CYBERBULLYING VICTIMIZATION, PERPETRATION, AND PSYCHOSOMATIC HEALTH SYMPTOMS AMONG STUDENTS IN A GHANAIAN UNIVERSITY

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ABSTRACT: *Cyberbullying as deviant behavior is a growing public health concern and affects cyber victims in many ways. This study sought to examine cyberbullying victimization, perpetration, and psychosomatic health symptoms (PHS) among students in a Ghanaian university. The aim was to explore the extent of cyberbullying among students and the association between demographic factors and cyberbullying victimization, perpetration, and the PHS of cyberbullying victims. The study involved a cross-sectional survey of 420 students in a public university in Ghana. The survey results show that female students were less likely than male students to suffer from cybervictimization. There was no gender difference in cyberbullying perpetration and experiencing PHS. Also, students living with both parents were less likely to be victimized than students from single-parent families. Bystanders who tried to intervene in cybervictimization were less inclined to perpetrate cyberbullying but were more likely to experience PHS when cyberbullied. Students who lived alone or with friends were four times more likely to experience PHS after being cyberbullied. These findings point to the far-reaching effects of cyberbullying and the need for educators and other stakeholders to devise policies to mitigate the phenomenon and put in place structures to help cyberbullying victims.*

KEYWORDS: *cyberbullying, Ghana, psychosomatic health, students, cyber-victimization*

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INTRODUCTION

Since the invention of the internet in the early 1980s, communication has become easier and faster (Asogwa 2020; Fatema et al. 2020; Raselekoane et al. 2019). It has become even more crucial in the twenty-first-century educational climate, which relies on different software applications for teaching, learning, and interaction (Luker–Curchack 2017). This shift from traditional to online communication creates challenges despite its enormous benefits. Challenges of notable mention are the different forms of cybercrimes, such as software piracy, internet fraud, phishing, data breaches, extreme speech, cyberextortion, and cyberbullying.

Cyberbullying is any behavior undertaken through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort to others (Ferrara et al. 2018). Despite its virtual nature, Abaido (2020) avers that cyberbullying shares three primary characteristics with traditional bullying, (1) it is an act of aggression, (2) it occurs among individuals between whom a power imbalance exists, and (3) the behavior is often repeated. Cyberbullying can happen anytime and anywhere due to the ubiquitous nature of the internet (Cagirkan–Bilek 2021). Online bullying takes different forms, such as flaming, harassment, cyberstalking, denigration, masquerading, and exclusion or outing (Cowie 2013).

Regarding the extent of cyberbullying, research shows that it is far-reaching. For example, Foody et al. (2019) reported a cyberbullying rate of above 70% among internet users. Another study reported a cyberbullying rate as high as 80% among Indonesian junior high-school students (Safaria 2016). Examining regional figures, Xu and Trzaskawka (2021) report that Latin America has the highest cyberbullying rate of 76%, followed by North America and Europe, at 67% and 65%, respectively. The figures for the Middle East/Africa stand at 61%, and the Asia Pacific at 53%. Peru leads with 80% in terms of country-specific cyberbullying rates. These figures indicate the rising trend of cyberbullying victimization globally, calling for mitigating this social menace.

Ferrara et al. (2018) opined that online anonymity can lead to magnified aggression because perpetrators may feel out of reach to victims, using screen names that do not directly lead to the perpetrators. This anonymity has paved the way for extreme speech in the social media space (Udupa–Pohjonen 2019). Research shows that cyberbullying has some characteristics of extreme speech (Cohen-Almagor 2022). Through extreme speech, users express discriminatory, intimidating, disapproving, antagonistic, and/or prejudicial attitudes about factors such as sex, race, religion, ethnicity, color, national origin, or disability (Cohen-Almagor 2018).

Most studies into cyberbullying have been conducted in schools (Myers–Cowie 2019), with varied findings on gender differences in cyberbullying perpetration and victimization. Generally, males are more likely to perpetrate cyberbullying acts than their female counterparts (Sam et al. 2018). Other studies also show no significant difference between males and females regarding cyberbullying perpetration (Erdur-Baker et al. 2016). Though both males and females are cyberbullied, females are more likely than males to be victims.

Concerning age, studies indicate that older teenagers are more likely to perpetrate cyberbullying acts than younger teenagers (S. Zhou 2021). A cross-national analysis of young people in 42 countries related to social media usage and cyberbullying revealed that cyberbullying perpetration increases with age (Craig et al. 2020). This means that older people are at a higher risk of cyberbullying. A national representative survey in the Czech Republic found that young adult teachers were cyberbullied by their students (Kopecký–Szotkowski 2017).

Research has shown that people from single-parent families are more likely to be cyberbullied (Bevilacqua et al. 2017). Children living alone have been found to have a higher likelihood of being cyberbullied (Garmy et al. 2018). Despite these findings, other researchers did not find any relationship between living arrangements and cybervictimization or perpetration (Doty et al. 2017).

Cyberbullying among siblings has been documented in the literature, showing that first-born children are more likely to be bullies (Dantchev–Zemp 2021). Empirical evidence shows that being an only child is associated with more social anxiety following cybervictimization than other birth-order groups (Gopalakrishnan–Sundram 2014). It has been found that the use of Facebook and Twitter on social media applications and cyberbullying predisposes victims to cyberbully more than other social media applications (Kopecký–Szotkowski 2017). A nationwide study of Chinese teenagers showed that using WeChat or QQ Group social media applications was a common means of perpetrating cyberbullying (S. Zhou 2021).

Studies on bystander reactions to cyberbullying situations have revealed that although bystanders were generally unwilling to intervene, seeing several offenders increased the likelihood of intervening offline and in person (Kazerooni et al. 2018). It has been averred that the response of cyberbullying victims is the most influential factor in determining how bystanders react to cyberbullying victimization (Macaulay et al. 2022). Victims of cyberbullying are likely to counter their experience of cybervictimization through perpetrating cyberbullying acts (Dou et al. 2020). This behavior compensates them through a feeling of retaliation or "feeling good" after their initial negative experience of cybervictimization. Some cyberbullies have been found to engage in the

act to acquire or maintain popularity in early adolescence (Wegge et al. 2016). Other reasons cited for cyberbullying perpetration were "for fun" and "for no particular reason" (Jun 2020).

