the rest of the group is let in on	54.5	27.7	13.4	3.6	0.9
4. Excluded by a group	48.2	28.6	16.1	4.5	2.7
6. Stopped talking to me	63.4	17.0	16.1	2.7	0.9
11. Turned other people against me	65.2	19.6	8.9	5.4	0.9
12. Made me feel that I don't fit in	56.3	22.3	12.5	6.3	2.7
13. Spread rumors about me	62.5	17.9	14.3	5.4	0.0
16. Used private in-jokes to exclude me	65.2	21.4	9.8	3.6	0.0
21. Omitted me from conversations on purpose	65.2	19.6	11.6	3.6	0.0
23. Purposefully left me out of activities	60.7	22.3	13.4	2.7	0.9
Malicious Humor					
3. Intentionally embarrassed me around others	60.7	23.2	13.4	2.7	0.0
5. Called me names	66.1	11.6	19.6	1.8	0.9
9. Made fun of me in public	65.2	19.6	11.6	2.7	0.9
15. Criticized me in public	64.3	20.5	10.7	3.6	0.9
18. Used sarcasm to insult me	51.8	22.3	17.9	6.3	1.8
19. Played a nasty practical joke on me	82.1	8.9	7.1	1.8	0.0
20. Made negative comments about my physical appearance	64.3	17.0	12.5	4.5	1.8
22. Imitated me in front of others	70.5	15.2	11.6	0.9	1.8
24. Done something to try and make me look stupid	58.7	25.0	13.4	1.8	0.9
Guilt Induction					
7. Used their relationship with me to try and get me to change a decision	57.1	22.3	18.8	1.8	0.0
8. Used my feelings to coerce me	63.4	17.0	16.1	2.7	0.9
10. Pretended to be hurt and/or angry with me to make me feel bad about myself	62.5	18.8	16.1	2.7	0.0
14. Used emotional blackmail on me	80.4	8.9	9.8	0.9	0.0
17. Put undue pressure on me	64.3	19.6	11.6	2.7	1.8
25. Tried to influence me by making me feel guilty	61.6	25.0	8.9	4.5	0.0

Moderation Analyses

In order to examine the hypothesis that social support would moderate the relationships between cyber bullying perpetration and psychological distress, a series of regression analyses was performed. Cyber bullying perpetration and perceived social support variables were centered by subtracting the sample mean from each individual score. Interaction terms were computed by multiplying centered values. The first regression analyzed the moderating effect of social support on the relationship between cyber bullying perpetration and depression. With the DASS Depression Subscale as the dependent variable, the cyber bullying perpetration score (IAQ-A total score) and social support variable (MSPSS total score) were entered in Step 1 and accounted for significant variance in the prediction of Depression [$R=.457$, $R^2=.209$, Adjusted $R^2=.194$, $\Delta R^2=.209$, $\Delta F(2,109)=14.387$, $p<.0001$]. The interaction term for social support and cyber bullying perpetration was entered in Step 2 [$R=.461$, $R^2=.212$, Adjusted $R^2=.190$, $\Delta R^2=.003$, $\Delta F(1,108)=.470$, $p=.495$] but failed to account for significant additional variance in the prediction of depression.

For the second regression, the DASS Anxiety subscale served as the dependent variable. In Step 1, cyber bullying perpetration score (IAQ-A total score) and social support variable (MSPSS total score) were entered and accounted for significant variance in the prediction of Anxiety [$R=.275$, $R^2=.076$, Adjusted $R^2=.059$, $\Delta R^2=.076$, $\Delta F(2,109)=4.470$, $p<.05$]. The interaction term for social support and cyber bullying perpetration was entered in Step 2 [$R=.312$, $R^2=.097$, Adjusted $R^2=.072$, $\Delta R^2=.022$, $\Delta F(1,108)=2.577$, $p=.111$] but failed to account for significant additional variance in the prediction of anxiety.

For the third regression, the DASS Stress subscale served as the dependent variable. In Step 1, cyber bullying perpetration score (IAQ-A total score) and social support variable (MSPSS total score) were entered but were not significant in the prediction of Stress [R=.206, R²=.042, Adjusted R²=.025, ΔR²=.042, ΔF(2,109)=2.414, p=.094]. The interaction term for social support and cyber bullying perpetration was entered in Step 2 [R=.309, R²=.096, Adjusted R²=.071, ΔR²=.053, ΔF(1,108)=6.356, p<.05] and accounted for significant variance in the prediction of stress. In order to examine the interaction term and how it moderated the relationship between cyber bullying and stress (DASS), a median split was used to categorize participants as having either high social support or low social support. To determine the direction of moderation and how it affected the relationship, separate regressions were then performed for the high social support group and the low social support group. For the high social support group, the model was significant [R=.243, R²=.059, Adjusted R²=.046, ΔR²=.059, ΔF(1, 72)=4.508, p<.05]. Further examination revealed that higher levels of cyber bullying perpetration predicted significantly higher levels of stress. The model for the low social support group was not significant [R=.017, R²=.000, Adjusted R²=-.027, ΔR²=.000, ΔF(1,36)=.010, p=.920].

