

## Prevalence of Cyberbullying and Prevention Strategies among Public Secondary School Students

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### Abstract

**Background:** Cyberbullying has become an alarming societal issue that cannot be ignored due to its severe physical and psychological consequences on adolescents. **Aim:** To determine the prevalence of cyberbullying and prevention strategies among public secondary school students. **Design:** A cross-sectional design was utilized in this study. **Sample and Setting:** 504 students were recruited from ten public secondary schools affiliated to five different educational zones in Cairo Governorate, Egypt, using a randomized cluster sampling method. **Tools:** Two tools were used including Socio-demographic Data Sheet, and Cyberbullying and Prevention Strategies Assessment Questionnaire. **Results:** More than half of the studied sample reported experiencing cyberbullying at a moderate level. As well, the prevalence of cybervictimization was higher than the prevalence of cyber perpetration. Regarding gender differences, male students significantly have higher scores of cybervictimization and cyber perpetration than females. Cyber exclusion was reported as the most common form of cyber perpetration, while impersonation was reported as the most common form of cybervictimization. Moreover, the study findings revealed a very low percent score of the applied prevention strategies for cyberbullying as perceived by the students. **Conclusion:** The study concluded that, cyberbullying was prevalent among secondary school students, which could become more problematic with increased time, spend on the internet. Moreover, gender was considered an important factor in cyberbullying. Limited role of secondary schools in preventing cyberbullying was documented. **Recommendation:** anti-cyberbullying prevention programs and interventions strategies should be implemented.

**Keywords:** *Cyberbullying, cybervictimization, cyber perpetration, gender, prevention strategies & secondary school students*

### Introduction

The increasing prevalence of using the Internet worldwide has changed the way people communicate and share information. Socializing, doing homework, expanding one's horizons of knowledge, enjoying one's leisure time, and even dealing with health care issues are now conducted online. As a result, research in this field has expanded significantly, especially over the past decade. The vast majority of Internet users experience positive outcomes as a result of appropriate use, which may be advantageous for their development and mental health. Nonetheless, excessive Internet use may impede development, harm mental health and social functioning, and even lead to addiction (Chao, et al., 2020).

Besides, research indicates that adolescents who use the Internet excessively are susceptible to cyberbullying (Mendez, et al., 2020; Sheinov, 2021). Teenagers are particularly prone to cyberbullying. For one, adolescence is a crucial stage in the transition from childhood to adulthood, a time when adolescents are not only susceptible to external influences but also may have a lack of self-discipline (Zhao, et al., & Zhang, 2022). Given the psychological

characteristics of adolescents, when they lack sufficient personal resources or experience to cope with numerous psychological stressors, they are susceptible to the internet's influence (Gan, et al., & Jin, 2022).

Cyberbullying is defined as the use of electronic means of communication to harass, intimidate, or harm another person. It is a pattern of violent acts committed by a person or group of people against helpless victims using technological means. Generally speaking, cyberbullying refers to frequent online abuse. Recent studies have found that over 75% of children and adolescents today have been the target of cyberbullying at some point (Nagata, et al. 2022).

Although intentionality, repetition, and inequalities in power are all hallmarks of cyberbullying, these are not all it has going for it. The perpetrator may remain anonymous, the message may be widely disseminated, and the crime may be committed at any time and in any location (John, et al., 2018; Shannen, et al., 2021; Henares-Montiel, et al. 2022).

This last characteristic facilitates bullying by giving the abuser a sense of security. Furthermore, different aspects of cyberbullying have been identified.

Specifically, cybervictimization, cyber perpetration, cyber bystanding, and a hybrid of the two cybervictimization-perpetration (Shannen, et al., 2021; Henares-Montiel et al., 2022).

There are many kinds of cyber perpetration have been identified in the literature. (1) Cyber-impersonation includes hacking into someone's account to cause trouble without their permission or control. the perpetrator uses a fake identity to hurt, annoy, and scare the victim (Ngbar, 2019); (2) Doxing which refers to searching for and publishing private information such as name, residence address, academic record, or even personal photographs and videos about a particular individual on the internet, with malicious intent (Chen, et al., 2019); (3) Cyber exclusion which means intentionally excluding someone from a group on the social media; (4) Sexual cyberbullying includes any sexually aggressive or coercive behavior through electronic media such as sending nude photos or sexually explicit messages to the victim without permission, threatening to share a nude photo of the person online or coercing the victim to send sexually explicit photos against his will (Ehman, & Gross, 2019); (5) Denigration is the act of insulting, threatening, and undermining someone through verbal abuse, ridiculing, sarcasm, and spreading rumours with intention to damage his reputation (Sangwan, & Bhatia, 2020).

Cyberbullying entails cyber-bystanders as well. These individuals who observe, share, remark on, or forward details of cyberbullying incidents, causing widespread degradation and victimization. Cyber-bystanders may increase the frequency of cyberbullying, or they may choose to stop it by defending victims or ceasing to share the incidents. They may play a crucial role in the development, maintenance, or termination of the malicious cycle of cyberbullying (Leung, 2021).

Cyberbullying victims frequently experience a wide range of mental health problems, including anxiety, panic attacks, distress, trauma symptoms, depressed mood, hopelessness, helplessness, low self-esteem, avoiding social contact, suicidal thoughts, self-harm, somatic symptoms like headaches and stomachaches, changes in appetite, and sleep disturbance, as well as problems relating to others (Shoib, et al., 2022).

