Adolescents Cyberbullying and its consequences on Self-Esteem and Suicidal Thoughts at Minia Governorate, Egypt

Ebtsam Abd El Monim Mohamed[1], Ebtesam Esmail Hassan[2], Zeinab Mohammed Hassan[3], Ola Nabil Abouzeid[3], Manar D. Mohammed[3]

1. Lecturer of Psychiatric Health Nursing, Faculty of Nursing, Minia University
2. Professor of Public Health and Preventive Medicine Department, Faculty of Medicine, Minia University
3. Lecturer of Community Health Nursing, Faculty of Nursing, Minia University

Abstract:

Background: Cyberbullying is a severe issue that has recently come to light. In addition to endangering the lives of adolescents and frequently driving them to isolation and self-loathing, cyberbullying also lowers victims' self-esteem and increases their risk of suicide. **Aim**: To examine cyberbullying and its consequences on self-esteem and suicidal thoughts among adolescents at Minia Governorate, Egypt. **Method**: A descriptive (cross sectional) community-based study design was used in this study. **Setting:** The study was conducting at six governmental public secondary schools in three districts in Minia governorate. **Sample:** A multistage random sample consisted of 391 students that was calculated using the statistical software EPI-INFO V7.2.5. **Tools:** Four tools were used to gather data. Tool 1: A Structured interview questionnaire was divided into two parts: part (1) socio-demographic characteristics and part (2) life style data. Tool 2: Cyber-Victimization Scale (CYBVICS). Tool 3: The Rosenberg Self-Esteem Scale (RSES). Tool 4: The Suicidal Ideation Scale (SIS). **Results**: It was found that 24.8% of Adolescents students were socially isolated 29.4% of them were cyberbullying victims and 20.2% of them were using social media platforms for more than 6 hours daily, moreover, 37.3% of them had low self-esteem, 17.1% of them had suicidal ideations. Furthermore, there was a highly statistically significant relationship between all demographic data and suicidal ideation. **Conclusion**: There was a negative correlation between adolescents' cyber-victimization and their self-esteem. Also, there was a weak positive correlation between the participant's cyber-victimization and the presence of suicidal thoughts. **Recommendations**: An urgent need to develop educational programs targeting the primary prevention of cyberbullying and its related consequences, as well as raise public awareness of the harmful effects of cyberbullying in all places, whether in rural or urban communities.

Keywords: Adolescents, Cyberbullying, Self-Esteem, Suicidal Thoughts.

Introduction

The internet has now become a necessary part of daily life and has provided adolescents with new socialization options (**Extremera et al**., **2018**). Although using social media and the internet has many positive effects for our communities, there are also many detrimental effects that have been linked to their widespread use. Unwanted exposure to sexual content, cybercrime, cyberstalking, and cyberbullying are examples of this (**Jordan & Weller**, **2018**).

Cyberbullying has emerged as an outcome of the quick advancement and widespread usage of the internet. The phrase "cyberbullying" was first introduced in 1999 and is now widely used (**Kazan**, **2022**). There are many definitions of cyberbullying, but according to **Ferrara et al**. (**2018**), most people agree that it is "an aggressive, deliberate act carried out by an individual or a group, using electronic channels of contact, committed over time against a victim who cannot easily defend themselves."

There are a number of subtypes of cyberbullying that have been documented, such as "flaming," which consists of heated arguments that frequently include insults; "outing," which involves disclosing sensitive information; " ridicule and denigration," which includes making harmful comments about the victim; "harassment," which refers to unwanted communications or interactions; "threaten[ing] and intimidating," which involves sending messages that are ominous or terrifying; and "exclusion," which involves being singled out from online chat rooms or groups **(Zhong et al., 2022; Arafa & Senosy, 2017).**

Adolescence is a time of change marked by a variety of physical and psychological changes, which can cause a great deal of psychological suffering. **(Guedria-Tekari et al., 2019).** Bullying prevalence typically peaks throughout adolescence **(Avanesian et al., 2021; Williams et al., 2017),** as opposed to traditional bullying, which includes verbal, physical, and relationship abuse, more than half of teenagers have reported experiencing online bullying **(Peng et al., 2020).** According to various studies, the prevalence of cyberbullying among adolescents ranges from 4 to 39% **(Hesna Gül et al., 2019).**

Children and adolescents are particularly affected by cyberbullying because they use information and communication technologies (ICTs) like social media (like Facebook, Twitter, Tik Tok, etc.) and engage in a variety of internet-based activities like playing games, looking up information, and chatting with friends more frequently. Even though the influence of social media on adolescents' development is well known to foster stronger relationships with peers, identity formation, and aspirational growth **(Hong et al., 2023),** social media can expose users to online predatory behavior such as cyberstalking, cyberbullying, and sexual assault, all of which compromise their safety and psychological welfare **(Eroglu et al., 2022; Hong et al., 2023).**

The victim of cyberbullying may suffer from a psychological condition more than they would from typical bullying **(Buelga et al., 2022).** These include high levels of depression and anxiety **(Martinez-Monteagudo et al., 2020),** substance abuse **(Sanchez et al., 2017),** low self-esteem**,** suicidal ideation**,** fury, and shame **(Marin-Cortes et al., 2021),** issues with school attendance and academic performance **(Gardella et al., 2017),** and more negative physical health symptoms and social adaptation issues **(Dorol& Mishara, 2021).**

Cyberbullying lowers the self-esteem of its victims **(Machimbarrena& Garaigordobil, 2018).** Self-esteem refers to in what manner the person perceives and views himself **(Hua, et al., 2019)**. It is crucial during adolescence since social ties have a significant impact on how one develops their identity. Adolescents that experience cyberbullying are negatively impacted because peer interactions have a significant impact on adolescents' self-esteem **(Mazzone et al., 2017**). Bullied individuals express feelings of helplessness, rejection, loneliness, and worthlessness (**Peker, 2017**).

Low self-esteem has been linked to both cyberbullying victimization and bad outcomes, as scholars have demonstrated **(Extremera et al., 2018 and Fan et al., 2019).** Cyberbullied individuals exhibit decreased self-esteem, according to recent studies investigating the relationship between cyberbullying and self-esteem (**Machimbarrena & Garaigordobil**, **2018**). Although the exact relationship between them is unclear, some studies indicate that those who experience cyberbullying are also more probable to have low self-esteem, which can have serious negative impacts on young people's welfare and psychological progress, including a higher chance of suicide (**Palermiti et al**., **2017**).

