# Psychological Needs as a Predictor of Cyber bullying: a Preliminary Report on College Students

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## Abstract

Recent surveys show that cyber bullying is a pervasive problem in North America. Many news stories have reported cyber bullying incidents around the world. Reports on the prevalence of cyber bullying and victimization as a result of cyber bullying increase yearly. Although we know what cyber bullying is it is important that we learn more about the psychological effects of it. Therefore, the aim of the current study is to investigate the relationship between psychological needs and cyber bullying. Participants of the study included 666 undergraduate students (231 males and 435 females) from 15 programs in the Faculty of Education at Selcuk University, Turkey. Questions about demographics, engagement in and exposure to cyber bullying, and the Adjective Check List were administered. 22.5% of the students reported engaging in cyber bullying at least one time, and 55.3% of the students reported being victims of cyber bullying at least once in their lifetime. Males reported more cyber bullying behavior than females. Results indicate that aggression and succorance positively predict cyber bullying wheras intraception negatively predict it. In addition, endurance and affiliation negatively predict cyber victimization. Only the need for change was found as a positive, but weak predictor of cyber victimization. In light of these findings, aggression and intraception should be investigated further in future research on cyber bullying.

## Key Words

Cyber bullying, Cyber victims, Psychological Needs, College Students

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Over the past decade, technology has become increasingly important in the lives of adolescents. Adolescents are heavy users of electronic communication such as instant messaging, e-mail, and text messaging. They are also heavy users of communication-oriented internet sites such as blogs, social networking, and sites for sharing photos and videos (Subrahmanyam, & Greenfield, 2008). The internet offers connectivity to friends and family and access to important information. However, as with other social environments, the potential to meet and interact with others in harmful ways exists (Ybarra, Diener-West, & Leaf, 2007). One such interaction of growing concern is cyber bullying (Hinduja & Patchin, 2008).

Cyber bullying has recently emerged as a new form of bullying and harassment. Cyber bullying is defined as "an individual or a group willfully using information and communication involving electronic technologies to facilitate deliberate and repeated harassment or threat to another individual or group by sending or posting cruel text and/or graphics using technological means" (Belsey, 2008; Berson, Berson, & Ferron, 2002; Finkelhor, Mitchell, & Wolak, 2008; Mason, 2008; Patchin, & Hinduja, 2006; Willard, 2007; Ybarra, & Mitchell, 2004a, 2004b). Recent surveys show that cyber bullying is a pervasive problem in North America (Agatston, Kowalski, & Limber, 2007; Beran and Li, 2005; Ybarra, & Mitchell, 2007) and many news stories have reported cyber bullying incidents all over the world (Arıcak, Siyahhan, Uzunhasanoğlu, Sarıbeyoğlu, Cıplak, Yılmaz & Memmedov, 2008; Li, 2007a; Slonje, & Smith, 2008; Smith et al., 2008).

Reports on the prevalence of cyber bullying and victimization have been increasing regularly every year. Finkelhor, Mitchell, and Wolak reported that six percent of young people were exposed to cyber bullying (threats, rumors, or other offensive behavior) during the past year. Six and a half percent of young, regular internet users in Ybarra's study reported at least one form of cyber bullying in the previous year. In Patchin and Hinduja's (2006) study, almost 30% of the adolescent respondents reported that they had been victims of cyberbullying-operationalized as having been ignored, disrespected, called names, threatened, picked on, or made fun of or having had rumors spread by others (Patchin, & Hinduja, 2006).

In a study conducted in 2007 with an online panel of youth ages 13 to 17 years old, 43% had experienced cyber bullying in the past year, defined as "use of the internet, cell phones, or other technology to send or post text

or images intended to hurt or embarrass another person" (Wolak, Mitchell, & Finkelhor, 2007). Hinduja and Patchin found that over 32% of boys and over 36% of girls have been victims of cyber bullying (Hinduja, & Patchin, 2008). Similarly, Aricak et al also reported that 36.1% of students have been exposed to cyber bullying, such as being teased, insulted, threatened or having pictures of themselves displayed by others.

In a recent study, Smith et al. (2008) reported that most pupils believe that between 67-100% of students have experienced cyber bullying.