Nurses play a crucial role in addressing the effects of cyberbullying on individuals and communities. Assessing cyberbullying victims entails evaluating their mental health, identifying sources of support, and determining their risk for depression, self-harm, or suicide. Nurse's role is important for determining the appropriate interventions, support services and providing counselling for cyberbullying victims. Moreover, nurses can collaborate with other healthcare providers, educators, school administrators and community organizations to provide interventions

to prevent cyberbullying among school students and teach them about secure and respectful online behavior, digital citizenship, and anti-bullying strategies (Yosep, et al., 2023a).

### Theoretical Framework

Two theoretical frameworks-the first, Albert Bandura's (1977) social learning theory, and the second, Agnew's (1992) general strain theory-supported the study. Social learning theory reflects the belief that an individual acquires attitudes, behaviors, and emotional responses by observing others' behaviors and actions. It integrates cognitive and behavioral learning theories. Consequently, the individual can observe and imitate bullying behavior from other sources such as television, the Internet, the community, and the surrounding environment.

General strain theory supports the assumption that negative experiences can cause tension or stress. Victimization is known as a stressful experience, and according to this theory, experiences of stress or strain may prompt a person to perform a positive or negative action to decrease the stress or strain. Within this paradigm, the roles of the perpetrator and the victim can interchange. The general strain theory (GST) explains the relationship between cyberbullying victimization and perpetration (Figure 1). According to GST, cybervictimization, as an adverse stimulus, is a significant source of pressure leading to cyberbullying perpetration (Dou, et al., 2020).

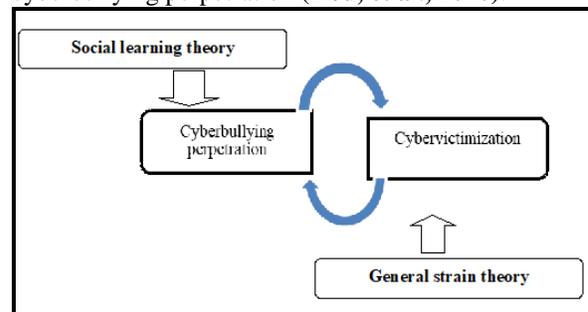


Figure (1): The relationship between cyberbullying victimization and perpetration model

### Significance of the Study

Due to its severe physical and psychological consequences for adolescents, cyberbullying has become an alarming societal issue that cannot be ignored. Students may experience negative emotions such as annoyance, sadness, and revenge as a result of cyberbullying, causing them to withdraw from the surrounding environment. In addition, the victim of cyberbullying may develop low self-esteem (Koh, 2016; Burger & Bachmann, 2021) and depression, which may lead to suicidal ideation (Yosep, et al., 2022) difficulties in forming and maintaining interpersonal relationships with others, and disturb their learning concentration (Yosep, et al., 2023b).

The cyber perpetrator may lose his future and be subject to criminal acts (Radebe & Kyobe, 2021). Identifying the prevalence of cyberbullying among Egyptian secondary school students may help teachers and school nurses develop cyberbullying prevention programs and techniques to be included in ministry of education policies and school curricula. Furthermore, recognizing the prevalence of cyberbullying behaviors is critical for providing psychological therapies for students who have been exposed to the harmful mental effects of cyberbullying. Regrettably, the question of how students perceive the adequacy and suitability of cyberbullying prevention strategies is rarely posed. Moreover, ignoring the psychological needs of the students or implementing inadequate prevention strategies when dealing with peer relationships that involve cyberbullying prevents students from seeking teachers' assistance, thereby limiting the range of effective forms of support available in these challenging situations. Therefore, it is crucial to determine the frequency of cyberbullying and prevention strategies as perceived by students themselves.

**Aim of the Study:** The aim of the current study was to determine the prevalence of cyberbullying and prevention strategies among public secondary school students. This aim was covered through four main objectives:

- 1- Determine the prevalence of cyberbullying among public secondary school students.
- 2- Determine the prevalence of cybervictimization and cyber perpetration among public secondary school students.
- 3- Assess the frequency of school prevention strategies for cyberbullying as perceived by public secondary school students.
- 4- Explore gender differences in cybervictimization and cyber perpetration.

#### **Research Questions:**

- RQ1:** What is the prevalence of cyberbullying among public secondary school students?
- RQ2:** What is the prevalence of cybervictimization and cyber perpetration among public secondary school students?
- RQ3:** What is the frequency of school prevention strategies for cyberbullying as perceived by public secondary school students?
- RQ4:** Are there any gender differences regarding cybervictimization and cyber perpetration among public secondary school students?

## **Subjects and Method**

### **Research Design**

A cross-sectional design was utilized to fulfil the aim of the study. Cross-sectional studies are observational studies that analyze data from a population at a

specific time point. It is frequently used to measure the prevalence of health outcomes, comprehend health determinants, and describe population characteristics (Wang & Cheng, 2020).

**Setting:** The study was conducted in ten public secondary schools affiliated to five different Educational Zones in Cairo Governorate, namely: Al-Sayeda Aisha Secondary School for Girls and Shubra Secondary School for Boys affiliated to Rawd Al-Farag Educational Zone. El-Mataria Secondary School for Girls and Omar Bin Al-Khattab Military Secondary School for Boys affiliated to El-Mataria Educational Zone, Nabawiya Musa School for Girls and Al-Mohandes Sedqi Suleiman School for Boys affiliated to the Eastern Nasr City Educational Zone, Al-Batal Al-Shahied Majed Ahmed School for Girls and The Outstanding School for Boys affiliated to Ain Shams Educational Zone, 15 May School for Girls and Omar Bin Al-Khattab Secondary School for Boys affiliated to El-Mustaqbal District Educational Zone.

