

Effect of a Cyber-Bullying Prevention Program "Media Heroes" on Knowledge and Self-Perception among Adolescents in Port Said Governorate

Nadia Mohamed Wahba¹, Safaa Gomaa Ahmed², Samar Mohammed Abdel-kader³, Huda Gaber Hamza⁴

^{1,4}Lecturer of Psychiatric Nursing and Mental Health, Faculty of Nursing, Port Said University, ²Lecturer of Pediatric Nursing, Faculty of Nursing, Suez Canal University, ³Lecturer of Family and Community Health Nursing, Faculty of Nursing, Suez Canal University, Egypt

Corresponding author: Nadia Mohamed Wahba

Email: menabody2012@gmail.com

Abstract

Internet as well as electronic devices has given adolescents novel means of socializing and positive effects in academic achievement, beside situations that cause various negative consequences as an effect of the massive usage of such technologies. Cyber-bullying-behavior comes to the forefront among these problems. The adolescents' self-perception is damagingly affected either by being cyber-bullies or cyber-victims, consequently, psychological risks are exhibited range from frustration, sadness, fear, and even suicide. **Aim:** The study intended to evaluate the effect of a cyber-bullying prevention program "Media Heroes" on knowledge and self-perception among the studied adolescents in Port Said Governorate. **Method:** One- group quasi-experimental design with pre-post evaluation, which was conducted in six preparatory schools randomly chosen representing the three educational zones of Port Said Governorate. The studied subjects comprised 265 adolescents recruited randomly from every educational grade. **Tools:** 1) a Structured Interview Questionnaire for the adolescents, 2) European Cyber-bullying Intervention Project Questionnaire, and 3) Self-Perception Profile for Adolescents Scale were used to collect data. **Results:** a highly statistically significant difference between the studied adolescents' total knowledge scores regarding cyber-bullying pre and post program was detected at $P < 0.001$. Also, highly statistically significant differences between the studied adolescents' total mean scores of all domains of self-perception except close friendship pre and post program were remarked at $P < 0.001$. **Conclusion:** A highly statistically significant improvement in adolescents' knowledge and self-perception after the application of a cyber-bullying prevention program was remarkable. **Recommendations:** Designing and applying more continuous educational programs for adolescents to increase their awareness level regarding cyber-bullying to prevent its negative psychological, behavioral, academic, and even physical impacts.

Keywords: Cyber-bullying, Prevention program, Knowledge, Self-perception, Adolescents.

Introduction

The rapid development and the wide spread usage of information and communication technology (ICT) provided children and adolescents with a great chance to be engaged in social media. It has been estimated that one-third of internet regulars universally are beneath 18 years of age; 92% of adolescents report going online every day and 71% of them use more than one kind of social media (Lenhart, 2015; Livingstone et al., 2015). The usage of ICT among adolescents has both benefits and risks; regarding the benefits, ICT usage enables the adolescents from communication, attainment of information, accessing educational materials and improving social support (Olweus & Limber, 2018).

Risks from ICT usage are several including cyber-bullying, access to inappropriate content, cybercrime, and internet addiction. The ICT transformed the adolescents from the traditional\offline bullying to the cyber\online\ electronic bullying. Cyber-bullying is defined as a form of bullying implemented through electronic means of communication for instance e-mail, cell phone, pager text messages, instant messaging, and defamatory personal\polling websites which intended to harm others and to support repeated aggressive behavior by an individual or group (Marketing Egypt Online Competitiveness Intelligence Report, 2015; Olweus & Limber, 2018).

Cyber-bullying is a cross-cutting concern in Egypt's vision 2030 as mentioned in Sustainable Development Goals (SDGs), (UNESCO, 2017). As at least 1 in every 5 to 7 children are exhibited cyber-bullying (Zych *et al.*, 2015). Cyber-bullying characterized by the intention to harm, access to a wider audience as individuals forward on content at a click, an occurrence at all times of the day, greater duration of aggressive behaviors, the anonymity of the cyber-aggressors\cyber-bullies, inability to avoid bullying, and discrepancy of power between the cyber-victim and the cyber-bullies because of the better technological competence of the cyber-bullies (Department for Education, 2017).

Cyber-bullying is a growing concern overall in the world, it is reported that from 10 to 42% of students being cyber-bullied (Kasahara *et al.*, 2019). The most affected age of cyber-bullying is ranging from 12 toward 16 years old, the peak of the cyber-victimization occurs during adolescence (Barlett & Chamberlin, 2017; Giumetti & Kowalski, 2016). The digital society expanded noticeably in Egypt from 12.3 million internet regulars in 2009 to 29.84 million regulars in 2016 (Ministry of Communications and Information Technology, 2016).

Microsoft commissioned a survey that surveyed cyber-bullying in 25 participant countries, comprising four Arab countries namely (Egypt, Morocco, Qatar, and United Arab Emirates). In appraisal of the conveyed average, cyber-bullying prevalence rate of 37% for responders from the 25 participant countries, the prevalence level for the Egyptian responders was 27%, 40% of Moroccan responders, 28% of Qatari responders, and 7% from the United Arab Emirates (Cross-Tab Marketing Services and Telecommunications Research Group for Microsoft Corporation, 2012).

Adolescence is an identity maturity versus confusion period; as the adolescents attempt to develop a personal sense of identity, personal perceptions, assets, and weaknesses. The reduction in global self-perception throughout childhood and adolescence may perhaps correlate to the experience of traumatic events, one of which may be cyber bullying. In the event of cyber-

bullying, if adolescents encounter negative messages, they may emphasis on self-contradictory rather than complimentary viewpoints concerning the self that hinder their growth toward identity maturity. Cyber-bullying threatens adolescents' peer relationships and social standing. Several socially unacceptable problems can happen producing difficulties in the future as an adult (Estévez *et al.*, 2018).

