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CYBERBULLYING RELATIONSHIP WITH SELF-ESTEEM, SOCIAL DEVELOPMENT AND MENTAL WELL-BEING OF UNDERGRADUATE STUDENTS IN A FEDERAL UNIVERSITY IN ANAMBRA STATE, NIGERIA

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Abstract

Most undergraduate students have been reported to have experienced cyberbullying; and the effects that cyberbullying has on its victims could be quite subtle and deleterious. This study aims to investigate the relationship that cyberbullying has with the self-esteem, social development, and mental well-being of students in a federal university in Anambra State. The rationale is based on the increasing impacts of cyberbullying on students. The correlation research design was used for the study. The sample size consisted of 216 undergraduate students. Cyberbullying Scale (CbS), Self-esteem Scale (SES), Social Development Scale (SDS), and Mental Well-Being Scale (MWbS) were used for eliciting responses from the respondents. Cronbach Alpha was used in determining the reliability of the instruments which yielded alpha coefficients of .74 for CbS, .788 for SES, .847 for SDS and .823 for MWbS. Multiple correlations and linear regression analyses were used in the analysis of the data with the SPSS statistical software program. The findings revealed that cyber bullying has a significant relationship with university students' self-esteem and social development. There was no significant relationship between cyberbullying and mental wellbeing of university students. It was concluded that cyberbullying may be a critical factor that can impact aspects of students' psychosocial development such as their self-esteem, social development, and mental wellbeing. Implications of the study were highlighted.

Keywords: *cyberbullying, self-esteem, social development, mental wellbeing, undergraduate students*

Introduction

The issue of bullying has drawn much attention from the public in the recent past due to its prevalence as a foremost basis of violence across the globe (Sighn & Dhillon, 2020; Kwaku et al, 2022). Cases of bullying abound in the recent past in some schools in Nigeria. For instance, the popular case of the twelve-year-old boy that lost his life over bullying in one of the notable schools in Lagos state was agog national news and social media handles (Adeyemi, 2021). Bullying is an ugly social phenomenon that needs urgent attention. Research has shown that school bullying deleteriously impacts the victims' psychological, cognitive, and social development (Anierobi, Okeke & Daniel, 2022). By implication, teaching and learning can be greatly hindered in a school environment where its atmosphere of serenity is punctured with no or less guarantee for the safety of both staff and students. Hence the need to curb bullying in schools for the safety of both the students and their teachers due to its deleterious effects on the victims.

Bullying results from a direct or indirect form of aggression targeted at another individual of unequal strength which can manifest in physical or verbal forms (Chandran, Namboodiripad & Madhavan, 2018). Bullying can be in a direct form such as physical and verbal attacks or indirect form such as social exclusion/spreading of rumours (Palermi, Bartolo, Musso, Servidio & Constabile, 2022). Explicitly, the physical form of bullying can result from hitting, pushing, shoving, and assault; the verbal form of bullying can manifest in insults, derogatory names, and threats while social forms include exclusion from peer groups and the spread of rumours (Ali & Shahbuddin, 2022; Markkanen, Valimaa & Kannas, 2019). According to Kwaku et. al, (2022), 67% of their respondents had experienced school bullying while Anierobi et al (2022) showed that out of the 360 male students used in the study, 6.4% reported that they had never had any bullying experience, 50% of the students reported that they experienced bullying sometimes while 43.6% of the students reported that they are bullied often. School bullying often manifests in the school environment and involves both verbal and physical forms (Anierobi et. al, 2022). Nevertheless, when bullying extends to cyberspace where physical contact is restricted, it is referred to as cyberbullying (Low & Gill, 2022)

Cyberbullying is a form of bullying that involves the use of digital devices to intimidate, harass, coerce, threaten, molest, or stalk another individual on the other end of the digital platform. Cyberbullying occurs in cyberspace through social media handles, and online sites such as the mobile phone, the internet, emails, and other information technologies that students access at all times (Sighn & Sighn, 2020). The use of cyberspace makes for ease of communication with friends and forming of networks for academic interactions without limits. The advent of the digital era with the consequent increased rate of social media usage among the populace especially the youth birthed and strengthened aggressive behaviours in cyberspace. For instance, Singh and Dhillon (2020) reported that over 4 billion of the populaces are exposed to and equally make use of online means of communication and education while Okeke and Anierobi (2020) observed that exposure to some social media sites promotes aggressive behaviours among the users. This exposure to cyberspace coupled with the fact that it entails anonymity of the users could no doubt have paved way for bullying behaviours.

