

Original Article

Depression, Post-Traumatic Stress Disorder and Satisfaction with Life among Syrian Refugees in Alexandria, Egypt

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Abstract

Background: As refugees are usually exposed to challenges from their home countries along with other challenges in their host countries, they are expected to have more psychological problems compared to the normal population.

Objective(s): This study aims to assess depression, post-traumatic stress disorder (PTSD), and satisfaction with life (SWL) among Syrian refugees in Alexandria, Egypt.

Methods: A cross-sectional study was conducted among 420 adult Syrian refugees (≥18 years) using the standardized Arabic versions of Beck Depression Inventory second edition (BDI-II), PTSD checklist civilian version (PCLC) and satisfaction with life scale (SWLS) in the non-profit NGO Soryana Community Center.

Results: Among the studied Syrian refugees, the prevalence rates for depression and PTSD were 15.2% and 89.3% respectively, and 59.3% were dissatisfied with their lives. Logistic regression identified chronic diseases and history of psychological problems as predictors for depression, while history of psychological problems was the main predictor for PTSD. Linear regression found that income, hobbies, and family history of psychological problems predicted SWL.

Conclusion: Syrian refugees are a vulnerable group towards psychological problems. Chronic diseases and history of psychological problems were the most important factors affecting depression among Syrian refugees. Syrian refugees need attention, efforts and mental health care to face their psychological problems.

Keywords: Syrian refugees, mental health, depression, PTSD, satisfaction with life, Alexandria

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INTRODUCTION

Refugees are those who leave their countries running away from war, violence, unsafe conditions or persecution to live in a safer country and they are unable to come back to their country or they do not want to. (1,2) Syria stands as the primary country of origin for refugees with 6.7 million refugees worldwide. (3,4)

In Egypt, the total number of refugees and asylum seekers was 256,632 in January 2020 among which 51% were Syrians. In Alexandria Governorate, the total number was 23,978 among which 20,735 were Syrians standing for more than 90 % of all refugees and asylum seekers. (5)

According to the American Psychiatric Association (APA), mental illnesses are health conditions involving changes in emotion, thinking or behavior or

a combination of these. They are associated with distress and/or problems functioning in social, work or family activities which may lead to consequences such as low satisfaction with life levels, depression, post-traumatic stress disorder (PTSD) and other psychological problems. (6)

According to the World Health Organization (WHO), depression is a complex mental disorder that is multifactorial including social, psychological and genetic factors. Overwhelming life events like wars, death of family members and being unemployed can cause or trigger it. (7)

Post-traumatic stress disorder is a serious psychiatric disorder and its symptoms are manifested in four major types: flashbacks of the trauma, avoidance of things that are similar to what caused the trauma, hyperarousal and mood disturbances. (8)

A 2019 systematic review conducted based on the

analysis of 15 studies performed on adult Syrian refugees from 10 countries assessing their mental health status and their combined results showed prevalence rates of 43.0% for PTSD and 40.9% for depression which is almost 10 times more than the prevalence of both PTSD and depression in the general population. (7,9,10)

Refugees experience lower satisfaction with life (SWL) compared to those in their home countries due to various factors: language barriers, cultural unfamiliarity, uncertainty about resettlement duration, religious and ethnic concerns, financial struggles, loss of loved ones, cultural adaptation challenges, fear of discrimination, and the overwhelming task of rebuilding their lives. (11,12)

Refugees, inherently vulnerable, require significant healthcare support, particularly in mental health, given their traumas from both their home country and the challenges of resettlement.

The aims of the study were to estimate the prevalence of depression and post-traumatic stress symptoms among Syrian refugees in Alexandria Governorate, Egypt and to identify their possible determinants. It also aimed to assess their satisfaction with life.

METHODS

A cross-sectional study was conducted between May and September 2021 among literate adult Syrian refugees aged 18 years and above, residing in Alexandria for at least three months and attending the non-profit NGO Soryana Community Center, which is a center supporting refugees in Alexandria through activities and workshops that vary in scope, from awareness-raising initiatives to artistic events. The sample size was calculated using Epi Info software version 7. Based on a prevalence of PTSD of 33.5% among Syrian refugees, (13) and an acceptable margin of error of 5%, the minimum required sample at 95% confidence level was 342. The sample size was increased by 20% to account for potential non-response, and the resulting number was rounded to 420 adult Syrian refugees. Soryana Community Center was visited three times weekly to recruit Syrian refugees who met the inclusion criteria, until the target sample size was achieved.