Cyber-bullying disturbs the human rights of adolescents, comprising rights to health and education. Cyber-bullying is a significant educational and social concern due to having plain implications on the cyber victim's psychosocial, emotional, and mental health. Cyber-victims are subjected to psychological distress and behavior problems in addition to strong emotional state of nervousness, fear, anxiety, irritability, sleep disorders, somatization and depression. Cyber-victims have concentration difficulties, retarded academic performance, decreased incentive to learn, increased absenteeism caused by fear and shame of what has been posted on social media locations (Machimbarrena *et al.*, 2018).

Cyber-bullying has primary and secondary effects on adolescents' self-perception. The primary effects include (evaluations, self-discrepancy, and mental representations), while the secondary effects include (academic, emotional and social outcomes). As the cyber-bullying messages call the attention of the cyber-victim, the adolescents must assess the message then access a mental representation of a comparable previous event to decide a proper response. If these messages are varying with the targets self-view of the cyber-victim, an incongruity may happen creating negative secondary effects (Egeberg *et al.*, 2016; Estévez *et al.*, 2018).

Despite adolescents' massive online presence, not enough is done to protect them from the hazards of the digital world and to escalate their access to safe online content. It is important that the adolescent students should become aware of how to avoid being a cyber-victim or in case of being a cyber-victim how to deal with the cyber-victimization and be aware of the cyber-bullying impacts (Tsaousis, 2016). So, the

researchers adapted the Media Heroes program as cyber-bullying prevention program for adolescents.

Media Heroes program is also called Medienhelden in Germany, theoretically it is a based preventive intervention program developed in Germany for the school context centered on planned behavior theory. Media Heroes program is designed for cyber-bullying prevention through providing knowledge about definitions, internet hazards, internet safety, and strategies to defend cyber-victimization. Media Heroes program has both short version and long version; the long version comprised fifteen sessions, every session lasting 45 minutes, while the short version consisted of four sessions, every one lasting 90-minutes, each session theoretically be implemented on only one day (*Wolfer et al., 2014*).

Significance of the study:

The median prevalence rates of cyber-victimization are 23%, and 15% for the cyber-aggression (*Hamm et al., 2015*). Cyber-victims undesirably distress the family and social environment generally as they have suicidal ideations and make suicidal attempts (*Iranzo et al., 2019*). As well, negative penalties that can remain in adult life such as consuming more drugs, , breaking the rules, having more undesirable attitudes toward authority figures, participating extensively in violent behaviors, and depression are experienced by the cyber-bullies. As can be realized, cyber-bullying is a behavior leading to adverse behavior caused by consuming technological devices in everyday and academic life. So, there's an urgent need to be taken into deliberation (*Ortega-Baron et al., 2017*).

The current study was a must as a form of responding to the Egyptian Campaign entitled "Ending Violence Against Children" (*UNICEF Egypt, 2018*), and Egypt vision 2030 SDGs addressing bullying and highlighting the significance of upgrading a culture of peace and non-aggression, improving skills and knowledge on human rights, in addition, ending trafficking, abuse, mistreatment, and all methods of violence against adolescents (*UNESCO, 2017*). Shedding light on cyber-bullying via

researches was required. Thereupon, this study was designed to plug the gap of knowledge in this area and to upgrade adolescents with needed knowledge to improve their self-perception.

Aim of the study:

This study aimed to evaluate the effect of a cyber-bullying prevention program "Media Heroes" on knowledge and self-perception among adolescents in Port Said Governorate.

Subjects and Method

Specific objectives:

1. Assess the adolescents' knowledge regarding cyber-bullying before program.
2. Assess the adolescents' self-perception before program.
3. Design an educational program about cyber-bullying prevention.
4. Implement a cyber-bullying prevention program "Media Heroes" for adolescents.
5. Determine the effect of a cyber-bullying prevention program "Media Heroes" on adolescents' knowledge and self-perception.

The Research hypotheses:

H1. Adolescents have satisfactory knowledge after the implementation of a cyber-bullying prevention program than before.

H2. Adolescents have higher self-perception after the implementation of a cyber-bullying prevention program than before.

Study design: One-group quasi-experimental design with pre-post evaluation was used.

Setting: The present study was implemented in the preparatory schools located in Port Said Governorate, which randomly chosen representing the three educational zones of Port Said Governorate. Two schools were selected randomly from each zone, these were namely; Al-Tahrier preparatory governmental Arabic school for Girls representing East zone, Al-Orfa Al-

Togareia preparatory governmental Arabic school for boys representing East zone, Port-Said preparatory governmental Arabic school for girls representing North zone, Ali Ibn- Abi Taleb preparatory governmental Arabic school for boys representing North zone., Ahmed Shawky preparatory governmental Arabic school for boys representing South zone, and Gamal Abd El-Naser preparatory governmental Arabic school for girls representing South zone.

Sample: The study subjects comprised a sample of preparatory school adolescents (167 were females and 98 were males) of the previously mentioned settings. Adolescents were recruited randomly from each school, to give the best representation. They were included in the study based on the subsequent criteria:-

- 1- From every educational grade at the school.
- 2- Aged between 12 to 15 years.
- 3- Willing to participate in the study.
- 4-From both sexes.

Sample Size:

It was estimated by using the subsequent equation (*Dawson & Trapp, 2004*).

$$n = 2 \left[\frac{(Z_{\alpha/2} + Z_{\beta}) * \sigma}{\mu_1 - \mu_2} \right]^2$$

n= Sample Size

Z $\alpha/2$ = 1.96 (The critical value that divides the central 95% of the Z distribution from the 5% in the tail).

Z β = 0.84 (The critical value that separates the lower 20% of the Z distribution from the upper 80%).

