

# The Relationship Between Young Adults' Beliefs About Anonymity and Subsequent Cyber Aggression

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## Abstract

Anonymity is considered a key motivator for cyber aggression, but few investigations have focused on the connection between anonymity and the subsequent engagement in aggression through the cyber context. The present longitudinal study utilized structural equation modeling to reveal indirect associations between two types of anonymity (i.e., punishment by authority figures and retaliation from the target) and later cyber aggression among 130 young adults. These relationships were examined through the influence of beliefs about not getting caught and not believing in the permanency of online content. Findings indicated that both forms of anonymity were related to cyber aggression 6 months later through two explanatory mechanisms (i.e., confidence with not getting caught and believing online content is not permanent), after controlling for gender and cyber aggression at Time 1. The implications of these findings are discussed, and an appeal for additional research investigating cyber aggression among young adults is given.

## Introduction

CYBER AGGRESSION AND CYBERBULLYING have sparked a surge of interest among researchers, educators, and parents alike. These investigations have provided valuable information to our growing knowledge of these phenomena, but little is known about the mechanisms contributing to such behaviors. Researchers<sup>1,2</sup> propose that the anonymity offered by the digital environment sometimes influences one's desire to engage in cyber aggression and cyberbullying. Mason<sup>1</sup> argued that anonymity creates disinhibition as a result of the distance provided by electronic communication, and therefore anonymity protects against the consequences of one's actions in cyberspace. Although scholars recognize the contribution of anonymity to the engagement in cyber aggression and cyberbullying, little empirical evidence exists corroborating this relationship.

Less evidence exists regarding factors that could explain the relationship between anonymity and subsequent cyber aggression. For instance, confidence with not getting caught and not believing in the permanency of online content may serve as mediators in this relationship.<sup>3-6</sup> The current study investigated anonymity in relation to young adults' cyber aggression assessed 6 months later, while also examining explanatory mechanisms in this relationship, such as confidence in one's ability not to get caught and beliefs about the permanency of online content. This longitudinal design will allow for a better understanding of the changes in young

adults' cyber aggression based on their earlier beliefs about anonymity.

## Cyber Aggression and Anonymity

Young adults use information and communication technologies (e.g., the Internet, gaming consoles, cell phones) at similar rates as adolescents, but little is known about their involvement in cyber aggression and cyberbullying.<sup>7</sup> Cyber aggression consists of cyberbullying behaviors, such as threats, insults, and rumor spreading, but it does not necessarily have to include an imbalance of power or repetition, making cyber aggression a broader form of aggressive behaviors via information and communication technologies.<sup>8-13</sup> Furthermore, cyber aggression includes behaviors that cannot happen face to face, such as hacking someone's Facebook account and sending hurtful messages to the person's friends, whereas cyberbullying involves behaviors that are usually extensions of face-to-face bullying in the cyber context. Thus far, only a few published studies exist on young adults' engagement in cyberbullying. In particular, Dilmac<sup>14</sup> found that 22.5% of young adults in a Turkish sample perpetrated cyberbullying at least once. Regarding victimization, Finn<sup>15</sup> found that 10-15% of young adults reported that they experienced e-mail and instant messenger victimization. Examining other technologies, Walker et al.<sup>11</sup> found that 45-56% of young adults experienced harassment via Facebook and cell phones. Clearly, these frequencies indicate that cyber aggression occurs often among young adults.

Researchers<sup>1-6</sup> are beginning to direct their attention to the mechanisms contributing to adolescents' and young adults' engagement in cyber aggression. One such hypothesized mechanism is anonymity, which affects the controllability of one's self-presentation and self-disclosure.<sup>16</sup> Researchers<sup>17-19</sup> argue that the anonymity of online communication encourages impulsive reactions, resulting in disinhibited behaviors, such as cyber aggression. When normal self-control is lost, anonymity may allow someone to avoid retaliation or the consequences of their actions, resulting in the belief that their behaviors are "masked" in the online environment.<sup>1</sup>

Even though researchers<sup>1,2,16,19</sup> have consistently argued that anonymity has a role in cyber aggression, there is scant empirical evidence regarding the linkage of young adults' beliefs about anonymity and subsequent cyber aggression. In the literature, adolescents are usually asked how often they were victimized by someone whose identity was unknown to them. In one study, Kowalski and Limber<sup>20</sup> surveyed middle school students ( $n=3,767$ ) and found that 48% of cyber-victimized adolescents were uncertain of the identity of the perpetrator. Other researchers<sup>21</sup> have reported that 69% of American adolescents were not sure of the identity of an online bully, whereas others<sup>22</sup> have found that 9% were unaware. Despite these variations, it is clear that cyber aggression does occur anonymously.

