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PERSONALITY TRAITS, AGGRESSION, AND GENDER AS PREDICTORS OF CYBERBULLYING BEHAVIOR AMONG YOUTHS IN IBADAN METROPOLIS, NIGERIA

Emmanuel E. Uye*, ORCID: 0000-0002-7867-270X,
Oluwaseun E. Oluyemi, ORCID: 0000-0002-6788-2476,
Peter O. Olapegba, ORCID: 0000-0003-1924-1675

University of Ibadan, <http://www.ui.edu.ng/>

*Corresponding author: Emmanuel Uye, emmanuel.e.uye@gmail.com

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Abstract. The prevalence of cyberbullying and associated psychological problems on the victims has been on the increase, especially in the developing countries. While studies on the effects of cyberbullying and management of the victims have been done in developed countries, this is not the case in many developing countries. Therefore, this study investigated predictors of cyberbullying behavior among youths in Ibadan metropolis, Nigeria. Cross-sectional survey design was adopted while purposive sampling technique was used to select the two institutions. Data was collected from 416 students using three validated scales. Two hypotheses were tested using stepwise multiple regression analysis and t-test of independent samples. Results indicated that personality traits significantly predicted cyberbullying behavior among students in the two tertiary institutions. When aggression was introduced into the model, there was an additional amount of variance explained. Furthermore, the result revealed that male students reported higher cyberbullying behavior than female students. The study concluded that personality traits of extraversion, openness to experience, conscientiousness, neuroticism, and aggression are important predictors of cyberbullying behavior among students in the study population. The study recommended that discouraging cyberbullying would be achieved by understanding the personality traits and aggressive behavior that triggers students into cyberbullying.

Keywords: *agreeableness, conscientiousness, extraversion, general strain theory, neuroticism, open to experience, social-ecological theory.*

Rezumat. Prevalența hărțuirii cibernetice și a problemelor psihologice asociate asupra victimelor a fost în creștere, în special în țările în curs de dezvoltare. În timp ce studiile privind efectele hărțuirii cibernetice și ale managementului victimelor au fost realizate în țările dezvoltate, acest lucru nu este cazul în multe țări în curs de dezvoltare. Prin urmare, acest studiu a investigat predictorii comportamentului de hărțuire cibernetică în rândul tinerilor din metropola Ibadan, Nigeria. A fost adoptat un design de anchetă transversală, în timp ce tehnica de eșantionare intenționată a fost utilizată pentru a selecta cele două instituții.

Datele au fost colectate de la 416 studenți folosind trei scale validate. Două ipoteze au fost testate utilizând analiza de regresie multiplă treptată și testul t al probelor independente. Rezultatele au indicat că trăsăturile de personalitate au prezis în mod semnificativ comportamentul de hărțuire cibernetică în rândul studenților din cele două instituții terțiare. Când agresivitatea a fost introdusă în model, a existat o cantitate suplimentară de varianță explicată. În plus, rezultatul a arătat că studenții de sex masculin au raportat un comportament de hărțuire cibernetică mai mare decât studenții. Studiul a concluzionat că trăsăturile de personalitate de extraversie, deschiderea către experiență, conștiinciozitatea, nevroticismul și agresivitatea sunt predictorii importanți ai comportamentului de hărțuire cibernetică în rândul studenților din populația studiată. Studiul a recomandat ca descurajarea hărțuirii cibernetice să fie obținută prin înțelegerea trăsăturilor de personalitate și a comportamentului agresiv care îi determină pe elevi să devină hărțuiți.

Cuvinte cheie: *agreabilitate, conștiinciozitate, extraversie, teoria generală a tensiunii, nevrotism, deschidere către experiență, teorie social-ecologică.*

1. Introduction

The advent of the Internet has provided human beings with several possibilities than before to have access to information, education, games, and social interactions at any given time and place by simply using a phone or computer and being online. These possibilities are considered advantageous for most people today because it allows individuals to have access to information at a much faster rate compared to what was available in the past decades. However, despite the wide range of these opportunities the Internet offered, it has led to serious abuse. One covert area of abuse is in cyberbullying behavior [1].