σ = 1.80

μ_1 = .14

μ_2 = .60 (*Albayrak et al., 2016*).

Sample size (n) = 240 adolescents.

Because of the predictable drop –out rate (10%), a final sample size was **265** adolescents.

Sampling technique:

A multi-stage stratified random sampling technique was utilized as follows:-

1. First Stage: A sampling frame that included a list of all schools of the three zones in Port-Said Governorate was

developed. Two schools (one for boys and the other for girls) were randomly selected from each zone.

2. Second Stage: From each selected school, three classes were randomly hand-picked up, one class from each preparatory grade.

Tools for data collection:

1) A Structured Interview Questionnaire for the Adolescents:

This tool was developed via the researchers in an Arabic language afterward revising the significant interrelated literatures (*Abdul-Wahab et al., 2015; Zych et al., 2015; Safaria, 2016; Arafa & Senosy, 2017; Extremera et al., 2018*). It comprised two portions as the following:

Part I: Adolescents' Personal Characteristics:

It comprised personal characteristic about the adolescents' age, sex, number of siblings, birth order, and educational grade. It also included questions about parents' such as parents' educational level, occupational status, and scheduled monthly income.

Part II: Knowledge of the adolescents' regarding the internet usage and cyber-bullying:

It contained questions that assess knowledge of the adolescents related to internet usage such as advantages of internet use, hazards of internet use and laws or regulations concerning internet usage. It also included questions about the cyber-bullying as having information regarding the cyber-bullying, meaning, purpose of cyber-bullying, individuals who exposed most frequently to cyber-bullying, impacts of cyber-bullying on cyber –victims, and approaches of dealing with cyber- bullying in case of being cyber bullied.

For scoring system, the knowledge of the studied adolescents was scored as follows: unknown / incorrect answer was scored 0, incomplete right answer was scored 1 and complete right answer was scored 2. For every area of knowledge, the scores of the items were summed-up and the total was dividing by the number of items, giving a mean score of this area of knowledge. The scores were converted into a percentage score.

The knowledge of the adolescents was considered satisfactory if their score was $\geq 75\%$, partially satisfactory if their score was from 50% to $< 75\%$ and unsatisfactory if the score was $< 50\%$.

2) European Cyber-bullying Intervention Project Questionnaire (ECIPQ):

The ECIPQ was developed by *Del Rey et al. (2017)*, in an English language and transformed into an Arabic language through the researchers. The ECIPQ was utilized to measure the level of involvement in cyber-victimization and cyber-bullying. The ECIPQ composed of 22 items (11 items for each sub-scale).

The cyber-victimization sub-scale included items such as; someone sent aggressive messages against his/her on social networks, internet, or What's-App. Someone hacked into his/her account and stole private data via email or social networking accounts, and someone sent embarrassing videos or images of his/her online. Cyber-bullying sub-scale involved items as; he/she said nasty things to someone using Whats App, the internet, and social networks, or, he/she threatened someone through online or text messages, and he/she excluded or ignored somebody in a social networking site or internet.

For scoring system, responses of the studied adolescents for the two sub-scales were measured using a five point Likert-scale; extended from "0" to "4". Items were scored 4, 3, 2, 1 and 0 for the responses; more times a week, once a week, once a month, once or twice a month, and no respectively. A mean score for each subscale was determined by summing-up the scores of the items and the total was divided by the number of items.

3) Self-Perception Profile for Adolescents Scale (SPPA):

It was developed by *Harter (2012)*, in an English language and translated into an Arabic language by the researchers. The SPPA is an instrument designed to measure an adolescent's overall self-esteem and feelings of competence in eight different specific domains, namely: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral

conduct, romantic appeal, job competence and close friendship. The SPPA as well offered a global self-worth score, which showed the level to which the adolescent loved himself/ herself as a person and happy with the approach he/she was. The SPPA is encompassed a total of 45 items, consisting of nine domains, with five items each.

The answer format of the SPPA rating both global plus specific domains of self-perception comprising positively and negatively worded phrases, for instance, "some kids had a lot of friends", but "others didn't have many friends". The adolescent assessed his/her likeness to one of these two opposite statements and selected not only which was "true for me" but also how much it is "true" (from "really true" to "sort of true"). Thus, it used a 4-point Likert scale. Items that presented the more adequate or competent self-perception in the first of the statement were scored 4, 3, 2, and 1, where 4 represented the most adequate self-judgment and 1 represented the least adequate self-judgment. Whereas the scoring was reversed in the items presented the less competent or adequate self-description first (items 2, 4, 9, 10, 13, 14, 15, 16, 17, 18, 20, 22, 28, 30, 32, 34, 35, 39, 42, and 44), and the results are conveyed as the means of every sub-scale of the SPPA which defined a given adolescent's profile.

Tools validity and reliability:

Validity was determined by a panel comprising seven experts who decided that the translated study tools were valid. A panel comprised one professor and three assistant professors from Psychiatric Nursing and Mental Health department, one professor and two assistant professors from Pediatric Nursing department, Port Said University. They were requested to express their opinions regarding lucidity, relevance, comprehensiveness, and construction of the translated tools. The required corrections and modifications were done accordingly. Also, the accuracy of translation was confirmed by using back translation into English which done by three linguistic experts. The phase of proving validity of the study tools continued for one month.

Reliability was established by assessing Cronbach's alpha coefficient. The tools were proved to be reliable as

the tool (1) assessed knowledge of the adolescents' regarding the internet usage and cyber-bullying confirmed a high internal consistency as Cronbach's α was 0.91. The reliability of the tool (2) namely; European Cyber-bullying Intervention Project Questionnaire was acceptable as $\alpha = 0.89$, and the tool (3) namely; Self-Perception Profile for Adolescents Scale showed an extremely high and quite acceptable internal consistency with $\alpha = 0.92$. Also, the values of Cronbach's alpha coefficient for its domain-specific subscales including scholastic competence, social competence, athletic competence, job competence, physical appearance, romantic appeal, behavioral conduct, close friendship plus global self-worth were good and quite acceptable which constituted .81, .78, .92, .86, .74, .80, .78, .83, and .88 respectively. The phase of ascertaining reliability of the study tools was conducted within one month.