**Sample:** A randomized cluster sampling method was used for this study, and the sampling technique was implemented as follows:

Cairo has 306 public secondary schools distributed across 33 educational zones.

- 1- In the first stage; the researchers randomly picked five educational zones.
- 2- Second stage; due to gender separation in most Egyptian schools, two public secondary schools under each educational zone (one for girls and one for boys) were randomly selected.
- 3- The third stage. Three classes in each school were chosen (the researchers randomly selected one class for each scholastic year).
- 4- The researchers recruited all the students who attended those randomly selected classes. At the end, 30 classes were selected at 10 separate public secondary schools.

**Sample size calculation** The aim of the current study was to determine the prevalence of cyberbullying and assess the frequency of school prevention strategies for cyberbullying as perceived by public secondary school students. Assuming a prevalence of 31.4% as reported in the previous study by Azami & Tareman (2021), this study requires a minimum of 331 secondary school students to detect a similar prevalence with a deviation of 5% and a confidence level of 95%. The sample size was calculated using the OpenEpi online calculator. However, the researchers increased the sample size to comprise 504 students to enhance certainty and consider that some students may not provide accurate answers to the questions.

**Tools of data collection:** Data was collected during the second semester of the academic year 2022/2023. The researchers used the following tools:

**Sociodemographic Data Sheet:** Basic information regarding the age, gender, scholastic year (1st, 2nd, and 3rd secondary) and hours spent on the Internet daily were collected.

**Cyberbullying and Prevention Strategies Assessment Questionnaire (CPSAQ):** is an Arabic self-report questionnaire designed by Yousef (2017). The questionnaire was used to determine the prevalence of cyberbullying and the applied school prevention strategies among public secondary school students in the past three months. It consists of 74 items divided into six main domains: denigration (20 items), impersonation (14 items), doxing (11 items), cyber exclusion (10 items), and sexual cyberbullying (10 items), and the last (9 items) were used to assess the frequency of cyberbullying prevention strategies implemented in schools. Each domain was divided into two parts: the first part is for victims (those who are cyberbullied), and the second part is for perpetrators (those who cyberbully others).

#### **Scoring system**

Responses to the questionnaire for the first five domains (forms of cyberbullying) were rated on a four-point Likert scale (never, rarely, sometimes, always), and the scores were as follows: always (3), sometimes (2), rarely (1), and never (0). Responses to the sixth domain related to prevention strategies were rated as highly applied (3 scores), moderately applied (2 scores), slightly applied (1 score), and not applied (0 score). The scores of the items were added together, and the total scores were divided by the number of items, yielding a mean score for each section. The total score ranges from 74 to 222.

#### **Content Validity and reliability:**

A panel of psychiatric mental health and community health nursing experts discussed and assessed the validity and suitability of the questionnaire for use with adolescents. A few modifications were made in response to panel's judgment. The calculated reliability for the questionnaire using Cronbach's Alpha was 0.97.

#### **Ethical considerations**

The primary official permission was obtained from the Research Ethics Committee at the Faculty of Nursing at Cairo University to approve the tools and the study. Written informed consent was obtained from both the students and their parents. They were informed about the purpose of the study and its importance. The researchers emphasized that participation in this study is voluntary, and they can withdraw at any time during the study without giving any reasons. They were reassured that their identity will be anonymous and that their information will be kept in a safe, locked place and used only for this research.

#### **Procedure**

After attaining the study approval letter from the Research Ethics Committee of the Faculty of Nursing, Cairo University, official permission to conduct the current study was obtained from the Central Agency for Public Mobilization and Statistics (CAPMAS), Cairo Educational Directorate, and the selected educational zones. Also, permission was obtained orally from the directors of all selected secondary public schools after informing them about the purpose of the study, the research methods, and the timeline for data collection.

Then, the informed consents were distributed to the students so that they and their parents could sign them as evidence that they consented to participate in the study.

After obtaining consent forms, a pilot study was conducted to validate the questionnaire. Thereupon, the researchers collected data by disseminating the questionnaires to all students, who were instructed to complete them individually during breaks or activity times. The average time required to complete it was between 10 and 15 minutes. The researchers remained in the school during the school day in order to respond to any participant queries or provide clarification. Finally, the study questionnaires were then collected.

#### **Pilot study**

A pilot study involving five students from each scholastic year was conducted. The main purposes of the pilot study were to evaluate the validity, reliability, clarity of the questionnaire, and to estimate the time necessary to administer the tool, to find out any problems that might interfere with the process of data collection. The pilot study revealed that, the average time needed to complete the questionnaire ranged from 15-20 minutes depending on the degree of understanding and responses of the participant.

#### **Statistical Analysis**

Data were tabulated and analyzed using Statistical Package for Social Science (SPSS) version 26. The Shapiro-Wilk hypothesis test was performed to confirm the normality of the distribution of all variables. Quantitative variables were described as median and interquartile range (IQR) because they were not normally distributed. Categorical data were described as frequency and percentage.

