Effect of Cognitive Behavioral Intervention Program on Post-Traumatic Stress Disorder among Syrian Adolescent Refugees in Egypt

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Abstract:

Background: Adolescents' refugee's is directly or indirectly affected by war-related traumas. Many studies had consistently recorded the presence of post-traumatic stress disorder (PTSD) and other psycho-social disorder. However, there is still much discussion about evidence based and sensitive interventions for such problems. ***Objectives:*** Assess the prevalence of Post Traumatic Stress Disorder (PTSD) among Syrian adolescents' refugee's students in Egypt and identify the effect of cognitive behavioral intervention program (CBITS) on post-traumatic stress disorder among them. A Quasi experimental research design was adopted to carry out this study. ***Settings:*** the study was carried out at 10 schools for Syrian refugees' students at Cairo and Alexandria Governorates. ***Subjects:*** All Syrian adolescent refugees' students enrolled in the previously mentioned schools whose age ranged between 11 – 15 years, and was registered in the United Nations High Commissioner for Refugees (UNHCR). Their total number was 613 students in 2014 – 2015 (Appendix 1). b- All students with moderate level of PTSD (206) according to the initial assessment using child PTSD symptom scale (CPSS) were selected to be included in the (CBITS) program. ***Tools:*** Two tools were used in this study. **Tool I: Students' Personal and Socio-demographic Data Structured Interview Questionnaire. Tool Two: Child PTSD Symptom Scale (CPSS)** to assess the frequency of all post-traumatic stress disorder symptoms within the past month among adolescents experienced a traumatic event. **The study had four phases.** The first was the assessment and preparatory phase were tool (II) used to assess PTSD symptoms frequency and severity among adolescent6s' refugees, the second was the development phase while the third was the implantation phase and Finally the fourth phase was the evaluation phase during which tool (II) was reused for immediate and 3 month follow up evaluation for. ***Results:*** Findings of the present study revealed that more than one third (34.75%) of the Syrian adolescent's refugees had mild symptoms of PTSD, one third of them (33.6 %) had moderate symptoms and 4.08% had severe PTSD symptoms. statistically significant difference on PTSD severity either immediately or after three month following the intervention implementing between study and control groups (X2=16.455, P=0.001 and X2=23.486**,** P=0.01).***Conclusion***. post-traumatic stress disorder symptoms is prevalent among Syrian adolescent refugees in Egypt. Furthermore, the current study concluded that the cognitive behavioral interventions for trauma in school was promising intervention for reduce of PTSD symptoms among Syrian adolescent refugees' in Egypt. .***Recommendations:*** Conduct comprehensive physical and mental health screen and assessment for traumatic adolescent's refugees for PTSD to identify intervention requirements and training for health specialists' practitioners to deliver evidence-based PTSD related interventions

Key words: Cognitive Behavioral Intervention, Post Traumatic Stress Disorder, Syrian Adolescent Refugees.

Introduction

Success reaching to sustainable peace and safety after conflict is a long- term challenge for many countries facing political conflict and war (Berdal, 2017). Community violence is one of the significant alarming health issues. Recently, there has been an increasing awareness of the extent to which children and adolescents are exposed to traumatic experiences(Moffitt, 1993). Those adolescents are at risk of becoming ill, malnourished, abused, or exploited, in addition to mental disorders and psychosocial problems such as PTSD (Hadfield et al., 2017). So that; those children need to more attention.

Syrian children and adolescents are the ones who have suffered most from the effect of the country civil war. They have no safe place to learn, play or live in peace with their families. Repeated displacement and known to have immediate and long-term impact on child's physical and psychosocial wellbeing (Rush, 2017). Researchers have documented a wide range of negative consequences of trauma exposure for children and adolescents such as PTSD, anxiety, major depression, dissociation and impairment in school achievements. In addition to behavioral problems as aggression and delinquency (Fazel, Reed, & Stein, 2015).

These mental disorders and psychosocial problems have a negative impact on the well-being, dignity and self-empowerment of those affected by wars and conflicts, and it can persist a long time after conflict or war has ended (Njogu & Orchardson-Mazrui, 2013) So that, the effects of war and conflict on the psychological well- being requires significant attention in the public health agenda particularly for children and adolescents.

Post-traumatic stress disorder (PTSD) is a common psychiatric disorder that may occur following a range of experiences including witnessing life- threatening incidents such as war, natural disasters, terror attacks, and serious car accidents (Mollica et al., 2015).

Whereas not everyone exposed to such life events develops PTSD, in the USA, it occurs among 5% of men and 10% of women who were previously exposed to such kind of live events. Moreover, the life-time risk in the general population for developing at least one episode of PTSD is estimated to be 8% to 9% (Hapke et al., 2006)

Prevalence of PTSD in children and adolescents exposed to political conflicts tend to be even higher than in adults, about, 25% to 70% of those who experience war are diagnosed with PTSD (Masten & Narayan, 2012). There are many studies found that there is a relationship between war- related trauma and severity of PTSD symptom, as study was conducted on children of Kuwait after the Gulf Crisis found that 70% of the sample reported moderate to severe symptoms PTSD.

Another study conducted by Thabet et al on Palestinian children in the Gaza Strip were found that 70.1% of 9- to 18-year- old of children exposed to the ongoing Israeli-Palestinian conflict have PTSD symptoms (Thabet et al., 2008).

However, findings of another study conducted by team of researchers from Bahcesehir University on Syrian refugee children in Turkey; showed that 46% of girls and 44% of boys' children reported moderate to high levels of PTSD(Özer et al., 2016).

In addition to flashbacks, nightmares are often reported by those suffering from PTSD. In this context, sleep disorders comprise about 70 percent of the complaints of patients with PTSD. Also, they are more likely to commit suicide than individuals without PTSD (Yuodelis-Flores & Ries, 2015). The risk of suicide between those with PTSD is higher for people reporting nightmares than for those who don't (Nadorff et al., 2013; Littlewood et al.,

2016). Accordingly, symptoms need to be recognized and treated appropriately if they are not to become persistent. In addition, patients with PTSD are at high risk of developing comorbid psychiatric disorders such as mood, anxiety, and substance abuse disorders (Swendsen et al., 2010).