Adolescent suicide has become more common over the past few decades, and as a result, it is now a significant global public health issue in terms of the number of lives lost (**Im et al., 2017**). Suicidal ideations (IS), often known as suicidal thoughts or ideas, refer to a broad range of cravings, obsessions, and thoughts about death and suicide. (**Harmer et al**., **2023**).

Suicide is the second most common reason for people's deaths between15 and 29 years old based on the **World Health Organization** (**2021**). The risks for suicidal ideation are higher among adolescents who experience cybervictimization (**Quintana-Orts, et al., 2022**), despite the fact that a handful of researches have investigated the relationship between cyberbullying and suicide. The victims of cyberbullying occasionally express their strong emotions by harming themselves in some way. They frequently start to feel defeated and believe that the only method to dispose of the suffering is by ending their own life (**Karanikola et al., 2018).**

Families must be in charge of ensuring that their children use the internet responsibly. Family factors such as communication problems among family members, maladaptive parenting, negative family climate, and low levels of parent involvement was strongly linked with cyber-victimization. Also, a healthy family climate and positive parent-adolescent communication is connected with parents' involvement in dialogue with adolescents about online hazards, which leads to low exposure to cyberbullying/cyber-victimization **(Quintana-Orts, et al., 2022)**.

Adolescents spend the majority of their time at school, which offers a setting in order to be socialized by classmates and teachers. School nurses are in a prime position to offer support and have an important role in fostering relationships between Students and teachers. Student impressions of being regarded and accepted, developing trustworthy relationships, and receiving fair treatment at school were captured by school connectedness. These are essential components of suicide prevention campaigns, especially those started in schools (**Kim et al**., **2020**).

The community has a big role to play in dealing with cyberbullying and its effects. As a result, this phenomenon needs to be brought to the attention of the community, and Because cyberbullying is a crime punishable by both local and international law, the Egyptian Penal Code aids in protecting the rights of the family and all family members in these crime States **(Hassan et al, 2019).**

Significant of the study:-

Particularly, cyberbullying is an issue at home, in the classroom, on school grounds, and in public places. In accordance with **The Egyptian Ministry of Communications** and **Information Technology** (**MCIT**) ICT **2022 report**, youth make up the large majority of Internet surfers in Egypt, where one-third of the population uses the service. According to reports, victimization rates of cyberbullying were greater in nations including Ghana, Nigeria, and Egypt (**Hong et al**., **2023**). In another researches, which focused on Egyptian women, was realized that 41.6% of the females had been victims of cyberbullying in the last year, and 45.3% of those females had been bullied more than once (**Hassan et al**., **2020**).

Occurrence of youth suicide and suicidal behavior remain extremely high despite increased preventative efforts. According to the most recent statistics from the Centers for Disease Control and Prevention (CDC), suicide is the second leading cause of death in the US for those from 10 to 34 years old and accounts for 18% of fatalities among young people aged 15–24 (**Xu et al**., **2018**). Suicide deaths among adolescents in middle school outnumbered deaths from auto accidents. In the United States, high school students have a suicide ideation prevalence of 17.2% and a suicide attempt incidence of 7.4% over the previous 12 months (**Redfield et al., 2018**). It's important to note that high school students' suicidal ideation rose from 14.5% to 17.2% between 2007 and 2017 (**Kim et al., 2020**).

Based on 2019 data from the National Center for Education Statistics and the Bureau of Justice, 16% of 12 to 18-year-old pupils experienced bullying at school via text or the Internet (**Musu et al., 2019**). Additionally, according to the CDC, 2019 Youth Risk Behavior Surveillance System, 15.7% of high school pupils reportedly had cyberbullying in the year pre-survey **(Centers for Disease Control and Prevention, 2022).**

As stated by previous studies, low self-esteem and suicidal ideation is one of the effects most frequently associated with cyberbullying among adolescents, so it seems necessary to figure out its prevalence among adolescents. Furthermore, exploring the consequences of and the correlation between cyberbullying, suicidal ideation, and self-esteem is crucial for effective prevention. Additionally, Most of the previous research on this topic were carried out in Western nations. Therefore, it is essential to expand the body of material already available to teenagers in developing nations.

The study's aim is:

This study was aimed to examine cyberbullying and its consequences on self-esteem and suicidal thoughts among adolescents at Minia Governorate, Egypt.

Research questions:

- What are the levels of cyberbullying, self-esteem, as well as suicidal thoughts regarding adolescents in Minia Governorate?

- Is there an association between adolescents' Cyber-victimization, Self-esteem, Suicidal ideation and their sociodemographic characteristics?
- Is there a relation between adolescents' exposure to cyberbullying and suicidal thoughts and self-esteem?

Subject and Methods

Design of the research: This study used a descriptive cross-sectional community-based study.

Setting: The research took place at six public secondary schools sponsored by the government in three districts in Minia governorate. The three districts were Minia, Mattay, and Malawi. One of the 27 governorates in Egypt is called Minia; it is in Upper Egypt and has nine districts.

Population of study sample:

The sample size was determined by applying the online EPI tools software version 7.2.5. Depending on the 16% prevalence of cyberbullying between students aged 12–18 who are bullied at school throughout the academic year (National Bullying Prevention Center, 2023) at a statistical power of 0.95 and significance of less than 0.05, the predicted prevalence is 25% with a margin of error of 5%. The minimal estimated sample size was 355; but, to account for the expected 10% non-response, it was increased to 391. There were 391 students who participated in the study.

Technique of sampling:

Students were chosen through a multistage random sample. The Minia Governorate's secondary schools were listed for each district. Three districts out of nine centers were determined using a simple random sample. The next step was to choose a school for boys and a school for girls from each district using stratified random sampling. Following that, classes were randomly selected from each of the chosen schools. The size of the sample for each school was proportional to the total number of students.