## Traditional Bullying versus Cyber Bullying

Although there are some similarities between traditional bullying and cyber bullying (Hinduja, & Patchin, 2008; Li, 2006, 2007a), there are important characteristics of cyber bullying that differ from traditional bullying (Kowalski, & Limber, 2007; Mason, 2008). For example, traditional bullies are known by others in school or in the workplace. However, in most cases, cyber bullies are anonymous (Anderson, & Sturm, 2007; Chibbaro, 2007; Strom, & Strom, 2005). This aspect of cyber bullying makes it particularly hurtful (Beale, & Hall, 2007). In traditional bullying, children who are considered overweight, physically weak, disabled, or unpopular are often targeted (Olweus, 1999; Willard, 2007). However, all students are potential victims of cyber bullying aimed at inflicting unwarranted hurt and embarrassment on unsuspecting victims (Beale, & Hall, 2007).

Traditional bullying most often occurs in schools or during the day (Cunningham, 2007; Olweus, 1999). Cyber bullying can occur at any time, which may heighten children's perceptions of vulnerability. Cyber bullying messages and images also can be distributed quickly to a wide audience. The interactions that occur in virtual reality can affect the everyday reality that students experience elsewhere (Kowalski, & Limber, 2007).

## Psychological Characteristics of Bullies and Victims

According to Cunningham (2007), Haynie et al. (2001), and Pellegrini, Bartini and Brooks (1999), bullies, victims, and bully-victims have different psychological and social profiles. Adolescent bullies tend to have high emotionality and low self-control (Pellegrini et al., 1999). Although bullies are both proactively and reactively aggressive, bullies appear to use proactive aggression to establish dominance and leadership in

their peer groups (Juvonen, Graham, & Shuster, 2003; Pellegrini et al., 1999). Bullies show little empathy for their peers (Bernstein, & Watson, 1997). According to Menesini et al (2003), bullies are often aware of others' feelings but are unable or unwilling to allow those feelings affect them.

Victims of bullying generally manifest internalizing psychological problems such as depression, loneliness, low self-esteem, school phobias, and social anxiety (Grene, 2003; Juvonen et al., 2003; Olweus, 1999). They often have a negative attitude towards violence and the use of violence. If they are boys, they are likely to be physically weaker than their same-age male peers (Olweus, 1999). Piskin (2002) suggests that bullies often come from homes where physical punishment is used, and where parental involvement and warmth are often lacking. In contrast, victims tend to be close to their parents and may have overprotective parents (Piskin, 2002).

Traditional bullying and cyber bullying similarly affect the victims (Mason, 2008). Bullying is correlated with significant health and psychological issues among young people such as depression, emotional distress, low self-esteem, and poor academic achievement (Mason, 2008; Ybarra, 2004; Ybarra et al., 2007).

Research on cyber bullying is still in its infancy. Whereas we know the effects of bullying on victims, and Li Q. Gender and CMC (2005; Li Q 2006; 2007b), Ybarra and Mitchell (2004a, 2004b), Patchin and Hinduja (2006) and other researchers have examined the prevalence, effects, related factors and types of occurrence of cyber bullying and victimization in detail, there is less understanding of what factors motivate young people to cyber bully and whether we can predict cyber bullying behaviors from specific psychological needs. These questions will be addressed in the current study. Specifically, the aim of the current study is to explore the relationship between psychological needs and cyber bullying.

## Method

### Participants

Participants included middle (97.6%) and high (2.4%) socioeconomic status college students. In the beginning of the study, 693 (239 males and 454 females) subjects were selected and responded to the surveys. However, prior to conducting analyses, 17 subjects were identifi-

ed as outliers. All outliers were deleted, leaving 666 cases for the analyses. Therefore, participants of the study were 666 undergraduate college students (231 males and 435 females) from 15 different programs in the Faculty of Education at Selcuk University, Turkey. Students' ages ranged from 18 to 22 years ($M$ = 19.29, $SD$ = 1.14). One hundred and eighty-one students were freshmen, 254 were sophomores, 120 were juniors and 111 were seniors. Data were collected using the internet users; therefore, convenience sampling was used in this study.

## Procedure

The study was started in September, 2007. After preparing the surveys, they were administered to groups in classrooms during the Fall of 2007. The author of the current study administered the surveys. Before completing the surveys, participants were informed about the study and signed a consent form to participate. The survey required approximately 20 minutes to complete. All data were coded and entered SPSS by student research assistants at the Faculty of Education.