The Kruskal Wallis test was used to compare the median scores of cyberbullying according to the different categories of time spent on the internet daily and scholastic secondary years. The Mann Whitney test was used to compare the prevalence of cyberbullying among male and female students.  $p$ -value  $< 0.05$  will be considered statistically significant.

## Results

**Table (1): Frequency and Percentage Distribution of Demographic Characteristics of the studied sample (n=504)**

Characteristics	Categories	No (%) Median ± IQR
Gender	Female	246(48.8)
	Male	258(51.2)
Age(year)	15-17	328(65)
	18-20	176(35)
		<b>17±2</b>
Scholastic Year	1 <sup>st</sup> secondary	121(24)
	2 <sup>nd</sup> secondary	170(33.7)
	3 <sup>rd</sup> secondary	213(42.3)
Time spent on using internet / daily	1-5 hrs.	203(40.3)
	6-10 hrs.	185(36.7)
	11-15 hrs.	69(13.7)
	>15	47(9.3)
		<b>6±6</b>

**Table (2): Descriptive Statistics of Cybervictimization, Cyber perpetration and applied school prevention strategies among the Studied Sample (n=504)**

Subscales of cybervictimization, cyber perpetration (Practicing of/ being a victim of)	Cybervictimization			Cyber perpetration			Applied school prevention strategies	
	Median (IQR)	% Score	Rank	Median (IQR)	% Score	Rank	Median (IQR)	% Score
1-Denigration	12(10)	40	3	<b>10(14)</b>	<b>33.33</b>	<b>2</b>		
2-Impersonation	<b>10(7)</b>	<b>47.62</b>	1	6(8)	28.57	3		
3-Doxing	6(8)	33.33	4	4(7)	26.67	4		
4-Cyber Exclusion	<b>7(7)</b>	<b>46.67</b>	2	<b>6(5)</b>	<b>40</b>	1		
5-Sexual cyberbullying	3(7)	20	5	1(6)	6.67	5		
<b>Total</b>	<b>38(8)</b>	<b>38.3</b>		<b>27(8)</b>	<b>28.1</b>		<b>3(3)</b>	<b>11</b>

**Table (3): Differences in cyberbullying among the studied sample according to their characteristics (n=504).**

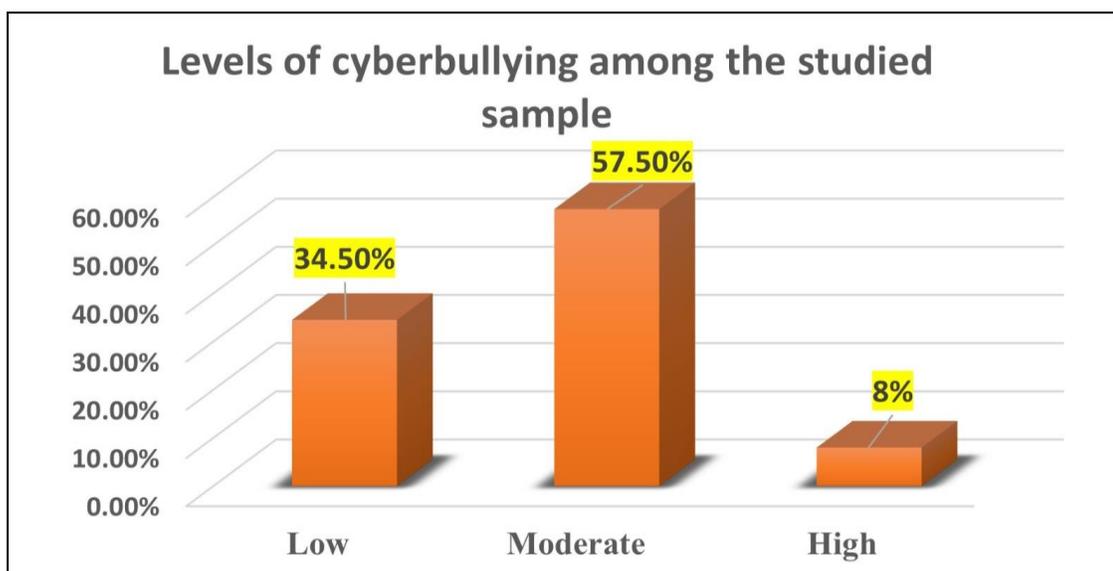
Variables	Median	IQR	Kruscal Wallis	Mann Whitney test	P
<b>Scholastic year</b>					
1 <sup>st</sup> secondary	69	45	1.31		0.51
2 <sup>nd</sup> secondary	75	34			
3 <sup>rd</sup> secondary	68	88			
<b>Time spent on using internet daily</b>					
1-5 hrs.	34	50	166.3		0.0001*
6-10 hrs.	71	21			
11-15 hrs.	90	27			
>15 hrs.	94	20			
<b>Gender</b>					
Female	34	58		1464.4	0.0001*
Male	75	26			

\*Significant at p-value&lt;0.05

**Table (4): Differences in the prevalence of cyber perpetration, and cybervictimization between male and female students (n=504)**