Table (1) Population of study sample

The district	Total	Ratio(%)	Sample size at 95% power
Minia	20317	48.5%	190
Malawi	11451	27.4%	107
Mattay	10120	24.1%	94
Total	41888	100%	391

Study Tools:

Data was collected using four different study tools:

1st tool: the researcher designed a structured interview questionnaire after evaluating relevant literature as **(Extremera et al., 2018 & Lei et al., 2020 & Kim et al., 2020 & Reignier et al., 2022 & Maurya et al., 2022 and Gohal et al., 2023)**. It has been split into two different parts:

Part 1: socio-demographic characteristics (including age, sex, residence, academic level, family income, and family type).

Part 2: life style data, including social life style, daily sleep hours, hours of social media use, social media platforms used, and devices used to access social media

2nd Tool: Cyber-Victimization Scale (CYBVICS):

Based on **Buelga et al. (2019)**, the Cyber-Victimization Scale (CYBVICS) was developed to measure an adolescent's history of being one of the victims regarding cyberbullying over the twelve months prior to the test. The Adolescent Being Victimized via Mobile Devices and the Web Scale **(Buelga et al., 2010, 2012)** is the basis for this adaptation. Eight further items are included on this new scale in addition to the ones on the original one. Thus, the Cyber-Victimization Scale encompasses eighteen self-reported elements that have been scored on a Likert-type scale with five possible outcomes, from 1 (never) to 5 (always). Scoring system: Total scores on this scale range from 18 to 90. The midpoint of the scale was 27.0. A score above the scale midpoint denoted more cyber victimization **(Uddin & Rahman, 2022)**.

3rd tool: The Rosenberg Self-Esteem Scale (RSES):

This a self-reported test that was created to measure one's sense of dignity; it was primarily intended to estimate the self-esteem of high school students (**Rosenberg**, **1965**). However, since its creation, the scale has been applied to a broad spectrum of groups, including adults, for whom norms are known. Previous studies have shown the strong convergent validity of the RSES. Investigations for different sexes and ages reported good reliability and validity.

(RSES) is a Likert scale with 10 items made up of:

1. The following five positive assertions (one, three, four, seven, and ten) received scores ranging from 1 to 4: (4 equal strongly agree, 3 equals agree, 2 equals disagree, 1 equal strongly disagree).
2. The scores for the five negative sentences (two, five, six, eight, and nine) are as follows: (strongly agree equal 1, agree equal 2, disagree equal 3, strongly disagree equal 4).

   The final score ranges from 10 to 40 after adding the points assigned to each item on the scale. Students' self-esteem increases as test scores rise. Making three categories out of the results: low self-esteem (10–25), medium self-esteem (26-29), and high self-esteem (30–40) **(García et al., 2019, Spinner& Rudolph. 2019)**.

4th tool: The Suicidal Ideation Scale (SIS)

The 10-item Suicidal Ideation Scale (SIS) (Rudd, 1989) is a screening tool along with an evaluation instrument that was developed for measuring the degree of suicide ideation or its intent amongst adolescents and adults in medical and non-medical samples (Luxton et al., 2011). On a five-point Likert-type scale, the SIS is graded according to how the respondent felt or acted over the previous week (including today) (1 being "Never," 2 "Infrequently," 3 "Sometimes," 4 "Frequently," and 5 "Always." The overall score is between 10 and 50. **Rudd** (**1989**) suggested scores larger than one standard deviation overhead the mean (SIS whole score of 15 or more) to be deemed significant suicidal thoughts based on the findings of the initial SIS validation study. The SIS exhibits sufficient item-total correlations and strong internal consistency (Cronbach alpha 86) (**Rudd, 1989; Halim et al., 2021).**

The tools Validity and Reliability:

The content validity of the study tools was revised by a five-member panel of community health nursing and psychiatric and mental health nursing experts to evaluate the tools' clearness, feasibility, and applicability. The reliability of the tools was evaluated through an Alpha Cronbach test, and

they were found to be highly reliable, with a score of 0.953 for the Cyber-Victimization Scale, 0.831 for the Rosenberg self-esteem scale, and 0.892 for the Suicide Ideation Scale.

Procedures for collecting data:

The director of the Minia governorate's educational administration gave his official consent before the study could be carried out. Additionally, formal clearance was obtained from the administrators of the study's participating schools to specify the study's purpose and the start date for data collecting. The researcher gathered data during the academic year 2022–2023. Students' information was gathered during free periods of the school day. Students were given self-administered surveys after explanation. Students received assistance and supervision while filling out the questionnaire. The data collection tools of the study took about 10 to 15 minutes to complete.

Pilot Study:

It was performed on 10% (N = 40 adolescents) of the overall sample examined. It was executed to determine the instruments' usefulness and accessibility, the viability of field studies, and any potential challenges the researcher would face that might obstruct data collection. The outcomes of the pilot study were incorporated into the final results of the study, as no central adjustments were made to the tools of the study.

Ethical consideration:

The research adhered to accepted ethical principles for scientific research. All official permits were secured from the nearby authorities to carry out the study. The research was agreed by the Ethics Committee of the Faculty of Nursing at Minia University after reviewing the study protocol. Before data collection began, students' verbal consents were obtained after being informed of the kind and intent of the study. The promise that all information connected to their studies would be kept private and secret was given to the students. Each assessment sheet was coded for confidentiality and privacy. The study made sure that all participants were involved voluntarily and had the freedom to leave the study at any moment.

Statistical Analysis:

Statistical Package for Social Studies (SPSS) version 24 was applied to arrange, classify, and analyze the collected data. For qualitative and quantitative variables, respectively, the mean and standard deviations of the data were reported using descriptive statistics. To demonstrate the relationship between the quantitative measures, correlation was used. Regression was used to demonstrate the relationship between the variables. The Chi-square was utilized in tests of relation, and a statistically significant difference should be taken into account when the p-value ≤ 0.05.

Results: -

Table 1: Socio-demographic characteristics of studied adolescents in Minia Governorate (n = 391).