## Instruments

The survey consisted of three sections. The first section consisted of five demographic questions regarding sex, age, department, class year, and socioeconomic level. The second section consisted of questions specifically about cyber bullying. Finally, the third section was the Adjective Check List (ACL) (Gough, & Heilbrun, 1983).

## Cyber Bullying Questions

After the demographic questions, students were provided with an operational definition of cyber bullying. Belsey's (2008) definition with a set of examples was used to help students understand what is meant by cyber bullying. Following the definition, the following questions were asked to students:

Based on the definition of cyber bullying provided above (1) "Have you ever engaged in cyber bullying before today?" (1-Never, 2-One time, 3-Between two-four times, 4-Five or more times). (2) "Have you ever been exposed to cyber bullying?" (1-Never, 2-One time, 3-Between two-four times, 4-Five or more times). (3) "Would you engage in cyber

bullying as a bully in the future?" (1-Yes, 2-I am not sure, 3-No).

Two expert reviewers with PhDs examined the items for ambiguity and the overall quality of the instrument. The instruments were administered in Turkish.

## The Adjective Check List (ACL)

The ACL was originally developed in 1949 by Gough and was published in 1965 (Gough, & Heilbrun, 1983). Gough and Heilbrun developed the ACL to assist in identifying personal traits of an individual by analyzing their social needs. By analyzing the individual's social needs, the individual's motivations and modus operandi also become apparent (Reljic, 2007).

The ACL consists of 300 adjectives arranged in alphabetical order. Respondents are asked to endorse adjectives they believe are descriptive of their personality. The 300 adjectives are divided into 37 scales: 4 Modus Operandi scales, 15 Need scales, 9 Topical scales, 5 Transactional Analysis scales, and 4 Origence-Intelligence scales (Gough, & Heilbrun, 1983; Reljic, 2007). The ACL is a pencil and paper test that was completed in approximately 15-20 minutes.

The normative sample used to develop the ACL included 5236 male and 4144 female adults, high school students, college students, medical students, graduate students, psychiatric patients, and delinquents from 37 states in the United States (Reljic, 2007). The ACL was translated and adapted to Turkish by Savran (Savran, 1993). Savran performed reliability and validity analyses of the ACL on Turkish university students (n=300). The internal consistency reliability coefficients were between .36 and .84 for the 37 subscales (Savran, 1993).

The Edwards Personal Preference Schedule (EPPS; Edwards, Abbott, & Klockars, 1972; Kuzgun, 1985) was used as a criterion measure to measure the validity of the analyses. The mean of correlation coefficients was .48 (p<.05). Subscales of the ACL were found correlated with each other (between .20 and .80) (Savran, 1993). Savran also conducted norm study of the ACL on Turkish people from different age, education and socioeconomic level (n=700). Results showed that the ACL was a valid and reliable instrument for Turkish population. The ACL gives standard scores for Turkish people (Savran, 1993).

## The Need Scales of the ACL

Fifteen need scales were used in the current study (Gough, & Heilbrun, 1983, 2008). These include:

Achievement: Striving to be outstanding in pursuits of socially recognized significance.

Dominance: Seeking and sustaining leadership roles in groups or being influential and controlling in individual relationships.

Endurance: Persisting in any task undertaken.

Order: Placing special emphasis on neatness, organization, and planning in one's activities.

Intraception: Engaging in attempts to understand one's own behavior or the behavior of others.

Nurturance: Engaging in behaviors which extend material or emotional benefits to others.

Affiliation: Seeking and sustaining numerous personal friendships.

Heterosexuality: Seeking the company of and deriving emotional satisfaction from interactions with opposite sex-peers.

Exhibition: Behaving in such a way as to elicit the immediate attention of others.

Autonomy: Acting independently of others or of social values and expectations.

Aggression: Engaging in behaviors which attack or hurt others.

Change: Seeking novelty of experience and avoiding routine.

Succorance: Soliciting sympathy, affection, and emotional support from others.

Abasement: Expressing feelings of inferiority through self-criticism, guilt, or social impotence.

Deference: Seeking and sustaining subordinate roles in relationships with others.

