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Research Article

Psychometric Characteristics of Modified Post-Traumatic Stress Disorder (PTSD-S-i30)

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Abstract

This study aimed to prepare a comprehensive self-report scale of Post-Traumatic Stress Disorder (PTSD-S-i30) that clarifies the psychometric characteristics for a sample of individuals from different areas (West Bank, Gaza Strip, Green Line). To achieve this goal, the researcher built a scale in the light of the criteria for diagnosing PTSD according to DSM-5. The scale consisted of 30 items distributed into 5 domains (Re-experiencing, Avoidance, Negative change in perception and mood, Excessive excitement, Physiological changes). The study included 770 individuals (374 males and 369 females), their age ranged between 11 – 76 years (m= 24.06±13.581 years). The results showed that the scale met the criteria of validity and reliability as factorial analysis reflected high saturation of items, internal consistency proved statistically significant correlation between all the items of the scale, and met the criteria of reliability as overall Alpha Cronbach coefficient was 0.931 and split-half value was 0.811. The findings provide support for the psychometric properties of the PTSD-S-i30, therefore, we can use this scale as a self-report measure of PTSD symptoms.

Key words: Post-traumatic Stress Disorder, DSM-5, PTSD-S-i30, West Bank, Gaza Strip, Green Line

Introduction

Post-traumatic stress disorder (PTSD) is a psychiatric disorder which develops as a result of exposure to serious traumatic events. There has been an increase in research within the field of traumatic stress since the inclusion of PTSD in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published in 2013 [1]. Several self-report measures have been developed and validated in a single trauma population. The diagnostic criteria for PTSD have been changed from DSM-4 to the DSM-5. The intense fear, helplessness, and horror elements have been removed from criterion A, whereas the symptom cluster "avoidance/emotional numbing" has been separated into the two separate clusters, namely, avoidance and negative alterations in the cognition and mood. In addition, new symptoms have been introduced including persistent negative beliefs and expectations about oneself or the world, persistent distorted blame of self or others for the trauma, a persistent negative emotional state, and self-destructive or reckless behavior. Moreover, the symptom "sense of a foreshortened future" has been omitted from the DSM-5, resulting overall in 20 instead of 17 PTSD symptoms [2].

PTSD is characterized by four clusters of symptoms: recurrent involuntary intrusive memories, avoidance, negative alterations in cognitions and mood and alterations in arousal and reactivity (2). Very few studies have evaluated the psychometric properties of the PTSD self-report measures in samples with psychiatric conditions [3,4]. However, these measures are frequently used in mental health settings for screening purposes, to support clinical decision-making and to evaluate therapeutic progress in mental health services [5,6]. As a consequence of the publication of the

DSM-5, there was a need to update the PTSD measures.

The researcher believes that there is a need to expand the PTSD scale to give a wider, comprehensive view and to highlight all the expected symptoms of PTSD. Therefore, the researcher developed the PTSDS-i30 which contains 30 items and 5 domains.

Goal of the study

The goal of the study is to develop a scale to measure PTSD and to evaluate its psychometric properties.

Objectives of the study

- To examine the validity of the items of the PTSD-S-i30 scale.
- To examine the reliability of the items of the PTSD-S-i30 scale.

Questions of the study

• What are the indicators of validity of the items of the PTSD-S-i30? What are the indicators of reliability of the items of the PTSD-S-i30?

Diagnosis of PTSD

The first step in the diagnosis of PTSD is to obtain a detailed history. The presentation and the duration of the symptoms are useful to make an accurate diagnosis. The health care provider must investigate about any depressive or anxiety symptoms, suicidal ideation or previous attempts, and substance abuse. The diagnostic criteria for the diagnosis of PTSD according to DSM-5 include:

Criterion A: Stressor

Exposure to real or threatened death, injury, or sexual violence in one or more of the following ways:

- 1. They are directly exposed to the traumatic event.
- 2. Witnessing in person as it occurred to someone else.
- 3. They learned about a close family relative or close friend been exposed to actual or threatened trauma, accidental or violent death.
- 4. Indirect exposure to distressing details of the traumatic event (professionals repeatedly exposed to the details of child abuse, collecting human remains, or pieces of evidence). This does not include exposure through television, movies, electronic devices, or pictures.