Socio-demographic characteristics	No.	%
Age (Years)		
14 ≤ 16 yrs.	112	28.6
> 16 ≤ 18 yrs.	279	71.4
Mean ± SD	16.27 ± .978 years	
Sex		
Male	142	36.3
Female	249	63.7
Residence		
Urban	256	65.5
Rural	135	34.5
Academic level		
1st level	121	30.9
2nd level	51	13.0
3rd level	219	56.0
Family type		
Nuclear family	219	56.0
Extended family	172	44.0
Family income		
Not sufficient	103	26.3
Sufficient	288	73.7

Table 1, clarifies the studied adolescents' socio-demographic characteristics, it showed that the mean of their age were 16.27 ± .978 years, 63.7% of them were females, 65.5% were from urban areas, 56.0% of them were in 3rd level of secondary schools, also 56.0 % of them were live in nuclear family and 73.3% were have sufficient family income.

Table 2: Social lifestyle pattern of studied adolescents in Minia Governorate (n = 391).

Social lifestyle items	No.	%
Relationship with others		
Socially isolated	97	24.8
Not isolated	294	75.2
Daily sleeping hours		
Less than 6 hrs.	74	18.9
6-8 hrs.	171	43.7
More than 8hrs.	146	37.3
Daily hours of using internet/social media		
Less than 2 hrs.	74	18.9
2-4 hrs.	154	39.4
5-6 hrs.	84	21.5
More than 6 hrs.	79	20.2

Table 2, demonstrate social lifestyle of studied adolescents, it showed that only 24.8% of them were socially isolated in their relationship with others, 20.2% of them were using social media platform more than 6 hours daily.

Regarding to social media platform that were used, 3.8% of them were using You-tube, 10.0% were using Facebook and/or Instagram, 23.8 % were using WhatsApp and/or Telegram, 65.5% of them were using more than two types, and 17.1% of them were using all types of platform, (figure,1).

Regarding to the devices that used to access social media, 1.0% of them were using laptop or personal computer, 7.9% were having tape, 12.0% were having smart phone and tape, while 66.8 % of them were having smart phone only to access social media, (figure,2).

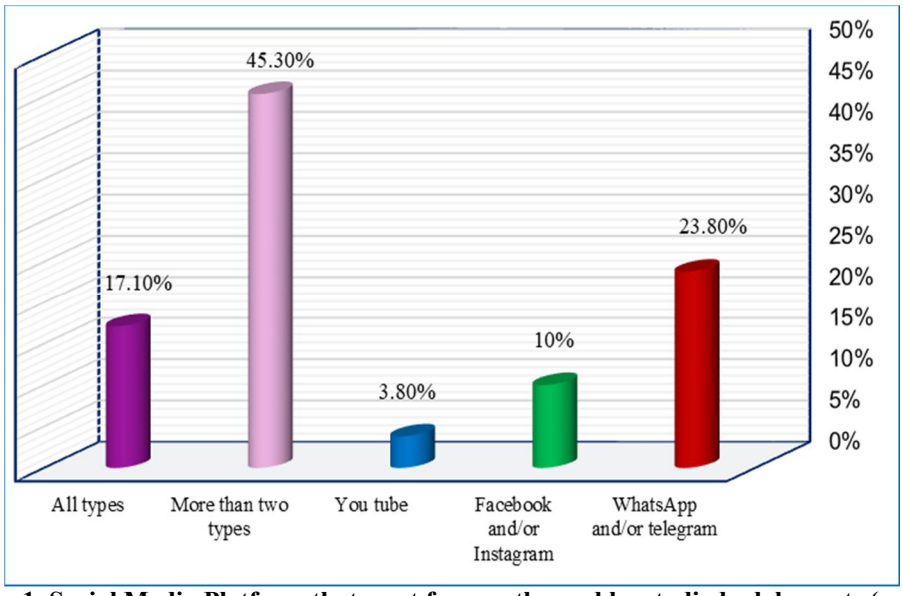

Figure 1, Social Media Platform that most frequently used by studied adolescents (n=391).

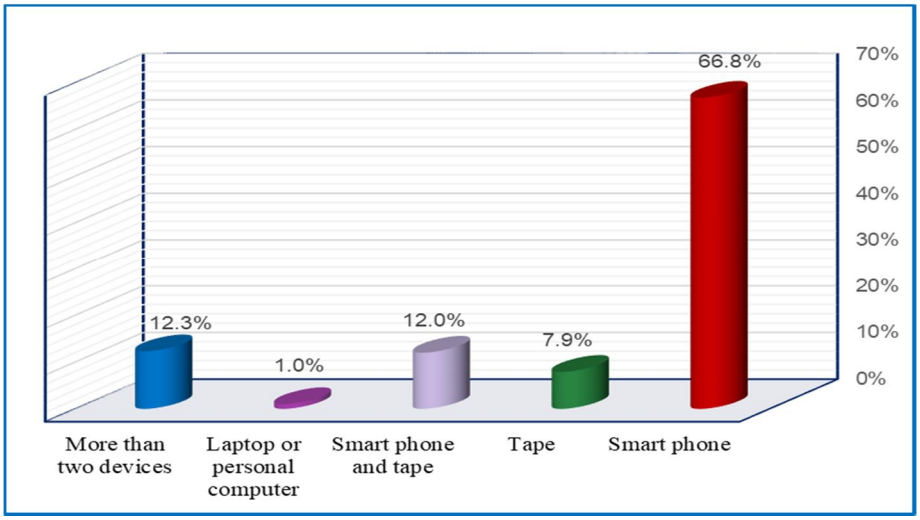

Figure 2, Devices most frequently used to access internet/social media platform as reported by studied adolescents (n=391).

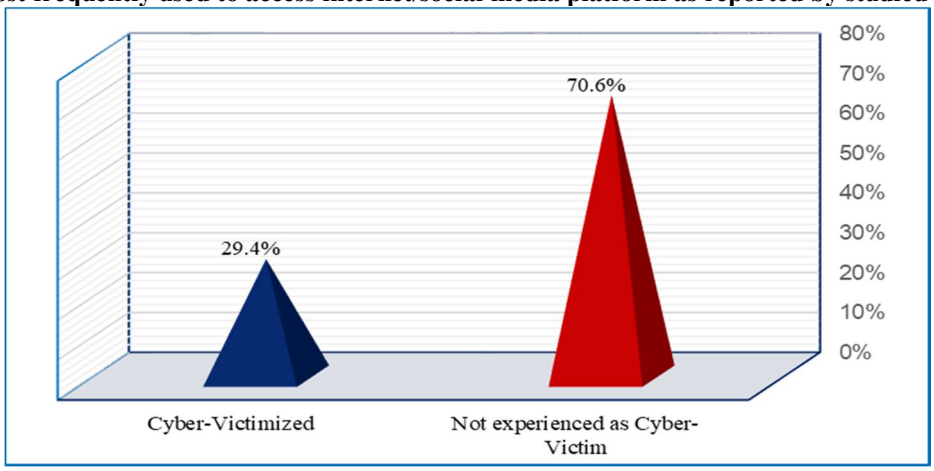

Figure 3, Percentage distribution of studied adolescents according to their cyber- victimization in the last one year, (n=391).