Regarding to Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association fifth edition (DSM-V) criteria, the clinical diagnosis of PTSD requires intrusion symptoms, avoidance symptoms, negative alterations in cognitions and mood, increased arousal, and reactivity associated with the event.

A sub-group that affected by war and requires special attention with regard to mental health and psychosocial problems are children and adolescents (Merry et al., 2012). Common consequences among children and adolescents affected by war and conflict are mental disorders and psychosocial problems such as PTSD, other anxiety disorders depression, an increase of aggressive or violent behavior, and social or withdraw isolation, flashbacks, nightmares, and loss of hope and perspectives for the future; It may also lead to several psychosocial problems, such as a lack of moral development, and the changing of attitudes and beliefs (Fazel, Reed, & Stein, 2015).

On another hand, war caused displaced and refugees for country's residents; refugees are at greater risk of mental illness, including post-traumatic stress disorder. This is the result of mandatory migration, experience traumatic events, and resettlement in new cultural environments with difficult social and economic conditions (SSY Li, BJ Liddell, A Nickerson, 2016)

However, Studies evaluating psychiatric disorders in refugee war show heterogeneity in prevalence rates of depression range (2.3%–80%), PTSD (4.4%–86%), and unspecified anxiety disorder (20.3%– 88%), mainly due to clinical and methodological factors (Bogic et al., 2015; Leiler et al., 2019). This is mainly due to the application of different methodologies as well as the heterogeneity of conflicts.

The substantial risk faced by adolescents in community settings for experiencing traumas and PTSD along with associated impairments in later adolescence, underscores the need for programs for prompt intervention to uphold safety and wellbeing of children. Important advances in understanding traumatic stress reactions in children and young people have been made in recent years.

The symptoms of PTSD may last from several months to many years (Oliveira et al., 2018). The best approach is to prevent trauma. Once trauma has occurred however, early intervention is essential. Support from parents, schools and peers are important. Emphasis need to be placed upon establishing a feeling of safety. Psychotherapy which allows the child to speak, play, draw or write about event is helpful behavior modification technique and cognitive therapy reduces fears and worries. Medication may also be useful to deal with agitation, anxiety or depression(Hollon & Beck, 2013).

The individuals who had exposed to trauma have differ requirements. It is important to find methods for them to control their own life(Figley, 2013).

Medication treatment together with counseling focusing on the individual's needs will enable achieving positive results in these groups; the medication treats symptoms may not be sufficient to provide coping skills which will enable the individual to have long term good

health, medication together with psychotherapy intervention has enabled the reduction of symptoms and provided an increase in the patients‟ coping skills.

Although medicines may be helpful, they constitute only one part of the treatment, other parts of the treatments are listening to patients and explaining their situation, which can be provided by the nurse, are very important in PTSD (American Psychiatric Association, 2013)

Moreover, many types of psychotherapies are now available, such as cognitive behavioral therapy (CBT), eye movement desensitization and reprocessing (EMDR), behavioral therapy (BT), cognitive therapy, psychodynamic therapy and play therapy (Hollon & Beck, 2013; Cusack et al., 2016). Among these trauma-focused, CBT is the most common practiced psychotherapy for children and adolescents with PTSD. CBT has been recommended as a first-line treatment by clinical guidelines for PTSD in children and adolescents (Hollon & Beck, 2013).

The Cognitive Behavioral Intervention for Trauma in Schools (CBITS) program is a group intervention for children in grades 10 through 15. The program is aimed at relieving symptoms of post-traumatic stress disorder (PTSD), depression, and general anxiety among children and adolescent exposed to trauma (Goodkind et al., 2010). Children in CBITS work on processing traumatic memories, expressing grief, challenging upsetting thoughts, learning relaxation skills, and improving their social problem-solving. These techniques and skills are learned through the use of drawings and talking in both individual and group settings (Jaycox et al., 2018).

CBITS is a skills-based, child group intervention that is aimed at relieving symptoms of PTSD, depression, and general anxiety among children exposed to multiple forms of trauma (Langley et al., 2015). CBITS is suitable for a wide range of traumas including: physical abuse, disasters, war, accidents, witnessing death, assault, terrorism, immigration related trauma and traumatic loss. This program consists of ten group sessions (10-12 children group) of approximately a one to two hour in length, usually conducted once a week in a school setting (Dyb et al., 2011; Sagle, 2013)

Yet this study was conducted to assess the prevalence of post-traumatic stress disorder (PTSD) among Syrian adolescents' refugees in Egypt and to evaluate the effect of implementing the cognitive behavioral intervention for trauma in schools' program (CBITS) program on Post-Traumatic Stress Disorder (PTSD) among Syrians adolescents' refugees in Egypt.

Significance of the study

Data generated from this study can play an important role in identifying the magnitude and prevalence of post-traumatic stress disorder (PTSD) among Syrian adolescent's refugees. Additionally, it helps to highlight factors behind adolescent refugees post-traumatic stress disorder and can assist the Governmental and Non- Governmental organizations in planning and implementing comprehensive strategies for promoting of mental health of adolescents refugees.

Aim of the Study

The aims of the study are to:

1- Assess the prevalence of Post Traumatic Stress Disorder (PTSD) among Syrian adolescent refugees' students in Egypt.

2- Evaluate the effect of implementing Cognitive Behavioral Intervention for Trauma in Schools (CBITS) Program on Post Traumatic Stress Disorder (PTSD) among Syrians adolescents' refugees students in Egypt.

Hypothesis

Adolescent refugees' students with PTSD who received the Cognitive Behavioral Intervention for Trauma in Schools (CBITS) program demonstrate an improvement of PTSD symptoms.

Material and Methods:

Material

Research design:

A Quasi experimental design was adopted to carry out this study.