In the Nigerian context, statistics revealed that cyberbullying is widespread among students. For instance, Podia and Joshi (2022) generally reported that 59% of adolescents in Nigeria have been cyberbullied. Other studies conducted in different parts of Nigeria also aligned with the general statistics. Olasanmi, Agbaje, and Adeyemi (2020) in their study reported that 53.9% of the sampled students for their study from a school in the western part of Nigeria had experienced cyberbullying while 24.1% admitted that they had bullied others in cyberspace. In a study conducted by Nwosu et. al (2018) in a university in the eastern part of Nigeria, it was reported that 48% to 57% of the undergraduates used for the study had been bullied on cyberspace while a range of 28.6% to 40.0% had bullied others through social media sites. A study with undergraduate students in a school in Northern Nigeria showed that 74.4% of the participants had engaged in cyberbullying using either the internet or mobile phones (Bashir, Ibrahim & Saidu, 2022). The above statistics showed that students in every part of Nigeria had experienced cyberbullying at one time or the other.

Nigerian undergraduate students, particularly those in Anambra state, use the internet for various purposes ranging from academic to social purposes (Anierobi et al, 2021; Okeke and Anierobi, 2020). Most students spend many hours daily on the internet to the point of occasionally getting addicted to it (Ipem & Okwara-Kalu, 2020). Unachukwu, Ebenebe and Nwosu (2021) asserted that the reason behind the constant use of digital technologies by children was that they are readily available to them. Literature is filled with the impact of cyberbullying on the different areas of students' well-being across the globe. For instance, Singh and Sighn (2020) observed that the victims of cyberbullying experienced negative psychological distress such as anxiety, depression, fear and exhibited a low level of self-esteem, and had low academic achievement. Li, Wu, and Hesketh (2023) showed that victims of bullying exhibited vulnerability to psychosocial and psychosomatic disorders while Peled (2019) observed that cyberspace bullying has an impact on the bullied in some ways such as in their academic, social, and emotional development. The purpose of this present study is to assess cyberbullying and its relationship with students' self-esteem, social development, and mental well-being.

Literature Review

Overview of Cyberbullying

Cyberbullying as a social menace has been variously defined by different scholars; but all the definitions point to the same fact that it has to do with unwarranted harassment or intimidation using various information technologies. For instance, Lei et. al (2019) construed that cyberbullying is superordinate for hostile actions involving continuous and deliberate harm to either individuals or groups over digital devices. In like manner, Fadili et. al (2022) averred that cyberbullying is a diverting route taken by users of digital technologies to release bottled-up toxic and negative energy. Cuncic (2021) asserted that because digital technologies are the major channel of cyberbullying, both the bullies and the bullied have their meeting point in digital space. Cuncic further posited that five criteria are usually consistent with the manifestation of cyberbullying such as intention to harm, repetition of the obnoxious actions, power imbalance, anonymity of the bully, and publicity of the humiliating actions.

Cyberbullying takes various forms which include flaming, online harassment, denigration, exclusion, outing/doxing, catfishing, and impersonation (Poudyal & Joshi, 2022; Wanjohi, 2018) and in addition, trolling, spreading of false rumours, name-calling, sending of explicit messages or images without the consent of the victim, cyberstalking (Cuncic, 2021). In their study with undergraduate students, Bashir, Ibrahim and Saidu (2022) showed that 48% of students got involved in cyberbullying due to frustration but sometimes just for fun, while 40% admitted that they got involved in cyberbullying out of frustration arising from either family-based or school-related pressure. Cyberbullying could also arise from exposure to violent media, peer pressure, boredom, low self-esteem and sheer jealousy (Mabvurira & Machimbidza, 2021). From every indication, therefore, cyberbullying can also be referred to as online or electronic bullying (Singh & Dhillon, 2020). Nevertheless, Zhou et. al in Mabvurira and Machimbidza (2021) aver that cyberbullying exhibits many similarities to traditional face-to-face bullying.