Figure 3, demonstrates distribution of studied adolescents according to their cyber-victimization in the last one year, it revealed that 29.4% of them were cyberbullying victims and the mean score of their Cyber-Victimization Scale was 27.87 ± 13.830.

Table 3: Distribution of studied adolescents according to their feeling of self-esteem, (n = 391).

Items	Strongly disagree		Disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%
1. On the whole, I am satisfied with myself.	24	6.1	78	19.9	167	42.7	122	31.2
2. I feel that I have a number of good qualities.	5	1.3	52	13.3	158	40.4	176	45.0
3. I am able to do things as well as most other people.	5	1.3	53	13.6	160	40.9	173	44.2
4. I feel that I'm a person of worth, at least on an equal plane with others.	15	3.8	42	10.7	186	47.6	148	37.9
5. I take a positive attitude toward myself.	11	2.8	57	14.6	190	48.6	133	34.0
6. At times, I think I am no good at all.	104	26.6	223	57.0	39	10.0	25	6.4
7. I feel I do not have much to be proud of.	67	17.1	138	35.3	136	34.8	50	12.8
8. I certainly feel useless at times.	76	19.4	164	41.9	91	23.3	60	15.3
9. I wish I could have more respect for myself.	202	51.7	155	39.6	29	7.4	5	1.3
10. All in all, I am inclined to feel that I am a failure.	60	15.3	80	20.5	141	36.1	110	28.1
Mean ± SD	**26.99 ± 5.253**							

Table 3, demonstrates distribution of studied adolescents according to their sense of self-esteem, it reveals that the mean score of their self-esteem scale were 26.99. Concerning positive feeling of self-esteem, 42.7% of them were agree with " On the whole, I am satisfied with myself", 45.0% were strongly agree with "I feel that I have a number of good qualities", 47.6 % of them were agree with " I feel that I'm a person of worth, at least on an equal plane with others", and 48.6% of them were agree with " I take a positive attitude toward myself".

Regarding to negative feeling of self-esteem, 57.0 % of them were disagree with " At times, I think I am no good at all.", 34.8% were agree with " I feel I do not have much to be proud of.", 15.3% of them were strongly agree with " I certainly feel useless at times ", and 36.1% of them were agree with " All in all, I am inclined to feel that I am a failure".

Figure 4, illustrates distribution of studied adolescents according to their total level of self-esteem, it discloses that 37.3% of them were have low self-esteem, 33.5% of them were have medium self-esteem and only 29.2% of them were have high level of self-esteem.

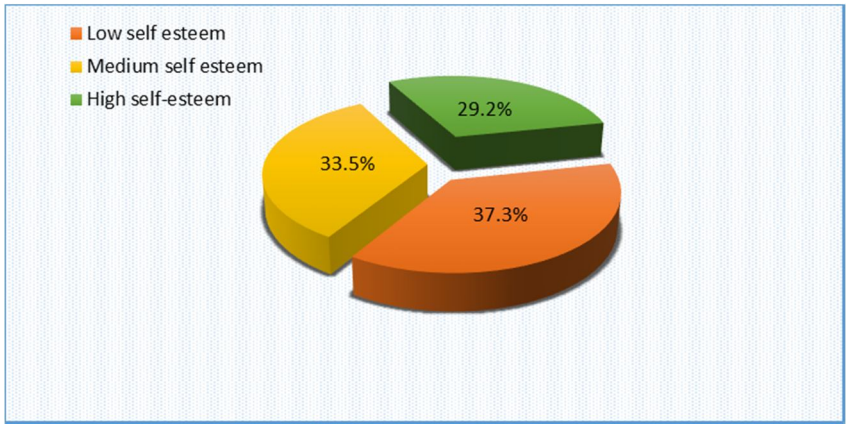

Figure 4, Percentage distribution of studied adolescents according to their total level of self-esteem (n=391).

Table 4: Distribution of studied adolescents as regards to their possession for suicidal thoughts, (n = 391).

Items	Never		Infrequently		Sometimes		Frequently		Always	
	N	%	N	%	N	%	N	%	N	%
1. I just wish my life would end1.	133	34.0	122	31.2	14	3.6	104	26.6	18	4.6
2. I feel life just isn't worth living	94	24.0	117	29.9	54	13.8	109	27.9	17	4.3
3. Life is so bad I feel like giving up	83	21.2	100	25.6	96	24.6	103	26.3	9	2.3
4. It would be better for everyone involved if I were to die	118	30.2	94	24.0	124	31.7	55	14.1	0	0.0
5. I have come close to taking my own life	180	46.0	101	25.8	104	26.6	6	1.5	0	0.0
6. I have made attempts to kill myself	202	51.7	120	30.7	69	17.6	0	0.0	0	0.0
7. I have been thinking of ways to kill myself	106	27.1	185	47.3	82	21.0	18	4.6	0	0.0
8. I believe my life will end in suicide	145	37.1	138	35.3	101	25.8	7	1.8	0	0.0
9. I feel there is no solution to my problems other than taking my own life	187	47.8	112	28.6	46	11.8	46	11.8	0	0.0
10. I have told someone I want to kill myself	126	32.2	122	31.2	116	29.7	27	6.9	0	0.0
Mean ± SD	**21.31 ± 7.245**									

Table 4, reveals distribution of studied adolescents according to their possession for suicidal ideations, it reveals that the mean score of their suicidal ideation scale (SIS) were 21.31, only 17.1% of them were have suicidal thoughts, (figure,5).