A predesigned structured self-administered questionnaire was used to collect personal information including age, gender, occupation, level of education, marital status, housing status, income, health insurance coverage and receipt of aid from Non-Governmental Organizations (NGOs) providing various forms of support. Additionally, the questionnaire collected information on smoking status, practicing sports or hobbies, history of chronic diseases and personal or family history of psychological problems.

Psychological testing was performed using the Arabic version of Beck Depression Inventory second edition (BDI-II), the Arabic version of the post-traumatic stress disorder checklist, civilian version "PCL-C" PTSD, and the Arabic version of Satisfaction with Life Scale "SWLS".

Depression was assessed using the BDI-II, a standardized self-report scale consisting of 21 multiple choice questions for assessing depression severity. (14) The Arabic version of the BDI-II by Ghareeb was used by the researchers for assessing depression severity. (15) Each question employs a 4-point Likert scale, ranging from "0" for "not at all" to "3" for "severely". Total depression scores vary from 0 to 63, with mild depression ranging from 16 to 24 for males, and from 21 to 31 for females. Moderate depression ranging from 25 to 33 for males, and from 32 to 41 for females. Severe depression ranging from 34 to 63 for males and from 42 to 63 for females. In the current study, no and mild depression were grouped in one category "No/Mild depression" while moderate and severe depression were grouped in one category "Moderate/Severe depression".

The PTSD Checklist, civilian version (PCL-C), is a standardized self-report scale comprising 17 items developed by Weathers et al. in 2001. (16) The Arabic version of the PCL-C by Alhalal et. al was used by the researchers. (17) It employs a 5-point Likert scale ranging from "1" for "not at all" to "5" for "extremely" to assess key PTSD symptoms. Total scores range from 17 to 85, with 17-29 indicating minimal severity and 30-85 indicating moderate to high severity of PTSD symptoms.

Satisfaction with life was assessed using the Arabic version of SWLS, which is a 5 items tool that assesses the degree of satisfaction felt by the participants regarding their own lives. The original scale "SWLS" was developed by Diener et al. in 1985. (18) The Arabic version of SWLS by Abdalla et. al was used by the researchers. (19) A scale from 1 to 7 was used to indicate the participant's level of agreement with each of the 5 items in which, strongly disagree = "1", disagree = "2", slightly disagree = "3", neutral = "4", slightly agree = "5", agree = "6" and strongly agree = "7". The total SWLS scores ranges from 5 to 35 with 5-19 indicating dissatisfaction, 20 indicating neutral and 21-35 indicating satisfaction with life.

The study tools were pretested on a sample of 20 refugees at Soryana Community Center to assess their clarity, completion time, and participant acceptance to different questions. Results indicated a clear understanding of all questions. Completion times ranged from 10 to 30 minutes, varying according to participants' education levels. No questions caused embarrassment or resistance from participants.

Statistical analysis:

The collected data were thoroughly reviewed for accuracy and completeness before analysis using SPSS version 24. Descriptive statistics, including count, percentage, mean, and standard deviation, were used to summarize the data. Analytical statistics such as Chi-square, Fisher's Exact test, and Odds ratio were used to examine variable associations. Linear regression was used for continuous dependent variables, while logistic regression was used for categorical dependent variables, to assess relationships with independent variables. Logistic regression identified predictors of depression and PTSD, incorporating significant factors from univariate analysis ($p < 0.05$ for depression; $p < 0.2$ for SWLS) such as sex, marital status, residence, income, health insurance, and personal and family psychological history. For PTSD, factors included history of chronic diseases and psychological problems. Linear regression explored predictors of SWLS, including significant factors from univariate analysis like sex, income, family psychological history, and hobbies. Variables were selected for multivariable regression models based on univariate analysis. For logistic regression assessing depression and PTSD, variables with $p < 0.05$ were included. For linear regression assessing satisfaction with life, variables with $p < 0.05$ were included. All multivariable models were built using the enter method.

Ethical considerations:

The researcher sought the approval of the Ethics Committee of the High Institute of Public Health, Alexandria University for conducting the study and complied with the International Guidelines for Research Ethics. Consent was obtained from the study participants after explaining the purpose of the research. Anonymity and confidentiality of the participants' data were guaranteed and maintained.