Relationship between Cyberbullying, Gender, and Age

Scholars in different regions had studied the role gender plays in engaging in bullying and bullying-related behaviours. For instance, Kwaku et al (2022) observed that bullying was prevalent among the participants in their study within the northern region of Nigeria, irrespective of gender. Kwaku et al reported explicitly that out of 230 adolescent males, 73.0% and out of 196 females, 61.3% had been bullied within a space of one year. Lei et al (2019) implied that gender is not a factor in cyberbullying as shown in their report that gender did not moderate the relationship between self-esteem and cyberbullying. By implication, being a male or a female did not stop the participants from experiencing bullying in cyberspace. Similarly, Ali and Shahbuddin (2022) showed that gender was not a factor in cyberbullying reporting that 49.1% of the students in their study representing about half of the total sample had been bullied within a time interval of three years. In their study, Romero-Reignier, Prado-Gascó & Mónaco (2019) revealed a gender difference in cyberbullying behaviours with boys as more cyberbullies than their female counterparts. A study (Ghansah, 2022) in Ghana, revealed that gender was not a significant factor in cyberbullying, but age and level of education were found to be significant factors. In terms of age, Ghansan (2022) and Lei et al (2019) reported that a significant relationship exists between cyberbullying and age. Based on the existing literature, this study sought to determine whether gender and age are factors in cyberbullying among university students in Anambra State.

Relationship between Cyberbullying and Self-Esteem

Self-esteem refers to an individual's general appraisal of self-worth or self-value (Anierobi et al, 2018). It is an important aspect of self-value revolving around one's features and abilities (Masselink et al., 2018) and can be affected by various factors including bullying and cyberbullying. Previous studies suggested that cyberbullying has a link with low self-esteem (Mabvurira & Machimbidza, 2022; Martínez, Rodríguez-Hidalgo & Zych, 2020; Aderinola, 2021). In their study with children and adolescents in the USA, Asia and Europe, Lei et al (2019) showed a positive relationship between self-esteem and cyberbullying reporting that students with low self-esteem were more frequently engaged in cyberbullying than their counterparts with high self-esteem. Self-esteem problems were found to be significantly associated with cyberbullying (Peled, 2019). Peled further observed that as cyberbullying increases via online devices, so also self-esteem-related problems increase. Although Lokithasan et al (2020) observed a negative relationship between self-esteem and cyberbullying, the relationship was not statistically significant. Interestingly, Mona and Marwa (2018) found that bullying has no significant relationship with students' self-esteem. In view of the above empirical findings, this study sought to determine the relationship between cyberbullying and the self-esteem of university students and will further test the statistical significance of the relationship.

Cyberbullying and Social Development

Every human being by nature is a social being. Socialization starts from the nucleus of one's family where the child had initial contact with significant others under whose tutelage, cultural norms, values, and etiquettes are taught, and basic relationships are formed. This relationship leads to a level of attachment between the child and the significant others. According to Erikson's theory of social development, the individual during the period of infancy develops basic trust or mistrust depending on the existing relationship cum socialization process of the child. As the child grows into the young adulthood stage, craving and the quest for socialization through peer affiliations set in which breeds either intimacy or isolation. This craving to form and enjoy social relationships outside the enclaves of the family is one of the factors that lead young adults to cyberspace (Okeke & Anierobi, 2020). Unachukwu et. al (2021) subtly implied that overly occupying oneself with social media can hamper social development leading to social withdrawal as a fall out of the range of psychosocial consequences of cyberbullying. This withdrawal may be heightened and sustained when bullying is involved. For instance, Peled (2019) observed that interpersonal problems were related to cyberbullying and such interpersonal problems revolve around integration into the social environment, forming a support network, and managing new social freedoms which are enough to keep the victim socially withdrawn. Social withdrawal is likely to negatively affect one's social development. Other scholars linked bullying to social withdrawal and social anxiety (Ardiavanti, Efendi, Kurnia & Hsieh, 2018), and by extension, the social life of the victims.

