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Anonymity and Gender Effects on Online Trolling and Cybervictimization

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Abstract

The purpose of this study was to investigate the effects of the anonymity of the internet and gender differences in online trolling and cybervictimization. A sample of 151 college students attending a southeastern university completed a survey to assess their internet activities and online trolling and cybervictimization. Multivariate analyses of logistic regression and ordinary least squares regression were used to analyze online trolling and cybervictimization. The results indicated that the anonymity measure was not a significant predictor of online trolling and cybervictimization. Female students were less likely than male students to engage in online trolling, but there was no gender difference in cybervictimization. In addition, the total hours spent on the internet increased the likelihood of the decision of college students to participate in online trolling, but not cybervictimization. Further implications for research related to online trolling and risk factors are discussed.

Keywords

Cyberdeviance, online trolling, cybervictimization, anonymity, gender difference, college students

Cover Page Footnote

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Abstract— **The purpose of this study was to investigate the effects of the anonymity of the internet and gender differences in online trolling and cybervictimization. A sample of 151 college students attending a southeastern university completed a survey to assess their internet activities and online trolling and cybervictimization. Multivariate analyses of logistic regression and ordinary least squares regression were used to analyze online trolling and cybervictimization. The results indicated that the anonymity measure was not a significant predictor of online trolling and cybervictimization. Female students were less likely than male students to engage in online trolling, but there was no gender difference in cybervictimization. In addition, the total hours spent on the internet increased the likelihood of the decision of college students to participate in online trolling, but not cybervictimization. Further implications for research related to online trolling and risk factors are discussed.**

Keywords— Cyberdeviance, online trolling, cybervictimization, anonymity, gender difference, college students

I. INTRODUCTION

Social media usage among college students in the United States remains a growing phenomenon that has gained much attention in the last two decades. Social media, particularly social networking sites, have attracted millions of users who have integrated this revolutionary technology into everyday life [1]. This new type of technology has spawned a radical new generation known as "digital natives," a term specifically referring to individuals currently enrolled in college and who possess a better understanding of how to use and manipulate technology, including the use of social media [2].

Having the ability to communicate with other individuals via social media can be incredibly beneficial. However, the online environment gives these digital natives the opportunity to provide anonymity that promotes the act of unbefitting behavior online. Specific users who have been identified as online trolls display characteristics of being impolite and rude, and lacking civility in the online environment [3]. In addition, online trolling behaviors are deliberate and deceptive attempts to provoke reactions from other users [4]. The rate of online trolling has become more prevalent in online communities, making it a universal problem [5]. Researchers have found that online trolling is prevalent among students in higher education [5, 6, 7].Undergraduate and graduate students are common and highly frequent users of technology. The high levels of personal information that are exposed via social media and the internet make them more susceptible to being the targets of online trolling.

Many college students disclose physical locations in specific places, allowing trolls to access their whereabouts. College students are so comfortable with technology they tend to be less self-conscious about the personal information that they provide via social media. The users of social media (i.e., Twitter, Instagram, Facebook, etc.) encourage creating profiles that require disclosing such information. For instance, on Facebook, users are able to provide their age, profile picture, birthday, sex, and relationship status. Sharing this type of information increases the risks of victimization in terms of stalking, identity theft, and internet trolling [8, 9, 10]. Although posting personal information on the internet creases the risk of victimization, perceived anonymity on the Internet use leads to the development of positive attitudes toward online trolling and predicts actual online aggressive behaviors [see 11, 12, 13]. However, few of these studies have tested the effects of perceived anonymity on the Internet on online trolling behaviors and cybervictimization among the young adult population. Thus, the present study examined the effects of anonymity and internet use on online trolling and cybervictimization among college students attending a southeastern university.

II. LITERATURE REVIEW

A. The Nature of Online Trolling and Cybervictimization among College Students

Online trolling is "a deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose" [3]. Online trolling may occur because individuals are bored, want attention, wish to have fun, or want to cause some sort of damage to the community [4]. In addition, individuals who have risky online lifestyles are more likely to engage in and to experience cyber-interpersonal violence [14]. Online trolling tendencies typically make other people feel angry and hurt, and may force them into silence to disconnect

from the public; unfortunately, online trollers tend to underestimate the pain that others may be experiencing [15, 16].