As deviant behavior and a public health concern, cyberbullying affects the cyberbullied's social and psychological well-being. Cyberbullying can have traumatic and long-lasting effects (Sam et al. 2018; Z. Zhou et al. 2013). Research has elucidated that cyberbullying is more harmful to youth and adolescents than traditional bullying because of the anonymity and general lack of control within cyberspace (Vaillancourt et al. 2017). There are numerous documented effects of cyberbullying on victims' health and psychological well-being, including sleeping problems, anger, depression, suicidal ideation, emotional problems, and headaches (Chi et al. 2020; Dantchev–Zemp 2021). Foody et al. (2019) studied cyberbullying and the psychological well-being of a sample of 2,410 teenagers in Ireland. They found that cyber victims reported more depression, emotional trauma, and hyperactivity than their non-involved counterparts. The victims also displayed less prosocial behavior, which was more pronounced in males than females.

In Africa, the literature on cyberbullying is replete with studies that have examined the experiences and perceptions of students regarding cyberbullying (Dou et al. 2020; Ferrara et al. 2018; Wegge et al. 2016), the legislative and policy frameworks within which the phenomenon occurs and is tackled (Jun 2020; Kazerooni et al. 2018), and other negative implications of cyberbullying (Sam et al. 2018; Vaillancourt et al. 2017). In our search, there is a dearth of literature in Africa on the health implications of cyberbullying, except for a few studies that have contributed to understanding the psychological harm of cyberbullying on victims (Chukwuere et al. 2021; Makori–Agufana 2020; Sam et al. 2018). In Ghana, research into cyberbullying is limited, focusing on victimization and the psychosocial effects of the phenomenon (Cassidy et al. 2013; Kubwalo et al. 2013; Ncube–Dube 2016; Ndiege et al. 2020; Zalaquett–Chatters 2014). The reactions of bystanders, sibling position (birth order), and the most commonly used social media applications are largely ignored. Also, how these influence cyberbullying victimization and perpetration has scarcely been examined in the Ghanaian literature. Therefore, the purpose of this study was to contribute to the literature by examining cyberbullying victimization, perpetration, and psychosomatic health symptoms (PHS) among students in a Ghanaian university. The study specifically explores the extent of cyberbullying among students, the association between demographic factors and cyberbullying victimization, perpetration, and the PHS of victims.

METHODS

Design, context, and participants

This study involved a cross-sectional survey design of students in an urban mid-sized public university in Ho, the Volta region of Ghana. Ho is the Volta regional capital and home to one public university, a technical university, and one private university college. The public university was selected due to the chance of obtaining adequate responses due to the large student population. Through convenience sampling, 420 participants were recruited for this study. There were slightly more males (50.2%) than females, ranging from 17 to 32 years old. Students aged from 17 years to 20 years accounted for almost half (48.3%) of the total sample. Participants living with both parents were in the majority, accounting for 57.1%, whereas those living with extended family made up only 8.8%. Those who reported being an only child amounted to 5.7%, and the proportion of participants whose birth position was between the first and last children in their families was 39.3%. WhatsApp was the most commonly used social media application (87.4% of the study sample). Fifty-three of the 420 students mostly used social media applications such as Twitter, Facebook, Instagram, Signal, and Telegram.

Measurements and variables

The survey instrument consisted of 28 questions, sectioned into three parts. The first section consisted of six questions designed to collect data on the demographic characteristics of the participants and bystander reactions. The following explanatory variables were included in the first section to explain possible differences in the experience of cyberbullying victimization, perpetration, and PHS: gender, age, living arrangement, sibling position, most used social media application, and bystander reaction.

The second section consisted of cyberbullying victimization and perpetration scales adapted from Cowie (2013) and Myers and Cowie (2019). The first seven-item scale was used to assess cyberbullying victimization, and the second seven-item scale to assess cyberbullying perpetration. Regarding cyberbullying victimization, respondents were asked to report how frequently they had experienced seven different behaviors in the past six months. Items included in the scale to measure cyberbullying victimization were "a[n] angry or rude message was sent to me via the internet or phone;" "I received insulting or threatening messages from friends/strangers via the internet or phone;" "I

received threats of harm or intimidation via the internet or phone;" "I received/found put-down message or cruel rumors about me via the internet or phone;" "someone pretended to be me and spread information to damage my reputation via the internet or phone;" "my confidential information has been shared online by someone else;" and "I was removed from an online group without my consent." This cyberbullying victimization scale had a Cronbach alpha of 0.80. Concerning cyberbullying perpetration, respondents were asked to report how frequently they had exhibited seven different behaviors in the past six months. Items included in the scale to measure cyberbullying perpetration were "I have transmitted angry or rude messages to someone via the internet or phone;" "I have sent insulting or threatening messages to someone via the internet or phone;" "I have sent threats of harm or intimidation to someone via the internet or phone;" "I have sent put-down messages or cruel rumors about someone via the internet or phone;" "I have pretended to be someone and spread information to damage his or her reputation via the internet or phone;" "I have shared someone's confidential information via internet or phone;" and "I have removed someone from an online group without his or her consent." This scale had a Cronbach alpha of 0.71. Response categories for the items on both scales ranged from "Never before," coded '1' to "Most of the time," coded '5'.

Due to the skewness of the cyberbullying victimization index (skewness = 1.96; kurtosis = 4.66) and the cyberbullying perpetration index (skewness = 1.78; kurtosis = 2.91), they were dichotomized into "Never before" vs. "at least once" for each index. The self-reported PHS scale by Svedberg et al. (2013) was used in this study to assess the effect of cyberbullying victimization on the psychosomatic health of the victims. This scale comprised eight items with a five-point scale, ranging from "None," coded '1' to "Very severe," coded '5'. PHS consisted of the following items: Difficulty concentrating, Sleep problems, Headache, Stomachache, Tension, Lack of appetite, Depressive symptoms (felt low), and Dizziness. This scale has been used and validated elsewhere (Hagquist–Andrich 2004). The PHS scale had a Cronbach alpha of 0.88 and was dichotomized into "None" and "Experienced PHS" in our study.

Data collection

An online survey (Google Forms) was distributed to the first-year class representatives across 18 undergraduate programs at the chosen university. In turn, these class representatives distributed the survey link to their colleagues to fill out and submit online. It took four months to complete the data collection. Instructions to participants on responding to the survey were included with the

survey instrument online. Percipients were asked to submit their responses only once. Adhering to the ethical principles of the Helsinki Declaration, the online survey provided clear information to participants. The principles of voluntary participation, anonymity, and informed consent were adhered to in this study. Also, participants did not receive any reward for their participation. Informed consent was included on the landing page of the survey so that participants were required to agree to the survey before they were allowed to continue. Participants interested in obtaining a copy of the survey were given clear instructions on the survey website on how to do so. In order to minimize our influence on the responses from the participants, the class representatives were instructed not to inform the students that faculty members were conducting the study.