Cyberbullying and Mental Wellbeing

Mental health is very crucial to life and living. One needs healthy mental and cognitive status to function effectively in society. Students need their mental health for proper adjustment both in school and society. A lot of studies have fingered at cyberbullying as one of the sources of threats to the mental health of the victims. For instance, Ali and Shahbuddin (2022) reported that a significant negative relationship exists between cyberbullying and mental health among university students in Saudi Arabia asserting that the results clearly show that victims of cyberbullying experience emotional problems, such as worry, tension, and sadness. According to Chu, Fan, Liu, Zhou (2018), cyberbullying has a link with depression and anxiety which no doubt can lead to disturbed mental wellness. Poudyal and Joshi (2021) rated in percentages some of the mental problems associated with cyberbullying as panic attacks at 23.20%, depression at 53.30%, trauma at 6.50% and anxiety at 17%. Deductively, cyberbullying can be underscored as a critical factor in depression. Further to this, Ghansan (2022) linked cyberbullying to anxiety, depression, feelings of alienation, reduced concentration, and suicidal thoughts which generally pose threats to the mental health of the bullied. While Asibong et. al (2021) found that bullying has an adverse effect on the mental health of the victims, Anierobi et al (2022) showed that bullying has a negative impact on the cognitive development of the victims.

Method

Research Design

The correlation research design was employed in this study to satisfy the intentions of the researchers to investigate the nature of associations existing between Cyberbullying (independent variable) and self-esteem, social development, and mental well-being (outcome variables). Specifically, the researchers adopted linear regression analysis to analyze the data collected from the field. The choice of this analytical method is because it is considered appropriate in showing the changes that occur because of the introduction of the predictor variable to each of the outcome variables. In this case, the researchers examined the associations existing between cyberbullying and self-esteem; cyberbullying and social development; cyberbullying and the mental well-being of the participants.

Research Participants

The sample size consisted of 217 university students (male 28.6%, female 71.4%, mean age = 21.95, SD = 3.213, mean academic level of students = 2.25, SD = 1.169) in a federal public university in Anambra State. The researchers' target was to sample all the undergraduate students in the university but because the google form questionnaire was used in data collection, only 217 responded to the online questionnaire; 216 participants were

used for the study because one of the participants was not an undergraduate student. The sample characteristics are presented in Table 1:

Table 1: Students' Socio-demographic Characteristics

	Mean	SD	Frequency	Percentage (%)
Age	21.95	3.213	-	-
Academic Level of Students	2.25	1.169	-	-
Gender				
Male	-	-	62	28.6
Female	-	-	155	71.4
Total	-	-	217	100.0
Primary Residence				
Urban			167	77.0
Rural			50	23.0
Total			217	100.0

Source: Field Work (2023)

Table 1 revealed that the sample size consists of more female undergraduate students than male undergraduate students; a greater number of the students are in their second year with a mean age of 21 years old. Moreso, about 77% of students sampled resided in an urban area.

The researchers ensured that established ethical standards in the social sciences and educational research were followed. This was ensured as they sought the consent of their respondents and also explained in writing all about the study alongside the link to the google form questionnaire that was shared with them. It was explained that respondents are free to either participate or quit the study should they consider it appropriate to do so. An anonymous data collection procedure was followed since no sensitive student information was collected. The researchers avoided any marker of identification as data were collected.

Instruments for Data Collection

Cyberbullying Scale. The researchers adapted the European Cyberbullying Intervention Project Questionnaire (ECIP-Q)'s 11 items developed by Marin, Albéniz, Molina, Valderrey and Pedrero (2022) for measuring behaviours related to cyber victimization. The Cronbach Alpha was employed in determining the internal consistency of the items. The reliability index showed an acceptable internal coefficient of .74. Sample item of CBS is 'Someone spread rumours about me on the internet'.

The Self-esteem Scale. The researchers adopted the self-esteem scale developed by Rosenberg (1956). It is a 10-item scale designed for measuring individual self-esteem. The Cronbach Alpha shows an internal coefficient value of .788. A sample item is 'At times, I think I am no good at all'.

The Social Anxiety Scale. The Social Anxiety Scale consisted of 9 items that explored whether the respondents display anxiety or fear when faced with one or more social situations. They were adapted from Caballo, Salazar, Irurtia, Arias and Nobre's 2013 Social Phobia and Anxiety Inventory (SPAI). The Cronbach Alpha was employed in determining the internal consistency of the items. The reliability index showed an acceptable internal coefficient of .847. A sample item of the Social Anxiety Scale is 'I feel anxious when in a small gathering of people'.

The Mental Wellbeing Scale. The researchers adopted the mental well-being scale developed by Tennant et.al., (2007). It is a 14-item scale designed for measuring the respondents' mental well-being (feelings and thoughts.). The Cronbach Alpha showed an internal coefficient value of .823. A sample item is 'I have been feeling optimistic about the future'.