Certain explanatory mechanisms could help to clarify further the connection between beliefs about anonymity and cyber aggression. Researchers have found that individuals who engage in cyberbullying feel they are less likely to get caught in the digital environment than if they were to engage in these same behaviors face to face.<sup>3-5</sup> Thus, one's feelings regarding their confidence about not getting caught may help to explain the potential association between the beliefs about anonymity and subsequent cyber aggression. Furthermore, one's understanding about the permanency of online content may also shed light on the relationship between anonymity and later cyber aggression.<sup>6</sup> More specifically, someone who believes online content disappears may post a nasty message about someone because they believe this post will eventually disappear, erasing all evidence of how they acted.

Similar to anonymity, such explanatory mechanisms, for example confidence with not getting caught and not believing in the permanency of online content, have been understudied. To this end, the present study investigated the relationship between young adults' beliefs about anonymity and cyber aggression 6 months later by also examining the effects of two explanatory mechanisms—confidence with not getting caught and beliefs about the permanency of online content—on these associations. It was expected that both explanatory mechanisms would mediate the relationship between beliefs about anonymity and cyber aggression. This short-term longitudinal design will allow for a clearer understanding of the changes in young adults' cyber aggression based on their previously held beliefs about anonymity.

## Method

### Participants

Participants were 130 young adults (70 women) recruited from a Midwestern university. All participants were between the ages of 18 and 25 years ( $M=20.23$ ,  $SD=1.12$ ). Most par-

ticipants identified as Caucasian (65%), followed by Latino/a (21%), Asian (10%), and Black/African American (4%).

### Measures and procedures

After signing up for the study through the psychology subject pool, young adults were given a Web site address. On the Web site, they read a consent document, which explained that their participation was voluntary, their answers were confidential, and that they could stop participating at any time. After giving consent, they completed the following measures: background information (e.g., age, gender, ethnicity), self-reported cyber aggression, beliefs about anonymity, feelings about not getting caught, and attitudes toward the permanency of online content. At the end of the measures, participants were asked for their e-mail address, which was used to e-mail them an invitation to participate in the study 6 months later. Participants were told that it was up to them if they wanted to provide their e-mail address, that their e-mail address would remain confidential, and that all e-mail addresses would be deleted after data collection. There were 440 participants at time 1 and 176 (40%) provided their e-mail address.

Six months later, participants were sent an e-mail reminding them about their participation in the study. In the e-mail, participants were informed that they had agreed to provide their e-mail address and that it was up to them if they wanted to participate in the study again. Participants were given a Web site address directing them to the study. They completed background information and self-reported cyber aggression. Participants had 4 weeks to complete the measures. From the 176 participants from time 1 who provided their e-mail addresses, 130 completed the study at time 2. To determine whether there were no biases in attrition from time 1 to time 2,  $t$  tests were conducted for the variables in the current study between participants from time 1 only and those who participated at both time points. There were no significant differences in any of the investigated variables (Table 1).

**Cyber aggression.** This measure asked young adults how often (1="never"; 9="daily") they acted aggressively through information and communication technologies (ICTs)

TABLE 1. DESCRIPTIVE STATISTICS OF ALL VARIABLES AMONG PARTICIPANTS FROM TIME 1 ONLY AND PARTICIPANTS FROM BOTH TIME 1 AND TIME 2

	<i>Time 1 only participants</i>		<i>Time 1 and 2 participants</i>		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
T1 cyber aggression	2.52	1.76	2.48	1.73	0.23	0.82
Punishment	3.68	1.09	3.67	1.10	0.09	0.54
Retaliation	3.07	0.92	3.04	0.85	0.35	0.64
Permanency	3.33	1.07	3.25	1.06	0.75	0.77
Confidence	4.09	1.47	4.08	1.48	0.07	0.53

*Note.* T1, time 1; punishment, punishment from authority figure; retaliation, retaliation from target; permanency, permanency of online context; confidence, confidence with not being caught. The mean and standard deviation of time 2 cyber aggression for time 1 and time 2 participants were 2.61 and 1.81 respectively.