Setting:

The present study was carried out in 10 Syrian schools established in Egypt for Syrian refugees' students at 6 October in Cairo Governorate and Alexandria Governorate. Cairo governorate schools were; Bunat Alhadara; Al Rowad School; Ibn Al Walid School; and Taiba Centers for Supporting Refugee Students. Alexandria governorate schools were; Syriana Center; Nour Al Sham Center; Basheer Al - Quran School; Arwad School for Syrian Students in Alexandria; Syrian Educational Center, Educational Al-Tafawwuq Centers (Appendix I).

Subjects:

Subjects of this study were:

a- All Syrian adolescent refugees' students enrolled in the previously mentioned schools. Their age ranged between 11 – 15 years, and were registered in the United Nations High Commissioner for Refugees (UNHCR). Their total number was 613 students in 2014 – 2015 (Appendix 1).

b- All students with moderate level of PTSD (206) according to the initial assessment using child PTSD symptom scale (CPSS) were selected to be included in the (CBITS) program.

Tools of the study: In order to fulfill the objectives of this study and collect the required data, the following tools were used.

Tool I: Students' and Parents' Personal and Socio-demographic Data Structured Interview Sheet:

This tool was developed and applied by the researcher after reviewing the recent related literature, and included the following parts:

- **Students' personal and socio-demographic data as:** age, sex, academic grade, students' birth order, socioeconomic level, and length of stay in Egypt.
- **Medical History:** current and past health problems of the students and their families whether physical or mental

Tool II: Child PTSD Symptom Scale (CPSS):

The CPSS is a child version of the Posttraumatic Diagnostic Scale developed by Foa et al, 2001(Foa, et al., 2001). It is a self-reported 4-points Likert scale and with total PTSD symptoms score measure to assess the severity & frequency of all post-traumatic stress disorder symptoms within the past month among children and adolescents experienced a traumatic event. It yields a PTSD aggregate score as well as scores on the re-experiencing, avoidance and hyper arousal subscales. The CPSS is composed of 24-items divided into two parts:

Part 1 is made up of 17 items and it contained three subscales:

- Items 1- 5 refer to scores on the re-experiencing;
- Items 6- 12 refer to scores on the avoidance;
- Items13- 17refer to scores on the hyper-arousal.

Part 2 is made up of the last set of 7 items to measure impairment functioning.

In the first part of the scale, respondents are asked to "fill in the number that best describes how often that problem has bothered him / her in the last two weeks." Answers are on a Likert-type scale; 0 is not at all, 1 is once a week or less/once in a while, 2 is 2 to 4 times a week/half the time, and 3 is 5 or more times a week/almost always. The total score is the sum of items 1–17, ranging from 0 to 51.

In the second part of the scale, respondents are asked about functional impairment, or how much the problems indicated in section one have interfered with specific areas of life. These 7 questions are scored dichotomously as absent 0 or present 1. Scores range from 0 to 7, with higher scores indicating greater functional impairment.

- The total score of CPSS for the two parts ranges from 0 to 58. Taking 15 as a cutoff score, the following ranges were adapted in this study;
- Scores between 0 and 15 are indicative of minimum levels of post-traumatic stress symptoms
- Scores between 16 and 24 are indicative of mild levels of post-traumatic stress symptoms.
- Scores between 25 and 39 are indicative of moderate levels of post-traumatic stress symptoms.
- Scores between 40 and 58 are indicative of severe levels of post-traumatic stress symptoms.

Method

1) Administrative Procedures:

- An official letter from Faculty of Nursing was heading for the Directorate of Education to obtain the approval to carry out the study at different available Syrian schools in Cairo and Alexandria governorate.
- An official letter was submitted from faculty of nursing to the 10 selected schools in order to take their approval to carry out the study.

- The ten available schools for Syrian students at 6 October Cairo and Alexandria governorate were chosen to carry out this study.
- Meetings were held with the directors of the selected schools to clarify the purpose of the study and explain the process of the study, to set timetable to carrying out program sessions and to gain their cooperation and support during data collection.
- An email was sent to the authors of Cognitive Behavioral Intervention for Trauma in Schools (CBITS) training to seek their approval to use and receive the manual

2) Development of Tools:

- Tool I was developed by the researcher after reviewing the current relevant literature to collect the necessary data.
- The content of the constructed tool was revised by a group of five experts in the field of the study to test its validity, completeness, and clarity of items, recommendations and suggestions of the jury were considered and the tools were modified accordingly.
- The reliability of tool I was tested using Cronbach Alpha Coefficient test. The tool had a reliability of (r = 0.84).

3) Pilot Study:

A pilot study was carried out on 20 Syrian adolescents' students not included in the study sample to evaluate the clarity, comprehension and applicability of the tools and estimate the time required to complete the tools. The necessary modifications were done accordingly.

4) Collection of data:

- An informed written consent was obtained from each student's and their parents / guardian before starting data collection and after brief explanation of the purpose and nature of the research.
- Confidentiality and anonymity of student response, voluntary participation and right to refuse to participate in the study and withdraw at any time were emphasized to students and their guardians.
- Data was collected by the researcher during the period from September 2016 to March 2017.
- Date collection was carried out through four phases: assessment phase, development phase, implementation phase and evaluation phase:

I- Assessment and Preparatory phase:

- The researcher had received online training course about implementing of cognitive behavioral intervention for trauma in schools' program (CBITS) (www.cbitsprogram.org).
- The researcher had received three months training course on behavioral modification at High Institute of Public Health in Alexandria University.
- The researcher had attended training course on mental health and behavioral therapy at Al- Amal centers and Rance center in Alexandria- Egypt to attain the basic knowledge and skills regarding the Cognitive Behavioral Intervention for Trauma in Schools program.
- The manual of the program and its materials was translated into Arabic; and reviewed and affirmed by the supervisors of the research. Their recommendations and suggestions were taken into considerations.
- An initial assessment of all students (331 girls, 282 boys) in the selected schools (10 schools) using child PTSD symptom scale (CPSS) was conducted to identify the students with PTSD symptoms, and recruit students with moderate PTSD symptoms before applying of (CBITS) program.
- Depending on the results of CPSS analysis, students with total score between 0 and 15 (169 students) were identified as normal; while students with total score 16 - 24 (213 students) were identified as mild level of PTSD. Normal students and those with mild level of PTSD were not included in the program.
- All students with total score 40 - 58 (25 students) were identified as sever level of PTSD. After agreement from those students; the researcher had reported their cases to school authority to take appropriate actions and refer them to specialized health facility because they need more individual therapy with specialists.
- While students with total score between 25 and 39 (206 students) were identified as moderate level of PTSD. Those students were divided into two matched groups according to number of students in each school; one was control group (106 students) in 4 schools and the others were study group (100 students) in 6 schools.
- Intervention study group was prepared to receive CBITS.
- All students of the intervention group were interviewed individually. It consumed between 2 to 6 sessions to explain the purpose of the study and answer individual' questions and reduce anxiety.