This study focused only on the victims of cyberbullying over the past 12 months. After determining the relationships, the relations were statistically tested for significance at 0.05 level of significance. The study went further to assess the rate of cyberbullying experienced by the students with a focus on each gender.

Method of Data Analysis

Data collected from the respondents were analyzed using linear regression models using SPSS version 25. Our data were first screened to ensure the internal consistency of the items. To establish the reliability and internal consistency of our instruments, the researchers used SPSS to conduct Cronbach Alpha (α). Researchers tested the level of significance at 0.005 and noted that any data at < 0.05 is not significant, while any at > 0.50 is significant. This determined the acceptance or rejection of the null hypotheses that guided the study.

Results

Table 2: Descriptive Statistics of Students' Socio-demographic Characteristics

	Mean	SD	Frequency	Percentage (%)
Age	21.95	3.213	-	-
Academic Level of Students	2.25	1.169	-	-
100			63	29.0
200			80	36.9
300			44	20.3
400			21	9.7
500			5	2.3
600			3	1.4
others			1	0.5
Gender				
Male	-	-	62	28.6
Female	-	-	155	71.4
Total	-	-	217	100.0
Primary Residence				
Urban			167	77.0
Rural			50	23.0
Total			217	100.0

Source: Field Work (2023)

Table 2 shows that in terms of the gender of the participants, males comprised 28% while their female counterparts comprised 71.4% with a mean age of 21.95. Regarding the academic level of the students, 29.0% were in the first year, 36.9% in the second year, 20.3% in the third year, 9.7% in the fourth year, 2.3% in the fifth year and only 1.4% are in their sixth year. 77% of the students reside in urban areas while 23.0% reside in rural areas.

Table 3: Multiple Correlation Analysis among University Students' Age, LOS, Gender, Primary Residence and Cyberbullying

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	4.537	2.695		1.683	.094
	AGE	.010	.106	.007	.090	.928
	LOS	.739	.290	.183	2.546	.012
	Gender	-.823	.702	-.079	-1.172	.242
	Primary Residence	.411	.762	.037	.539	.590
		.209 ^a				
R		.044				
R ²		2.416				
F						

a. Dependent Variable: cyberbullying

Table 3 showed that age has a low, positive ($r = .010$) and significant relationship ($p \geq .05, 0.928$) with cyberbullying. Gender has a high, negative ($r = -.823$) but significant relationship ($p \geq .05, 0.242$) with cyberbullying while primary residence has a moderate, positive ($r = .411$) and significant relationship ($p \geq .05, 0.590$) with cyberbullying. On the other hand, the academic level of students has a high, positive ($r = .739$) relationship with cyberbullying, but further testing provided no significant evidence ($p \leq .05, 0.012$) of the relationship.

Table 4: Simple Correlation Matrix of Cyberbullying and University Students' Self-esteem, Social Development and Mental Wellbeing

S/N	Variables	N	Mean	SD	1	2	3	4
1.	Cyberbullying	217	5.7281	4.71844	1			
2.	Self-esteem	217	30.3641	4.51348	-.161*	1		
3.	Social Development	217	2.0829	5.07011	.143*	-.332**	1	
4.	Mental Wellbeing	217	33.8479	7.79363	.004	.537**	-.190**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

N = Number of

participants, M = Mean score, SD = Standard deviation

Table 4 revealed that cyberbullying has a low and negative relationship $r = -.161$ with university students' self-esteem, while its relationship with students' social development $r = .143$ and mental well-being $r = .004$ respectively is equally low but positive

Table 5: Linear Regression Analysis for Cyberbullying and University Students' Self-esteem

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.244	.477		65.444	.000
	Cyberbullying	-.154	.064	-.161	-2.385	.018
	R	.161 ^a				.018
	R ²	.026				.018
	F	5.688				.018 ^b

a. Dependent Variable: Self-Esteem

Table 5 revealed an F-ratio ($F = 5.688, N = 216$); $R^2 (\beta = .161)$ with associated probability value ($p < .05, 0.018$). The p-value ($p \leq .005$) is less than 0.05 and therefore, found significant. Thus, the null hypothesis was rejected. Inference drawn was, therefore, that there is a significant relationship between cyberbullying and university students' self-esteem in Anambra State.