Reference [5] found that 70% of the college students in their study had engaged in online trolling and cybervictimization at least once in the previous week. In an online trolling study at a business college, the analysis of trolling quantity indicated that college students were victimized more than once per month and witnessed an average of 33 trolls per month of others [6].

B. The Anonymity/Sensitive Information Online Posting, Online Trolling, and Cybervictimization

Anonymity refers to the condition of being unknown to others to avoid personal identification [17]. The anonymity of the internet remains one of the most discussed concepts positively correlated with online aggressive behaviors [11, 12, 18]. In most cases, when trollers contact the victims anonymously, the trolling may potentially be more aggressive [9, 10, 19] Anonymity can produce harm and fear in the victims because they are unable to identify the trollers, making it much more difficult to confront them. In addition, if trollers have high anonymity, it becomes more difficult for trollers to face the consequences of their online behavior [14].

However, it appears that the effect of anonymity is complex, as the anonymity of the internet user can be a preventive factor of cybervictimization. High anonymity, which entails having less personal information on the internet, results in less cybervictimization [8, 20, 21]. Sharing personal information and pictures on social media supplies opportunities for victimization and increases the odds of cybervictimization [20, 22].

C. Gender Differences in Online Trolling and Cybervictimization

Because of the uniqueness of online trolling, there has been scant research on the gender difference in online trolling among college students [23]. Prior research on adolescents' cyberbullying behaviors has found the relationships between cyberbullying perpetration and cybervictimization to be unclear. Some researchers have asserted that male students, more so than female students, are more likely to engage in cyberbullying [24, 25], whereas other researchers have found no gender differences in the commission of cyberbullying [26, 27]. Studies on cybervictimization have also had mixed results on gender differences. Some results of studies on cybervictimization among college students have shown that female college students were more likely to experience online trolling/cyberbullying through threats; blackmail; dirty stories told about them; personal stories told about them; comments about their physical appearance (being overweight, too dark, and the way they dressed) and sexual comments [28, 29]. Reference [25] conversely argued that male students were more likely than female students to be victimized in cyberspace. This study helps to reconcile these inconsistent findings in previous research regarding gender differences in online aggressive behaviors and cybervictimization.

D. Hypothesis

The current study investigated the effects of anonymity and gender on online trolling behavior and cybervictimization. The hypotheses regarding these relationships follow:

Hypothesis 1.1. Students who do not reveal their real names (anonymity) in online activities are more likely to engage in online trolling than students who reveal their real names.

Hypothesis 1.2. Students who do not reveal their real names (anonymity) in online activities are less likely to be victimized by online trollers in cyberspace than students who reveal their real names.

Hypothesis 2.1. Female students are less likely than male students to engage in online trolling.

Hypothesis 2.2. Female students are more likely than male students to be victimized by online trollers in cyberspace.

III. METHODS

A. Data

The current study used a convenience sample of 151 students attending a southeastern university. Survey questionnaires were administrated in five undergraduate and graduate classes from three different academic departments over 2 semesters. A total of 173 survey questionnaires were distributed; 151 were completed, and 22 were returned blank (response rate = 87%). The mean age of the participating students was 27.2 years (range of 17- 57 years). Of the whole sample, 58.9% (n = 89) were female students, and 31.1% (n = 47) were male students. Three students chose the response "prefer not to answer," and 12 refused to answer this question. The majority of students in the sample self-identified as White (55.6%, n = 84), African American (20.5%, n = 31), Hispanic (6.6%, n = 10), "Other" (6.0%, n = 9), or Asian (3.3%, n = 5). Twelve students refused to answer this race/ethnicity question.