Pilot study: In preparation for the actual study, a pilot study was implemented on 10 % of the studied adolescents (No. 27) who were selected randomly. It was done in order to ascertain the significance, clarity and practicability of the used study tools, and to estimate the time required to fill in the study tools. The adolescents who encompassed the pilot study were excepted from the chief study sample to assure the stability of the result. Built on the findings of the pilot study, no changes were done to the study tools. The study tools were simple and clear. The pilot study was implemented in the first of August 2018 for two weeks.

Procedure: After the dean of the Faculty of Nursing sent an official letter to the undersecretary of the Ministry of Education in Port-Said Governorate, demanding his permission and cooperation to implement the study, afterwards clarifying the intention of the study. Consequently, official letters directed from the undersecretary of the Ministry of Education in Port-Said to the randomly selected schools requesting their permission to conduct the study. Then, a cyber-bullying prevention program "Media Heroes" was implemented. Preparation, data collection, implementation and evaluation of a program persisted for nine months since the first of May 2018 to the end of January 2019. The study

moved out through four stages preparation, planning, implementation and evaluation as follows:

Preparation Phase: The researchers initiated to collect data assembly after an official approval was approved to conduct the study and finalization of the data collection tools. A list of the schools' number was obtained, from which 6 schools were randomly selected which representing the three educational zones of Port Said Governorate. The researchers attended by rotation in each study setting. In each school, the researcher attended the headmaster and the social worker to introduce self, explain to them the purpose of the study and how it would be carried out. Classes from each school were chosen randomly representing students from the three educational grades.

The researcher met the adolescent students in their classrooms and clarified to them the purpose of the study, how to fill the study tools and how the program would be implemented and the oral consent of each participant was obtained (introductory phase). The participants were asked to fill in the self-administered written pre-mentioned tools (pre-test). The time required for filling each one extended from 25 to 30 minutes.

Planning Phase: A cyber-bullying prevention program and a simple booklet were developed based on the baseline information gathered during assessment phase (pre-test) and review of recent pertinent literature. The researchers adapted the Media Heroes program as a cyber-bullying school based prevention. Media Heroes educational program had two versions; a short version and a long version; the long version contained fifteen sessions, every session lasting 45-minutes, while the short version comprised four sessions, each one was 90-minutes supposed to be implemented on a single day. For the current study, the researchers adapted the short version and done some modifications in the schema.

The program consisted of four formal lectures and group discussions about cyber-bullying which were; what's cyber-bullying session, involved information around the meaning of cyber-bullying and the modes via which cyber-bullying exhibited in addition to the instances of cyber-bullying incidences (1st session).

The risks of cyber-bullying session, delivered information regarding the effects of cyber-bullying on the adolescent who was bullied, the witnesses and the adolescent who bully, reasons why people think they can get away with cyber-bullying others and the causes of why such acts must be evaded (2nd session). Overcoming cyber-bullying session, encompassed awareness to the studied participants on ideas to control cyber-bullying, guidelines for communicating in the cyber-world with the intention of avoiding occurrences of cyber-bullying, methods to restrain the growth of cyber-bullying among adolescents, and identify positive ways to use social networking Web sites (3rd session).

Finally, an activity session, this session involved inspiring activities by means of quizzes with the drive of offering strengthening for the awareness and knowledge of the target participants on the subject of cyber-bullying which obtained in the above three precedent sessions (4th session). The adapted program was tested for its validity after translation by three linguistic experts.

Implementation Phase: A cyber-bullying prevention program was conducted through four main interactive learning sessions over two weeks (two sessions a week), each session lasted approximately 90 minutes. To start with the first session, the objectives of the program were clarified. Besides, the studied adolescents were informed concerning the sessions' time, the stages of the study, content, and extent. Each session began by a summary regarding what was provided during the preceding session and objectives of a new one. Adolescents were permitted to request any explanation or clarification of any point involved in the sessions.

The program was presented in a clear and concise form focusing on the program objectives, using different teaching methods such as modified lecture and small group discussion, and appropriate media as data show, printed booklet and role playing. The program was implemented in each preparatory school by the researchers assembly, as one researcher presented the sessions for one educational grade, two days/week from 10 a.m.- 12 p.m. to complete four sessions through two weeks with a total of three researchers in each preparatory school

to cover three educational grades. So, the total allocated time for implementing the program for the six randomly selected preparatory schools was three months (2 weeks / school).

Evaluation Phase: The effectiveness of the program on the studied adolescents' knowledge and self-perception was evaluated immediately subsequent to the implementation of the program (post-test) by means of the pre-mentioned tools. After completion of post-test, the studied adolescents were thanked for the time and effort they generously offered. Also, an acknowledgement certificate and a printed booklet which included all information delivered in the program to use as reference in the future were presented to each participant.

Ethical considerations: The study protocol was approved by the Scientific Research Ethics Committee of the Faculty of Nursing; Port Said University. An informed consent was obtained from the studied adolescents after complete description of the purpose and nature of the study. Every school student had an equal chance to be involved in the study through randomization. Confidentiality of the collected data and anonymity were strictly maintained through a code number affixed to each studied adolescent questionnaire. Voluntary participation of the studied adolescents was confirmed as they were well-informed that they had the freedom to withdraw from study at any phase. Finally, the process of data collection and program implementation were not disturbing the harmony of the work of the above-mentioned settings.