Table 6: Linear Regression Analysis for Cyberbullying and University Students' Social Development

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.200	0.538		39.426	.000
	Cyberbullying	.154	0.073	0.143	2.124	.035

R	.143 ^a	.035
R ²	.021	.035
F	4.513	.035 ^b

a. Dependent Variable: Social Development

Table 6 revealed an F-ratio ($F = 4.513$, $N = 216$); R^2 ($\beta = .154$) with associated probability value ($p < .05$, 0.035). The p-value ($p \leq .005$) is less than 0.05 and therefore, found significant. Thus, the null hypothesis was rejected. Inference drawn was, therefore, that there is a significant relationship between cyberbullying and the social development of university students in Anambra State.

Table 7: Linear Regression Analysis for Cyberbullying and University Students' Mental Wellbeing

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	β		
1	(Constant)	33.812	0.835		40.484	.000
	Cyberbullying	.006	0.113	.004	0.055	.956
	R	.004 ^a				.956
	R ²	.000				.956
	F	0.003				.956 ^b

a. Dependent Variable: Mental Wellbeing

Table 7 revealed an F-ratio ($F = 0.003$, $N = 216$); R^2 ($\beta = .004$) with associated probability value ($p \geq .05$, 0.956). The p-value ($p \geq .005$) is greater than 0.05 and therefore, found not significant. Thus, the null hypothesis was accepted. Inference drawn was, therefore, that there is no significant relationship between cyberbullying and mental wellbeing of university students in Anambra State.

Discussion

The researchers set out to determine the relationship between university students' cyberbullying experiences and their self-esteem, social development and mental well-being using multiple correlation analysis while linear regression analysis was used to test the nature of the relationship between cyberbullying and each of the dependent variables (self-esteem, social development, and mental wellbeing). We also determined whether the age, gender, academic level of students and their primary residents are factors in cyberbullying using multiple correlation analysis. The need to explore the impact of cyberbullying on university students, especially in the context of a developing nation has become pertinent in the face of the rising suicide and suicide ideation among students which could be triggered subtly by hampered self-esteem, social development, and mental wellbeing of the students.

Findings showed that students' characteristics may or may not factor in cyberbullying. It was revealed that age has a low, positive ($r = .010$) and significant relationship ($p \geq .05$, 0.928) with cyberbullying. Gender has a high, negative ($r = -.823$) but significant relationship ($p \geq .05$, 0.242) with cyberbullying while primary residence has a moderate, positive ($r = .411$) and significant relationship ($p \geq .05$, 0.590) with cyberbullying. On the other hand, the academic level of students has a high, positive ($r = .739$) relationship with cyberbullying, but further testing provided no significant evidence ($p \leq .05$, 0.012) of the relationship. In other words, age, academic level of students and primary residence of the students were found as factors in cyberbullying which implies that as students' age and academic level increase, cyberbullying decreases. Similarly, their place of residence determines the extent of bullying students experience in cyberspace. This could be that as university students advance in age and progress in their academic levels, they understand better the need to channel their use of cyberspace to a more profitable venture that would benefit their academic activities and building of more positive social networks. Moreso, residing in either rural or urban areas could make one vulnerable to cyberbullying due to environmental factors and influences on the individual. This finding aligns with Ghansah (2022) that the class of students has a significant relationship with cyberbullying. It also corroborates with Lei et al (2019) that a significant relationship exists between cyberbullying and age. Moreso, the findings showed that the gender of students is not a significant factor in cyberbullying. This implies that experiencing bullying in cyberspace cuts across gender. In other words, male

and female students experience cyberbullying alike. This finding is in line with Ali and Shahbuddin (2022) and Romero-Reignier, Prado-Gascó & Mónaco (2019) who showed that gender was not a factor in cyberbullying.