B. Procedure

The research procedure and the survey questionnaire for the current study were approved by the appropriate institutional review board (IRB) authorities for administration. Before distributing the survey questionnaires, the researchers informed the student that their participation in the study was voluntary and that if they became upset by any of the questions, they could stop completing the survey at any time or choose not to answer any of the questions. The students also were informed their participation was anonymous and that completing the survey would not require the collection of any personal identifiers (i.e., name, address, or phone number).

C. Measurements

1) Dependent Variables

a) Online trolling

The researchers used a revised version of the Global Assessment of Internet Trolling (GAIT) [3, 30] to measure the college students' online trolling. The participants were asked to answer eight survey statements about online trolling using a 5-point Likert scale of responses ranging from 1 (strongly disagree) to 5 (strongly agree):

1. I have trolled people in comment sections or news feeds on the internet (e.g., social media, news sites, etc.),

2. I have shared or sent disturbing or controversial material on the internet for the lulz (i.e., for the laughs).
3. I enjoy upsetting people I do not personally know on the.
4. The more beautiful and pure a thing is, the more satisfying it is to corrupt.
5. Although some people think my posts/comments are offensive, I think they are funny.
6. I say what I like, and if people can't handle it, it's just because they can't handle the truth.
7. The more beautiful and pure a thing is, the more satisfying it is to spoil.
8. I have sent people to shock websites for the lulz.

Cronbach's alpha coefficient of the eight online trolling items was 0.84. To create a composite scale of online trolling, items were summed, such that higher scores indicate higher levels of online trolling.

b) Ever tried to troll someone:

Ever tried to troll someone was a dichotomous measure. Because most of the participating students reported that they did not engage in online trolling, the survey included this dichotomous online trolling question. After giving the participants the definition of online trolling [3], they were asked to indicate "Since you have been to college, have you ever tried to troll someone else?" This variable was coded 0 = No and 1 = Yes.

c) Cybervictimization

The revised Cyber Bullying Inventory, Victim subscale [31, 32] was used to measure cybervictimization. The participants were asked to indicate on 14 separate items whether or not they had engaged in cybervictimization: "Never (= 0), Once (= 1), Two or three times (= 2), or More than three times (= 3)":

1. Stealing of personal information from computer (like files, email addresses, pictures, IM messages, or Facebook info).
2. Stealing of computer nicknames or screen names.
3. Threatening in online forums (like chat rooms, Facebook or twitter).
4. Insulting in online forums (like chat rooms, Facebook or twitter).
5. Excluding in online forums by blocking others' comments or removing them.
6. Slander by posting fake photos on the internet.
7. Sharing private internet conversations without the other's knowledge (such as chatting with a friend on Skype with other(s) in the room).
8. Making fun of comments in online forums (such as Facebook),
9. Sending threatening or hurtful comments through email.
10. Stealing email access (usernames and passwords) and blocking true owner's access.
11. Stealing email access and reading personal messages.
12. Sending threatening and or hurtful text messages.
13. Misleading by pretending to be other gender (male/female).
14. Published online an embarrassing photo without permission.

Cronbach's alpha coefficient of the 14 cybervictimization items was 0.82. These 14 items were summed, such that higher scores indicate higher levels of cybervictimization.

d) Ever been trolled

Ever been trolled was a dichotomous measure. After giving the participants the definition of online trolling [3], they were asked to indicate "Since you have been to college, have you ever been trolled?" This variable was coded 0 = No and 1 = Yes.

2) Independent Variables

a) Anonymity

The participants were asked to indicate whether or not they had posted 15 separate items of personal information online: age or birthday, gender, pictures of you, telephone number, home address, email address, school name, employer, or company you work for, videos of you, your real name, your political party or political affiliation, goals/aspirations, sexual information, emotional/mental distresses, and family conflicts. For this study, only one item, "Your Real Name," was used to measure anonymity (0 = posting real name, 1= not posting real name) [19].

b) Gender

The participating students indicated their gender as male, female, or prefer to not answer. A total of 58.9% of the 151 participants were female students (n = 89), and 31.1% were male students (n = 47). Three students (2%) selected the answer choice of "prefer to not answer." Twelve students (7.9%) did not answer this question. The gender variable was coded 0 = male and 1 = female.