Subscales of cyberbullying	Female		Male		Mann Whitney	p-value
	Mean	SD	Mean	SD		
<b>Cyber perpetration</b>						
Denigration	5.79	6.65	12.12	7.23	15841.5	0.0001*
Impersonation	3.93	4.71	7.93	4.85	16018.5	0.0001*
Doxing	2.81	3.41	5.62	3.76	18032	0.0001*
Cyber exclusion	4.98	3.23	7.82	3.69	17470	0.0001*
Sexual cyberbullying	2.28	3.24	3.59	3.53	24522.5	0.0001*
<b>Cybervictimization</b>						
Denigration	8.14	6.10	15.29	5.68	11659.5	0.0001*
Impersonation	6.70	5.49	10.64	4.15	16914.5	0.0001*
Doxing	4.14	4.22	7.13	3.78	19014	0.0001*
Cyber exclusion	4.52	4.01	7.51	4.05	19003.5	0.0001*
Sexual cyberbullying	4.42	4.00	4.29	3.87	25495.5	0.78

\*Significant at p-value<0.05



**Figure (2): Percentage Distribution of cyberbullying Levels among the studied sample (n=504)**

**Table (1):** Shows that five hundred and four secondary school students were participated in this study. Regarding gender, the studied sample is nearly evenly split, with 48.8% female, and 51.2% male. Concerning age, 65% of the studied sample aged between 15-17 years old, with 35% being between 18-20 years old. The median age is 17 years old with interquartile range of two years. 24%, 33.7%, and 42.3% were in first, second, and third secondary years respectively. Finally, the table reveals that about 40.3% spend 1-5 hrs. daily using the internet, and 36.7% spend 6-10 hrs. The median of daily internet hours is 6 hours with an IQR of 6 hrs.

Regarding cybervictimization, **Table (2):** Reveals that being a victim of impersonation was ranked as first among the five subscales of cybervictimization

with (median =10, IQR= 7, and percent score = 47.62%), followed by being a victim of cyber exclusion with (median =7, IQR= 7, and percent score = 46.67%)

Which ranked as second reported cybervictimization. The overall percent score of cybervictimization was 38.3%.

As regard to cyber perpetration, the table reveals that practicing cyber exclusion was reported as first ranked subscale with (median =6, IQR= 5, and percent score = 40%), followed practicing denigration (median =10, IQR= 14, and percent score = 33.33%) which ranked as second as reported by the studied sample. The overall percent score of cyber perpetrations was 28.1%.

For the applied school prevention strategies of cyberbullying, the median score was 3 with an IQR of 3 and the percent score was 11%.

**Table (3):** Shows that there were no statistically significant differences in cyberbullying between the three scholastic years ( $p=0.51$ ). However, there were a significant difference in the median scores of cyberbullying according to the time spent on using internet daily (Kruskal Wallis= 166.3,  $p$ -value = 0.0001). Regarding gender, the Mann-Whitney test shows a significant difference in the median scores of cyberbullying between male and female students, with males reporting significantly higher scores than females ( $p=0.0001$ ).

**Table (4):** Reveals that there were significant gender differences in all subscales of cyber perpetration and cybervictimization with ( $p$  value = 0.0001) except for being a victim to sexual cyberbullying as there was no significant difference between males and females ( $p=0.78$ ).

**Figure (2):** Reveals that 57.5% of the studied sample reported experiencing cyberbullying at a moderate level.

## Discussion

The primary goal of the current study is to determine the prevalence of cyberbullying and prevention strategies among public secondary school students. According to the current study findings, more than half of the studied sample reported experiencing cyberbullying at a moderate level. Cyberbullying behaviors have been studied in different geographical locations throughout the globe. Prevalence of cyberbullying among teens varies greatly around the world, ranging from 10% to more than 70% in many studies. In accordance, there was similarity in the reported prevalence between the current study and the study of **Gohal et al. (2023) & but Ercag (2021)** reported a very low prevalence. However, some studies reported high prevalence of cyberbullying among secondary school students in Egypt (**Mohsen, & Safaan, 2016; et al., 2021**). This great difference might be due to many factors such as significant inconsistencies in cyberbullying description, methods of assessment, cultural differences, time of data collection, or different usage patterns of the internet (**Selkie, et al., 2016**).

The results of this study show that the prevalence of cybervictimization was higher than the prevalence of cyber perpetration in the past three months. The findings of the study were in agreement with a study conducted in Hong Kong by **Chen, (2018)** which found that the prevalence of cybervictimization among secondary school students was reported more than cyberbullying others. As well, a study conducted by **Rodríguez-Enríquez, et al. (2019)**

that found approximately (40%) of the adolescents aged 15-16 years old reported being victims of cyberbullying. Conversely, the current study was contradicting with that of **Mohseny et al. (2020)**, found that the prevalence rate of cybervictimization was lower than the perpetration rate. The current result might be due to the perpetrators' fear of reporting their bullying to avoid labelling, or even they may have a lack of self-awareness.

The current study indicates that cyber exclusion was reported as the most common form of cyber perpetration among secondary school students. For cybervictimization, being a victim of impersonation was reported as the most common form. While, sexual cyberbullying was reported as the less common in both. The current study is partially consistent with **Chen (2018)**, who found that denigration was the most common type of cyber perpetration and victimization, while sexual cyberbullying was less common. These results might be attributable to the serious legal consequences of online sexual bully, and victims of sexual cyberbullying may be less likely to report this type of bullying due to the shame and embarrassment that victims may feel.