Statistical analysis: Data entry and statistical analysis were done by means of statistical package for social science (SPSS, Chicago, IL) version (25.0). Data were presented using descriptive statistics including means and standard deviations for quantitative variables, plus frequencies and percentages for qualitative variables. Qualitative categorical variables were compared utilizing Chi-square test. Continuous data were normally distributed. The comparisons were detected using adolescent's t-test for two variables with continuous data besides one

way ANOVA for more than two variables. Pearson coefficient to correlate between two normally distributed quantitative variables. Statistical significance was considered at P -value < 0.05 , and highly significant at < 0.001 .

Results:

Table 1, revealed the studied adolescents' personal characteristics, the study group comprised 265 preparatory students, more than half of them (63.0 %) were females. As for adolescents' age, more than half (51.7%) of the students aged between 13 to less than 14 years, 36.2% between 14 to 15 years, while only 12.1% aged between 12 to less than 13 by a mean age of 13.53 ± 0.96 years. Regarding to their school grade, more than half of the studied adolescents (50.2%) were in the grade three. Concerning the adolescents' ranking, more than two thirds (46.7%) were the first among their siblings.

Figure 1, denoted total knowledge scores regarding internet usage and cyber-bullying throughout the program among the studied adolescents. As evident, less than one half (40.7%) versus the minority (7.2%) of the studied adolescents had unsatisfactory total knowledge scores regarding internet usage and cyber-bullying pre\ post program respectively. A highly statistical significant improvement was detected in studied adolescents' total knowledge scores after program implementation as ($p= 0.000$).

Table 2, displayed exposure to cyber-bullying among the studied adolescents. As transpired in the table, only more than a quarter (28.3%) of the studied adolescents conveyed that, they exposed to cyber-bullying, and the exposure through Facebook constituted the highest percentage (37%) followed by What's-App which constituted 35%. Concerning the reaction of those who had been cyber-bullied, more than one third (38.7 %) of the studied adolescents didn't reply to cyber-bullies directly and think wisely about the best approach to deal with the act, and 32% were talking with a trustworthy person.

Table 3, the findings, obtained by the European Cyber-bullying Intervention Project Questionnaire indicated that, cyber-victimization among the studied adolescents was with a mean \pm SD of 2.50 ± 5.12 , while, involvement in cyber-bullying was with a mean \pm SD of 1.66 ± 5.18 .

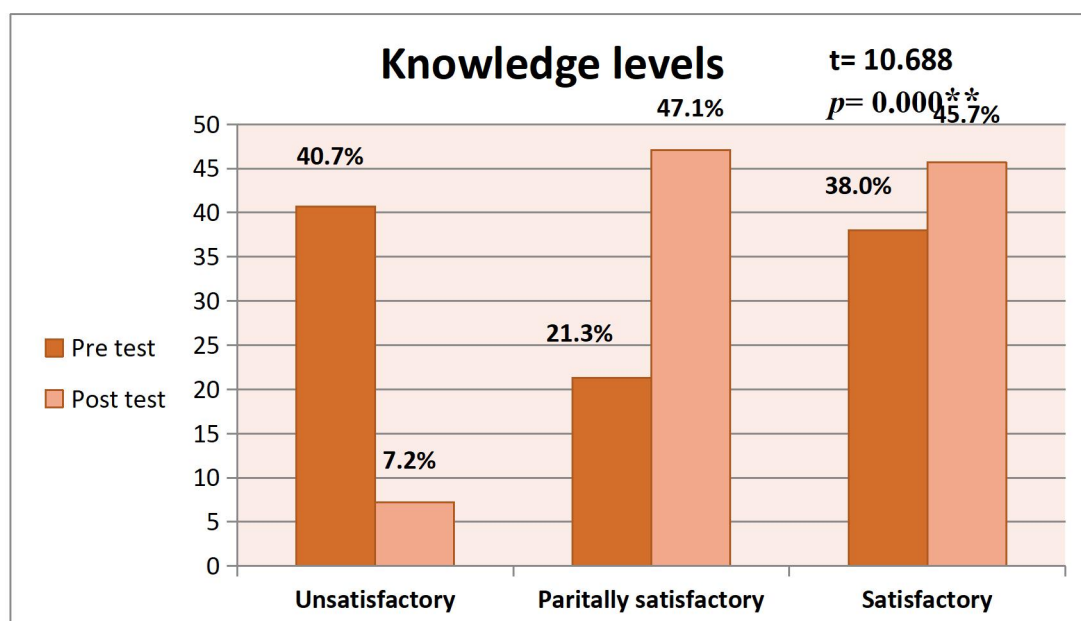
Table 4, Demonstrated the improvement of self-perception domains among the studied adolescents pre\ post program implementation. An obvious highly statistically significant differences were noticed in the rate of change in all domains of self-perception at $p < 0.001$ except for close friendship at $p > 0.05$ before and after program implementation. As displayed, the highest improvement in domains of self-perception was related to job competence, social competence and physical appearance respectively. Conversely, the lowest improvement was interrelated to close friendship.

Table 5, puzzled out the relation between selected personal characteristics and total mean scores of cyber-victimization, cyber-bullying, knowledge and self-perception among the studied adolescents. As presented in the table, there were statistical significant associations between the studied adolescents' personal characteristics in relation to their sex, fathers' education, and mothers' education and mean scores of cyber-victimization, cyber-bullying, and knowledge. While, no statistical significant association could be detected between personal characteristics of the studied adolescents and mean scores of self-perception at $p < 0.05$.