A second set of regression analyses was performed in order to examine the hypothesis that social support would moderate the relationships between cyber bullying victimization and psychological distress. Cyber bullying victimization and perceived social support variables were centered by subtracting the sample mean from each individual score. Interaction terms were computed by multiplying centered values. For the first regression, the DASS Depression subscale served as the dependent variable. Cyber bullying victimization score (IAQ-T total score) and social support variable (MSPSS total score) were entered in Step 1 and accounted for significant variance in the prediction of Depression [R=.531, R²=.282, Adjusted R²=.269,

$\Delta R^2=.282$, $\Delta F(2,109)=21.382$, p<.0001]. The interaction term for social support and cyber bullying victimization was entered in Step 2 [R=.531, $R^2=.282$, Adjusted $R^2=.262$, $\Delta R^2=.000$, $\Delta F(1,108)=.019$, p=.892], but failed to account for significant additional variance in the prediction of depression.

For the second regression, the DASS Anxiety subscale served as the dependent variable. In Step 1, cyber bullying victimization score (IAQ-T total score) and social support variable (MSPSS total score) were entered and accounted for significant variance in the prediction of Anxiety [R=.297, $R^2=.088$, Adjusted $R^2=.072$, $\Delta R^2=.088$, $\Delta F(2,109)=5.288$, p<.01]. The interaction term for social support and cyber bullying victimization was entered in Step 2 [R=.317, $R^2=.100$, Adjusted $R^2=.075$, $\Delta R^2=.012$, $\Delta F(1,108)=1.421$, p=.236] but failed to account for significant additional variance in the prediction of anxiety.

For the third regression, the DASS Stress subscale served as the dependent variable. In Step 1, cyber bullying victimization score (IAQ-T total score) and social support variable (MSPSS total score) were entered and accounted for significant variance in the prediction of Stress [R=.308, $R^2=.095$, Adjusted $R^2=.078$, $\Delta R^2=.095$, $\Delta F(2,109)=5.702$, p<.01]. The interaction term for social support and cyber bullying victimization was entered in Step 2 [R=.370, $R^2=.137$, Adjusted $R^2=.113$, $\Delta R^2=.042$, $\Delta F(1,108)=5.270$, p<.05] and accounted for significant additional variance in the prediction of stress. Similar to described above, the same procedures were used to determine direction of moderation. For the high social support group, the model was significant [R=.390, $R^2=.152$, Adjusted $R^2=.140$, $\Delta R^2=.152$, $\Delta F(1, 72)=12.888$, p<.01]. Further examination revealed that higher levels of cyber bullying victimization predicted significantly higher levels of stress. The model for the low social support group was not significant [R=.028, $R^2=.001$, Adjusted $R^2=-.027$, $\Delta R^2=.001$, $\Delta F(1,36)=.028$, p=.868].

DISCUSSION

In the current study, over the previous 12 months 25% of participants reported to have been victims of cyber bullying "often" or "regularly" and 30% have cyber bullied others "often" or "regularly". An additional 33% reported being cyber bullied "sometimes" over the last 12 months. Previous research with high school students suggests cyber bullying to be problematic for many adolescents (Raskauskas & Stoltz, 2007; Juvonen & Gross, 2008). Our findings suggest that cyber bullying continues to be a problem into young adulthood.

There are characteristics of this type of aggression that may contribute to its prevalence. Previous research has identified a power imbalance between bully and victim as being a key component of traditional bullying (Olweus, 1995; Rivers & Smith, 1994; Greene, 2000). The introduction of electronic media as a means to victimize others may lessen or remove power imbalances, leading to an increase in bullying perpetration from individuals who would not typically engage in traditional bullying. Additionally, cyber bullying often lacks the consequences or immediate feedback that is usually a part of traditional bullying (e.g. physical confrontation), possibly resulting in bullying behavior as a result of reduced fears of repercussion. Anonymity and the ability to transcend any geographical distance may also contribute to the rise of cyber bullying behavior. Specific modes primarily used for cyber bullying were not assessed in the current study, so it is unclear the specific methods that were used (e.g. text messaging, YouTube videos, social media websites, etc.).