Cyberbullying has to do with intentional and repeated harm of individuals through the use of computers, phones, and other electronic devices by cyberbullies [1]. It is when an individual teases, threatens, humiliates, or taunts another person through means of electronic devices or the Internet. Definitions of cyberbullying identified three components namely intention to harm, imbalance of power and repeated action on a specific target. Cyberbullying behavior includes impersonation, harassment, inappropriate photographs, and website creation like blog or poll to harass others [2]. Cyberbullying has become a problem that warrants serious attention within society because of the significant threat it poses to psychological and physical health especially among youths [3].

Personality traits are considered in this study as likely a predictor of cyberbullying behavior. It is described as the relative stable behavioral pattern of an individual over time [4]. The five structure personality traits of extraversion, conscientiousness, agreeableness, open to experience and neuroticism have been used to explain individual behavior [5]. Extraversion is characterised by the way an individual behaves in social activity, their assertive nature, and the level of energy possessed. Individuals high in extraversion score enjoy socialising with other people, they are usually comfortable expressing themselves in group situations, and experience positive emotions that include excitement. On the other hand, introverts tend to be socially and emotionally reserved [6]. Extraversion does not lead to aggression and by extension cyberbullying behavior [7].

Agreeableness refers to the qualities of compassionate, respectfulness, and acceptance of others. Individuals with this quality are concerned for others' well-being, they respect others rights and likes, and have positive emotions toward others. Individuals with disagreeable trait have less regard for others and lack social norms of politeness. Individuals

who score low in agreeableness are most likely to display cyberbullying behavior. Studies have found agreeableness to independently predict cyberbullying behavior [7-9].

Openness to experience relates to individuals' intellectual curiosity, their aesthetic sensitivity, and how imaginative they are. An openness minded individual enjoys thinking and learning, and love beauty and art, have original ideas. A closed-minded individual tends to have a narrow range of intellectual and creative interests. Openness to experience is a trigger to aggression. Individuals who score low on openness to experience are more likely to be frustrated. Studies have confirmed openness to experience as a strong predictor of cyberbullying behavior [7-9].

Conscientiousness explains individual levels of organisation, productivity, and responsiveness. Individuals with this trait like orderliness and follow structure, they are persistent in pursuing their goals as well as committed to fulfilling assigned duties and obligations. Individual lows in this trait are comfortable with disorder and are less motivated to complete tasks. Volk et al. [10] found conscientiousness to be a significant predictor of cyberbullying behavior.

Neuroticism reveals individuals' frequency and intensity of showing negative emotions. Individuals who score high in neuroticism are prone to experience anxiety, sadness, and mood swings. When compared to individuals who are emotionally stable, they show calmness and resilience even when they are passing through difficult challenges. Neuroticism causes aggression and frustration and would lead to violent behavior including cyberbullying. Neuroticism has been found to predict cyberbullying behavior [7, 11]. Generally, Xu and Zheng [12] found conscientiousness, agreeableness, and openness to experience to significantly predict cyberbullying among their study participants.

In addition to personality traits, aggression has also been implicated as a predictor of cyberbullying. Aggression is any behavior directed to another individual with the intention to cause harm to that individual [13]. Previous studies have found aggression to significantly predict cyberbullying behavior [14, 15]. Higher scores on aggression scale would lead to higher level of cyberbullying behavior with the motives to harm others, revenge, dominate or for entertainment [16]. Another study has confirmed that individuals with aggressive behavior would seek every opportunity to display aggression including cyberbullying behavior [15]. It has been empirically confirmed that cyberbullies used cyberspace as their readily available platform to display their aggressions on potential victims [3, 17].

It is pertinent to state that aggressive behaviors by the cyberbullies are not limited to time and space. They bully their victims whenever and wherever they are online. Also, aggressive cyber bullies have used cyberbullying as a means to satisfy their feelings of revenge towards their former bullies in face-to-face and/or in cyber interactions [18]. Extending this argument further, aggressive individuals may use revenge to overcome frustrations. Salmon et al. [19] reported that vengefulness is a common trait of cyberbullies as they may not have the platform to bully those who have previously victimised them. Aggressively inclined individuals view social interactions as important ways to dominate others and establish power and status in a way to earn other respects [2]. By acting aggressively, cyberbullies dominate others in cyberspace [19].

Another factor considered in this study as likely to influence cyberbullying behavior is the gender of the individual. Studies that determined whether male youths are more into cyberbullying behavior compared to female youths found that males are more involved in direct physical and verbal cyberbullying behavior than their female counterparts [15, 16].