Concerning presence of suicidal thinking and desire, 4.6% of them were always or great many times possess the thought of "I just wish my life would end", 27.9% of them were frequently or many times have the thought of "I feel life just isn't worth living". Also, 31.7% of them were sometimes have the thought of "It would be better for everyone involved if I were to die."

Regarding the presence of prior suicide attempts or plans, 11.8% of them had frequent attempts of "I feel there is no solution to my problems other than taking my own life", and 6.9% of them were frequently have the plan of "I have told someone I want to kill myself.

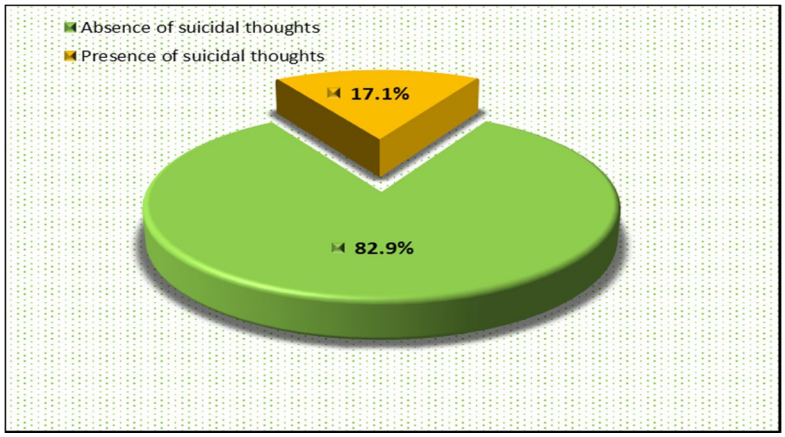

Figure 5, Distribution of studied adolescents according to their possession of suicidal thoughts (n=391).

Table 5: Relation between studied adolescents' Cyber-victimization, Self-esteem, Suicidal thoughts and their sociodemographic characteristics, (n = 391).

Socio-demographic characteristics	Cyber-victimization		Self-esteem			Suicidal thoughts	
	Unvictimized (n = 276)	Victimized (n= 115)	Low (n = 146)	Average (n = 131)	High (n = 114)	Absence of suicidal thoughts (n= 324)	Presence of suicidal thoughts (n= 67)
Age/year							
14 ≤ 16 yrs.	84	28	38	35	39	94	18
> 16 ≤ 18 yrs.	192	87	108	96	75	230	49
X 2 (P – value)	1.472 (.225) NS		2.455 (.293) NS			**4.357 (.01)** *	
Sex							
Male	98	44	49	51	42	113	29
Female	178	71	97	80	72	211	38
X 2 (P – value)	**7.974 (.005)** **		.880(.644) NS			1.697 (.193) NS	
Residence							
Urban	178	78	94	85	77	210	46
Rural	98	37	52	46	37	114	21
X 2 (P – value)	.399 (.528) NS		**8.313 (.005)** **			.363 (.547) NS	
Academic Level							
1st level	94	27	47	34	40	104	17
2nd level	26	25	19	15	17	32	19
3rd level	156	63	80	82	57	188	31
X 2 (P – value)	**12.424 (.001)** **		4.108 (.392) NS			**16.720 (.000)** **	
Family type							
Nuclear family	162	57	99	57	63	183	36
Extended family	114	58	47	74	51	141	31
X 2 (P – value)	2.747 (.097) NS		**16.580 (.000)** **			2.747 (.097) NS	
Family income							
Not sufficient	49	54	59	24	20	69	34
Sufficient	227	61	87	107	94	255	33
X 2 (P – value)	**35.678 (.004)** **		**23.786(.000)** **			**24.816(.000)** **	

NS= Not statistically significance * Statistically significant at *P* – value ≤ .05

** Statistically significant at *P* – value ≤ .01.

Table 5, illustrates relation between studied adolescents' cyber-victimization, self-esteem, suicidal thoughts and their sociodemographic characteristics, it shows that there was highly statistically significant relation between studied adolescents' cyber-victimization and their sex, academic level and their family income where P-value were 0.005, 0.001 and 0.004 respectively. Also, there was highly statistically significant relation between studied adolescents' self-esteem and their residence, types of their family and their family income where P-value were 0.005, 0.000 and 0.000 respectively. Additionally, there was statistically significant relation between studied adolescents' suicidal thoughts and their age, academic level and their family income where P-value were 0.01, 0.000 and 0.000 respectively

Table 6: Multiple linear regression analysis of predictors/ factors associated with Cyber-victimization among studied adolescents, (n = 391).

Items	B	Std. Error	P- value
Relationship with others Socially isolated Not socially isolated	-7.994	1.507	.000**
Daily sleeping hours Less than 6 hrs. 6-8 hrs. More than 8hrs.	-5.264	.871	.000**
Types of social media platform used WhatsApp and/or telegram Facebook and/or Instagram You tube More than two types All types	.108	.410	.792^{NS}
Daily hours of using social media Less than 2 hrs. 2-4 hrs. 5-6 hrs. More than 6 hrs.	3.690	.621	.000**
Devices used to access social media Smart phone Tape Smart phone and tape Laptop or personal computer More than two devices	-.734	.467	.117^{NS}

NS= Not statistically significance ** Statistically significant at P – value ≤ .01.

Table 6, demonstrates multiple linear regression analysis of predictors/ factors associated with Cyber-victimization among studied adolescents, it revealed that there were statistically significant associations between studied adolescents' cyber-victimization and their relationship with others, daily sleeping hours and daily hours of using social media with highly statistically significant differences where P-value were 0.000, 0.000 and 0.000 respectively.

Table 7: Correlation between studied adolescents' Cyber-victimization, Self-esteem and Suicidal thoughts, (n = 391).

Items	Cyber-victimization	Self-esteem	Suicidal thoughts
Cyber-victimization r. value (P. value)	1	-.352 (.000) **	.293 (.05) *
Self-esteem r. value (P. value)	-.352 (.000) **	1	-.424 (.000) **
Suicidal ideation r. value (P. value)	.293 (.05) *	-.424 (.000) **	1

** Correlation is significant at the 0.01 level (2- tailed). * Correlation is significant at the 0.05 level (2- tailed). NS: not statistically significant.