Examination of the correlation matrix revealed depression, anxiety, and stress were positively correlated with cyber bullying perpetration and victimization. This is consistent with previous research examining psychological functioning and bullying involvement (Ybarra, 2004; Ybarra & Mitchell, 2007; Slee, 1994; Newman, Holden, & Delville, 2005). Additionally, overall social support was negatively correlated with cyber bullying perpetration and victimization, which is consistent with previous findings (Perren & Hornung, 2005; Demaray & Malecki, 2003). While overall social support was negatively correlated with perpetration and victimization, when looking at specific types of perceived social support (significant other, family, and friends), only perceived social support from friends was negatively correlated with cyber victimization. These findings suggest that individuals who perceive they have strong peer social support are at lower risk of being victims of cyber bullying. It may be that high levels of social support are indicative of strong social skills which reduce the likelihood of being a victim of peer social aggression.

While a relationship was found between cyber bullying and depression and anxiety, contrary to expectations social support did not moderate this relationship. Moreover, although perceived social support served as a moderator for stress (DASS), this relationship was also not what was hypothesized. For participants categorized as having high social support, it was found that as cyber bullying involvement increased (for both victims and perpetrators), stress also increased. This was not found for the low social support participants. Holt and Espelage (2007) also found higher levels of social support to be associated with increased problems in psychological functioning, specifically anxiety and depression, but with traditional bullying.

The above relationships may be due to cyber bullying often occurring when the victim is not in the physical presence of friends or family who would typically be able to provide positive

social support. There is still an element of embarrassment associated with cyber bullying, which while common, may lead victims to avoid disclosure with family or friends and therefore eliminate potential positive effects from social support. Cyber bullying is often very "public" and can be very difficult, if not impossible, to remove from the internet. This can result in the victim having to confront the trauma repeatedly over a long period of time, potentially impacting future relationships and opportunities. Alternately, traditionally bullying is more easily escaped and/or avoided. It is also possible that cyber bullying victims do not accurately perceive social support.

Limitations and Future Directions

The present study used a southeastern university sample with a large percentage of female participants (84%). In order to determine generalizability of findings it would be valuable to utilize a more diverse sample. There is evidence bullying occurs in other adult environments (e.g. workplace), so it may be useful to investigate a community sample as well (Matthiesen & Einarsen, 2010).

This study used a standardized psychometrically sound measure, but modified it slightly to assess cyber victimization and perpetration. Although this is one of the first studies examining cyber bullying with college students and earlier studies with high school students have reported similar rates of cyber bullying (Raskauskas & Stoltz, 2007; Juvonen & Gross, 2008), the use of a modified measure is a potential limitation of this work. It would be beneficial for future efforts to focus on developing a measure specifically for cyber bullying victimization and perpetration. The study of cyber bullying is in its infancy, so the introduction of psychometrically sound measures would be beneficial.

Conclusion

       The present study suggests that cyber bullying is common in the college student experience and social support alone may not adequately buffer against negative psychological effects. The use of electronic communication and internet based technologies appears to be becoming increasingly prevalent in our society and therefore it is critical that we continue to examine the prevalence and potential impact of cyber bullying and victimization.

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ALICIA LUSCOMB AUTRY

EDUCATION

B.A., Psychology, Auburn University, May 2006

RESEARCH AND TEACHING EXPERIENCE

Undergraduate Research Assistant, 2004-2006

Auburn University

Psychology Department

Graduate Research Assistant, 2006-2007

University of Mississippi

Psychology Department

Teaching Assistant, 2012-2013

University of Mississippi

Course: Undergraduate Statistics

PRACTICAL EXPERIENCE AND PROFESSIONAL ACTIVITIES

Rape Counselor, 2004-2006

Rape Counselors of East Alabama

Behavior Specialist, 2005-2006

Developmental Disabilities Clinic

Auburn University

Practicum Placement, 2007-2008

Behavior Specialist

Desoto County Schools

Graduate Therapist, 2007-Present

Psychological Services Center

University of Mississippi

Practicum Placement, 2008-2009

North Mississippi Regional Center

Assistant to the Clinical Training Program, 2009-2012

University of Mississippi

Department of Psychology

Mental Health Consultant, 2009-Present

Mississippi Head Start Program

Consultant, 2013-Present

Baptist Children's Village