RESULTS

Socio-demographic and personal characteristics of Syrian refugees:

The age of the participants ranged from 18 to 80 years, with a mean age of 31.9 ± 10.4 years, predominantly females (78.6%). Most were married (60.7%) and lived in urban areas (81.7%). Regarding education, 37.2% had basic education, 32.3% had secondary education, and 30.5% had university or postgraduate studies. The majority (72.9%) were unemployed, with 74.8% reporting insufficient income, leading 29.0% to resort to borrowing. (Table 1)

Table 1: Distribution of studied Syrian refugees by their socio-demographic characteristics, Alexandria 2021

Socio-demographic characteristics	Syrian refugees (n= 420)	
	No.	%
Age (years)		
-18-	133	31.7
-26-	168	40.0
-41-	98	23.3
-60-80	21	5.0
	Mean \pm SD = 31.9 ± 10.4 Range = 18-80	
Sex		
-Female	330	78.6
-Male	90	21.4
Marital status		
-Married	255	60.7
-Single	92	21.9
-Widowed	29	6.9
-Divorced	25	6.0
-Engaged	19	4.5
Residence		
-Urban	343	81.7
-Slums	50	11.9
-Rural	27	6.4
Level of education		
-Primary and preparatory	156	37.2
-Secondary	136	32.3
-University and postgraduate	128	30.5
Working status		
-No	306	72.9
-Yes	114	27.1
Income		
-Enough	106	25.2
-Not enough	314	74.8
-Not enough and need to borrow ^a	122	29.0

^a is mutually included in "Not enough" category

Figure 1 shows that the prevalence of moderate/severe depression among Syrian refugees was 15.2%.

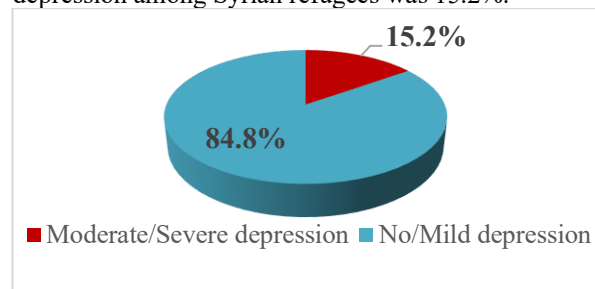


Figure 1: Prevalence of depression among participating Syrian refugees in Alexandria, Egypt in 2021

Only 17.4% of Syrian refugees were current smokers and 33.8% of them practiced sports where walking was the main type of practiced sport (68.3%). Regarding hobbies, 68.1% had hobbies and the most common ones were cooking (35.3%), reading (34.3%) and hand crafts (19.9%). Health insurance was lacking for 93.8% of participants while 39.8% reported

Suffering from chronic diseases. Findings showed that 38.1% of participants reported experiencing one or more psychological problems, with depression, sleeping problems, and anxiety

ranking as the top three (43.1%, 43.1%, and 42.5%, respectively). Additionally, 26.9% had a family history of psychological problems. (Table 2)

Table 2: Distribution of studied Syrian refugees by their personal characteristics, Alexandria 2021

Personal characteristics	Syrian refugees (n=420)	
	No.	%
Smoking status		
-No	327	77.9
-Current smokers	73	17.4
-Former smokers	20	4.7
Practicing any sport		
-No	278	66.2
-Yes	142	33.8
Type of sport/s^a (n=142)^b		
-Walking	97	68.3
-Football	14	9.9
-Running	13	9.2
-Swimming	7	4.9
-Biking	6	4.2
-Volleyball	2	1.4
-Others (different aerobics types of sports)	13	9.2
Hobbies		
-No	134	31.9
-Yes	286	68.1
Type of hobbies^a (n=286)^b		
-Cooking	101	35.3
-Reading	98	34.3
-Hand craft	57	19.9
-Drawing	50	17.5
-Photography	48	16.8
-Travelling	36	12.6
-Playing music	32	11.2
-Electronic games	25	8.7
-Writing	18	6.3
-Others	14	4.9
Health insurance status		
-No	394	93.8
-Yes	26	6.2
History of chronic diseases		
-No	253	60.2
-Yes	167	39.8
History of psychological problems		
- No	260	61.9
- Yes	160	38.1
Type of psychological problem/s^a (n=160)^b		
- Depression	69	43.1
- Sleeping disorders	69	43.1
- Anxiety	68	42.5
- Phobias (excess fear)	21	13.1
- Eating disorders	16	10.0
- ADHD	15	9.3
- OCD	7	4.3
- Psychosis	1	0.6
Family history of psychological problems		
- No	307	73.1
- Yes	113	26.9

^aResponses are not mutually exclusive

^bCalculated among those who reported practicing sports

Results of logistic regression analysis showed that chronic diseases and history of psychological problems were the significant predictors

for depression (Table 3). The model correctly classified 87.4% of cases.