Statistical analysis

The authors scrutinized data to ensure that incomplete responses were cleaned from the dataset. A comma-separated values (CSV) file contained the data. This data file was imported into IBM SPSS (version 20) for analysis. Descriptive statistics were used to describe the demographics of the participants. Chi-square tests were used to test for association between participants' demographic characteristics and cyberbullying victimization and perpetration. As suggested by Kim (2017), the effect sizes of the Chi-square tests were calculated using Cramer's V with magnitudes from small to medium effect sizes. Binary logistic regression was used to predict cyberbullying victimization and perpetration, with the demographic characteristics and bystander reaction as independent variables. Again, the same binary logistic regression was modelled to predict the PHS of the victims of cyberbullying. Data reliability in this study was achieved through the use of Cronbach's alpha.

RESULTS

Extent of cyberbullying

The individual responses to the cyberbullying perpetration and victimization items were examined to ascertain the extent of cyberbullying among the students in this study. Table 1 shows the seven-item scale used to measure cyberbullying victimization. It can be observed that the most common form of cyberbullying victimization was receiving angry or rude messages via the internet or phone.

As many as 55.2% of the students had experienced this form of cyberbullying victimization at least once in the past six months preceding data collection for this study. The least experienced form of cyberbullying victimization was outing, whereby victims were removed from an online group without their consent. This act was experienced at least once by only 11% of the participants. In Table 2, sending angry or rude messages via the internet or phone was the most perpetrated form of cyberbullying by the participants at least once in the past six months (40.7%). Again, outing was the least perpetrated form of cyberbullying at least once in the past six months (3.6%). Other forms of cyberbullying were perpetrated, and different forms of victimization were experienced among the sample, ranging from victims receiving insulting and threatening messages to sharing victims' confidential information online without victims' consent, among others (Table 1 and Table 2).

Table 1. *The extent of cyberbullying victimization N (%)*

Item	Never before	Once	Seldom	Some-times	Most of the time
Angry or rude messages were sent to me via the internet or phone	188 (44.8)	86 (20.5)	70 (16.7)	54 (12.9)	22 (5.2)
I received insulting or threatening messages from friends/strangers via the internet or phone	278 (66.2)	78 (18.6)	31 (7.4)	25 (6.0)	8 (1.9)
I received threats of harm or intimidation via the internet or phone	310 (73.8)	61 (14.5)	28 (6.7)	12 (2.9)	9 (2.1)
I received/found put-down messages or cruel rumors about me via the internet or phone	311 (74.0)	55 (13.1)	21 (5.0)	12 (2.9)	21 (5.0)
Someone pretended to be me and spread information to damage my reputation via the internet or phone	224 (53.3)	78 (18.6)	43 (10.2)	43 (10.2)	32 (7.6)
My confidential information has been shared online by someone else	363 (86.4)	29 (6.9)	10 (2.4)	8 (1.9)	10 (2.4)
I was removed from an online group without my consent	374 (89.0)	20 (4.8)	8 (1.9)	8 (1.9)	10 (2.4)

Source: Authors' field data 2022
Note: α=0.80; Relative frequencies are shown in brackets.

Table 2. *Extent of cyberbullying perpetration, N (%)*

Item	Never before	Once	Seldom	Some-times	Most of the time
I have transmitted angry or rude messages to someone via the internet or phone	249 (59.3)	89 (21.2)	35 (8.3)	36 (8.6)	11 (2.6)
I have sent insulting or threatening messages to someone via the internet or phone	301 (71.7)	63 (15.0)	35 (8.3)	17 (4.0)	4 (1.0)
I have sent threats of harm or intimidation to someone via the internet or phone	379 (90.2)	24 (5.7)	6 (1.4)	6 (1.4)	5 (1.2)
I have sent put-down messages or cruel rumors about someone via the internet or phone	366 (87.1)	44 (10.5)	6 (1.4)	2 (0.5)	2 (0.5)
I have pretended to be someone and spread information to damage their reputation via the internet or phone	329 (78.3)	46 (11.0)	15 (3.6)	18 (4.3)	8 (1.9)
I have shared someone's confidential information via the internet or phone	370 (88.1)	33 (7.9)	15 (3.6)	2 (0.5)	0 (0.0)
I have removed someone from an online group without their consent	405 (96.4)	13 (3.1)	2 (0.5)	0 (0.0)	0 (0.0)

Source: Authors' field data 2022
Note: α=0.71; Relative frequencies are shown in brackets.

Cyberbullying victimization, perpetration, and bystander reactions

The sample's demographic characteristics and reactions of bystanders during cyberbullying victimization were cross-tabulated with cyberbullying victimization and perpetration. This crosstabulation is depicted in Table 3. The chi-square test of independence showed a significant association between gender and cyberbullying victimization, with a small effect size according to Cramer's V, χ^2 (1, N = 420) = 8.36, p = 0.004; Cramer's V = 0.14. Cell-level inspection shows that there were more male victims (81.5%) than female victims of cyberbullying (69.4%). There was also a significant association between age group and cyberbullying victimization with a medium effect size, χ^2 (3, N = 420) = 16.08, p = 0.001; Cramer's V = 0.20. The association between sibling position and cyberbullying victimization was also significant, χ^2 (3, N = 420) = 16.79, p = 0.001; Cramer's V = 0.20. A similar association was also found for most used

social media application and cyberbullying victimization with a small effect size, χ^2 (1, N = 420) = 5.71, $p < 0.05$; Cramer's V = 0.12. However, the proportion of the sample who reported their sibling position and bystander reactions did not differ according to cyberbullying victimization. Regarding cyberbullying perpetration, the chi-square test of association between the demographic characteristics and cyberbullying perpetration demonstrated that only the most used social media application was significantly associated with cyberbullying perpetration, χ^2 (1, N = 420) = 5.89, $p < 0.05$; Cramer's V = 0.12. Cell inspection depicts that those who reported using other social media applications most of the time were more likely to be perpetrators of cyberbullying.