## Data Analysis

Descriptive and inferential statistics were used to examine the relations and interaction between cyber bullying and the psychological needs subscales of the ACL. The statistical package, SPSS 15 for Windows (SPSS for Windows, 2006) was used to analyze the data.

## Results

### Descriptive Statistics

In the overall sample (N=666), 22.5% of the students (n=150) reported engaging in cyber bullying at least once, and 55.3% of the students (n=368) reported being victims of cyber bullying at least once in their lifetime. Of the 22.5% of respondents who reported engaging in cyber bullying at least once, 3% (n=20) were identified by the author as a "pure-bully"; that is, someone who is a perpetrator of cyber bullying but has never been bullied. The other 19.5% of the 22.5% (n=130) were labeled as "bully-victims" and were both perpetrators and victims of cyber bullying. In the sample, 35.7% of the students (n=238) were labeled as "pure-victims" who never perpetrated cyber bullying, but were themselves bullied. Another 41.7% of students (n=278) reported that they had never engaged in or been exposed to cyber bullying (i.e., "non-bully-victims" or "bystanders").

When participants were asked if they would engage in cyber bullying in future, 3.5% answered "yes," 15.3% answered "I am not sure," and 81.2% answered "no." Males (*M rank*=359.05) reported more cyber bullying behavior than females (*M rank*=319.93), (Mann-Whitney U=44339.50, Z=-3.42, $p$=.001). As seen in Table 1, while the rate of victims and bully-victims is higher among females than males, the rate of bullying is higher among males than females ($\chi^2$ (3) =16.64, $p$=.001).

The mean order scores was 52.61 at the highest point, and the mean Dominance scores was 43.14 representing the lowest mean score. Table 2 lists the means and standard deviations of the psychological needs reported by males and females. Significant correlations emerged among some of the Need scales of the ACL. Correlation coefficients ranged from .00 to .52 (see Table 3).

**Table 1.**

Frequencies and Percentages of Non-Bully-Victims, Pure Bullies, Pure Victims and Bully-Victims according to Sex

| Groups | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| | N | % | n | % | N | % |
| Non-Bully-Victim | 92 | 13.8 | 186 | 27.9 | 278 | 41.7 |
| Pure-Bully | 13 | 2.0 | 7 | 1.0 | 20 | 3.0 |
| Pure-Victim | 69 | 10.3 | 169 | 25.4 | 238 | 35.7 |
| Bully-Victim | 57 | 8.5 | 73 | 11.0 | 130 | 19.5 |
| Total | 231 | 34.6 | 435 | 65.3 | 666 | 100 |

As seen in Table 1, while the rate of victims and bully-victims is higher among females than males, the rate of bullying is higher among males than females ($\chi^2$ (3) =16.64, $p$=.001).

**Table 2.**

Mean and Standard Deviations for the Need Scales of the ACL

| The Need Scales of the ACL | Male (n = 231) | Female (n = 435) | General(N = 666) |
|---|---|---|---|
| | M(SD) | M(SD) | M(SD) |
| Achievement | 43.91(9.98) | 44.99(9.10) | 44.61(9.42) |
| Dominance | 42.17(11.82) | 43.66(11.10) | 43.14(11.37) |
| Endurance | 45.75(11.73) | 46.63(10.52) | 46.33(10.96) |
| Order | 52.90(12.87) | 52.45(12.26) | 52.61(12.47) |
| Intraception | 47.70(10.94) | 48.15(11.39) | 47.99(11.23) |
| Nurturance | 49.89(10.88) | 49.10(11.73) | 49.37(11.44) |
| Affiliation | 42.39(18.19) | 45.61(18.20) | 44.49(18.25) |
| Heterosexuality | 49.74(11.46) | 50.00(12.48) | 49.91(12.13) |
| Exhibition | 45.98(9.67) | 45.61(9.09) | 45.74(9.29) |
| Autonomy | 50.05(9.24) | 49.67(9.35) | 49.80(9.30) |
| Aggression | 49.67(10.04) | 49.03(10.22) | 49.25(10.16) |
| Change | 48.80(10.17) | 47.27(9.72) | 47.80(9.90) |
| Succorance | 50.50(11.01) | 49.98(10.68) | 50.16(10.79) |
| Abasement | 52.27(11.05) | 51.29(10.79) | 51.63(10.88) |
| Deference | 49.96(9.72) | 49.90(9.76) | 49.92(9.74) |

Table 2 lists the means and standard deviations of the psychological needs reported by males and females.