Also, females were found to use indirect forms of aggression to a greater extent especially when the victims are not known by the peer group and when the individuals' personal and social reputations are attacked [10]. This means that direct cyberbullying behavior is more typical of the male gender, while indirect cyberbullying behavior is more typical of the female gender. Xu and Zheng [12] confirmed that gender moderates between agreeableness and cyberbullying and then openness to experience and cyberbullying.

Taking into consideration the prevalence of cyberbullying and mental and psychological problems on the victims of cyberbullying and the health sectors, it is imperative to investigate some factors that would predict cyberbullying behavior among the vibrant population in the society. Therefore, the main purpose of this study was to examine whether personality traits, aggression and gender would predict cyberbullying behavior among youths in Ibadan metropolis, Nigeria. The specific objectives of this study were: (1) to determine whether personality traits and aggression would jointly and independently predict cyberbullying behavior among youths in Ibadan metropolis, and (2) to find out whether male students would show significant difference in cyberbullying behavior than female students.

The result of this study would identify factors that predict students engaging in cyberbullying behavior. These predictors: personality traits, aggression, and gender would guide in the design of interventions to reduce cyberbullying behavior among youths. Second, findings of this study would be useful to researchers, parents, teachers, school administrators, individuals, psychologists, and students as this would provide insights into the psychological and demographic profile of cyberbullying perpetrators. Finally, the information generated in this study would be used to organise seminars to educate youths on how to prevent cyberbullying before it occurs.

2. Theoretical concepts

2.1 Social-Ecological Theory

This theory posits that children and adolescents' behavior are determined by many different complex systems such as the family, peers and the school environments [20]. The first direct contact of a child in the social environment is the family, peers and the school which is called the micro-system. When a child's behavior is influenced by the family or the school climate, this level of interaction is called the meso-system. A good example is the parent-teacher forum in the school environment. The next level of interaction is the macro-system which comprises the societal laws.

Finally, when the dimension of time is included in the system, it is known as the 'chronosystem'. The 'chronosystem' has a direct influence on the child's behavior through external or internal events. Therefore, it is the event caused by 'chronosystem' that has a direct effect on the micro-, meso-, and macro-systems of the child's behavior. When applied to this study, cyberbullying would be the 'chronosystem' which indirectly influences the cyberbullies and the victims' experience because of the increase in social network sites and the affordability of cyberspace for social interactions.

Espelege [20] has used social-ecological framework to examine predictors of cyberbullying behavior including hostility and alcohol and other drug abuse (AOD) among 1,023 adolescents (5th- 8th grade).

The result showed that hostility and AOD mediated the relationships between family conflicts and cyberbullying behavior. Further analysis revealed that cyberbullying behavior explained individual and family characteristics.

2.2 General Strain Theory

This is the second theory used in this study to explain cyberbullying behavior. According to this theory, individuals who experienced high levels of stress would develop anger and frustration and this would increase the individual's risk factor to engage in deviant behavior [21] such as cyberbullying behavior. Because of the pressure exerted on the individuals to achieve socially acceptable goals, individuals are forced to commit crimes such as selling drugs and using or participating in illegal acts to gain financial security. When apply to cyberbullying behavior, it means that youths who have experienced victimisation at home, school and the larger society tend to engage in cyberbullying behavior in order to compensate for their anger and frustration [22].

Hypotheses:

H1 Personality traits and aggression would jointly and independently predict cyberbullying behavior among youths in Ibadan metropolis.

H2 Male students would show a significant difference in cyberbullying behavior than female students.

3. Materials and Methods

3.1. Design

The study adopted cross-sectional survey design. The independent variables were personality traits and aggression while the dependent variable was cyberbullying behavior.

3.2. Settings

This research was carried out among youths in Ibadan metropolis in Ibadan North Local Government Area in Ibadan, Nigeria. This metropolis was selected because it has a high population of youths in which cyber bully perpetrators and victims are likely to be found.

3.3. Population

Ibadan North Local Government Area is made of 1,047,497 youths' population according to Population Projection conducted on 21st of March 2016 (reference.citypopulation.com). The study focused on youths ranging from 19 to 30 years of age in Ibadan North Local Government Area. The age range selected was because they have a large possibility to be cyberbullying perpetrators. The population focused on perpetrators not the victims.