Table 3. *Cross-tabulation of cyberbullying and demographic characteristics (N, %)*

Demographic characteristics	Victimization			Perpetration		
	Non-victim	Victim	X^2 (df)	Non-perpetrator	Perpetrator	X^2 (df)
Gender						
Male	39 (18.5)	172 (81.5)	8.36* (1) Effect size Cramer's V= 0.14	90 (42.7)	121 (57.3)	1.60 (1)
Female	64 (30.6)	145 (69.4)		102 (48.8)	107 (51.2)	
Age group						
17–20 years	66 (32.5)	137 (67.5)	16.08* (3) Effect size Cramer's V= 0.20	92 (45.3)	111 (54.7)	0.50 (3)
21–24 years	16 (13.1)	106 (86.9)		54 (44.3)	68 (55.7)	
25–28 years	12 (24.0)	38 (76.0)		25 (50.0)	25 (50.0)	
29–32 years	9 (20.0)	36 (80.0)		21 (45.7)	24 (53.3)	
Living arrangement						
Single-parent family	19 (19.8)	77 (80.2)	3.98 (3)	48 (50.0)	48 (50.0)	1.96 (3)
Living with both parents	65 (27.1)	175 (72.9)		103 (42.9)	137 (57.1)	
Extended family	11 (29.7)	26 (70.3)		19 (51.4)	18 (48.6)	
Alone/ with friends	8 (17.0)	39 (83.0)		22 (46.8)	25 (53.2)	

Demographic characteristics	Victimization			Perpetration		
	Non-victim	Victim	X^2 (df)	Non-perpetrator	Perpetrator	X^2 (df)
Sibling position						
Only child	7 (29.2)	17 (70.8)	16.79* (3) Effect size Cramer's V= 0.20	9 (37.5)	15 (62.5)	6.08 (3)
First child	34 (30.1)	79 (69.9)		47 (41.6)	66 (58.4)	
Between first and last child	23 (13.9)	142 (86.1)		71 (43.0)	94 (57.0)	
Last child	39 (33.1)	79 (66.9)		65 (55.1)	53 (44.9)	
Most used social media application						
WhatsApp	97 (26.4)	270 (73.6)	5.71* (1) Effect size Cramer's V= 0.12	176 (48.0)	191 (52.0)	5.89* (1) Effect size Cramer's V= 0.12
Other	6 (11.3)	47 (88.7)		16 (30.2)	37 (69.8)	
Bystander reaction						
Do nothing	50 (25.9)	143 (74.1)	0.59 (2)	79 (40.9)	114 (59.1)	4.59 (2)
Try to intervene	20 (24.6)	92 (75.4)		65 (53.3)	57 (46.7)	
Leave the online group	23 (21.9)	82 (78.1)		48 (45.7)	57 (54.3)	

Source: Authors' field data 2022.
*Note: *p < 0.05; X^2(df) = Chi-square (degrees of freedom).*

Predicting cyberbullying victimization and perpetration

Two binary logistic regression models were modelled to predict cyberbullying victimization and perpetration (Table 4). For the cyberbullying victimization model, $\chi^2_{(13)} = 54.359$, $p < 0.001$; *Nagelkerke's* $R^2 = 0.181$, and accurately predicts 75.2% of the cases. The second model, which predicts cyberbullying perpetration, had $\chi^2_{(13)} = 24.016$, $p < 0.05$; *Nagelkerke's* $R^2 = 0.074$ and accurately predicts 59.5% of the cases. Most-used social media applications and bystander reaction out of the six independent variables contributed significantly to the second model predicting cyberbullying perpetration. In the first model aimed at predicting cyberbullying victimization, it can be ascertained that gender, age group, living arrangement, sibling position, and most used social media application contributed significantly to the model. As observed in the first model, females were 53% less likely than males to be cyberbullied

(β = –0.762, $p < 0.05$ and *AOR* = 0.467). Students aged 21 years to 24 years were three times more likely to be victims of cyberbullying (β = 1.179, p < 0.001 and *AOR* = 3.251) than those who were 17 years to 20 years old. Participants living with both parents were less likely to be victims of cyberbullying than those from single-parent families (β = –0.691, $p < 0.05$ and *AOR* = 0.501). Also, those whose birth position was between the first and last children in their families were 3.6 times more likely to be victims of cyberbullying than those who were first children (β = 1.290, $p < 0.05$ and *AOR* = 3.632). Compared to those who mainly used WhatsApp, participants who used other social media applications were more than twice as likely to experience cyberbullying victimization (β = 1.032, $p < 0.05$ and *AOR* = 2.806) and, at the same time, be perpetrators (β = 0.917, $p < 0.05$ and *AOR* = 2.501) of cyberbullying. This finding indicates that some victims of cyberbullying are sometimes perpetrators of cyberbullying. Those who tried to intervene when they came across cyberbullying victimization were 40% less likely to be perpetrators than those who did nothing as bystanders during cyberbullying victimization (β = –0.519, $p < 0.05$ and *AOR* = 0.595).

Table 4. *Predictors of cyberbullying victimization and perpetration*

Predictor variables		Victimization			Perpetration		
		B	Wald	Adjusted odds ratio (AOR)	β	Wald	Adjusted odds ratio (AOR)
Gender	Male (Ref.)						
	Female	–0.762	8.226	0.467*	–0.363	2.831	0.696
Age group	17–20 years (Ref.)						
	21–24 years	1.179	12.512	3.251*	0.044	0.031	1.045
	25–28 years	0.199	0.216	1.122	–0.058	0.025	0.944
	29–32 years	0.287	0.423	1.333	0.053	0.022	1.055
Living arrangement	Single-parent family (Ref.)						
	Living with both parents	–0.691	4.361	0.501*	0.377	1.975	1.458
	Extended family	–0.798	2.655	0.450	–0.010	0.001	0.990
	Alone/with friends	–0.759	1.870	0.468	0.127	0.091	1.135

Predictor variables		Victimization			Perpetration		
		B	Wald	Adjusted odds ratio (AOR)	β	Wald	Adjusted odds ratio (AOR)
Sibling position	Only child (Ref.)						
	First child	0.465	0.731	1.592	–0.213	0.189	0.808
	Between first and last child	1.290	5.208	3.632*	–0.313	0.414	0.731
	Last child	–0.216	0.164	0.805	–0.907	3.515	0.404
Most used social media application	WhatsApp (Ref.)						
	Other	1.032	4.750	2.806*	0.917	7.372	2.501*
Bystander reaction	Do nothing (Ref.)						
	Try to intervene	–0.119	0.159	0.888	–0.519	4.465	0.595*
	Leave the online group	0.238	0.593	1.269	–0.090	0.121	0.914
Constant		1.145	4.026	3.143*	0.620	1.572	1.859