II- Development phase:

The program objectives and methodology were prepared using CBITS manual guide, which is a skill-based therapy program for children and adolescents suffering from post-traumatic stress disorder as a result of traumatic experiences. This program teaches six techniques; education; relaxation training; cognitive therapy; real life exposure; stress or trauma exposure and social problem-solving.

III- Implementation phase:

- The sessions were conducted in a meeting rooms or class rooms in the selected schools settings according to the availability
- Students affiliated to study group were divided into small groups each group was including 10- 12 students.
- The program was applied on 10 sessions for each group (about two month and two week); the time spend for each session was 1 to 2 hours; one session per week, 5 days per week for different groups.
- Each CBITS session was begin with a debriefing from the last session and a review of homework, an overview of the new concept for the day's session, practice with that concept via a skills-based activity, and the assignment of homework related to that skill to be completed before the next session.
- Total dropout was three from study group and five from control group, those had not completed end program evaluation or after 3 months evaluation.

Program sessions:

The objectives of the sessions were to:

Session 1 Introduction:

- Build group cohesion by knowing group members each other and with researcher;
- Build a good relationship between the group members and with researcher;
- Reduce anxiety about participants in group;
- Discuss program objectives, activities, and rules that must be adhered

Session 2 Education about common reactions to stress or trauma:

- Reduce stigma about trauma- related symptoms;
- Build peer support;
- Increase parent- child communication and support;
- Build skills: Train group member relaxation skills.

Session 3 Introduction to cognitive therapy:

- Develop common language for " level" of feelings.
- Teach link between thoughts and feelings
- Build skills: challenging negative thoughts

Session 4 Combating negative thoughts:

- Build skills: challenging negative thoughts

Session 5 Introduction to real life exposure:

- Identify trauma related avoidance;
- Plan to decrease avoidance;
- Plan to decrease anxiety through approaching trauma reminder;
- Build skills: thought stopping distraction and positive imagery

Sessions 6 and 7 Exposure to stress or trauma memory:

- Decrease anxiety when remember trauma.
- Build peer support and reduce stigma.

Session 8 Introduction to social problem solving:

- Teach link between thought and actions
- Build skills: social problem solving
- Help students deal with real life problems

Session 9 Practice with social problem solving:

- Build skills: challenging negative thoughts; social problem solving
- Help students deal with real life problems

Session 10 Relapse prevention and graduation:

- Provide closure to the group
- Plan for the future
- Highlight strengths and accomplishments

Individual sessions:

Each student had at least one session individually to give more support, build and assure good rapport and trust as well as reduce anxiety.

IV) Evaluation phase:

Evaluation for both study and control groups were conducted immediately and after 3 months using CPSS scale for students (tool II) to determine the effect of the program on the PTSD symptoms.

Ethical considerations:

- Permission was obtained to collect the data from the selected settings.
- Voluntary participation and right to refuse to participate in the study were guaranteed by statement in the cover letter.

- The researcher was explaining to the participants the objectives of the study.
- Informed written consent was obtained from students and their parents or guardian.
- Confidentiality and anonymity of student response were maintained
- A code number was used instead of names.
- The sessions were conducted where the privacy of the subjects were ensured.

Statistical analysis

After data were collected, they were coded and transferred into specially designed formats so as to be suitable for computer feeding. Following data entry, checking and verification processes were carried out to avoid any errors during data entry, frequency analysis, cross tabulation and manual revision were all used to detect any errors. The statistical package for social sciences (SPSS version 20) was utilized for both data presentation and statistical analysis of the results. The level of significance selected for this study was P equal to or less than 0.05.

Results:

Table (I) shows personal characteristics and health status of Syrian Adolescent refugees

Regarding adolescents' sex, more than half (54%) of the Syrian adolescents were girls, while 46% of them were boys. The table also depicts that, the age of the adolescents ranged from11 - 15 years with a mean of 13.45±1.10 years. More than one quarter (26.6%) of them aged 11 to < 12 years, while less than one quarter (23.3 %) aged 12 to < 13 years, those who aged 13 to < 14 and 14 to ≤ 15 years were 28.4% and 21.7% respectively. Concerning adolescents' education level, the majority (80.3%) of the adolescents was in preparatory schools and 19.7% of them were in the primary schools. In addition, most of the adolescents (79.6 %) lived with their both parents, 18.1% of them lived with one of their parents and the least percentage (2.3%) of adolescents lived with their relatives.

In relation to health problems, the majority of the adolescents (87.3%) reported that, they did not have any health problems, whereas 12.7 % of them were suffering from health problems. Most (98.7%) of them had physical problems (diabetes mellitus, cancer) and 7.7% of them had psychological problems (anxiety, mood disorders, aggression and hopelessness). Two thirds (66.2%) of the adolescents with physical problems were taking medications, while none of the adolescents with psychological problems reported receiving any treatment.