3.4. Sample Determination and Sampling Technique

The Taro Yamane formula (Eq.1) was used to calculate the sample size from the population of 1,047,497 youths:

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

where: n - sample size required; N - population; e - allowable error ($P1=P2=0.5$). Therefore, 440 participants were selected for the study.

Purposive sampling technique was used to select the Ibadan North Local Government Area and convenience sampling technique was used to youths for the distribution of the research instrument to the participants.

3.5. Instruments

Three instruments were used for data collection.

3.5.1. Cyberbullying

This was measured using the Cyberbullying Scale developed by Cetin et al. [23]. The scale consists of 10- item that measure perpetration of cyberbullying. The scale is presented on a 5-point Likert's format ranging from Many times =5, Several times = 4, Occasionally = 3, Rarely = 2, and Never =1. Sample items include: "I have called someone's cell phone and hung up to bother or frighten him/her" and "I have pretended to be someone else so I could say or do bad things on the Internet". The author's reported the scale Cronbach's alpha of 0.89. In this study, Cronbach's alpha was 0.86.

3.5.2. Aggression

This was assessed using the Aggression Questionnaire (AGQ) developed by Buss and Perry [24]. Questionnaire (AGQ) measures the four major components of aggression (Physical aggression, Verbal aggression, Anger and Hostility). It is a 29-item scale which is rated on a 5-point Likert's format from Never (0), Rarely (1), Sometimes (2), Often (3), Always (4). In this study, the 11-item brief form was used. Sample items include: "I tease students to make them angry" and "I am angry most of the day". The authors' reported Cronbach's alpha of 0.87. In the present study, Cronbach's alpha was 0.83.

3.5.3. Personality Traits

This was determined by using a 10-item Personality Inventory (BFI) developed by Rammstedt and John [25] which is a self-reported scale that measures the big five personality traits. The scale is presented on a 5-point Likert's format ranges from Strongly agree =5, Agree = 4, Undecided = 3, Disagree = 3, Strongly disagree = 1. Sample items include: "I see myself as someone who is reserved" and "I see myself as someone who is relaxed, handles stress well". The authors reported the scale Cronbach's alpha of 0.75 while the current Cronbach's alpha was 0.72.

3.6. Procedure

The researchers collected a Letter of Introduction from the Department of Psychology, University of Ibadan which was presented to the potential participants. Potential participants were told the purpose of the study and asked for their consent to participate in the study. Individuals who agreed to participate in the study were given questionnaires to complete which took less than 18 minutes. A total of 440 questionnaires were distributed in the course of data collection of which 429 were retrieved (i.e.,97% response rate). Thirteen questionnaires had missing data which were removed leaving with 416 questionnaires used for the analysis.

3.7. Data Analysis

Data collected was analysed using SPSS version 23. Hypothesis 1 was tested using stepwise multiple regression analysis while hypothesis 2 was tested using t-test of independent samples. All hypotheses were accepted at a $p < 0.05$ level of significance.

4. Results

Descriptive analysis revealed that 222 (53%) of the participants were males while 194 (47%) were females. The age bracket of the participants indicated that 120 (29%) were less

than 20 years of age, 201 (48%) were between 20- and 24-years age bracket, 86 (21%) were between 25- and 29-years age bracket while 9 (2%) of the participants were 30 years and above. In terms of their level of education, 96 (23%) were pursuing OND, 102 (25%) were in their HND programmes while 218 (52%) of the participants were in their BSc programmes. When asked of their religious affiliations, 220 (53%) claimed to be Christians, 190 (45%) claimed to be Muslims, while 9 (2%) did not indicate their religious affiliations.

H1. Personality traits and aggression would jointly and independently predict cyberbullying among youths in Ibadan metropolis. This was tested with stepwise multiple regression analysis and the result is presented in Table 1.

Table 1

Hierarchical regression analysis of personality traits, aggression, and cyberbullying behavior among youths in Ibadan metropolis, Nigeria

Model Summary

Model	R	R ²	Adjusted R ²	Standard Error of the Estimate
1	0.401 ^a	0.160	0.160	0.16214

^a Predictors: (Constant), extraversion, agreeableness, openness to experience, conscientiousness, neuroticism.