Table 3: Logistic regression analysis of the predictors of depression among Syrian refugees, Alexandria 2021

Variable	OR	p value	95% CI Lower	Upper
History of chronic diseases				
- No®				
-Yes	3.486	<0.001*	1.799	6.753
History of psychological problems				
- No®				
-Yes	4.890	<0.001*	2.336	10.236

Variables used to build the model were age, income, history of chronic diseases, history of psychological problems, family history of psychological problems, history of domestic violence, physical punishment of children, relationship between parents and relationship between the refugee and his/her father/mother. Sensitivity of the model 37.5%

*: Statistically significant at $p < 0.05$ OR, Odds ratio; CI, Confidence interval

Figure 2 revealed that using the PTSD Checklist – Civilian Version (PCL-C), the prevalence of moderate/high PTSD severity among the studied Syrian refugees was estimated to be 89.3%.

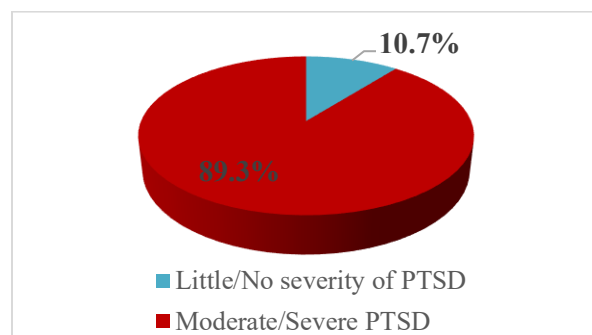


Figure 2: Prevalence of post-traumatic stress disorder among Syrian refugees in Alexandria, Egypt in 2021

Logistic regression analysis was done for the factors affecting PTSD and only history of psychological problems was the significant predictor for PTSD (Table 4).

Table 4: Logistic regression analysis of the factors affecting levels of post-traumatic stress disorder among studied Syrian refugees, Alexandria, 2021

Variable	OR	p value	95% CI Lower	Upper
History of psychological problems				
-No®				
-Yes	13.680	0.001*	3.118	60.009

Variables used to build the model were history of chronic diseases, history of psychological problems and family history of psychological problems. *: Statistically significant at $p < 0.05$ OR, Odds ratio; CI, Confidence interval

Figure 3 shows that more than half of the Syrian refugees (59.3%) were slightly dissatisfied/dissatisfied with their lives, one third was slightly satisfied/satisfied and 7.4% were neutral

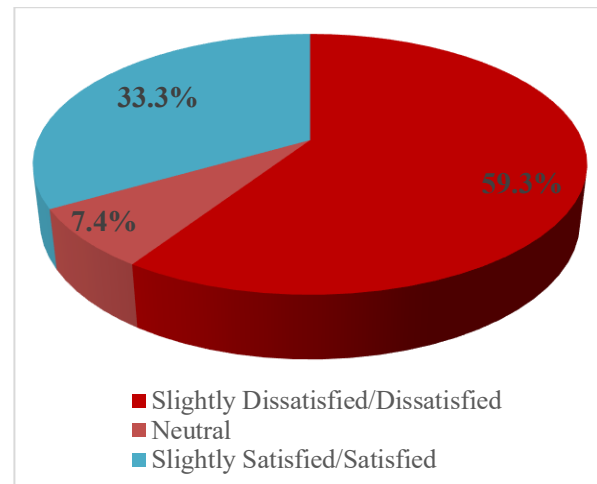


Figure 3: Satisfaction with life among Syrian refugees in Alexandria, Egypt in 2021

Linear regression analysis was done for the factors affecting satisfaction with life and identified income, hobbies and family history of psychological problems as predictors for SWL. (Table 5).

Table 5: Linear regression analysis of the factors affecting levels of satisfaction with life among studied Syrian refugees, Alexandria, 2021

Variable	B	Sig.	95% CI Lower	Upper
Income	-1.471	0.002*	-2.395	-0.546
Family history of psychological problems	-2.979	<0.001*	-4.545	-1.412
Hobbies	1.881	0.014*	0.377	3.385
Constant	20.166	<0.001	17.085	23.246

Variables used to build the model were sex, income, family history of psychological problems and hobbies.