Table (I): Distribution of Syrian adolescent refugees according to their biosocio-demographic characteristics and health statues

Characteristics and health status	No. (n = 613)	%
Sex		
Girl	331	54.00
Boys	282	46.00
Age (in years)		
12 -	163	26.6
13 -	143	23.3
14 -	174	28.4
15-	133	21.7
Min – Max	11- 15	
Mean ±SD	13.45 ± 1.10	
Educational level		
Preparatory	492	80.3
Primary	121	19.7
Live with		
Both Parents	488	79.6
Single parent	111	18.1
Relatives	14	2.3
Presence of health problems		
No	535	87.3
Yes	**78**	**12.7**
Type of Health problems**		
Physical	77	98.7
Psychological	**6**	**7.7**
Take treatment for physical health Problems		
No	51	66.2
Yes	26	33.8
Take treatment for psychological health Problems		
No	6	100
Yes	0	0.0

**More than one answer was given

Figure (1) shows the distribution of students according to severity of post- traumatic stress disorder symptoms.

The figure illustrates that, more than one quarter (27.57%) of the adolescents had not symptoms of PTSD. More than one third (34.75%) of them had mild symptoms of PTSD, one third of the adolescents (33.6 %) had moderate symptoms of PTSD and only 4.08% had severe PTSD symptoms.

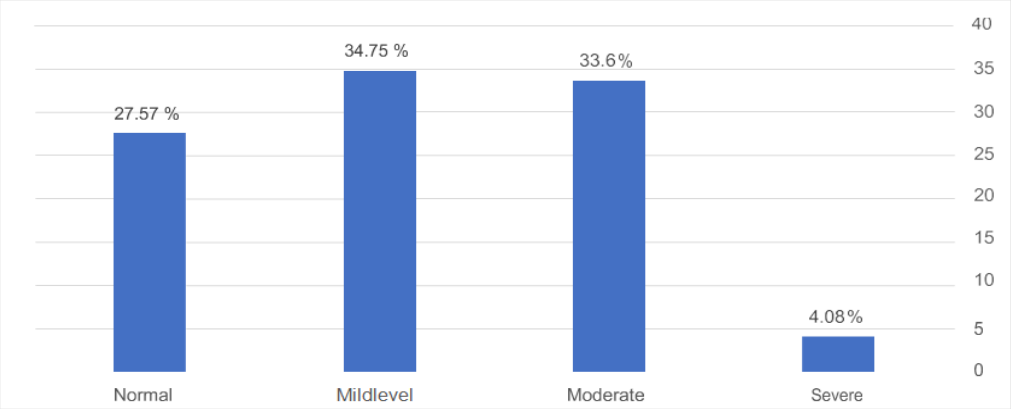

Figure (1): Distribution of Syrian adolescents' refugees according to their post stress disorder symptoms.

Table (II) shows the effect of the cognitive behavioral intervention program on study and control groups during pre, post, and follow up evaluation

It was observed from the table that cognitive behavioral intervention program has a positive significant effect on moderate level of PTSD symptoms where X^2=16.455, P=0.001. In the post intervention implementation phase 13.4 % of moderately level of PTSD adolescents of the study group became normal and 21.6% of them had mild level compared to 4% and 6.9% of control students respectively. Unfortunately, 64.9% still had moderate level of PTSD compared to 89.1% among control group. Moreover, evaluation after 3 months of intervention implementing program, about one quarter (24.7%) of moderately level of study group adolescents became normal and a similar percent (24.7%) of them had mild level. Compared to 11.9% & 5.9 % respectively among control group, with a statistically significant difference between study and control groups (X^2=23.486, P=0.01).

Table (II): The effect of the cognitive behavioral intervention program on Syrian adolescent refugees' post-traumatic stress disorder symptoms during pre, post, and follow up evaluation.

PTSD Symptom Levels (CPSS)	Pre		Post						Follow up					
	Moderate level		Normal		Mild level		Moderate level		Normal		Mild level		Moderate level	
	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Study* (n=97)**	97	100.0	13	13.4	21	21.6	63	64.9	24	24.7	24	24.7	49	50.5
Control*(n=101)**	10	100.0	4	4.0	7	6.9	90	89.1	12	11.9	6	5.9	83	82.2
χ^2	-				16.455*						23.486*			
P	-				<0.001						<0.001*			

χ^2, p:2 and p values for **Chi square test** for comparing between the two groups
*: Statistically significant at $p \leq 0.05$
***eight from study and control dropout

Table III presents the effect of the cognitive behavioral intervention program on the total mean scores of Syrian adolescent refugees ' post- traumatic stress disorder symptoms during pre, post, and follow up evaluation. It was observed from the table that there were significant differences (F.221.505, P = 0.001) found between pre, post and follow up among study group. Since mean score of study group was significantly decreased from 30.0 ± 3.84 before implementing the CBITS to 23.88 ± 6.31 immediately after the CBITS (P=0.001), then it became 21.52 ± 6.77 after 3 months evaluation of CBITS (P =0.001). No significant differences were founded (F. =75.247, P = 0.081) between pre, post and follow up evaluation among control group. The table also shows that there was no statistical significance difference between mean scores of the study and control groups (P =0.108) in pre CBITS, while it was significant in immediate post and 3 months follow up evaluation (p=0.001, p=0.001respectively).

Table (III): The effect of the cognitive behavioral intervention program on the total mean scores of Syrian adolescent refugees ' post- traumatic stress disorder symptoms during pre, post, and follow up evaluation

PTSD Symptom	Pre Mean± SD	Post Mean± SD	Follow up Mean± SD	F. test	p1
***Study (n=97)**					
Total mean score	30.0 ± 3.84	23.88 ± 6.31	21.52 ± 6.77	221.505*	<0.001*
ANOVA		<0.001*	<0.001*		
***Control (n=101)**					
Total mean score	30.97 ± 4.60	29.46 ± 5.17	28.44 ± 6.11	75.247	0.081
ANOVA		0.381	<0.042*		
p2	0.108	<0.001*	<0.001*		

F: F test **(ANOVA)** with repeated measures
Sig. bet. Periods was done using **Post Hoc Test (LSD)** for **ANOVA** with repeated measures comparing between pre and each other period in each group
p1: p value for comparing between pre and post and follow up in each group
p2: p value for Student t-test for comparing between study and control in each period
*: Statistically significant at $p \leq 0.05$
***eight from study and control dropout

Table IV reflects the effect of the cognitive behavioral intervention program on the subscale mean scores of Syrian adolescent refugees' post- traumatic stress disorder symptoms during pre, post, and follow up evaluation

With respect to the **re-experiencing,** the mean score for the study group was significantly decreased from 8.61 ± 2.28 before implementing the CBITS to 7.26 ± 2.57 immediately after the CBITS, where (p= 0.01), then it became 6.19 ± 2.29 after 3 months evaluation (p= 0.001). The differences between pre CBITS evaluation, end program and after 3 months evaluation were statistically significance (F =62.419, P = 0.001) among study group, while there was no statistically significant difference found between pre, post and follow up after 3 months evaluation (F =34.710, P= 1.223) among control group.