**Table 3.**
Correlations among the Need Scales of the ACL

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.00 | .34** | .45** | .43** | .28** | .21** | .35** | .23** | .18** | .17** | .10** | .04 | -.29** | -.33** | -.10** |
| 2 | | 1.00 | .35** | .03 | .13** | .04 | .001 | .08* | .33** | .19** | .17** | .09* | -.34** | -.37** | -.23** |
| 3 | | | 1.00 | .52** | .33** | .27** | .15** | .06 | .05 | -.09* | -.12** | -.27** | -.28** | -.16** | .12** |
| 4 | | | | 1.00 | .35** | .30** | .27** | .19** | -.01 | -.06 | -.10* | -.22** | -.23** | -.18** | .19** |
| 5 | | | | | 1.00 | .52** | .37** | .24** | -.03 | -.12** | -.30** | -.06 | -.20** | .00 | .22** |
| 6 | | | | | | 1.00 | .41** | .38** | -.04 | -.21** | -.40** | .003 | -.05 | .04 | .31** |
| 7 | | | | | | | 1.00 | .23** | .05 | -.01 | -.20** | .20** | -.10** | .01 | .16** |
| 8 | | | | | | | | 1.00 | .15** | -.002 | -.03 | .16** | -.06 | -.11** | .06 |
| 9 | | | | | | | | | 1.00 | .28** | .34** | .20** | -.18** | -.36** | -.26** |
| 10 | | | | | | | | | | 1.00 | .36** | .24** | -.26** | -.42** | -.48** |
| 11 | | | | | | | | | | | 1.00 | .19** | -.14** | -.35** | -.42** |
| 12 | | | | | | | | | | | | 1.00 | .02 | -.09* | -.24** |
| 13 | | | | | | | | | | | | | 1.00 | .51** | .22** |
| 14 | | | | | | | | | | | | | | 1.00 | .40** |
| 15 | | | | | | | | | | | | | | | 1.00 |

1: Achievement; 2: Dominance; 3: Endurance; 4: Order; 5: Intraception; 6: Nurturance; 7: Affiliation;

 8: Heterosexuality; 9: Exhibition; 10: Autonomy; 11: Aggression; 12: Change; 13: Succorance; 14: Abasement; 15: Deference

## Inferential Statistics

The data were examined for normality using normal Q-Q plots, his-

togram graphics with normal distribution, skewness and kurtosis. These parameters indicate normal distributions of all variables of interest. As aforementioned, 17 significant outliers were found using standard $z$ values. Cases with a standardized scores in excess of 3.29 ($p<.001$, two-tailed test) were outliers and deleted. Correlations between the variables ($r \leq .90$) showed that there was no multicollinearity (Tabachnick, & Fidell, 2007).

Psychological Need Differences among Bully, Victim, Bully-Victim, and Non-Bully-Victims

General Linear Model (GLM) MANOVA show that there are significant differences between "pure-victims," "pure-bullies," "bully-victims," and "non-bully-victims" according to the self-reported psychological need scores ($\Lambda=.87$, $F=2.08$, *Hypothesis df*=45, $\eta^2=.046$, $p=.000$). There was no significant interaction between sex and cyber bullying affiliation on psychological needs ($\Lambda=.93$, $F=1.04$, *Hypothesis df*=45, $\eta^2=.024$, $p=.398$). A Bonferroni multiple comparison test was performed to explore specific differences between groups.

GLM MANOVA and Bonferroni tests showed that non-bully-victims ($M=48.22$, $SD=10.98$) reported significantly more endurance than pure-victims ($M=45.78$, $SD=10.18$) and bully-victims ($M=43.43$, $SD=11.64$), ($F(3, 658)=6.55$, $p=.000$).

Bully-victims ($Mi=44.68$, $SDi=11.83$; $Mn=46.42$, $SDn=10.33$) self-reported significantly less intraception and nurturance than both pure victims ($Mi=49.12$, $SDi=10.62$; $Mn=49.92$, $SDn=11.18$) and non-bully-victims ($Mi=49.02$, $SDi=10.82$; $Mn=50.66$, $SDn=11.61$), ($F(3, 658)=7.10$ and $5.81$, $p=.001$, respectively).