$R^2 = 7.3\%$, $F = 8.125$, $p\text{-value} < 0.001^*$ *: Statistically significant at $p < 0.05$ CI, Confidence interval

DISCUSSION

Globally, mental health studies involving general population showed that the estimated global prevalence of depression was 4.4% and the estimated

global prevalence of PTSD was 3.9%. (7,10) Refugees are more likely to need mental health support than the general population because of what they have been through in their life. ⁽²⁰⁾

The current study found the prevalence of depression among Syrian refugees to be 15.2%, as measured by the BDI-II. This is less than the rates reported among Syrian refugees in the 2021 study from Lebanon (46.7%) and the 2019 systematic review across ten countries (40.9%) and studies conducted in Turkey in 2018, 2019 and 2021 (37.4% , 36.5% and 72.2% respectively). ^(9,13,21-23) This variation in depression prevalence between the current study and the other studies may be attributed to different tools used to assess depression, difference in language and cultural barriers. Additionally, the reported depression rates may be influenced by whether the refugee lives in refugee camps with overcrowding, limited access to resources and prolonged uncertainty or is fully integrated into society which is the case in the current study.

In the current study, participants with chronic diseases exhibited a significantly higher prevalence of depression (OR=3.486, $p<0.001$). Similar findings were observed in studies from 2014 conducted among refugees in both Jordan and the United States. ^(20,24) This could be attributed to the financial and emotional burdens chronic diseases impose on refugees and their families who already suffer from instability leading to poorer overall mental health.

The current study revealed a significantly elevated prevalence of depression among refugees with a personal history of psychological problems compared to those without such a history (OR=5.440, $p<0.001$). Similarly, a 2019 meta-analysis of 15 peer-reviewed articles, and a 2021 study in Lebanon all indicated a strong association between higher depression prevalence and a personal history of psychiatric disorders. ^(9,21) Most of the reviewed studies revealed similar findings which could be due to genetic factors or lower ability to deal with life stressors.

The current study found the prevalence of PTSD symptoms among Syrian refugees to be 89.3%. Similarly, the prevalence was 83.4% among Syrian refugees in a study conducted in Turkey in 2017. ⁽²⁵⁾ The prevalence was much lower in other studies such as a study conducted in Lebanon in 2017, a study in Turkey in 2019 and another one in Egypt in 2017 which resulted in PTSD prevalence of 35.4%, 47.7% and 33.5% respectively. ^(13,22,26) A systematic review and meta-analysis conducted in 2019 also showed PTSD prevalence of 43.0%. ⁽⁹⁾ Variations in PTSD prevalence among studies may stem from differences in assessment tools and timing, with studies conducted immediately after the Syrian war possibly yielding different results than those conducted later. Recent challenges such as the COVID-19 pandemic and

economic crises could exacerbate PTSD symptoms by triggering past traumas from the Syrian war.

The current study resulted in a statistically significant association between having a history of psychological problems and PTSD (OR=13.680, $p=0.001$). A study performed in Turkey in 2014 reported that PTSD symptoms are more likely among those with personal or familial history of psychological problems. ⁽²⁷⁾

The present study showed that 33,3% of Syrian refugees were satisfied with their lives while 59.3% were dissatisfied with their lives according to the Arabic version of SWLS. Having enough income was significantly associated with higher SWL in the current study ($p=0.002$). This is similar to a systematic review on refugees studies from 2000 till 2021 which reported that sufficient income had significantly better mental health outcomes including SWL. ⁽²⁸⁾ Employment and income are anticipated to influence SWL due to financial strain, but disparities in results may be attributed to population differences and economic status, whether low or high income. Hobbies were linked with heightened SWL in the current study ($p=0.14$), mirroring findings from studies in South Korea in 2018 and China in 2014. ^(29,30)

Having a family history of psychological problems significantly decreased the levels of SWL in the current study ($p<0.001$). This may be attributed to stigma and financial burden related to the mental health problems, and burnout causing overall poor quality of life and accordingly, low satisfaction with life. ⁽³¹⁾

CONCLUSION AND RECOMMENDATIONS

Chronic diseases and history of psychological problems were the most important factors affecting depression among Syrian refugees. History of psychological problems was the most important factor affecting PTSD among Syrian refugees. Income, family history of psychological problems and hobbies were the most important factors affecting SWL among Syrian refugees.

Proper and affordable access of refugees to mental health care is a profound need. Being engaged in community activities and having hobbies can have a favorable impact on mental health and wellness and serve as a buffer against psychological problems.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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