Table 7, shows that there was a negative correlation between studied adolescents' cyber-victimization and their self-esteem where r_ value was -.352 with a highly statistically significant differences (P. value < 0.01), also there was a weak positive correlation between studied adolescents' cyber-victimization and presence of suicidal thoughts and attempts where r_ value was .293 with a statistically significant differences (P. value < 0.05). Additionally, there was a negative correlation between studied adolescents' self-esteem and their possession of suicidal thoughts where r_ value was -.424 with a highly statistically significant differences where p_ value was .000.

Discussion

Cyberbullying is an intentional, recurrent act of violence committed against another person via technology. Numerous types can be used in cyberbullying, such as intimidating, nasty, and probably incorrect information about one to other persons; disclosing private or sensitive data (outing); and exclusion, that entails purposely shutting someone out of an online group (**Gohal et al., 2023**).

Younger individuals and adolescents use the internet, smartphone and social media more frequently, which escalate the problem of cyberbullying suddenly, resulting in psychological problems and harmful ideations among victims (**Maurya et** al., **2022**). According to **Ferrara et al**. (**2018**), cyberbullying has such severe effects on the victim person that it is regarded as a global public health issue. In addition, twenty percent of teenage cyber-victims have admitted to having suicidal thoughts as well as low self-esteem **(Machimbarrena & Garaigordobil, 2018; Mazzone et al., 2017).**

The current study revealed that above two-thirds of studied adolescents their age ranged from sixteen to eighteen, with a mean average age of 16.27 ± .978 years. It was in the same line as **Zewiel et al. (2022)** in their study, which was conducted in Kafr Elsheikh city, they found that half of the adolescents were aged 16–18 years and less than one third were aged 14–16 yrs.

It is worthy of noting that more than two-thirds of the participants were female. It was consistent with those of **Thumronglaohapun et al**. (**2022**), who described that females made up more than two-thirds of their study carried out at national secondary schools and colleges in Chiang Mai, Thailand.

According to our findings, more than two-thirds of the participants from urban. It is agreed with **Arafa and Senosy (2017**) who detailed that above half of participants

was from urban in their study at Beni-Suef University. Unlike the current study, **Zewiel et al. (2022)** indicated that above three- quarters of participants inhabit in rural areas in their study, which was conducted in Kafr Elsheikh city. And **Maurya et al. (2022)** who reported that above two thirds of participants were from rural in India.

This study explained that more than one-third of the participants used the internet or social media for two to four hours daily. This conclusion agrees with **Gohal et al. (2023)**, who demonstrate that nearly one-third of the participants spend two to four hours daily on the Internet and electronic gadgets. Their research was conducted in the Saudi Arabian Kingdom's province of Jazan, and their studied sample consisted of twelve- to eighteen-year-olds. On the other hand, it was discovered that the findings of the present study disagreed with those of **Thumronglaohapun et al. (2022),** who claimed that more than one-third of participants spend five to six hours daily on social media, and the same percent spend more than six hours daily. Their study was carried out at national secondary schools and colleges in Chiang Mai, Thailand.

According to the findings of this study, one third of participants experienced cyberbullying victimization, with a mean score of **(27.87 ± 13.830).** This may be due to the ignorance of some students on how to use social media and their lack of access to correct information on how to confront cyberbullying, the absence of the role of the family in enhancing their children's sense of self, value, and rights, and their lack of care to develop their skills and abilities to communicate, in addition to the absence of the role of the school, the lack of awareness of the culture of difference and digital communication tools are more accessible to adolescents and the chance of being the target of cyberbullying increases with time spent on social media.. This conclusion contrasts with the findings of **Andrea & Álvarez-García (2021),** who found that less than one third of the study participants were victims of cyber-victimization in Spain, and a study of **Gohal et al. (2023),** in Saudi Arabia, found that the prevalence of cyberbullying represents less than half of adolescents.

In terms of self-esteem, more than one-third has low self-esteem, while high self-esteem represents less than one-third. Because adolescents' low self-esteem results from being exposed to cyberbullying, feeling threatened, and failing to stop it, and vice versa. In contrast to the current study, **Zewiel et al. (2022),** who conducted in Kafr Elsheikh city, reported that two-thirds of the participants had low self-esteem. Similarly, **Reignier et al. (2022)** reported that participants among Spanish adolescents between the ages of fourteen and eighteen have a medium or high self-esteem level.

In the current study, less than a quarter of the participants reported having suicidal ideation. Because adolescents who are exposed to cyberbullying may have intense emotional distress and greater to be risky for suicidal ideation, **Maurya et al**. (**2022**) confirmed the findings of their study in India by stating that less than a quarter of the adolescents reported suicide ideation. Similar findings were made by **Bitar et al. (2023)** in their study of Lebanese teenagers between the ages of thirteen and sixteen and they found that less than a quarter of the participants reported suicidal ideation.

In the current study, it was noticed that there was a high statistically significant relationship involving suicidal ideation and age. Adolescents are more likely to have suicidal ideation as they get older. This may be rationalized as the strain on adolescents' increases since it is more commonly thought by Egyptian families that as an adolescent gets older, he must behave appropriately and in accordance with social norms. This puts pressure on this category, and when they experience cyberbullying, it drives them to suicidal thoughts out of fear of hurting themselves or their families or bringing them embarrassment. This conclusion agrees with **Bitar et al**. (**2023**), who found that there were statistically significant differences between age and the presence of suicidal ideation in their study of Lebanese teenagers between the ages of thirteen and sixteen.

In relation to sex, this study presented that there was a relation among sex and cyberbullying in that females were more exposed to cyberbullying than males and this relation was a statistically significant. The result appears logical, considering that Egypt has closed communities. Females spend more time indoors and, as a result, spend more time on social media. While males spend their internet time playing games and looking for temporary jobs to help them and their families, females may be more vulnerable to experiencing cyberbullying due to their social networking behaviors.

Another opinion was owing to the culture of this community, as well as decreased self-esteem and decreased social support for females, females are socially and mentally more affected by cyberbullying than males are. This is particularly noticeable in eastern societies. This finding was in consistent with **Thumronglaohapun et al. (2022),** who informed that cyberbullying is more frequently noticed by girls than by boys. In the same way, **Sampasa-Kanyinga et al. (2020),** anticipated that females were greater susceptible to be victims of cyberbullying. The finding contradicted the findings of **Reignier et al. (2022),** who found that the boys had a highest level of cyberbullying than girls in their study on Spanish adolescents between the ages of fourteen and eighteen.