The current findings show a very low percent score for the applied prevention strategies for cyberbullying as perceived by public secondary school students. This finding was in line with that of **El-Sherif (2018), & Abdel Rahman (2018)**, who found that the school administration had a limited role in preventing cyberbullying. In this context, research studies concerning the role of schools in preventing and combating cyberbullying appear to be scarce. From the researchers' point of view, the limited role of the schools might be due to a lack of resources and expertise to address and prevent cyberbullying effectively. Along with the nature of cyberbullying, it is difficult to be detected because the perpetrator is anonymous and it usually happens in digital spaces outside the school, which are not easily monitored by school administrators and teachers.

Concerning the gender differences in cyberbullying, the current study findings highlight that male students significantly have higher scores of cybervictimization and cyber perpetration than females. Likewise, the majority of previous studies confirm this finding such as a study conducted by **Chen (2018) & Mohseny et al. (2020)**, which reported that boys were more likely to be bullied and victimized than girls. However, studies conducted by **Razjouyan, et al. (2018) & Thumronglaohapun et al. (2022)** showed that females were more likely to be victims than males, while males were bullied more than female students. As well, the study of **Kim et al. (2018)** recorded that cybervictimization was significantly higher among

female students than males. In this context, **Chen et al. (2019)** found that girls were more likely than boys to be doxed. Surprisingly, the study findings of **Shannen et al. (2021)** recorded no gender differences in cybervictimization and cyber perpetration. The current study findings raise some concerns regarding the significance of cultural or religious conservative values. Moreover, girls are more tolerant and avoid being exposed to hostile situations, whereas boys are more impulsive. As a result, boys who are victims of cyberbullying may be more inclined than girls to engage in similar behavior against others.

The current study findings show that two fifths of the sample spent 1-5 hours on the internet every day, while slightly more than one third spent 6-10 hours. As well, there was a significant difference in the median scores of cyberbullying according to the time spent on internet daily. This was consistent with the study of **Gohal et al. (2023)** which reported that increased Internet hours were significantly associated with cyberbullying. Another study showed that cyber victims spent more time on social networking sites than non-victims (**Rodríguez-Enríquez et al. 2019**). Students in secondary schools may spend more time online since their classes rely heavily on online communication; yet, being exposed to such a vast internet community also increases their vulnerability to cyberbullying.

### Conclusion

The findings of this study shed important light on the issue of cyberbullying. Overall, the current study concluded that cyberbullying is prevalent among secondary school students, which could become more problematic with increased time spent on the internet . As well, gender is considered an important factor in cyberbullying. The current study indicates that cyber exclusion was reported as the most common form of cyber perpetration, while being a victim of impersonation was reported as the most common form of cybervictimization among secondary school students. Moreover, the study documented the limited role of secondary schools in preventing cyberbullying.

### Recommendation

Based on the study findings, the following recommendations were formulated:

- Psychological therapy and counselling are crucial for teenagers who have been victimized online.
- School health nurses can collaborate with schools' directors, families, and policymakers to utilize the research findings to create supportive school environments and implement anti-cyberbullying interventions.

- Further investigations are important to determine the underlying factors that contribute to gender differences in cyberbullying.
- Further researches are needed using a longitudinal and multi-center design.
- A variety of monitoring and assessment measures, as well as a larger sample size should be utilized in future studies.

### Limitation of the study

This study has some limitations. First, this study was conducted among public secondary school students in one governorate in Egypt, and that may not be representative of students from other geographical areas. Although the current study found a moderate prevalence among the studied sample, it should be emphasized that it was conducted on a definite age group, 15 to 20 years old. Therefore, the results could not be generalized to other age groups, or communities from different cultures. Second, the participants completed a self-reported questionnaire and the responses may have exposed to recall bias or self-reporting bias.

### Acknowledgment

The researches would like to thank schools' directors, educational zones administrators, and all participants for their cooperation.

### Conflict of Interest

The Authors declare that there is no conflict of interest'.

### List of abbreviations

GST= General Strain Theory

### Ethics approval and consent to participate

This research was approved by the Human Research Ethics Committee- Faculty of Nursing, Cairo University.

- Study number (2023-29)
- IORG (0006883)
- RHDIRB (2019041701)

### References

- **Abdel Rahman, H.H. (2018):** A proposed vision to overcome cyberbullying in elementary educational schools in Egypt in the light of the experiences of Australia, Finland, and the United States of America. Journal of the Faculty of Education, Vol. (177), No. (2), Pp. 671-730.
- **Agnew, R. (1992):** Foundation for a general strain theory of crime and delinquency. Criminology, Vol. (30), No. (1), Pp. 47-88. doi:10.1111/j.1745-9125.1992.tb01093.x.
- **Azami, M.S. & Taremiyan, F. (2021):** Risk factors associated with cyberbullying, cybervictimization, and cyberbullying-victimization in Iran's high school students. Iran J Psychiatry, Vol (16), No. (3), Pp. 343-352.