Table 6, submitted the correlation between total mean scores of knowledge and self-perception among the studied adolescents pre\ post program. As described in the table, there was a highly statistically significant positive correlation between the studied adolescents' total mean scores of knowledge and self-perception before program as ($r= 0.251$) at $p < 0.001$. Besides, a statistically significant positive correlation was detected between the studied adolescents' overall mean scores of self-perception and knowledge after program application whereby ($r= 0.114$) at $p < 0.05$.

Table (1): Frequency & percentage distribution of the studied adolescents according to their personal characteristics (n=265)

Personal Characteristics	No.	%
Age (years):		
12-<13	32	12.1
13-<14	137	51.7
14-15	96	36.2
Mean ± SD	13.53 ± 0.96	
Sex:		
Male	98	37.0
Female	167	63.0
School Grade:		
First	87	32.8
Second	133	50.2
Third	45	17.0
Adolescent's ranking:		
First	124	46.7
Second	110	41.6
Third or fourth	31	11.7



t: Paired t-test for comparing between pre and post program.

** High statistical significant difference at $P < 0.001$.

Figure (1): Percentage distribution of the studied adolescents' total knowledge scores regarding internet usage and cyber-bulling pre\post program

Table (2): Frequency & percentage distribution of the studied adolescents according to the exposure to cyber-bullying (n=265)

Exposure to Cyber-bullying	No.	%
Being a cyber-victim:		
Yes	75	28.3
No	190	71.7
Exposure through (n=75):		
Text messages	5	6.7
E-mail	1	1.3
Face book	28	37
What's-App	26	35
Other social networking accounts as (Electronic games, Twitter, Instagram and Snap chat)	15	20
Reaction in case of being cyber-victim (n=75):		
Talking with a trustworthy person	24	32
Don't reply to a cyber-bullies directly, don't talk with an adult person, and think wisely about the best approach.	29	38.7
Don't feel shyness, whatever the cyber-bully posted or said a very embarrassing.	4	5.3
All of the above.	18	24

Table (3): Mean scores of involvement in cyber-victimization and cyber-bullying among the studied adolescents (n=265)

Items	Mean ± SD
Cyber-Victimization	2.50 ± 5.12
Cyber-Bullying	1.66 ± 5.18

Table (4): Mean scores of self-perception domains among the studied adolescents pre\ post program (n=265)

Self-Perception Domains	Pre-Program	Post -Program	t Test	P Value
Scholastic Competence	9.97 ± 3.26	12.01 ± 3.17	6.79	0.000**
Social Competence	9.49 ± 3.54	11.50 ± 2.72	7.52	0.000**
Athletic Competence	11.00 ± 3.13	12.66 ± 3.12	6.42	0.000**
Physical Appearance	10.17 ± 3.48	12.36 ± 10.17	7.14	0.000**
Job Competence	10.57 ± 2.39	12.26 ± 2.43	7.66	0.000**
Romantic Appeal	11.46 ± 2.35	12.94 ± 2.70	6.54	0.000**
Behavioral Conduct	11.71 ± 2.98	13.09 ± 2.28	6.20	0.000**
Close Friendship	10.33 ± 3.65	10.32 ± 3.63	0.85	0.395
Global Self-Worth	9.60 ± 3.33	11.55 ± 3.46	6.53	0.000**

t: Paired t-test for comparing between pre and post program.

** : High statistical significant difference at $P < 0.001$.

:Insignificant at $P > 0.05$.

Table (5): Relation between selected personal characteristics and total mean scores of cyber-victimization, cyber-bullying, knowledge and self-perception among the studied adolescents (n=265)

Selected Personal Characteristics	No.	%	Mean Scores of			
			Cyber-Victimization	Cyber-Bullying	Knowledge	Self-Perception
			Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.
Sex:						
Male	98	37	1.92 ± 1.26	2.31 ± 5.57	12.31 ± 7.72	106.15 ± 9.58
Female	167	63	3.97 ± 5.52	1.28 ± 4.92	15.55 ± 8.58	106.74 ± 11.66
Significance			t=1.163 P = 0.044*	t =1.563 P = 0.024*	t =-3.070 P = 0.002*	t= - 0.218 P = 0.828
Fathers' education:						
Not read and write	13	4.9	2.23 ± 5.59	2.07 ± 6.02	13.46±9.77	105.50 ± 7.77
Basic	41	15.5	4.19 ± 1.33	4.58 ± 9.57	13.85 ± 7.03	104.72 ± 12.67
Intermediate	110	41.5	2.46 ± 0.44	1.50 ± 4.50	13.43±8.52	108.25 ± 9.43
University	89	33.6	1.84 ± 3.43	0.57 ± 1.67	16.37±8.57	106.25 ± 9.49
Post graduate	12	4.5	2.25 ± 0.85	0.91 ± 2.60	10.50±6.73	101.33 ± 16.15
Significance			F= 158.100 P =0.019*	F= 4.582 P = 0.001*	F=2.356 P = 0.05*	F= 225.278 P = 0.745
Mothers' education:						
Not read and write	20	7.5	0.85 ± 2.51	0.25 ± 0.63	17.10±7.65	105.12 ± 10.34
Basic	35	13.2	4.62 ± 8.68	3.80 ± 8.91	15.82±7.96	107.53 ± 12.26
Intermediate	123	46.4	2.43 ± 4.90	1.81 ± 5.22	13.86±8.33	105.67 ± 11.31
University	76	28.7	1.78 ± 3.35	0.90 ± 3.13	14.81±8.78	108.00 ± 5.11
Post graduate	11	4.2	4.36 ± 4.22	1.09 ± 2.70	7.00 ± 5.31	106.66 ± 17.15
Significance			F= 2.836 P = 0.025*	F= 2.366 P = 0.050*	F=3.167 P = 0.015*	F= 72.676 P = 0.961

t: Paired t-test
F: F test (ANOVA)

*: Statistically significant at p < 0.05
: Insignificant at P > 0.05.