It is evident from the table that there were no statistical significance differences between mean scores of the study and control groups in pre and immediate post CBITS (P =0.99, P =0.056 respectively) while there was a significant difference after 3 months follow up evaluation (p=0.001).

Concerning to **avoidance,** the mean score of study group was significantly decreased from 10.38 ± 2.21 prior the CBITS implementation to 8.15 ± 2.27 immediate end the CBITS evaluation, where (p= 0.001), then it became 7.59 ±2.87 after 3 months evaluation (p= 0.001). The differences between pre CBITS evaluation, end program and after 3 months evaluation were statistically significance (F =75.768, P = 0.001) among study group. There were no statistically significant differences found between pre, post and after 3 months evaluation (F= 27.695, P = 0.158) among control group.

It is also apparent from the table that there was no statistical significance difference between mean scores of the study and control groups in pre CBITS (p=0. 250), while it was significant differences in immediate post and after 3 months evaluation (p=0.001, p=0.001respectively).

Moreover, the mean score for the study group in relation to **hyper- arousal**, it was significantly decreased from 8.13 ± 2.17 before implementing the program to 6.24 ± 1.78 immediately end the program, where (p= 0.001), then it became 5.55 ± 1.97 after 3 months evaluation of the program (p= 0.001). The difference between pre CBITS, end program and after 3 months evaluation were statistically significance (F =100.181, P = 0.001) among study group, it is amazing that there was statistically significant difference found between pre, post and after 3 months evaluation (F= 36,004, P = 0.041) among control group.

It is also manifest from the table that no statistically significant difference between mean scores of study and control groups pre the CBITS (p=0.385), while there were significant differences in immediate post and after 3 months evaluation (p=0.001, p=0.001respectively).

The same table also reveals, the mean score of the study group in regarding to **impairment functioning**, it was significantly decreased from 2.88 ± 0.70 before implementing the program to 2.32 ± 0.98 immediately end the program, where (p= 0.001), then it became 2.19 ± 0.95 after 3 months evaluation of the program (p= 0.001). There was statistically significant difference between pre CBITS, end program and after 3 months evaluation (F =46.866, P = 0.001) among study group, while there was no statistically significant difference found between pre, post and follow up after 3 months evaluation (F=13.357, P = 0.091) among control group.

As regards to impairment functioning, the same table obvious that there is no statistical significance difference between mean scores of the study and control groups in pre and immediate post CBITS (P =0.208, P =0.138respectively), while it was significant after 3 months evaluation (p=0.026).

Table (IV): The effect of the cognitive behavioral intervention program on the subscale mean scores of Syrian adolescent refugees' post-traumatic stress disorder symptoms during pre, post, and follow up evaluation

CPSS subscale mean	Pre Mean± SD	Post Mean± SD	Follow up Mean± SD	F test	P1
Re-experiencing					
Study group **(n=97)**	8.61 ± 2.28	7.26 ± 2.57	6.19 ± 2.29	62.419*	<0.001*
ANOVA		<0.01*	<0.001*		
Control group**(n=101)**	8.60 ± 2.49	8.17 ± 2.26	8.06 ± 2.45	34.710	1.223
ANOVA		0. 144	<0.001*		
P2	0.99	0.056	<0.001*		
Avoidance					
Study group **(n=97)**	10.38 ± 2.21	8.15 ± 2.27	7.59 ± 2.87		<0.001*
ANOVA		<0.001*	<0.001*		
Control group **(n=101)**	11.22 ± 2.97	10.49 ± 2.73	10.38 ± 3.01	27.695	0.158
ANOVA		0.201	0.083		
P2	0. 250	<0.001*	<0.001*		
Hyper-arousal					
Study group **(n=97)**	8.13 ± 2.17	6.24 ± 1.78	5.55 ± 1.97	100.181*	<0.001*
ANOVA		<0.001*	<0.001*		
Control group **(n=101)**	8.36 ± 1.90	7.71 ± 1.86	7.56 ± 2.08	36.004	<0.041*
ANOVA		0.063	<0.001*		
P2	0.385	<0.001*	<0.001*		
Impairment functioning					
Study group **(n=97)**	2.88 ± 0.70	2.32 ± 0.98	2.19 ± 0.95	46.866*	<0.001*
ANOVA		<0.001*	<0.001*		
Control group **(n=101)**	2.76 ± 0.57	2.46 ± 0.77	2.44 ± 0.76	13.357	0.091
ANOVA		0.099	1.012		
P2	0.208	0.138	<0.026*		

F: F test **(ANOVA)** with repeated measures
Sig. bet. Periods was done using **Post Hoc Test (LSD)** for **ANOVA** with repeated measures comparing between pre and each other period in each group
p1: p value for comparing between pre and post and follow up in each group
p2: p value for Student t-test for comparing between study and control in each period
*: Statistically significant at $p \leq 0.05$

Discussion

As we look around the world today, we are confronted with an uncomfortable but undeniable truth that millions of people's lives are blighted for no other reason than the country, the community and the circumstances into which they are born(Hariri, 2019). According to the World Health Organization report in 2017; global inequality threatens the lives and futures of tens of millions of people and vulnerable groups around the world and this due to the wars, conflicts, violent events and crises (World Health Organization [WHO], 2017). These events increase their vulnerability, unless serious steps are taken to deal with them.