Source: Authors' field data 2022
*Note: *p < 0.05.*

Cyberbullying victimization and psychosomatic health symptoms

Another binary logistic regression was modelled (Table 5) to explain the determinants of psychosomatic health symptoms among the victims of cyberbullying (N=317). The model had $\chi^2_{(13)} = 52.320$, $p < 0.001$; *Nagelkerke's* $R^2 = 0.216$ and accurately predicted 76.3% of the cases. Except for gender, the other five variables contributed significantly to the model. Compared to participants who were 17 to 20 years old, those who were 21 to 24 years and 29 to 32 years old were 62% and 63% less likely to experience psychosomatic health symptoms, respectively, following cybervictimization. These findings were significant at $p < 0.05$. These results mean that older students are better managers of their emotions and psychological health in cyberbullying victimization instances. Those living alone or with friends were more than four times as likely to experience psychosomatic health symptoms following cyberbullying victimization episodes ($\beta = 1.492$, $p < 0.05$ and $AOR = 4.446$). Participants who were the first children in their families were five times more likely to experience

psychosomatic health symptoms after being cyberbullied (β = 1.671, $p < 0.05$ and *AOR* = 5.318). Students who used social media applications other than WhatsApp were twice as likely to experience psychosomatic health symptoms after being victims of cyberbullying. Concerning bystanders, those who tried to intervene in cyberbullying perpetration (β = 1.000, $p < 0.05$ and *AOR* = 2.717) and those who left an online group after instances of cyberbullying (β = –1.060, $p < 0.05$ and *AOR* = 2.886) were more likely to experience psychosomatic health symptoms following their cyberbullying victimization.

Table 5. *Predictors of psychosomatic health symptoms among cyberbullying victims*

Predictor variables		β	Wald	Adjusted odds ratio
Gender	Male (Ref)			
	Female	0.356	1.596	1.428
Age group	17–20 years (Ref)			
	21–24 years	0.064	0.040	1.066
	25–28 years	–0.965	4.212	0.381*
	29–32 years	–0.997	4.236	0.369*
Living arrangement	Single-parent family (Ref)			
	Living with both parents	–0.085	0.057	0.919
	Extended family	–0.213	0.147	0.808
	Alone/with friends	1.492	6.114	4.446*
Sibling position	Only child (Ref)			
	First child	1.671	6.995	5.318*
	Between first and last child	0.480	0.708	1.615
	Last child	0.052	0.008	1.054
Most used social media application	WhatsApp (Ref)			
	Other	0.892	12.538	2.441*
Bystander reaction	Do nothing (Ref)			
	Try to intervene	1.000	8.500	2.717*
	Leave the online group	1.060	8.066	2.886*
Constant		–0.351	0.332	0.704

Source: Authors' field data 2022.
Notes: $p < 0.05$.

DISCUSSION

This study's findings add to the literature on cyberbullying in general, particularly related to bystander reactions, most used social media application, sibling position, and the determinants of experiencing psychosomatic health symptoms of victims of cyberbullying. Globally, there are variations in the extent of cyberbullying, with rates ranging from 10% to as much as more than 70% (Foody et al. 2019). This report agrees with the study's 75% cyberbullying victimization rate. Regarding different acts of cyberbullying victimization within the selected sample, findings from our study are congruent with results from other studies (Abaido 2020; Cagirkan–Bilek 2021; Cowie 2013; Garmy et al. 2018; Sam et al. 2018). For example, it has been averred that the most common act of cyberbullying victimization is receiving an offensive message from someone (Abaido 2020). Jun (2020), using Korean national data spanning three years, revealed that the most prominent type of cyberbullying among adolescents was verbal abuse, and the most typical means was instant messaging. In this study, transmitting rude messages to others was the most perpetrated cyberbullying act. This finding is not surprising since it also constituted the most common act of cyberbullying victimization. Outing was the least experienced form of cyberbullying victimization and perpetration in this study. This outcome might be because most of the respondents in this study used the WhatsApp application, which gives only administrators the right to remove a participant from the group. Accordingly, no group member can remove another member from the group even if they want to.

Gender differences in cyberbullying victimization and perpetration have been examined by different researchers but with mixed findings (Chukwuere et al. 2021; Cilliers 2021; Foody et al. 2019; Garmy et al. 2018; Gopalakrishnan–Sundram 2014; Makori–Agufana 2020). Raselekoane et al. (2019) examined gender differences in cyberbullying among first-year University of Venda students in South Africa. They found that female students were the primary victims of cyberbullying, and male students were the foremost perpetrators. Conversely, results from our study established that females are significantly less likely to be cyberbullied than their male counterparts. This finding is consistent with Jun (2020), who reports that male students experience cyberbullying perpetration and victimization at higher rates than female students. Culturally, Ghanaian boys are socialized to express masculinity in direct physical, and sometimes violent ways and retaliate when confronted (Dery et al. 2022). However, females are taught to avoid violence and confrontation (Antiri 2016). In accord, Smith et al. (2019), from an analysis of such gender differences from five large cross-national databases, showed that a preponderance of male

perpetrators of bullying is found consistently across surveys and survey time points. Males are more likely to cyberbully and be victims of cyberbullying in general (Gohal et al. 2023).

An association between age group and cyberbullying victimization was found in this study, with those aged from 21 years to 24 years old more than three times more likely to be victims of cyberbullying than those aged from 17 to 20 years. This result contradicts that of Singh et al. (2017) that teenagers are the most impacted group in terms of cyberbullying victimization. Our finding could be due to the fact that the average age of a university student in Ghana is more than 20 years (Sam et al. 2018). Different age group categorizations have resulted in mixed findings regarding age and cyberbullying (ibid.). However, a study using a New Zealand national sample reported that young adults experience the highest levels of cyberbullying victimization, while the phenomenon occurs less often in older age cohorts (Wang et al. 2019). It can be argued that cyberbullying is likely to be more prevalent among teenagers and young adults since they generally use the internet more (He et al. 2022).

We found no significant relationship between students living with both parents and perpetrators of cyberbullying. However, they (students living with both parents) were significantly less likely to be cyberbullying victims than students from single-parent families. This means that students from single-parent families are at risk of cyberbullying victimization. A possible explanation for this finding is that students from single-parent families may be going through emotional problems, making them vulnerable and predisposed to be bullied. Bevilacqua et al. (2017) found that students from single-parent families were more likely to be cyberbullied. Conversely, other research studies that considered family structure did not find any relationship between family structure and cyberbullying victimization and perpetration (Hagquist–Andrich 2004). Other researchers have found that strong parental attachment is negatively correlated with cyberbullying, independent of family type (Fang et al. 2022).