3) Control Variables

a) Total hours on the internet

Some researchers have found that the more time that users spend on the internet, the more likely they are to participate in cyberaggressive activities and be victimized [6, 33]. The participants were asked, "How many total hours a day do you spend on the internet?"

b) Race

Race was a dichotomous measure. A total of 55.6% (n = 84) of the students self-identified as White, 20.5% (n = 31) African American, 6.6% (n = 10) Hispanics, 3.3% (n = 5) Asian, and 6.0% (n = 9) Other. Twelve students (7.9%) did not answer this question. Because of the relatively small sample size in each racial group, all minority race/ethnic groups were collapsed into one minority category for the analysis. This race variable was coded 1 = White, 0 = All Other Race/Ethnicity.

D. Data Analyses

The methods used to analyze the data were correlations, ordinary least squares (OLS) regressions on composite scales of online trolling and cybervictimization, and logistic regression on the dichotomous measures of ever tried to troll someone (online trolling) and ever been trolled (cybervictimization). This research used a zero-order correlation method to see if there were any bivariate relationships between the variables in this study. Two OLS regressions for online trolling and cybervictimization and two logistic regressions for the dichotomous measures of online trolling and cybervictimization were used to investigate the effects of anonymity and gender after controlling for the total hours spent on the internet and the race variable.

IV. RESULTS

Prior to analyzing the zero-order correlations, the means and standard deviations (see Table 1) were assessed for the study variables: online trolling (M = 12.11, SD = 5.29), ever tried to troll someone (M = 0.13, SD = 0.33), cybervictimization (M = 3.09, SD = 4.81), ever been trolled (M = 0.36, SD = 0.48), anonymity (M = 0.21, SD = 0.41), gender (M = 0.65, SD = 0.48), total hours on the internet (M = 5.61, SD = 3.48), and race (M = 0.60, SD = 0.49). The one thing to note is that the mean of a binary dichotomous variable is the proportion of the category coded as 1. Therefore, the mean of 0.13 for the variable of ever tried to troll someone indicated that 13% of students in the sample had ever tried to troll someone while they were in college. The mean of 0.36 for the variable of ever been trolled indicated that 36% of students in the sample have ever been trolled. The mean anonymity of 0.21 showed that 21% of students did not post their real names on social media websites or other online accounts.

The correlation analyses (see Table 1) showed statistically significant correlations between online trolling and cybervictimization. Online trolling was significantly related to cybervictimization (r = .46, p < .01) and ever been trolled (r = .24, p < .01). Additionally, the variable of ever tried to troll someone was significantly associated with cybervictimization (r = .24, p < .01) and ever been trolled (r = .47, p < .01). Gender (being female) was negatively and significantly correlated to

online trolling (r = -.21, p < .01) and ever tried to troll someone (r = -.27, p < .01). The variable of total hours on the internet was significantly related to online trolling (r = .26, p < .01) and ever tried to troll someone (r = .25, p < .01). However, anonymity and race were not significantly correlated to any dependent variables.

Table 2 presents OLS regression models of online trolling and cybervictimization. The results indicated that gender and total hours on the internet significantly predicted online trolling. Female students were less likely than male students to engage in online trolling (b = 2.20, p < .05), and the more hours spent on the internet, the more likely it was for users to be involved in online trolling (b = 0.33, p < .05). Anonymity, however, did not have a significant effect on online trolling (b = -0.27, n/s). Race was not a significant predictor of online trolling (b = -0.26, n/s). The second column of Table 2 displays the regression model of cybervictimization. The results of the cybervictimization model suggested that anonymity, gender, total hours on the internet, and race were not significant predictors of cybervictimization among college students.

Two logistic regression analyses were conducted to examine the effects of anonymity and gender on ever tried to troll (online trolling) and ever been trolled (cybervictimization; see Table 3). The results were somewhat similar to those in Table 2. Anonymity was not a significant predictor of online trolling (b = 1.37, OR [odds ratio] = 3.91, n/s). Gender had a significant effect on online trolling (b = -2.54, OR = 0.08, p < .01).