Note: R= Regression relationship, R² = R-square

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.*
1	Regression	13289.396	5	2657.879	9.847	0.000
	Residual	249.423	411	0.607		
	Total	13538.819	416			

^aDependent Variable: cyber bullying behavior. Predictors: (constant), extraversion, agreeableness, openness to experience, conscientiousness, neuroticism.

Note: df - degree of freedom, F - Fisher's ratio, Sig. - Significance level.*p<0.05

Coefficients ^a

Model	Unstandardized Coefficient		Standardised. coefficient		t	Sig.*
	B	Std. Error	Beta(β)			
(Constant)	1.804	0.172			9.424	0.000
Extraversion	0.160	0.012	0.327		4.391	0.000
Agreeableness	-0.066	0.013	-0.102		-1.606	0.060
Openness	- 0.154	0.022	-0.213		-4.614	0.000
Conscientiousness	0.148	0.019	0.297		3.047	0.000
Neuroticism	0.057	0.023	0.198		2.962	0.000

^a Dependent variable: Cyber bullying behavior.

Note: t - t-statistic value;Sig. - Significance level; *p<0.05

Results in Table 1 revealed that personality traits of extroversion, agreeableness, openness to experience, conscientiousness and neuroticism significantly predicted cyberbullying (R² = 0.160, F (5,411) =9.847, p < 0.05). This infers that extroversion, agreeableness, openness to experience, conscientiousness, and neuroticism account for 16% of variance observed in cyberbullying behavior among the study participants. The results further revealed that extraversion (β = 0.324, t = 4.391, p < 0.05), openness to experience

($\beta = -0.213$, $t = -4.614$, $p < 0.05$), conscientiousness ($\beta = 0.297$, $t = 3.047$, $p < 0.05$), and neuroticism ($\beta = 0.198$, $t = 2.962$, $p < 0.05$) independently predicted cyberbullying behavior.

Table 2

Hierarchical regression analysis of personality traits, aggression and cyberbullying behavior among youths in Ibadan metropolis, Nigeria

Model Summary

Model	R	R ²	Adjusted R ²	Standard Error of the Estimate
2	0.492 ^a	0.242	0.082	0.03561

^a Predictors: (Constant), extraversion, agreeableness, openness to experience, conscientiousness, neuroticism, aggression.

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.*
2	Regression	12146.296	6	2024.383	12,906	0.000
	Residual	298.478	410	0.728		
	Total	12444.774	416			

^aDependent Variable: Cyber bullying behavior; Predictors: (constant), extraversion, agreeableness, openness to experience, conscientiousness, neuroticism coefficients.

Coefficients

Model 2	Unstandardized Coefficients		Standardized Coefficients		Sig.*
	B	Standard Errors	Beta(β)	t	
Constant	1.782	0.157		8.735	0.000
Extraversion	0.161	0.014	0.312	4.173	0.000
Agreeableness	-0.052	0.011	-0.096	-1.072	0.071
Openness	-0.146	0.029	-0.216	-4.761	0.000
Conscientiousness	0.138	0.015	0.291	3.744	0.000
Neuroticism	0.061	0.012	0.090	1.850	0.330
Aggression	0.063	0.021	0.393	5.182	0.000

^a Dependent variable: Cyber bullying behavior.

Note: t - t-statistic value; Sig. - Significance level; F - Fisher's F ratio; * $p < 0.05$.

Table 2 shows independent predictors of cyberbullying behavior. The result in Table 2 revealed that when aggression was introduced into the model, there was increased in the variance explained. In other words, the introduction of aggression contributed a significant 8.2% to the variance observed in cyberbullying among students [F (3,413) = 3.277, $p < 0.05$, $R^2 = 0.082$]. Specifically, extraversion ($\beta = 0.312$, $t = 4.173$, $p < 0.05$), openness to experience ($\beta = -0.216$, $t = -4.761$, $p < 0.05$), conscientiousness ($\beta = 0.291$, $t = 3.744$, $p < 0.05$) and aggression ($\beta = 0.393$, $t = 5.182$, $p < 0.05$) independently predicted cyberbullying behavior among youths in Ibadan metropolis, Nigeria. Hence, the hypothesis was supported.

H2. Male students would show a significant difference in cyberbullying behavior than female students. This was tested using t-test for independent samples and the result is presented in Table 3.