Concerning residence, the existing study found a relationship which was statistically significant between self-esteem and residence, as the students with low self-esteem lived in urban areas. This is explained by the fact that since the majority of the sample consists of nuclear families and the parents are employed, there are no spaces for the family to speak and communicate with one another, and there are few visits and gatherings with relatives. The pattern of living in urban areas differs from that in rural areas.

Regarding the type of family, the existing study found a relationship among self-esteem and type of family, as the students with low self-esteem were present in nuclear areas. Because the family constitutes a crucial function in self-development, the absence of some relatives, such as grandmothers, grandfathers, and others, in the family environment reduces opportunities for communication, reduces the psychological strain on adolescents, and takes care of them when parents can't because of life circumstances.

The previous finding is contrary to results of the existing study. **Zewiel et al. (2022),** who conducted their research in Kafr Elsheikh city, reported that there was no statistically significant relationship amongst the self-esteem total score and any socio-demographic items of the participating students.

Regarding the academic level, this result found that there was a relationship which was statistically significant between academic level and cyberbullying and suicidal ideation. Whereas the students at the third academic level are

more likely to be exposed to both cyberbullying and suicidal ideation thoughts. Because the older the students, the greater their ability to deal with computers and smart devices, use them for long periods, and participate in different social platforms, which increases their exposure to cyberbullying and suicidal thoughts. These findings were in line with the study of **Llorent et al. (2021**), who stated that there was association among study level and cyberbullying victimization. Also, they clarified that cyberbullying levels increased in adolescents in secondary schools and colleges. Their study was conducted in primary as well as secondary schools in Poland and Spain, and the participants were between nine and sixteen years old.

The findings of this study verified a statistically significant relationship with family income. Whereas students with sufficient income were more likely to be exposed to cyberbullying, low self-esteem, and suicidal ideation. From the viewpoint of the researcher, the main cause of these problems is that families with sufficient income may spend more on electronics like cellphones, computers, tablets, and other gadgets. This result was consistent with **El Khateeb et al. (2022**), who studied in two faculties at Benha University, Egypt, and stated that there was a highly statistically significant relationship between student income and cyberbullying among sample students. These outcomes were on the conflicting with the study of **Pandey and Sonker (2021),** as they found that there was a very low positive correlation among family income and cyberbullying behaviors in their study conducted at government and private schools in Varanasi for students between the ages of fifteen and eighteen.

It is commendable to acquaints that there were associations amongst participants' cyber-victimization and their daily hours of using social media and this association was a statistically significant. This may be rationalized as adolescents who utilize social networking sites for a long period of time are more susceptible to cyberbullying. This finding is compatible with **Azami & Taremian (2021),** who said that there were statistically significant associations between students' internet usage and the bully victim group in their study in high school Iranian. Additionally, **Zhong et al. (2021)** found that among Chinese college students, the more time a student spends online each day for learning or work, the more probable it is that they will experience cyberbullying.

In relation to relationships with others, it was found that there was association among relationships with others and cyberbullying which were statistically significant. Because those who are socially active are susceptible to becoming victims of cyberbullying, particularly when their ideas or points of view are rejected by others, this is in agreement with **Zhong et al. (2021),** who found that social behaviors have a major influence on cyberbullying among Chinese college students.

It is worth noting that there was a negative correlation between participants' cyber-victimization and their self-esteem. These findings approve previous research telling that experiencing cyberbullying victimization possess a negative influence on physical and psychological health **(Tsaousis, 2016) and (Palermiti et al., 2017)**. It seems that the intense fear of becoming a victim of cyberbullying leads the students to feel helpless, worthless, as well as decreased in self-esteem. Individuals generally have essential emotional need to be acceptable and belonged to others. Psychological maladaptation and reduced wellbeing may present among adolescents that experience cyberbullying (**Extremera et al., 2018**). This finding was supported by **Reignier et al. (2022),** who studied Spanish adolescents between the ages of fourteen and eighteen and discovered a significant relationship between self-esteem and cyberbullying. In a similar vein, **Lei et al. (2020)** found a statistically significant negative correlation between cyber-victimization and self-esteem.

In the same regard, we found a positive correlation between participants' cyber-victimization and their attendance of suicidal thoughts. Because adolescents who experience cyberbullying show behaviors that lower their self-esteem, which increases the probability of having suicidal thoughts. Additionally, it may be because being cyberbullied had a significant effect on adolescent's negative psychological reactions development that can lead to decreased emotional adjustment, lower self-esteem, and increased suicidal ideation and behaviors, Such results are consistent with those of **Extremera et al**. (**2018**), who found a positive association between cyber-victimization and suicide risk among Spanish adolescents.

From the researchers' point of view, examining the consequences of cyberbullying on self-esteem and suicidal thoughts among adolescents helps us determine the level of cyberbullying, self-esteem, and suicidal thoughts among them and the association among their exposure to cyberbullying and their self-esteem and suicidal thoughts.

Conclusion:

The present research concluded that cyberbullying victimization, low self-esteem, and the presence of suicidal thoughts were found in 29.4%, 37.3%, and 17.1%, respectively, among the participants. There was a relationship among participants' cyber-victimization and their sex, academic level, and family income which was highly statistically significant. Also, there was a highly statistically significant relationship among participant's self-esteem and their residence, the types of their family, and their family income. Additionally, there was a statistically significant relationship between the participant's suicidal ideation and their age, academic level, and family income. Finally, there was a negative correlation among participants' cyber-victimization and their self-esteem. Also, there was a weak positive correlation between the participant's cyber-victimization and the presence of suicidal thoughts.

Recommendation:

- An urgent need to develop educational and psychoeducational programs targeting parents, teachers, and students about coping mechanisms for victims of cyberbullying.
- Maximizing the school health nurses' role and collaborating with the family and society to reduce the risks of cyberbullying.
- Raise public awareness of the harmful effects of cyberbullying through mass media whether in rural or urban communities.
- Replication of this work with a larger study sample is advised for generality.

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