Female students were about 13 times less likely than male students to engage in online trolling. Total hours on the internet significantly predicted online trolling behavior (b = 0.32, OR = 1.37, p < .01). If students spent one more hour on the internet, the odds of online trolling increased by 1.37 times. Race was a significant predictor of online trolling (b = 2.30, OR = 9.95, p < .05). White students were 9.95 times more likely than other racial groups of students to try to troll someone on the internet. In the second column of Table 3, all four variables in the model did not significantly predict the cybervictimization variable of ever been trolled.

TABLE I. MEANS, S.D., AND CORRELATION MATRIX FOR STUDY VARIABLES

		M	SD	N	1	2	3	4	5	6	7	8
1	**Online trolling**	12.11	5.29	145	1.00							
2	**Ever tried to troll someone**	0.13	0.33	142	0.52 **	1.00						
3	**Cyber victimization**	3.09	4.81	141	0.46 **	0.24 **	1.00					
4	**Ever been trolled**	0.36	0.48	143	0.24 **	0.47 **	0.31 **	1.00				
5	**Anonymity**	0.21	0.41	151	0.03	0.16	-0.04	-0.01	1.00			
6	**Gender (Female =1)**	0.65	0.48	136	-0.21 **	-0.27 **	-0.03	0.02	-0.09	1.00		
7	**Total hours on the Internet**	5.61	3.48	140	0.26 **	0.25 **	0.10	0.02	0.02	-0.02	1.00	
8	**Race (White =1, Other =0)**	0.60	0.49	139	-0.09	0.02	-0.01	0.01	-0.19 *	-0.02	-0.33 **	1.00

TABLE 2. OLS REGRESSION ANALYSIS ON ONLINE TROLLING BEHAVIOR SCALE AND CYBERVICTIMIZATION SCALE

	Online Trolling Behavior (n=132)				Cybervictimization (n=130)			
	B	S.E.	Beta	t	B	S.E.	Beta	t
Anonymity (=1)	-0.27	1.13	-0.02	-0.24	-0.30	1.18	-0.02	-0.25
Gender (Female =1)	-2.20	0.87	-0.21	-2.54 *	-0.41	0.92	-0.04	-0.45
Total hours on the internet	0.33	0.13	0.22	2.53 *	0.19	0.14	0.13	1.42
Race (White =1, Other=0)	-0.26	0.90	-0.03	-0.29	0.08	0.95	0.01	0.08
Constant	11.67	1.30		9.01 ***	2.26	1.37		1.66
R²	0.101				0.019			
F statistic	3.577 (4, 127)				.607 (4, 125)			

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

TABLE 3. LOGISTIC REGRESSION ANALYSIS ON EVER TRIED TO TROLL SOMEONE AND EVER BEEN TROLLED

	Ever tried to troll someone (n=129)				Ever been trolled (n=130)			
	B	SE	Wald	OR	B	SE	Wald	OR
Anonymity (=1)	1.37	0.77	3.11	3.91	-0.11	0.51	0.04	0.90
Gender (Female =1)	-2.54	0.83	9.41	0.08 **	-0.02	0.39	0.00	0.98
Total hours on the internet	0.32	0.10	9.63	1.37 **	0.02	0.06	0.06	1.02
Race (White =1, Other=0)	2.30	1.04	4.87	9.95 *	0.20	0.41	0.25	1.22
Constant	-5.02	1.37	13.36	0.01 ***	-0.81	0.59	1.92	0.44
-2 log likelihood	59.657				167.353			