- **Bandura A. (1977):** Social learning theory. Bergen: Prentice Hall.
- **Burger, C. & Bachmann, L. (2021):** Perpetration and victimization in offline and cyber contexts: a variable-and person-oriented examination of associations and differences regarding domain-specific self-esteem and school adjustment. *International journal of environmental research and public health*, Vol (18), No. (19), Pp. 10429-10429.
- **Chao, C., Kao, K. & Yu, (2020):** Reactions to Problematic Internet Use Among Adolescents: Inappropriate Physical and Mental Health Perspectives. *Frontiers in psychology*, Vol (11), Pp. 1782-1782.  
<https://doi.org/10.3389/fpsyg.2020.01782>
- **Chen, M., Cheung, A. & Chan, K. (2019):** Doxing: What adolescents look for and their intentions. *International journal of environmental research and public health*, Vol. (16), No. (2), Pp. e16020218-e16020218.  
<https://doi.org/10.3390/ijerph>.
- **Chen. J.K. (2018):** Cyberbullying among secondary school students in Hong Kong. *The Hong Kong Journal of Social Work*, Vol. (52), No. (01n02), Pp. 49-62.
- **Dou, G., Xiang, Y., Sun, X. & Chen, L. (2020):** Link between Cyberbullying Victimization and Perpetration among Undergraduates: Mediating Effects of Trait Anger and Moral Disengagement. *Psychol Res Behav Manag*, Vol. (13), Pp. 1269-1276.  
<https://doi.org/10.2147/PRBM.S286543>.
- **Ehman, A. & Gross, A. (2019):** Sexual cyberbullying: Review, critique, & future directions. *Aggression and violent behavior*, Vol. (44), Pp. 80-87.
- **El-Sherif, E.H.S. (2018):** The role of the school administration in reducing the phenomenon of school bullying in the intermediate stage from the point of view of male and female students in Jeddah, Vol. (34), No. (3), Pp. 122-150.
- **Ercag, E. (2021):** An Analysis of the Attitudes of Secondary School Students on Cyber Bullying Behaviors. *Revista Românească pentru Educație Multidimensională*, Vol. (13), No. (4), Pp. 239-266.  
<https://doi.org/10.18662/rrem/13.4/481>.
- **Eweida, R.S., Hamad, N.I., Abdo, R.A. & Rashwan, Z.I. (2021):** Cyberbullying among adolescents in Egypt: A call for correlates with sense of emotional security and psychological capital profile. *Journal of Pediatric Nursing*, Vol. (61), Pp. e99-e105.  
<https://doi.org/10.1016/j.pedn.2021.05.008>.
- **Gan, X., Wang, P., Huang, C., Li, H. & Jin, X. (2022):** Alienation from school and cyberbullying among Chinese middle school students: A moderated mediation model involving self-esteem and emotional intelligence. *Front. Public Health*, Vol. (10), Pp. e903206-e903206. doi: 10.3389/fpubh.2022.903206.
- **Gohal, G., Alqassim, A., Eltyeb, E., Rayyani, A., Hakami, B., Al Faqih, A., Hakami, A., Qadri, A. & Mahfouz, M. (2023):** Prevalence and related risks of cyberbullying and its effects on adolescent. *BMC Psychiatry*, Vol. (23), No. (39).  
<https://doi.org/10.1186/s12888-023-04542-0>.
- **Henares-Montiel, J., Benítez-Hidalgo, V., Ruiz-Pérez, I., Pastor-Moreno, G. & Rodríguez-Barranco, M. (2022):** Cyberbullying and associated factors in member countries of the European Union: a systematic review and meta-analysis of studies with representative population samples. *International journal of environmental research and public health*, Vol. (19), No. (12), Pp. 7364. <https://doi.org/10.3390/ijerph19127364>.
- **John, A., Glendenning, A., Marchant, A., Montgomery, P., Stewart, A., Wood, S., Lloyd, K. & Hawton, K. (2018):** Self-harm, suicidal behaviours, and cyberbullying in children and young people: systematic review. *Journal of medical Internet research*, Vol (20), No. (4), Pp. e129. <https://doi.org/10.2196/jmir.9044>.
- **Kim, S., Kimber, M., Boyle, M. & Georgiades, K. (2019):** Sex differences in the association between cyberbullying victimization and mental health, substance use, and suicidal ideation in adolescents. *Canadian journal of psychiatry*, Vol (64), No. (2), Pp. 126-135.  
<https://doi.org/10.1177/0706743718777397>.
- **Koh, W.M.S. (2016):** Management of workplace bullying in hospital: A review of the use of cognitive rehearsal as an alternative management strategy. *Int. J. Nurs. Sci.*, Vol (3), Pp. 213–222.
- **Leung, A.N.M. (2021):** To Help or Not to Help: Intervening in cyberbullying among Chinese cyber-bystanders. *Front. Psychol.*, Vol. (12), Pp. 483250 - 483250. doi: 10.3389/fpsyg.2021.483250.
- **Maurya, C., Muhammad, T., Dhillon, P. & Maurya, P. (2022):** The effects of cyberbullying victimization on depression and suicidal ideation among adolescents and young adults: a three year cohort study from India. *BMC Psychiatry*, Vol. (22), No. (1), Pp. 1-14.  
<https://doi.org/10.1186/s12888-022-04238-x>.
- **Mendez, I., Jorquera, A., Esteban, C. & Garcia-Fernandez, J. (2020):** Profiles of mobile phone use, cyberbullying, and emotional intelligence in adolescents. *Sustainability*, Vol. (12) No. (22), Pp.1-10. 9404. doi: 10.3390/su12229404.
- **Mohsen, M.M. & Safaan, N.A. (2016):** Emergence of bullying and cyberbullying: frequency, consequences, and experiences of secondary school