Non-bully-victims ($M=47.03$, $SD=15.74$) showed significantly more affiliation than bully-victims ($M=39.46$, $SD=18.32$), ($F(3, 658)=6.32$, $p=.000$).

Finally, bully-victims ($M=52.42$, $SD=10.56$) self-reported significantly more aggression than both pure-victims ($M=47.85$, $SD=9.68$) and non-bully-victims ($M=48.59$, $SD=9.86$), ($F(3, 658)=7.96$, $p=.000$). No significant differences among groups in terms of other psychological needs were found.

*Stepwise Regression Analysis: Psychological Needs as Predictors of Cyber bullying*

To examine the predictive power of psychological needs on cyber bullying, a stepwise regression analysis was performed using SPSS 15. In the first analysis, engagement in cyber bullying (as perpetrator) was the dependent variable and the 15 need scales were the independent variables. Three models were extracted as the result of analysis. In the first model, intraception ($\beta$=-.18) was the only variable that predicted engagement in cyber bullying ($R^2$=.031, $F$(1, 664)=22.07, $p$=.000). In the second model, intraception ($\beta$=-.14) and aggression ($\beta$=.12) predicted engagement in cyber bullying ($R^2$=.042, $F$(2, 663)=15.56, $p$=.000). In the third model, intraception ($\beta$=-.12), aggression ($\beta$=.14) and succorance ($\beta$=.10) predicted engagement in cyber bullying ($R^2$=.049, $F$(3, 662)=12.53, $p$=.000).

In the second analysis, exposure to cyber bullying (as victim) was the dependent variable and the fifteen need scales were independent variables. Four models were extracted as the result of analysis. In the first model, endurance ($\beta$=-.13) predicted exposure to cyber bullying ($R^2$=.017, $F$(1, 664)=12.21, $p$=.001). In the second model, endurance ($\beta$=-.12) and affiliation ($\beta$=-.12) predicted exposure to cyber bullying ($R^2$=.028, $F$(2, 663)=10.70, $p$=.000). In the third model, endurance ($\beta$=-.09), affiliation ($\beta$=-.14) and change ($\beta$=.10) predicted exposure to cyber bullying ($R^2$=.036, $F$(3, 662)=9.17, $p$=.000). In the fourth model, endurance ($\beta$=-.13), affiliation ($\beta$=-.16), change ($\beta$=.11) and order ($\beta$=.10) predicted exposure to cyber bullying ($R^2$=.041, $F$(4, 661)=8.08, $p$=.000).

In the third analysis, the probability of engaging in cyber bullying in the future (as perpetrator) was the dependent variable and the 15 need scales were independent variables. Four models were extracted. In the first model, aggression ($\beta$=.17) predicted possible future engagement in cyber bullying ($R^2$=.026, $F$(1, 664)=18.93, $p$=.000). In the second model, aggression ($\beta$=.14) and affiliation ($\beta$=-.12) predicted possible future engagement in cyber bullying ($R^2$=.039, $F$(2, 663)=14.34, $p$=.000). In the third model, aggression ($\beta$=.14), affiliation ($\beta$=-.10) and heterosexuality ($\beta$=-.08) predicted possible future engagement in cyber bullying ($R^2$=.044, $F$(3, 662)=11.20, $p$=.000). In the fourth model, aggression ($\beta$=.14), affiliation ($\beta$=-.09), heterosexuality ($\beta$=-.08) and endurance ($\beta$=-.08) predicted possible future engagement in cyber bullying ($R^2$=.049, $F$(4, 661)=9.49, $p$=.000).

In addition to psychological needs, previous engagement in cyber bullying ($\beta$=.51) and exposure to cyber bullying ($\beta$=.10) predicted the likelihood of being a cyber bully in the future ($R^2$=.31, $F$(2, 663)=150.82, $p$=.000).

## Discussion

In this study, the rate of cyber victims exceeded the rate of cyber bullies. This finding is consistent with the recent findings of Hinduja and Patchin (2008), Li (2007a), and Raskauskas and Stoltz (2007). Males engaged in cyber bullying more than females, but females were exposed to cyber bullying more frequently than males. Harman, Hansen, Cochran and Lindsey (2005), Li (2006), and Smith et al. (2008) report similar findings in their studies. They reported that males engaged in cyber bullying more frequently than females. However, this is a comparative outcome finding. While males may report more engagement in bullying than females, females may engage in indirect bullying (Hara, 2002) and relational aggression (Anderson, & Sturm, 2007; Crick, & Grotpeter, 1995). Chibbaro (2007) stated this reality as "cyber bullying behaviors also can be both direct and indirect" and Mason emphasized this difference between males and females in cyber bullying.