Furthermore, there was a low and negative relationship ($r = -.161$) between cyberbullying and university students' self-esteem. When further subjected to testing, the relationship was found statistically significant ($p < .05, 0.018$). This implies that cyberbullying has a link with students' self-esteem. That means an increase in cyberbullying leads to significantly lowered self-esteem. Self-esteem revolves around the level of self-value a student which is very vital for one's development. The implication of the finding is that cyberbullying lowers the self-esteem of the victims. This finding is consistent with the existing some of the literature. It aligns with Lokithasan et al (2020) who observed a negative relationship between self-esteem and cyberbullying. The finding further supports Aderinola (2021) that bullying affects low self-esteem. Moreso, it validates the findings that link cyberbullying with low self-esteem (Mabvurira & Machimbidza, 2022; Martínez, Rodríguez-Hidalgo & Zych, 2020). Interestingly, the finding disagrees with Mona and Marwa (2018) found that bullying has no significant relationship with students' self-esteem. This could be because students with high self-esteem may likely be less vulnerable to the impact of cyberbullying experiences. The disparity in findings could be a result of other factors not controlled in each of the studies.

Moreso, the finding of the study revealed that the relationship between cyberbullying and university students' social development is low and positive ($r = 0.143$). When subjected further to testing, the relationship was found to be statistically significant ($p < .05, 0.035$). This implies that cyberbullying lowers the social development of university students. In other words, an increase in cyberbullying leads to significantly lowered social development for students. Cyberbullying no doubt negatively affects the social development of university students which can cause them to be socially sensitive leading to the blocking of contacts to withdraw from objects of victimization and bullying. This finding is in line with the existing empirical evidence that linked bullying to social withdrawal and social anxiety (Ardiavanti, Efendi, Kurnai & Hsieh, 2018). It further agrees with Anierobi, Okeke and Daniel (2021) that a negative relationship exists between school bullying and the social development of students.

Finally, we found that the relationship between cyberbullying and students' mental wellbeing is low and positive ($r = .004$); and when tested further was not significant. This implies that an increase in cyberbullying does not lead to a decrease in the mental well-being of students. However, the very low but positive relationship observed could imply that the mental well-being of university students is largely affected by other factors than cyberbullying experiences. It was expected that the finding will be consistent with the existing literature, but it is not. The finding disagrees with Ali and Shahbuddin (2022) that reported a significant negative relationship between cyberbullying and mental health among university students in Saudi Arabia. It further disagrees with Asibong et. al (2021) who found that bullying has an adverse effect on the mental health of the victims and, Anierobi et al (2022) who showed that bullying has a negative impact on the cognitive development of the victims. The disparity in findings could be because of students' characteristics and the personality makeup of the various participants used. Moreso, the distress in the present study area could have made the university students develop strategies that help them to maintain healthy mental well-being in the face of bullying experiences.

Conclusion, Implications and Limitations

Our findings showed the link between cyberbullying and students' characteristics such as age, gender, primary residence, and academic level of students. It further revealed the relationship that exists between cyberbullying and each of the following independent variables: self-esteem, social development, and mental well-being. Students' age, gender, and primary residence are significant factors in cyberbullying while the academic level of students was not a significant factor in cyberbullying. We concluded from these findings that students' characteristics to an extent, are crucial factors that can affect one's vulnerability to cyberbullying. The study also concluded that self-esteem and social development are significantly lowered or decreased by cyberbullying while mental well-being was not significantly decreased by cyberbullying. Could it be that cyberbullying does not actually negatively affect the mental well-being of university students given the rising rate of violence, peer rejection, aggressive behaviour, suicide ideation and suicide cases among university students in Anambra State and Nigeria in general? (Ugorji, Unachukwu & Nwosu, 2021).

This study has significant implications for healthy socio-cognitive well-being and proper development of Nigerian university students. It is obvious cyberbullying has a tremendous negative impact on the self-esteem and social development of students irrespective of gender and level of study. The negative impact of cyberbullying is

not left out on the mental well-being of the victims. Thus, for a socially well-developed university student with a good sense of self-value and mental well-being, cyberbullying should be put in check. Moreso, students should be taught appropriate social skills and assertiveness skills to help them guard against cyberbullying and to maintain their relationships with others in cyberspace. Students should also be taught how to channel their mental energy towards improving knowledge using the internet and other cyber sites.

Even though our study has significant implications, there are limitations to the generalizations of our findings. The use of questionnaires alone to collect our data may be a limitation to our study and there may be the need for future studies to add an interview method of data collection. Besides, our reliance on responses from random respondents may not reflect a true picture of the general experience of other students if our sample were drawn through an appropriate sampling technique. Finally, the use of a particular university for the study might not represent the opinion of all the university students in Anambra State. Considering the above, caution must be taken in the generalization of the findings.

Competing Interests

The authors declare that they have no competing interests in the study.

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