Conflicts and wars affect all population and at different age groups. The outcome of these events involves the development of long-term physiological and psychological problems especially in children and adolescents (Osgood et al., 2010).

Around the world, 68.5 million people were displaced due to war and political conflict, of whom 25.4 million were recognized as refugees according to UNHCR; More than half of all displaced and refugees' people are children and adolescents (UN High Commission for Refugees (UNHCR), 2019).

Mental health disorders, such as behavioral problems, depression, anxiety and post-traumatic stress disorder were higher among adolescents' refugees exposed to war compared to those who didn't (Slewa-Younan et al., 2015).

Syrian adolescent refugees are the future of Syria, and they have been subjected to many harsh conditions from the war and refuge due to the lasting effects of trauma it is essential that these adolescents receive the best and most effective trauma focused therapy available (Blanchet et al., 2017)

Several studies have reported a high prevalence of symptoms of PTSD and other mental disorders among refugee adolescents and have linked these symptoms to exposure to trauma prior to migration (Bronstein & Montgomery, 2011; Alpak et al., 2015). In 2018, study conducted on Syrian refugee adolescents in Turkey and internally displaced persons in Syria found that they exhibited anxiety and excessive fears, manifested by dependent behavior, clinging to parents and fear of being left alone or sleeping in the dark (Tekeli-Yesil et al., 2018).

PTSD symptoms responds well to therapies but if left untreated, can cause long standing emotional distress, relationships problems and academic failure. Additionally, they can continue well into adulthood if they are not properly addressed so it is essential to seek professional treatment for adolescents as soon as these symptoms emerge (Bichescu et al., 2005).

There are variety of ways and programs to treat PTSD, many of these interventions focused on past traumatic events (Tyrer & Fazel, 2014). Cognitive Behavioral Intervention for Trauma in School (CBITS) is one of these treatments that have been proven to be effective in treating many psychological disorders among children and adolescents. It uses a skill building early intervention approach and therefore most appropriate for student with moderate levels of PTSD. It is appropriate for a wide range of traumas inclusive: disasters, accidents, witnessing death, assault, war, physical abuse, terrorism and immigration related trauma and traumatic loss (Williams & Poijula, 2016; Jaycox et al., 2018).

Significant improvements were seen for depression, anxiety, PTSD, functional disturbances and peer problems in both types of interventions. Individual as well as group interventions were effective; as were both short and long-term treatments (Kirmayer et al., 2011; Yuodelis-Flores & Ries, 2015).

Traumatic reactions in adolescents have been less extensively studied than in adults as few naturalistic, longitudinal studies mapping the natural history of these reactions (Bonanno & Mancini, 2012). Additionally, few studies have searched the effectiveness of cognitive behavior intervention programs on post- traumatic stress disorder among adolescents' refugees(Dyb et al., 2011).

Hence, this study was conducted with the aim of identifying the magnitude and prevalence of post-traumatic stress disorder (PTSD) among Syrian adolescents' refugees and identifying the effect of cognitive behavioral intervention program (CBITS) on post-traumatic stress disorder among Syrian adolescent refugees in Egypt.

The results of the current study will play an important role in identifying the magnitude and prevalence of post-traumatic stress disorder (PTSD) among Syrian adolescents' refugees. Additionally, it helps to highlight the factors behind adolescent refugees' post-traumatic stress disorder and can assist the Governmental and non-governmental organization in planning and implementing comprehensive strategies for promoting of mental health and the provision of good mental health care for refugees and migrants.

Children and adolescents' refugees who account for more than half of the world's refugees, have a higher prevalence of psychological disorders than others who are not refugees(Fazel &Tyrer, 2014) (Fazel, Wheeler & Danesh, 2005). Recently, several studies direct attention to the significant prevalence of PTSD among adolescents in the Medal East and internationally. Numerous studies have examined the rates of psychological distress in different samples of refugee adolescents using self-report instruments or instruments filled by parents, teachers or others(Bronstein & Montgomery, 2011).

Upon assessing the prevalence of post-traumatic stress disorder symptoms among Syrian adolescent refugees in Egypt who experienced a traumatic event within the last month prior to the study, the current findings of this study illustrated that, 37.7% of the adolescents were had PTSD symptoms.

Approximate figures were reported from numerous studies which examined the prevalence of PTSD among refugees. Alpak et al. (2015) found that 33.5% of Syrian adolescent's refugees in Turkey had PTSD symptoms (Alpak et al., 2015). Additionally, Al-Hemiary et al in 2016 mentioned that PTSD was noticed among 37.1% of secondary school students in Baghdad, Iraq (Al-Hemiary et al., 2016). Furthermore, Fazel et al. found that, the prevalence of psychosocial problems were ten times higher in samples of refugees settled in western countries, including PTSD symptoms. In comparison, the rate of PTSD is just 3% in the high-income countries population (Fazel, Wheeler & Danesh, 2005). Similarly, a study done on 492 children from schools in Damascus and Latakia revealed that 35% of students had PTSD (Perkins et al., 2018).

This may be explained by the fact that adolescents' refugees have an exposure to traumatic experiences from organized violence which can lead to the death of a loved one, imprisonment, witnessing explosions and executions, separation from one's family and lacking basic necessities as well as ongoing stressors within the host country. Most people who experience or witness a traumatic event are going to have some type of distress afterward having a normal reaction to trauma, However, some factors may make the person more likely to develop PTSD. Researchers have identified several risk factors that might predict one's likelihood of developing PTSD (Breslau, 2009).

Recognizing and appropriately dealing post-traumatic stress disorder among refugees specially adolescents in care is consider a challenge because of differences in personality, language, culture and specific stressors associated with refugees and relocation (Gillies, Taylor, Gray O'Brien & D'Abrew, 2013).