There were also significant differences in psychological needs between non-bully-victims, pure-victims, pure-bullies, and bully-victims. However, there was not a significant interaction between these groups, gender and psychological needs. Non-bully-victims reported more endurance than pure-victims and bully-victims. Endurance was the only variable that predicted exposure to cyber bullying. When endurance scores increased, exposure to cyber bullying decreased. Rahey (2007) also found that increased friendship endurance was associated with decreased physical victimization. Another consistent finding in the current study is that endurance was a negative predictor of possible future engagement in cyber bullying. Thus, we may consider endurance as a negative psychological characteristic related to cyber bullying.

Bully-victims reported less intraception and nurturance than both pure-victims and non-bully-victims. Intraception and nurturance are concepts closely related to empathy. In fact, Munro, Bore and Powis (2005) equate intraception with empathy (p. 50). And Batson, Lisher, Cook, and Sawyer (2005) define nurturance as the basis for empathic feelings. Crothers and Kolbert (2008) suggest that students who frequently bully are likely to receive parenting with little nurturance, along with discipline that is physical and severe. It is therefore possible that because pure-victims and non-bully-victims have high intraception, empathy, and nurturance, they do not engage in cyber bullying.

Another consistent finding in the current study was that non-bully-victims reported more affiliation than bully-victims. Affiliation predicted exposure to cyber bullying (victimization) and the possibility of engaging in cyber bullying in the future. Pellegrini and Bartini (2002) suggest that social affiliation is an inhibitor of victimization. Affiliation has a protective effect on bullying and victimization. Regular internet users use the internet to establish social networks and to connect with others ("Danger online," 2007). Thus, the internet gratifies their need for affiliation.

Another expected finding was that bully-victims reported significantly more aggression than both pure-victims and non-bully-victims. We expected to see this difference in favor of bullies. In fact, pure-bullies' aggression scores were higher than all other groups. However, no significant difference could be found between pure-bullies and the other groups. One possible explanation for this result was that the number of pure-bullies in the sample was relatively small (n=20). According to Tabachnick and Fidell (2007), as small group size increases the standard error in the MANOVA restrains the statistical difference.

We know from the literature that there is a strong relationship between aggression and cyber bullying (Beran, & Li, 2005; Chisholm, 2006; David-Ferdon, & Hertz, 2007; Harman et al., 2005; Willard, 2007). In the current study, aggression predicted concurrent engagement in cyber bullying (as perpetrator), and the possibility of engaging in cyber bullying in the future. These findings provide a reasonable explanation for the unexpected MANOVA finding mentioned above.

Another interesting finding was that succorance positively predicted engagement in cyber bullying. As expected, cyber bullies may need attention. By showing aggressive and manipulative behaviors on cyberspace, they can gratify their need for superiority. According to Stover (2006, p. 41), adolescents use social network sites such as Facebook, MySpace or Xanga "to build their social status by cozying up to those who are higher up on the social ladder than they are themselves-and trying to denigrate or exclude others." Adolescents find the attention or sympathy they could not find in their off-line daily life, by engaging in cyber bullying.

Finally, as expected, previous engagement in cyber bullying and exposure to cyber bullying predicted the likelihood of being a cyber bully in future. Thus, previous engagement in cyber bullying is a strong predictor of cyber bullying behaviors in the future.

## Conclusion

This study is a preliminary assessment of the relationship between cyber bullying and psychological needs among college students. Prior to this study, there was little theoretical background in this area of research. This study sought to fill this gap. The results of this study indicate that aggression and succorance positively predict cyber bullying whereas intraception negatively predicted it. Endurance and affiliation negatively predicted cyber victimization. Only the "change need" positively predicted cyber victimization. One limitation of the study is the homogeneous nationality and socio-economic background of the participants. Replication and comparative studies are therefore needed. However, in light of the existing literature and the findings of the current study, aggression and intraception should be pursued in future research on cyber bullying.

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