Table 3

T-test for independent sample of gender influence on cyberbullying behavior among youths in Ibadan metropolis, Nigeria

Dependent	Gender	N	M	SD	t	df	p
CBB	Male	222	19.24	7.7	1.63	414	>0.05
	Female	194	18.95	7.9			

Note. CBB - Cyberbullying Behavior; N – Population; M – Mean, SD-Standard Deviation; t-t-statistic-value, df-Degree of freedom, p- value for the acceptance or rejection of the stated hypothesis. **Source:** Authors' field survey.

The result in Table 2 showed no significant gender difference in cyberbullying behavior among the study population [$t(414) = 1.63, p > 0.05$]. However, male students ($M = 19.24, SD = 7.7$) reported higher cyberbullying behavior than female students ($M = 18.95, SD = 7.9$). The hypothesis was partially supported.

5. Discussion

The study investigated personality traits, aggression, and gender as predictors of cyberbullying behavior among youths in Ibadan metropolis, Nigeria. Two hypotheses were generated and tested in the study. The results supported the hypothesis that personality traits of extroversion, agreeableness, openness to experience, conscientiousness and neuroticism would jointly predict cyberbullying behavior among youths in Ibadan metropolis. This accounted for 16% of the variance observed in cyberbullying behavior among the study participants. This result supported Xu and Zheng [12] finding that conscientiousness, agreeableness, and openness to experience were significant predictors of cyberbullying among their study participants.

When aggression was introduced into the regression model, the result reveals significant change in the joint prediction on cyberbullying behavior. Thus, personality traits and aggression significantly predicted cyberbullying behavior. In other words, the introduction of aggression contributed 8.2% to the variance observed in the cyberbullying behavior among students. Apparently, this study result demonstrated evidence that the personality traits of extroversion, openness to experience, conscientiousness and aggressiveness of perpetrators predict their action towards cyberbullying. These findings supported previous studies that personality traits and aggression significantly predicted cyberbullying behavior [7-9, 26]. Also, these findings equally supported studies that aggression is a significant predictor of cyberbullying behavior [14, 15]. Personality traits and aggression played important roles in flaming cyberbullying attacks on other online users. Furthermore, Saniel et al. [2] and Salmon et al. [19] confirmed that by behaving aggressively, cyberbullying perpetrators would dominate others in cyber settings.

According to the General Strain theory, bullying is one type of strain that increases the likelihood of involvement in crime and anti-social behaviors as a way to cope with the negative emotions that result from the stressor [21]. This means that higher level of aggression would be related to higher level of cyberbullying behavior all with the motives to harm others, revenge, dominate or for entertaining themselves. Individuals with aggressive behavior would ever seek for chances to act out their aggressive behaviors.

Although the hypothesis that male students would show significant difference in cyberbullying behavior than female students was not supported, a further observation of mean value reveals that male students reported higher in cyberbullying behavior than their

female counterparts. This finding supported previous studies that found that males were involved in direct forms of physical or verbal aggression than females [8, 16]. However, females have been reported to use indirect aggression where the victims are excluded from the peer group or where personal and social reputations are under attack [10]. These results supported the finding that direct aggression is more of the male gender while indirect aggression is more of the female gender [12].

6. Limitations of Study

Some limitations of this study need to be mentioned. Self-reported questionnaire was used for data collection which is not free from response bias. Further studies should use both qualitative and quantitative data collection methods to validate data collected. Another limitation identified in this study was that only two independent variables were investigated. Further studies should include self-esteem, loneliness and learned helplessness to explore cyberbullying behavior. Finally, since only youths in Ibadan metropolis were used in the present study, further studies should include more youths in other Local Government Areas in Oyo State to allow for wider generalisation of findings.

7. Conclusion

This study has empirically determined that personality traits of extroversion, agreeableness, openness to experience, conscientiousness, neuroticism, and aggression are strong predictors of cyberbullying behavior among students in the two tertiary institutions in Ibadan, Nigeria. Also, male students were found to be more into cyberbullying than their female counterparts. Therefore, it is recommended that discouraging cyberbullying behavior would be achieved by understanding the personality traits and aggressive behavior that triggers students into cyberbullying.

Conflicts of Interest: The authors declare no conflict of interest. Also, the study was self-sponsored by the authors.

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