Some programs can make a difference to adolescent's behavior and help with the way he\ she copes with problems and behaviors at home, school, or with friends. cognitive behavioral intervention for trauma in school (CBITS) is one of these programs designed to assist school counselors and psychologists work with students to significantly reduce the symptoms associated with trauma, and to foster and build the skills that children and adolescents need as they cope with trauma (Williams & Poijula, 2016).

Now let us evaluate the outcome of the present applied program in schools among Syrian adolescents' refugees. The present study showed that the CBITS program had achieved a highly significant effect on decreasing the percent of adolescent refugees with moderate PTSD to less than two thirds and about half in the immediate post and 3 months after CBITS evaluation respectively.

These results were consistent with that of Ooi. et al in 2016 in their study about the efficacy of cognitive behavioral therapy for war-affected young migrants living in Australia, which reported that, participants in the intervention group experienced a significant greater improvement in PTSD symptoms than participants in the control group from pretest to posttest and after 3-month follow-up evaluation (Ooi et al., 2016).

Additionally, these findings were corresponding with Goodkind et al. (2010) and Dyb et al. (2011) who indicated that adolescents who participated in cognitive behavioral intervention for trauma in schools (CBITS) reported improved differences in presenting symptoms of trauma related to experiencing and witnessing traumatic and stressful event (Goodkind et al., 2010; Dyb et al., 2011).

According to DSM-IV Symptoms of PTSD can be divided into four categories: intrusion symptoms, avoidance behavior, hyperarousal symptoms, and physical symptoms. Individuals must have been exposed to traumatic events for more than 4 weeks (American Psychiatric Association, 2013). In order to meet the PTSD diagnosis, at least one re-experiencing symptom two hyperarousal symptoms and three avoidance/numbing symptoms and should be existing for at the least (Yehuda & Bierer, 2009).

Regarding the effectiveness of CBITS in categories of PTSD symptoms among Syrian adolescents' refugees, many available evidences indicated that, CBITS used as early intervention approach to reduce symptoms of PTSD including its four categories(Santiago et al., 2013). Findings drawn from the present study illustrated a significant improvement in all categories of PTSD symptoms among Syrian adolescent refugee who were in study group on the immediate post and three months after program evaluation.

This result could be attributed to the fact that cognitive behavioral intervention for trauma in school may be considered a resilience-enhancing intervention as it can help trauma-exposed adolescents harness their ability to recover elements of normality in their life following great adversity.

The present study results were in the same direction with that of Giannopoulou et al. who reported that, the efficacy of cognitive intervention program in mitigating symptoms of PTSD after disaster has been demonstrated in children and adolescents following the 1999 earthquake in Athens, Moreover, short-term intervention program in a group of adolescents who were experiencing PTSD symptoms revealed a significant reduction in overall symptoms across intrusion, avoidance, and arousal symptom clusters, as well as in depressive symptoms immediately after the intervention(Giannopoulou et al., 2006).

In addition to, it was agreed with Shooshtary. who illustrated that, intervention program for adolescents exposed to the 2004 earthquake in Bam, Iran, led to a significant decrease in severity of PTSD symptoms in three symptom categories (intrusion, avoidance, and arousal) and in the total score for PTSD (Shooshtary, Panaghi & Moghadam., 2008).

Lastly, findings of the current study were consistent with Allison and Ferreira (2017) who found that, compared to the students on the control group, the students who participated in the CBITS program had significantly lower in all categories of symptoms of PTSD (Allison & Ferreira, 2017).

Regarding the effectiveness of CBITS on psychosocial functioning problems among Syrian adolescent refugees. Findings of this study showed that significant improvement of these problems including internalizing, externalizing, and attention problems among adolescents with moderate PTSD in study group in each the immediate and three months follow up evaluation.

These results were in accordance with Jensen et al (2014) who found that, children and adolescents aged 10–18 years receiving intervention program in Norwegian community mental health services reported significantly lower levels of PTSD, depression, and improvement of all psychosocial functioning's (internalizing, externalizing, and attention problems) compared to adolescents who did not receiving intervention program.(Dyb et al., 2011).

These results also matched with the findings drawn from a study conducted by Goldbeck et al in 2016 which revealed that intervention program was effective for children and adolescents with various trauma types in study group compared to the control group in the internalizing, externalizing symptom scales in German service settings (Goldbeck et al., 2016).

These findings may be attributed to the fact that the program was focused on the way in which a adolescents interpreted his/her experiences and how these thoughts ultimately influenced on his or her emotional and behavioral functioning to reduce the psychosocial activation that is associated with stress management approaches (e.g. deep breathing practice was taught to adolescents and they asked to practice it regularly).

Therefore, adolescent refugee participation in such intervention programs is important for many reasons; it helps adolescents' refugees recognize the relationship between their thoughts, feelings and actions and give them the chance to be heard and active. Additionally, participation provides adolescents refugees with several skills like relaxation, cognitive restructuring, addressing fears, social problem solving, reducing, terror, helplessness following exposure to a traumatic event as war and that can be contribute in improve their physical and psychosocial states.

To sum up, there is no question that Adolescent refugees are a vulnerable population with complex healthcare needs that are distinct from younger and older age groups(UN High Commission for Refugees [UNHCR], 2018). Findings drawn from the present study indicated that they have also often experienced multiple traumatic stressors and are at a heightened risk of developing mental health problems especially PTSD. No single factor can predict whether or not a person will develop PTSD. Rather, certain combination of individual, social and environmental factors are related to heightened the adolescents' refugees' vulnerability So, the present study highlights the importance of looking at PTSD among adolescent refugees as a complex multidimensional phenomenon. Holistic management of psychological issues especially PTSD faced by this group is challenging and requires an awareness of the socioeconomic factors that can have an impact on effective healthcare delivery. Early identification and management of the healthcare issues PTSD faced by adolescent refugees is a key to improve long-term health outcomes and future healthcare burden.

CBITS program significantly improve not only PTSD among Syrian adolescent refugees but also had a positive impact on their internalizing, externalizing and attention problems and enhancing their skills and capabilities to cope with the daily demands and challenges of everyday life

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