TABLE 2. CORRELATIONS AMONG CYBER AGGRESSION, PUNISHMENT FROM AUTHORITY FIGURES, RETALIATION FROM TARGET, PERMANENCY OF ONLINE CONTENT, AND CONFIDENCE WITH NOT BEING CAUGHT

	1	2	3	4	5	6
1. T1 cyber aggression	—					
2. T2 cyber aggression	0.70***	—				
3. Punishment	0.43***	0.49***	—			
4. Retaliation	0.35***	0.43***	0.26**	—		
5. Permanency	0.54***	0.48***	0.33***	0.30***	—	
6. Confidence	0.51***	0.52***	0.40***	0.33***	0.15*	—

Note. T1, time 1; T2, time 2. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

such as social networking sites, text messages, chat programs, and e-mail.<sup>23,24,25</sup> There were six questions, including “How often do you gossip about others through ICTs?” and “How often do you insult another person through ICTs?” Confirmatory factor analysis (CFA) revealed that these items were significant with standardized factor loadings (time 1: 0.80, 0.81, 0.58, 0.65, 0.64, and 0.70; time 2: 0.82, 0.82, 0.59, 0.63, 0.64, and 0.71).

**Beliefs about anonymity.** Participants rated two statements (1 = “strongly disagree”; 5 = “strongly agree”) pertaining to their beliefs about anonymity, including punishment by authority figures (i.e., “By being anonymous, I do not fear that these behaviors can lead to me being punished by authority figures”) and retaliation from the target (i.e., “By being anonymous, I do not fear that these behaviors can lead to retaliation by the target of the behaviors”). Both types of anonymity were correlated ( $r = 0.26$ ,  $p < 0.01$ ), but were left as separate items.

**Permanency of online content.** To assess the permanency of online content, participants rated the following statement (1 = “strongly disagree”; 5 = “strongly agree”): “I do not believe that anything you say or write about another person on the internet stays in ‘cyberspace’ in some form. That is, if someone does something mean to someone else on the internet it ‘goes away’.”

**Confidence with not getting caught.** Participants read a description of cyber aggression and then rated the following statement (1 = “not confident at all”; 7 = “complete confi-

dence”): “I am confident that I will not be caught when engaging in these behaviors through information and communication technologies.”

## Results

CFA showed that cyber aggression (both time 1 and time 2) was well measured with significant factor loadings ( $\chi^2 = 29.96$ ,  $df = 9$ ,  $p < 0.01$ , CFI = 0.95, TL = 0.90, RMSEA = 0.04, SRMR = 0.04). Means and standard deviations are included in Table 1, and correlations among all variables are included in Table 2. Correlational results indicated that all investigated variables were associated. The hypotheses were tested using structural models with gender and time 1 (T1) cyber aggression as covariates (using Mplus 6.12). The model fits the data adequately ( $\chi^2 = 66.65$ ,  $df = 36$ ,  $p < 0.001$ , CFI = 0.95, TL = 0.92, RMSEA = 0.04, SRMR = 0.04; see Fig. 1). A second model was also estimated with direct paths added from each type of anonymity to time 2 (T2) cyber aggression, but there was no significant improvement in this model over the first ( $\Delta\chi^2 = 5.43$ ,  $\Delta df = 2$ ,  $p = 0.88$ ). As a result, the model without the direct paths was retained because it was more parsimonious.

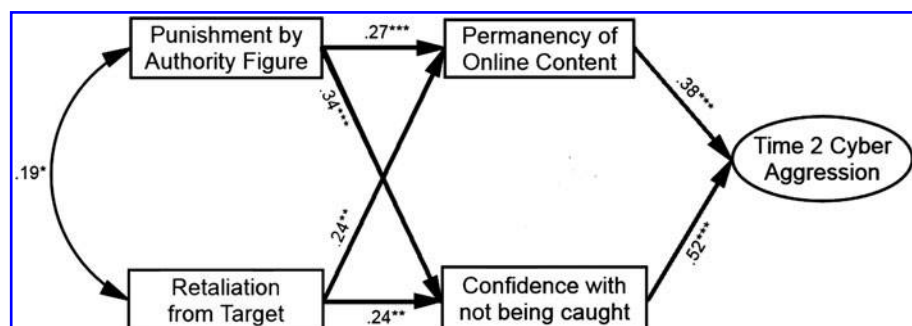
Both types of anonymity were related positively to not believing in the permanency of online content ( $\beta = 0.27$ ,  $p < 0.001$  for punishment by authority figures;  $\beta = 0.24$ ,  $p < 0.01$  for retaliation from the target) and confidence in one’s ability to not get caught ( $\beta = 0.34$ ,  $p < 0.001$  for punishment by authority figures;  $\beta = 0.24$ ,  $p < 0.01$  for retaliation from the target). Additionally, T2 cyber aggression was associated positively with believing online content is not permanent ( $\beta = 0.38$ ,  $p < 0.001$ ) and feeling confident that one will not be caught ( $\beta = 0.52$ ,  $p < 0.001$ ). Gender was not significantly associated with T2 cyber aggression, after controlling for T1 cyber aggression.