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

V. DISCUSSION AND CONCLUSION

A. Discussion

The purpose of the current study was to investigate the effects of anonymity and gender on online trolling and cybervictimization among college students. One of 10 students (10%) who completed the survey had tried to troll someone, and more than one-third (36%) had been trolled. Regarding hypothesis tests, the results supported Hypothesis 2.1 those female students were less likely than male students to engage in online trolling. This finding was consistent with those in the previous studies [23, 24, 25]. Male students were found to be more aggressive than female students and more likely to be perpetrators of online trolling. Female students were more concerned about online trolling such as cyber harassment than male students were [34, 35]. However, no significant gender difference in cybervictimization was found. This finding was inconsistent with the previous studies [25, 28, 29] that indicated college women are more likely to be victims of cyberbullying. The potential reasons for this inconsistent finding are women spend more time on the internet [29] and prefer to ignore discussions with trolls [23]. Therefore, women are less likely to engage in online trolling activities, but gender differences in cybervictimization are apparently negligible if women increase their online activities. Further research should be done to better understand gender differences in online trolling and cybervictimization.

Anonymity also was not a significant predictor of online trolling or cybervictimization. This finding contradicted previous research that the anonymity of the internet increased the likelihood of online aggressive behaviors [11, 18]. The college students in this study might have been more aware of as well as less affected by the anonymity of the internet. Online trolling and cybervictimization do not rely on whether the online users post large amounts of revealing information on the Internet. College students who do not reveal their real names or post other personal information on social media sites may not engage in online activities frequently [21]. Consequently, they are less likely to be online trollers or victims.

In addition to examining the effect of gender and internet anonymity on online trolling and cybervictimization, the researchers of the current study also examined total hours spent on the internet and race/ethnicity differences as covariates. Total hours spent on the internet was a strong predictor of online trolling. More hours spent on the internet resulted in more frequent online trolling. Students who were bored, were seeking attention and wanted to have fun, spend more time on the internet and present online trolling [4]. Race was not a significant predictor of online trolling and cybervictimization in the current study. Racial differences in cyber perpetration and cybervictimization have been inconsistent. Very few researchers have found significant racial differences in cyber perpetration and cybervictimization [36, 37].

B. Conclusion

The current study examined the predictive variables relating to online trolling and cybervictimization. Multiple regressions were used for the revised Global Assessment of Internet Trolling [3, 30] and the revised Cyber Bullying Inventory, Victim subscale [31, 32]. In addition, logistic regressions were used for the dichotomous variables of ever tried to troll someone (online trolling) and ever been trolled (cybervictimization).

The results indicated that the female students were less likely to participate in online trolling and that more hours spent on the internet increased the likelihood of participating in online trolling. In addition, anonymity did not have a clear influence on online trolling and cybervictimization. Although this current study did not find any significant effects relating to cyber victimization among college students, the need for understanding the role of social media and the factors contributing to online trolling and cyber victimization among college students is imperative. The possibility of involvement in online trolling and cybervictimization would be monitored on the college campus, and further action should be taken to educate college students about the risk of online trolling and cybervictimization. However, given anonymity on the Internet has no significant effect on cybervictimization, officials on the college campus should focus on the patterns and frequencies of students' online activities that increase or decrease cybervictimization.

C. Limitations

One notable limitation of the current study was the use of a convenient sampling method. Data had been collected from students who attended criminal justice, psychology, and sociology courses at researchers' convenience. Therefore, the sample was not representative of the target population of college students, so generalizations about the results should be made cautiously.

Another limitation of the current study was the measure of anonymity. Anonymity is the condition of being unknown to others to avoid personal identification. Individuals can post their identifiers (age, gender, race, email, phone number, etc.) on the internet, but the current study used a single item of posting their real names as the anonymity measure. If the participants did

not post their real names online, it was considered. It should be noted that total anonymity on the internet can be difficult to measure. Future studies should develop an anonymity measure in social media, applications to get total anonymity on the internet.

The last limitation of the current study was the inability of the data to identify the environmental and social factors that make cyberspace more prone to online trolling. As previous research on online trolling has shown [4, 7, 14], online trolling can occur when individuals engage in risky online activities and can be prevented when individuals use technological tools to deter trolling. Future studies should focus on environmental and social factors to provide a better understanding of online trolling and cybervictimization.

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