The findings of this study have established an association between sibling position and cyberbullying victimization among university students. Students whose birth positions were between the first and last children were 3.6 times more likely to be cyberbullied than students who were their parents' only children. There is a paucity of research into birth order or sibling position and cyberbullying. One explanation for our finding is that students whose birth order is between the first and last children in their families may have been bullied by their older siblings, which is part of the cultural means of keeping younger siblings in check (Sam et al. 2018). This earlier experience makes younger siblings susceptible to being bullied outside the home. In support of this explanation, Dantchev and Zemp (2021) found in their sibling, peer, and

cyberbullying study among children and adolescents that youth involved in sibling bullying appeared to display exceptionally high concurrent bullying victimization and perpetration behavior.

Students who mostly used other social media applications besides WhatsApp were more likely to be victims and perpetrators of cyberbullying. It has been argued that being a victim of cyberbullying tends to make the victim a perpetrator of cyberbullying (Dantchev–Zemp 2021). This could either be a means of retaliation or overcoming perceived weakness. In this study, the chi-square test of association found no association between bystander reaction and cyberbullying. However, the logistic regression model showed that students who tried to intervene in cyberbullying victimization were 40% less likely to perpetrate cyberbullying. Bystander intervention has been found to increase with increased anonymity and bystander numbers (You–Lee 2019). When bystanders feel that their identity is secure and anonymous, there are more likely to intervene since their anonymity protects them from being cyberbullied later. This finding means bystanders should be encouraged to intervene in cyberbullying perpetration when they are sure of their anonymity within the online environment.

Self-reported experiences of PHS following cyberbullying victimization were assessed against the demographic characteristics of the victims and bystander reactions. Apart from gender, the other four demographic factors and bystander reaction predicted PHS among cyberbullying victims following cyberbullying victimization. Similar findings have been reported elsewhere (Li et al. 2023). Li et al. (2019) reported in their study of Chinese adolescents that victims of cyberbullying were more likely to report headaches, sleep problems, and abdominal pain. Similar psychosomatic health symptoms have also been found among adolescents in Sweden (Hellfeldt et al. 2019). In our study, cyberbully victims living alone or staying with friends during vacations were more than four times as likely to experience psychosomatic health symptoms. This experience shows that such students may lack social support from their families to help reduce the effect of cyberbullying victimization. For example, Hellfeldt and her colleagues (2019) found that perceived social support from family and teachers reduces the probability of depressive and anxiety symptoms. Also, higher levels of social support from the family increase the likelihood of higher subjective well-being among youth victims of cyberbullying and are negatively associated with cybervictimization (Rodriguez-Rivas et al. 2022). Another interesting finding from the current study is that older persons (25–28 years and 29–32 years old) were less likely to experience psychosomatic health symptoms after being cyberbullied. A plausible explanation is that since they are in the older age categories, they may have developed psychologically to withstand

cyberbullying victimization or may have been victims when they were younger and have developed some resilience against cyberbullying victimization. Sam et al. (2018) support this argument by opining that the Ghanaian style of children's upbringing exposes children to physical punishment and other derogatory remarks in their everyday social interactions that are likely to toughen children against psychological distress as they grow up.

LIMITATIONS

This study, as with all empirical research, is not without limitations. First, this study was cross-sectional and employed a convenience sampling technique, so establishing causality can be difficult. Second, we conducted this study in only one university in Ghana, making generalization to other universities in Ghana challenging. This generalization challenge means that inference from this study to other universities and schools in Ghana should be undertaken cautiously. Another drawback of this study is that some students could have made multiple submissions since no identification verification tool was used to ensure a single submission per participant. The student representatives were only tasked with informing students that they should make a single submission. Despite these limitations, this study contributes to the literature by highlighting some determinants of cyberbullying victimization, perpetration, and PHS in a Ghanaian university, which will help universities structure cyberbullying policies to mitigate the phenomenon.

CONCLUSIONS

This study demonstrates the extent of cyberbullying by showing that offensive and rude messages are the most common acts of cyberbullying victimization. Also, female students were less likely to experience cyberbullying victimization than male students. Furthermore, bystanders who intervene in cyberbullying victimization are less likely to engage in cyberbullying perpetration. Again, no significant association was found between the selected demographic characteristics (gender, age, sibling position, living arrangement) and bystander reaction and cyberbullying perpetration. This discovery points to the fact that any student may engage in cyberbullying perpetration. However, besides gender, other demographic characteristics and bystander reactions were

significant predictors of experiencing PHS after being cyberbullied. This means universities should consider students' demographic characteristics when adopting cyberbullying policies.

REFERENCES

Abaido, G. M. (2020) Cyberbullying on social media platforms among university students in the United Arab Emirates. *International Journal of Adolescence and Youth*, Vol. 25, No. 1., pp. 407–420, DOI: 10.1080/02673843.2019.1669059

Antiri, O. K. (2016) Types of bullying in the senior high schools in Ghana. *Journal of Education and Practice*, Vol. 7, No. 36., pp. 131–138.

Asogwa, C. E. (2020) Internet-based communications: A threat or strength to national security? *SAGE Open*, Vol. 10, No. 2., pp. 1–9, DOI: 10.1177/2158244020914580

Bevilacqua, L. – N. Shackleton – D. Hale – E. Allen – L. Bond et al. (2017) The role of family and school-level factors in bullying and cyberbullying: A cross-sectional study. *BMC Pediatrics*, Vol. 17, No. 1., pp. 1–10, DOI: 10.1186/s12887-017-0907-8

Cagirkan, B. – G. Bilek (2021) Cyberbullying among Turkish high school students. *Scandinavian Journal of Psychology*, Vol. 62, No. 4., pp. 608–616, DOI: 10.1111/sjop.12720

Cassidy, W. – C. Faucher – M. Jackson (2013) Cyberbullying among youth: A comprehensive review of current international research and its implications and application to policy and practice. *School Psychology International*, Vol. 34, No. 6., pp. 575–612, DOI: 10.1177/0143034313479697

Chi, P. T. L. –V. T. H. Lan – N. H. Ngan –N. T. Linh (2020) Online time, the experience of cyberbullying and practices to cope with it among high school students in Hanoi. *Health Psychology Open*, Vol. 7, No. 1., DOI: 10.1177/2055102920935747

Chukwuere, P. C. – J. Chukwuere – D. Adom (2021) The psychosocial effects of social media cyberbullying on students in selected African countries. *Acta Informatica Malaysia*, Vol. 5, No. 2., pp. 62–70, DOI: 10.26480/aim.02.2021.62.70

Cilliers, L. (2021) Perceptions and experiences of cyberbullying amongst university students in the Eastern Cape province, South Africa. *The Journal for Transdisciplinary Research in Southern Africa*, Vol. 17, No. 1., DOI: 10.4102/td.v17i1.776