- students. International journal of novel research in health care and nursing, Vol. (3), No. (2), Pp. 52-70.
- **Mohseny, M., Zamani, Z., Basti, S.A., Sohrabi, M., Najafi, A. & Tajdini, F. (2020):** Exposure to cyberbullying, cybervictimization, and related factors among junior high school students. Iranian Journal of Psychiatry and behavioral Sciences, Vol. (14), No. (4), Pp. e99357. <https://doi.org/10.5812/ijpbs.99357>.
  - **Nagata, J. M., Trompeter, N., Singh, G., Ganson, K., Testa, A., Jackson, D., Assari, S., Murray, S., Bibbins-Domingo, K. & Baker, F. (2022):** Social epidemiology of early adolescent cyberbullying in the United States. Academic pediatrics, Vol. (22), No. (8), Pp. 1287–1293. <https://doi.org/10.1016/j.acap.2022.07.003>.
  - **Ngbar, M.W. (2019):** Cyberbullying and social adjustment among secondary school students in Calabar Education Zone of Cross River State, Nigeria. An unpublished M.Ed. thesis of the University of Calabar.
  - **Radebe, F. & Kyobe, M. (2021):** The Response of social crime prevention police to cyberbullying perpetrated by youth in rural areas of South Africa. Int. J. Environ. Res. Public Health, Vol. (18), No. (24), Pp. 1-21. <https://doi.org/10.3390/ijerph182413421>.
  - **Razjouyan, K., Mobarake, H., Sadr S, Ardestani, S. & Yaseri, M. (2018):** The relationship between emotional intelligence and the different roles in cyberbullying among high school students in Tehran. Iran J Psychiat Behav Sci., Vol. (12), No. (3), Pp. e11560-e11560. <https://doi.org/10.5812/ijpbs>.
  - **Rodríguez-Enríquez, M., Bennasar-Veny, M., Leiva, A., Garaigordobil, M. & Yañez, A. (2019):** Cybervictimization among secondary students: social networking time, personality traits and parental education. BMC public health, Vol. (19), No. (1), Pp. 1-7. <https://doi.org/10.1186/s12889-019-7876-9>.
  - **Sangwan, S.R. & Bhatia, M.P.S. (2020):** Denigration bullying resolution using wolf search optimized online reputation rumour detection. Procedia computer science, Vol. (173), No. (1), Pp. 305-314.
  - **Selkie, E.M., Fales, J.L. & Moreno, M.A. (2016):** Cyberbullying prevalence among United States middle and high school aged adolescents: a systematic review and quality assessment. J Adolesc Health, Vol. (58), No. (2), Pp. 125-133. <https://doi.org/10.1016/j.jadohealth.09.026>.
  - **Shannen, T., Kim, S. & Lee, J. (2021):** Empathy, cyberbullying, and cybervictimization among Filipino adolescents. Child health nursing research, Vol. (27), No. (1), Pp. 65-74. <https://doi.org/10.4094/chnr.2021.27.1.65>.
  - **Sheinov, V. P. (2021):** Smartphone addiction and personality: review of international research. RUDN J. Psychol. Pedagog., Vol. (18), No. (1), Pp. 235-253. doi: 10.22363/2313-1683-2021-18-1-235-253.
  - **Shoib, S., Philip, S., Bista, S., Saeed, F., Javed, S., Ori, & Chandradasa, M. (2022):** Cyber victimization during the COVID-19 pandemic: A syndemic looming large. Health Science Reports, Vol. (5), No. (2), Pp. e528-e528. doi:10.1002/hsr2.528.
  - **Thumronglaohapun, S., Maneeton, B., Maneeton, N., Limpiti, S., Manojai, N., Chaijaruwanich, J., Kummaraka, U., Kardkasem, R., Muangmool, T., Kawilapat, S., Juntaping, K., Traisathit, P. & Srikummoon, P. (2022):** Awareness, perception, and perpetration of cyberbullying by high school students and undergraduates in Thailand. PloS one, Vol. (17), No. (4), Pp. e0267702-e0267702. <https://doi.org/10.1371/journal.pone.0267702>.
  - **Wang, X. & Cheng, Z. (2020):** Cross-sectional studies: strengths, weaknesses, and recommendations. Chest, Vol. (158), No. (1), Pp. S65-S71.
  - **Yosep, I., Hikmat, R. & Mardhiyah, A. (2023a):** Nursing Intervention for preventing cyberbullying and reducing its negative impact on students: A Scoping Review. Journal of multidisciplinary healthcare, Vol. (16), No. (1), Pp. 261-273. <https://doi.org/10.2147/JMDH.S400779>.
  - **Yosep, I., Hikmat, R., Mardhiyah, A., Hazmi, H. & Hernawaty, T. (2022):** Method of Nursing Interventions to Reduce the Incidence of Bullying and Its Impact on Students in School: A Scoping Review. Healthcare, Vol. (10), No. (10), Pp. e1835-e1835.
  - **Yosep, I., Hikmat, R. & Mardhiyah, A. (2023b) :** School-Based Nursing interventions for preventing bullying and reducing its incidence on students: A Scoping Review. Int. J. Environ. Res. Public Health, Vol. (20), No. (2), Pp. 1-13. <https://doi.org/10.3390/ijerph20021577>.
  - **Yousef, S.H. A. (2017):** Cyber bullying and possibility of overcoming among Beni Suef University Students. journal Educational Sciences. Vol. (25), No. (4), Pp. 52-118.
  - **Zhao, L., Wu, Y., Huang, X. & Zhang, L. (2022):** Network anonymity and cyberbullying among Chinese Adolescents: A Moderated Mediation Model. International journal of environmental research and public health, Vol. (19), No. (2), Pp. 1-12. <https://doi.org/10.3390/ijerph19020637>.