Another interest was in two indirect effects on the relationship between anonymity and T2 cyber aggression. Sobel tests revealed that both types of anonymity were associated positively with T2 cyber aggression through the link of confidence in not getting caught ( $\beta = 0.18$ ,  $p < 0.001$  for punishment by authority figures;  $\beta = 0.13$ ,  $p < 0.01$  for retaliation from target) and believing online content is not permanent ( $\beta = 0.10$ ,  $p < 0.01$  for punishment by authority figures;  $\beta = 0.09$ ,  $p < 0.01$  for retaliation from target).

## Discussion

This study is one of the first to investigate two forms of anonymity (i.e., punishment from authority figures and

FIG. 1. Standardized structural model results. Note. Gender and Time 1 cyber aggression were controlled for in the model. For gender, 1 = male, 2 = female. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .





retaliation by target) in relation to cyber aggression. It also contributed to the literature by examining the mediating influence of two processes: (a) young adults' beliefs about the permanency of online content, and (b) their confidence with not getting caught acting aggressively in the digital environment. Results indicated that the relationship between anonymity and subsequent cyber aggression was mediated by these two processes.

### *Anonymity and cyber aggression*

Anonymity is believed to be a key motivator for cyber aggression, as it creates disinhibition, resulting in a reduction of normal self-control, which consequently makes the individual feel free to do and say things he or she would never do in person.<sup>2</sup> According to Valkenburg et al.,<sup>19</sup> reducing social accountability makes it easier for some users of electronic communications to engage in aggressive behaviors. Although anonymity is considered an important mechanism used to make it easier to engage in cyber aggression, few empirical investigations exist regarding the linkage it has to such behaviors.

Both types of anonymity (i.e., punishment by authority figures and retaliation from target) related positively to young adults' cyber aggression 6 months later, after controlling for gender and time 1 cyber aggression. These findings support the linkage of anonymity to cyber aggression as proposed by the literature.<sup>1,2,4,18,20,21</sup> Furthermore, the results also indicated that individuals, at least young adults, choose to be anonymous for different reasons.

The present study revealed indirect associations between two types of anonymity and cyber aggression that occur through the influence of confidence about not getting caught and not believing in the permanency of online content. These two beliefs longitudinally relate to cyber aggression over 6 months, and suggest additional mechanisms that may contribute to such behaviors among young adults. These findings support previous ones regarding adolescents reporting that they engage in cyberbullying because they feel confident that they will not be caught in the digital environment.<sup>3-5</sup> Not believing in the permanency of online content also influenced the linkage between anonymity and cyber aggression. Solove<sup>6</sup> writes that aggressive behaviors through electronic media may be motivated by the perpetrators' belief that online content is not permanent and that anything they do or write online disappears. Therefore, young adults with such a belief are not likely to be worried that their negative behaviors will be identified.

There are a few limitations along with future directions that should be mentioned in order to further research on cyber aggression among young adults. First, two items were utilized to assess anonymity, and thus the reliability and validity of these items may be questionable. Follow-up research should aim to create a measure that assesses more than two reasons individuals choose to be anonymous online. For example, researchers may consider adding items that focus on individuals choosing to be anonymous in order to avoid disapproval from one's family or friends. Second, although the short-term longitudinal design of the current study is a strength, future research should be conducted utilizing longer time spans to better understand how cyber aggression may be impacted by beliefs about anonymity, confidence with not

being caught, and not believing in the permanency of online content.

### **Conclusion**

The present study provides one of the first investigations of the relationship between anonymity and cyber aggression. Additionally, it is also one of the first to focus on factors that may mediate this relationship. This is an important consideration because researchers<sup>26-28</sup> have appealed for more research focused on understanding the mechanisms underlying the engagement in cyber aggression. The present study indicates that anonymity, particularly two types (i.e., punishment by authority figures and retaliation from victim) are factors contributing to cyber aggression among young adults. Furthermore, confidence with not getting caught and not believing in the permanency of online content also have a role in young adults' engagement in cyber aggression. This study may inform clinicians and researchers concerned with reducing or identifying individuals at risk for engaging in aggression in the cyber context by assessing their beliefs about anonymity in the digital context, confidence with not getting caught, and their feelings that online content is not permanent.

### **Author Disclosure Statement**

No competing financial interests exist.

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