Cohen-Almagor, R. (2018) Taking North American white supremacist groups seriously: The scope and the challenge of hate speech on the internet. *International Journal for Crime, Justice and Social Democracy*, Vol. 7, No. 2., pp. 38–57, DOI: 10.5204/ijcjsd.v7i2.517

Cohen-Almagor, R. (2022) Bullying, cyberbullying, and hate speech. *International Journal of Technoethics*, Vol. 13, No. 1., pp. 1–17, DOI: 10.4018/IJT.291552

Cowie, H. (2013) Cyberbullying and its impact on young people's emotional health and well-being. *The Psychiatrist*, Vol. 37, No. 5., pp. 167–170, DOI: 0.1192/pb.bp.112.040840

Craig, W. – M. Boniel-Nissim – N. King – S. D. Walsh – M. Boer et al. (2020) Social media use and cyber-bullying: A cross-national analysis of young people in 42 countries. *Journal of Adolescent Health*, Vol. 66, No. 6S., pp. S100–S108, DOI: 10.1016/j.jadohealth.2020.03.006

Dantchev, S. – M. Zemp (2021) Sibling, peer, and cyber bullying among children and adolescents: Co-occurrence and implications for their adjustment. *Frontiers in Psychology*, Vol. 12, p. 761276, DOI: 10.3389/fpsyg.2021.761276

Dery, I. – R. Makama – A. R. Khan (2022) Configuring traditional masculinities among young men in north-western Ghana: Surveillance, ambivalences, and vulnerabilities. *Cogent Social Sciences*, Vol. 8, No. 1., DOI: 10.1080/23311886.2022.2038849

Doty, J. L. – A. L. Gower – J. H. Rudi – B. J. McMorris – I. W. Borowsky (2017) Patterns of bullying and sexual harassment: Connections with parents and teachers as direct protective factors. *Journal of Youth and Adolescence*, Vol. 46, No. 11., pp. 2289–2304, DOI: 10.1007/s10964-017-0698-0

Dou, G. – Y. Xiang – X. Sun – L. Chen (2020) Link between cyberbullying victimization and perpetration among undergraduates: Mediating effects of trait anger and moral disengagement. *Psychology Research and Behavior Management*, Vol. 13, No. 1., pp. 1269–1276, DOI: 10.2147/PRBM.S286543

Erdur-Baker, O. – I. Tanrikulu – C. Topcu (2016) Gender differences in cyberbullying perpetration: The role of moral disengagement and aggression. In: Wright, M. F. (ed.): *A Social-Ecological Approach to Cyberbullying.* pp. 67–96. Hauppauge, (NY, US), Nova Science Publishers, Inc.

Fang, Y. – C. Fan – J. Cui – X. Zhang – T. Zhou (2022) Parental attachment and cyberbullying among college students: The mediating role of loneliness and the moderating role of interdependent self. *Current Psychology*, DOI: 10.1007/s12144-022-04046-2

Fatema, K. – S. Nasreen – M. S. Parvez – M. A. Rahaman (2020) Impact of using the internet on students: A sociological analysis at Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh. *Open Journal of Social Sciences*, Vol. 8, No. 12., pp. 71–83, DOI: 10.4236/jss.2020.812007

Ferrara, P. – F. Ianniello – A. Villani – G. Corsello (2018) Cyberbullying a modern form of bullying: Let's talk about this health and social problem. *Italian Journal of Pediatrics*, Vol. 44, No. 1., p. 14, DOI: 10.1186/s13052-018-0446-4

Foody, M. – L. McGuire – J. O'Higgins (2019) Friendship quality and gender differences in association with cyberbullying involvement and psychological well-being. *Frontiers in Psychology*, Vol. 10 (July), pp. 1–13, DOI: 10.3389/fpsyg.2019.01723

Garmy, P. – R. Vilhjálmsson – G. Kristjánsdóttir (2018) Bullying in School-aged Children in Iceland: A Cross-sectional Study. *Journal of Pediatric Nursing*, Vol. 38, pp. e30–e34, DOI: 10.1016/j.pedn.2017.05.009

Gohal, G. – A. Alqassim – E. Eltyeb – A. Rayyani – B. Hakami et al. (2023) Prevalence and related risks of cyberbullying and its effects on adolescent. *BMC Psychiatry*, Vol. 23, No. 1., DOI: 10.1186/s12888-023-04542-0

Gopalakrishnan, S. K. – S. Sundram (2014) Cyber bullying victimization and social anxiety among secondary school students. *International Journal of Current Research and Academic Review*, Vol. 2, No. 10., pp. 55–59.

Hagquist, C. – D. Andrich (2004) Measuring subjective health among adolescents in Sweden. *Social Indicators Research*, Vol. 68, No. 2., pp. 201–220, DOI: 10.1023/B:SOCI.0000025593.97559.7f

He, W. – L. Cao – R. Liu – Y. Wu – W. Zhang (2022) Factors associated with internet use and health information technology use among older people with multi-morbidity in the United States: Findings from the National Health Interview Survey 2018. *BMC Geriatrics*, Vol. 22, No. 1., pp. 1–10, DOI: 10.1186/s12877-022-03410-y

Hellfeldt, K. – L. López-Romero – H. Andershed (2019) Cyberbullying and psychological well-being in young adolescence: The potential protective mediation effects of social support. *International Journal of Environmental Research and Public Health*, Vol. 17, No. 45., pp. 1–16, DOI: 10.3390/ijerph17010045

Jun, W. (2020) A study on the cause analysis of cyberbullying in Korean adolescents. *International Journal of Environmental Research and Public Health*, Vol. 17, No. 13., p. 4648, DOI: 10.3390/ijerph17134648

Kazerooni, F. – S. H. Taylor – N. N. Bazarova – J. Whitlock (2018) Cyberbullying bystander intervention: The number of offenders and retweeting predict likelihood of helping a cyberbullying victim. *Journal of Computer-Mediated Communication*, Vol. 23 (May), pp. 146–162, DOI: 10.1093/jcmc/zmy005

Kim, H. Y. (2017) Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative Dentistry & Endodontics*, Vol. 42, No. 2., pp. 152–155, DOI: 10.5395/rde.2017.42.2.152

Kopecký, K. – R. Szotkowski (2017) Specifics of cyberbullying of teachers in Czech schools – a national research. *Informatics in Education*, Vol. 16, No. 1., pp. 103–119, DOI: 10.15388/infedu.2017.06

Kubwalo, H. W. – A. S. Muula – S. Siziya – S. Pasupulati – E. Rudatsikira (2013) Prevalence and correlates of hunger among primary and secondary school children in Malawi: Results from the 2009 Global School-based Health Survey. *Malawi Medical Journal*, Vol. 25, No. 2., pp. 45–49.