Table (6): Correlation between total mean scores of knowledge and self-perception among the studied adolescents pre\ post program (n=265).

Items	Self-perception			
	Pre-Program		Post Program	
	r	p	r	p
Knowledge	0.251	0.000**	0.114	0.064*

r: Pearson coefficient.

*: Statistically significant at $p < 0.05$.

** : Highly statistical significant at $P < 0.001$.

Discussion:

Cyber-bullying behavior has been increasing rapidly among middle school and high school adolescents, which can easily influence them in various respects. It may cause severe complications such as frustration, sadness, anger, emotional, behavioral, and academic difficulties, having negative relationships with family, not being able to communicate socially, isolated and anxiety, low self-esteem, clinical depression, and even suicide (*Hutson et al., 2018; Aizenkot & Kashy-Rosenbaum, 2019*).

It is recognized that cyber-bullying impacts both cyber bullies and cyber victims harmfully. Cyber bully adolescents experience damaging effects such as, being dissatisfied with who they are, being humiliated, disinterested in life, want to take action through anger or vengeance on the victims. Also, the maximum cyber-bullying victims are repeatedly unfocused, feel slight self-esteem, are anxious, and have a propensity to commit suicide (*Eroğlu & Güler, 2015; Alotaibi, 2019*). Overcoming cyber-bullying requires understanding cyber-bullying. Thereupon, the present study was carried out to evaluate the effect

of cyber-bullying prevention program "Media Heroes" on knowledge and self-perception among adolescents in Port Said Governorate to shed light on the consequences of the problem and draw attention to the necessary rapid solutions.

The present study results disclosed that less than half of the surveyed adolescents had unsatisfactory total knowledge scores regarding internet usage and cyber-bullying before application of the program versus a minority of them had unsatisfactory total knowledge scores after implementation of the program with a highly statistically significant difference. This can be indicated that this age group is using electronics daily and their total media exposure is high, without much concern for the consequences of their behaviors. Unfortunately, not all adolescents can take advantage of what technological devices have to offer. Thus, there's an urgent need that adolescents ought to be made aware of possible severe consequences of cyber-bullying behavior for themselves and their environment by equally their families plus teachers.

In the same direction, a study accomplished by *Kalender (2018)*, entitled "Cyber-bullying awareness in secondary and high-schools" founded a shortage of

knowledge regarding proper behaviors in cyber world among the studied students. Besides, *Abdul-Wahab et al. (2015)*, reported that the perceived awareness and knowledge score among the adolescents was higher in post-test afterward application of a multimedia program compared to the pre-test.

Similarly, *Thinnukool et al. (2018)*, who studied “The use of cyber-bullying mobile application to increase perceived knowledge of cyber-bullying among adolescents”, revealed a lack of adolescent knowledge regarding cyber-bullying. In the same direction, *Ang (2015)*, mentioned that a deficiency of adolescents’ knowledge regarding the online practices regulations, and a shortage of suitable parental monitoring and parental mediation, were studied to be related to cyber-bullying.

The findings in the contemporary study pointed out that, more than a quarter of the studied adolescents reported that, they were being cyber-victims, the cyber-victimization among the studied adolescents was with a mean \pm SD of 2.50 ± 5.12 , while, involvement in cyber-bullying was with a mean \pm SD of 1.66 ± 5.18 . It may be explained that, the cause for these findings may be owing to the continuous cautions of Egyptian families about issues such as being wary, alert, and controlled, and being aware regarding any undesirable behaviors may take place even in the cybernetic atmosphere.

In the equivalent direction, *Mishna et al. (2010)*, indicated that, engaging in cyber-bullying behavior was greatly less than exposure to cyber-bullying, besides, almost half (49.5%) of the 2186 participants were bullied online, and 33.7% of them bullied others online. Besides, a study by *Toraman & Usta (2018)*, disclosed that, engagement levels of the middle school students in cyber-bullying behavior were very low.

Results of the existing study presented that, around one-third of the considered adolescents were exposed to cyber-bullying through Facebook followed by What’s-App. This may be interpreted by means of international Facebook subscriptions, Egypt is ranked 17th, by way of 98% of internet users have Facebook accounts, and more than half of them are younger than 24 years

(Marketing Egypt Online Competitiveness Intelligence Report, 2015).

In conducting prevention programs, the current study suggests looking at the type of media online. Facebook should be taken care of as the dominant media where adolescents experience cyber-bullying victimization. The situation is similar in South Africa, where *Rensburg et al. (2015)*, found that cyber-bullying through social networking websites such as Facebook was the most prevalent form of victimization.

The current study findings revealed that over a third of the studied adolescents did not reply to a cyber-bully directly, don't talk with an adult person, and thought wisely about the best approach to deal with the act. The interpretation might be that the studied adolescents may not inform an adult following exposure to cyber-bullying because they don't want their media devices restricted, they will lose their technology freedoms, adults will not appreciate, and that the situation will not get better. However, victims need to tell an adult after exposure to cyber-bullying. Even telling a friend is better than not telling anyone. In the same track, *Safaria (2016)*, clarified that the majority of cyber-victims took no action when they were cyber-bullied

The present study results denoted, noticeable highly statistically significant differences in the rate of change in all domains of self-perception except for close friendship before and after program application. The results emphasize the effectiveness of the cyber-bullying prevention program "Media Heroes". An improvement was observed in the self-perception after program implementation compared to before. This proved that understanding reasons plus penalties of cyber-bullying and the ability to manage the emotions of oneself can lessen the threat of psychological problems that victims of cyber-bullying might exhibit subsequently and lead to an adequate perception of self.