Li, J. – Y. Wu – T. Hesketh (2023) Internet use and cyberbullying: Impacts on psychosocial and psychosomatic wellbeing among Chinese adolescents. *Computers in Human Behavior*, Vol. 138 (January), 107461, DOI: https://doi.org/10.1016/j.chb.2022.107461

Li, J. – A. M. Sidibe – X. Shen –T. Hesketh (2019) Incidence, risk factors and psychosomatic symptoms for traditional bullying and cyberbullying in Chinese adolescents. *Children and Youth Services Review*, Vol. 107 (December), 104511, DOI: 10.1016/j.childyouth.2019.104511

Luker, J. M. – B. C. Curchack (2017) International perceptions of cyberbullying within higher education. *Adult Learning*, Vol. 28, No. 4., pp. 144–156, DOI: 10.1177/1045159517719337

Macaulay, P. J. R. – L. R. Betts – J. Stiller – B. Kellezi (2022) Bystander responses to cyberbullying: The role of perceived severity, publicity, anonymity, type of cyberbullying, and victim response. *Computers in Human Behavior*, Vol. 131 (June), 107238, DOI: 10.1016/j.chb.2022.107238

Makori, A. – P. Agufana (2020) Cyber bullying among learners in higher educational institutions in Sub-Saharan Africa: Examining challenges and possible mitigations. *Higher Education Studies*, Vol. 10, No. 2., pp. 53–65, DOI: 10.5539/hes.v10n2p53

Myers, C. A. – H. Cowie (2019) Cyberbullying across the lifespan of education: Issues and interventions from school to university. *International Journal of Environmental Research and Public Health*, Vol. 16, No. 7., pp. 1–14, DOI: 10.3390/ijerph16071217

Ncube, L. S. – L. Dube (2016) Cyberbullying a desecration of information ethics: Perceptions of post-high school youth in a rural community. *Journal of Information, Communication and Ethics in Society*, Vol. 14, No. 4., pp. 313–322, DOI: 10.1108/JICES-04-2016-0009

Ndiege, J. R. A. – G. Okello – P. K. Wamuyu (2020) Cyberbullying among university students: The Kenyan experience. *The African Journal of Information Systems*, Vol. 12, No. 1., pp. 24–43.

Raselekoane, N. R. – T. J. Mudau – P. P. Tsorai (2019) Gender differences in cyber-bullying among first-year University of Venda students. *Gender and Behaviour*, Vol. 17, No. 3., pp. 13848–13857.

Rodriguez-Rivas, M. E. – J. J. Varela – C. González – M. J. Chuecas (2022) The role of family support and conflict in cyberbullying and subjective well-being among Chilean adolescents during the Covid-19 period. *Heliyon*, Vol. 8, No. 4., e09243, DOI: 10.1016/j.heliyon.2022.e09243

Safaria, T. (2016) Prevalence and impact of cyberbullying in a sample of Indonesian junior high school students. *Turkish Online Journal of Educational Technology*, Vol. 15, pp. 82–91.

Sam, D. L. – D. Bruce – C. B. Agyemang – B. Amponsah – H. Arkorful (2018) Cyberbullying victimization among high school and university students in Ghana. *Deviant Behavior*, Vol. 40, No. 11., pp. 1305–1321, DOI: 10.1080/01639625.2018.1493369

Singh, M. M. – P. J. Ng – K. M. Yap – M. H. Husin – N. H. A. H. Malim, (2017) Cyberbullying and a mobile game app? An initial perspective on an alternative solution. *Journal of Information Processing Systems*, Vol. 13, No. 3., pp. 559–572, DOI: 10.3745/JIPS.04.0033

Smith, P. K. – L. López-Castro – S. Robinson – A. Görzig (2019) Consistency of gender differences in bullying in cross-cultural surveys. *Aggression and Violent Behavior*, Vol. 45 (March–April), pp. 33–40, DOI: 10.1016/j.avb.2018.04.006

Svedberg, P. – M. Eriksson – E. Boman (2013) Associations between scores of psychosomatic health symptoms and health-related quality of life in children and adolescents. *Health and Quality of Life Outcomes*, Vol. 11, No. 1., p. 176, DOI: 10.1186/1477-7525-11-176

Udupa, S. – M. Pohjonen (2019) Extreme speech and global digital cultures: Introduction. *International Journal of Communication*, Vol. 13, (July), pp. 3049–3067.

Vaillancourt, T. – R. Faris – F. Mishna (2017) Cyberbullying in children and youth: Implications for health and clinical practice. *The Canadian Journal of Psychiatry*, Vol. 62, No. 6., pp. 368–373, DOI: 10.1177/0706743716684791

Wang, M. – K. Yogeeswaran – N. P. Andrews – D. R. Hawi – C. G. Sibley (2019) How common is cyberbullying among adults? Exploring gender, ethnic, and age differences in the prevalence of cyberbullying. *Cyberpsychology, Behavior, and Social Networking*, Vol. 22, No. 11., pp. 736–741, DOI: 10.1089/cyber.2019.0146

Wegge, D. – H. Vandebosch – S. Eggermont – S. Pabian (2016) Popularity through online harm: The longitudinal associations between cyberbullying and sociometric status in early adolescence. *Journal of Early Adolescence*, Vol. 36, No. 1., pp. 86–107, DOI: https://psycnet.apa.org/doi/10.1177/0272431614556351

Xu, Y. – P. Trzaskawka (2021) Towards descriptive adequacy of cyberbullying: Interdisciplinary studies on features, cases and legislative concerns of cyberbullying. *International Journal for the Semiotics of Law*, Vol. 34, No. 4., pp. 929–943, DOI: 10.1007/s11196-021-09856-4

Zalaquett, C. P. – S. J. Chatters (2014) Cyberbullying in college. *SAGE Open*, Vol. 4, No. 1., p. 21582440145, DOI: 10.1177/2158244014526721

Zhou, S. (2021) Status and risk factors of Chinese teenagers' exposure to cyberbullying. *SAGE Open*, Vol. 11, No. 4., DOI: 10.1177/21582440211056626

Zhou, Z. – H. Tang – Y. Tian – H. Wei – F. Zhang – C. M. Morrison (2013) Cyberbullying and its risk factors among Chinese high school students. *School Psychology International*, Vol. 34, No. 6., pp. 630–647, DOI: 10.1177/0143034313479692