This study result confirmed by research studies proposing that a victim of cyber-bullying exhibited a greater adverse effect on psychological health (*Maughan et al., 2014; Tsaousis, 2016*). This may be explained by that, victims of cyber-bullies exposed to annoy and mock, thus may

anticipate to reveal low self-perception, subsequently, plain impacts for well-being and psychological adjustment may occur. According to *Ak et al. (2015)*, victims of cyber-bullying demonstrated social isolation and emotion regulation difficulties. Furthermore, *Palermi et al. (2017)*, conveyed that, victims of cyber-bullying were at increased threat of negative consequences for psychological adjustment, anxiety, depression, high proportion of suicidal ideation, substance abuse, and diminished self-perception.

In the same perspective, *Extremera et al. (2018)*, reported adverse consequences of cyber-bullying on victims' self-esteem. As well, *Cénat et al. (2014)*, mentioned that inadequate self-perception was equally an undesirable result after a cyber-bullying experience and also a forceful predictor of cyber-bullying victimization. Additionally, *Chan & Wong (2019)*, revealed that the emotional state of adolescents could be greatly damaged when they were the victims or perpetrators of cyber-bullying. One of the most obvious cyber-bullying penalties was a decline of self-esteem of the victims

The existing study findings also revealed that, the total mean score of cyber-victimization was statistically significantly higher among female students. This may be explained by that, females usually consume the internet for social drives, where males spend their online time gaming. Consequently, females' social networking behavior may make them more predisposed to experience cyber-bullying. Likewise, a study by *Peker (2015)*, found that females exposed to cyber-bullying behavior and victimized more than males.

Furthermore, a study conducted in Egypt found that female students reported significantly higher rates of cyber-bullying victimization (*Arafa & Senosy, 2017*). Nevertheless, a study carried out in Korea by *Cho & Wouldredge (2016)*, demonstrated that boys more predisposed to being victims of bullying. Moreover, *Çiftçi (2018)*, emphasized that males were more victimized than females. Whereas, *Pekşen & Oktay (2018)*, stressing that no difference between males and females could be detected.

The current study results displayed that, the overall mean score of cyber-bullying was statistically significantly higher among male adolescents. This may be because of the fact that, in the internet practice, females were more supervised by their parents than males, and males are unconstrained through the society, their behavior is not restricted or supervised expansively. Conversely, females' behavior is kept underneath greater control. This result suggests that gender has a determinant effect on cyber-bullying acts among this sample. Thus, males should become the primary target to resolve in a cyber-bullying prevention program. Furthermore, research is needed to explore the mechanisms behind these gender differences for males.

By the same token, results suggest that females were less expected to commit cyber-bullying than males (*Safaria, 2016*). As well, a study carried out by *Dorio et al. (2019)*, and publicized an advanced engagement level in cyber-bullying behavior among males.

In contrast to the existing study findings, *Eroğlu et al. (2015)*, stated that females engaged in cyber-bullying behavior more than males. While, *Balakrishnan (2015)*, clarified that, the sexual role variable did not have any influence on engaging in cyber-bullying behavior.

Strikingly, the present study result publicized that the scores of knowledge and self-perception among the studied adolescents are significantly higher after-program implementation compared to before. The results indicate that knowledge towards cyber-bullying and self-perception amongst the studied adolescents improved after the participants were given an educational intervention using the cyber-bullying prevention program "Media Heroes". This finding is confirmed by *Abdul-Wahab et al. (2015)*, who carried out a research termed "The use of multimedia in increasing perceived knowledge and awareness of cyber-bullying among adolescents: A pilot study" noted, an increase of the perceived awareness and knowledge of cyber-bullying among adolescents after application of an interactive multimedia cyber-bullying program.

In that concern, *Kalender (2018)*, publicized a necessity to strengthen the awareness level of pupils, educators, school managers, and parents concerning cyber-bullying. Additionally, *Bauman (2013)*, recommended direct training in proper behaviors in cyberspace and internet safety; approaches such as reporting manipulation plus blocking offenders and anti-bullying school strategies that definitely convey cyber-bullying as a forbidden behavior. Correspondingly, *Chaux et al. (2016)*, who did a study entitled "Assess the effects of the cyber-bullying prevention program Media Heroes on traditional bullying" revealed an increase of empathy and knowledge of hazards and significances of approaches that allow to defend victims from cyber-bullying and after application of an a Media Heroes prevention program.

Definitely, the existing study is significant, as it shed light on cyber-bullying and its negative consequences in adolescence. Although, prevention isn't comprehensive without the practice of technological precautions and construction of an anti-cyber-bullying policy. The existing study findings can be utilized to create integrated bullying prevention programs intended to increase the emotional abilities and self-perception of adolescents to defend or alleviate the undesirable penalties of cyber-bullying. The phenomenon of cyber-bullying may be more effectively treated and eliminated well not quite, but close enough.

Conclusion:

in deduction, based on the present study findings and research hypotheses, a highly statistically significant improvement in adolescents' knowledge and self-perception after implementation of a cyber-bullying prevention program "media heroes" than before had been noticed. Therefore, a cyber-bullying prevention program was successful in accomplishing its aim of positively changing adolescents' self-perception and knowledge regarding cyber-bullying.

Recommendations:

From the results of the existing study, the following recommendations are suggested:

- 1- Designing and applying more continuous intervention programs for adolescents particularly males, to increase their awareness level regarding the suitable approaches of cyber-bullying recognition, prevention, and intervention to prevent negative psychological, behavioral, academic, and even physical impacts, and spotting potential undesirable special effects of this behavior.
- 2- Building adolescents' self-perception, developing self-assertiveness skills for the students through workshops and role-playing and giving them physical affection.
- 3- Further researches to be carried out on the students in all levels of education to determine causes, risk factors, risky groups of cyber-bullying, the strategies that can help in resolving the problem. Also, replication of related specific studies using large probability samples at different sittings is extremely recommended.

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