Criterion B: Intrusion Symptoms

Presence of one or more of the following symptoms related to the traumatic event and began after the trauma occurred:

- Recurrent, involuntary, and intrusive thoughts associated with the traumatic event. In children older than 6 years, this may be expressed using repetitive play in which the aspects of the trauma are expressed.
- Distressing nightmares that may be repetitive with the content of the dream is related to the traumatic event. Children may have frightening dreams where they may or may not recognize the content.
- 3. Dissociative reactions, as flashbacks, in which the individual may feel or act that the traumatic event is happening again. These reactions may occur as a continuum ranging from brief reactions to complete loss of awareness of oneself or the surrounding. Children may re-enact such events in the play.
- Intense or prolonged psychological distress on exposure to traumatic reminders
- Marked physiological reactivity such as increased heart rate, blood pressure on exposure to traumatic reminders.

Criterion C: Avoidance

Persistent avoidance of the stimuli related to the traumatic event, as evidenced by one or both of the following:

- 1. Avoidance or efforts to avoid distressing memories, thoughts associated with the traumatic event.
- Avoidance or efforts to avoid external reminders such as people, places, activities, conversations, or situations that arouse distressing memories or thoughts related to the traumatic event

Criterion D: Negative Alterations in Mood

Negative alterations in mood and cognition that began or worsened after the traumatic event, as evidenced by two or more of the following:

- Inability to recall important aspects of the traumatic event. This can be due to dissociative amnesia, not due to head injury, drugs, or alcohol.
- Persistent and distorted negative beliefs or expectations about oneself or the world, such as "I am bad," or "The world is completely dangerous."
- Persistent distorted cognition that leads the individual to blame self or others for causing the traumatic event.
- 4. Persistent negative emotional state, including fear, guilt, anger, or
- Markedly diminished interest in significant activities that used to be enjoyable.
- 6. Feelings alienated, estranged, or detached from others.
- Persistent inability to experience a positive emotion such as happiness, satisfaction, or love.

Criterion E: Alterations in Arousal and Reactivity

Trauma-related alterations in reactivity and arousal that began or worsened after the traumatic event, as evidenced by two or more of the following:

- 1. Irritable or aggressive outbursts with little or no provocation.
- 2. Reckless or self-destructive behavior.
- 3. Hypervigilance
- 4. Exaggerated startle response
- 5. Problems in concentration
- 6. Sleep disturbances (difficulty falling or staying asleep, restless sleep)

Criterion F: Duration

Persistence of symptoms in Criterion B, C, D, and E for more than one month

Criterion G: The disturbance causes significant functional impairment or distress in various areas of life, such as social or occupational.

Criterion H: The disturbance is not attributable due to substance use, medication, or another medical illness [7].

Material & Methods Measures

The PTSD-S-i30 scale includes 30 self-report items. The scale was developed based on DSM-5 symptoms of PTSD.

Process of preparing the PTSD-S-i30 scale

In order to prepare the scale, the researcher followed the following steps:

- Review of literature review about PTSD to extract the symptoms of the disorder, which helped in determining the contents of the scale.
- Review scales and inventories that were used in previous studies [8,-13].
- Prepare the primary draft of the scale.

Contents of the scale (Annex 1):

- Personal information: including gender, age, level of education, work/employment, marital status.
- Experience of the stressful experience: (5 items) including exposure
 to traumatic event, changes in the psychological status, symptoms
 lasted for one month or more, effect of the event on functions and
 social relations.
- Re-experiencing: (7 items) including repeated, disturbing, unwanted thoughts and memories, and dreams about the stressful event, feeling as if the stressful experience is actually happening again, feeling very upset when something remind you of the stressful experience.
- Avoidance: (6 items) including avoiding memories, thoughts, or feelings related to the stressful experience, avoiding external reminders of the stressful experience such as people, places, conversations, activities, objects, or situations.
- Negative changes in perception and mood: (6 items) including having strong negative beliefs about yourself or other people, blaming yourself or someone else for the stressful experience, difficulty in concentrating, trouble falling or staying asleep.
- Excessive excitement: (7 items) including Irritable behavior, angry outbursts, or acting aggressively.
- Physical changes: (4 items) including having strong physical reactions
 when something reminded you of the stressful experience such as
 heart pounding, trouble breathing, sweating, and feeling nauseated.
- The respondents reported how much they were bothered by a symptom over the past week using a 4-point Likert scale as the following:
- (0) = Never happened.
- (1) = Sometimes (occurred once a week.
- (2) = Often (occurred 2 4 times a week).
- (3) = Always (occurred 5 times or more a week).

Total score can range from 0 to 90. Participants were asked to complete the PTSD-S-i30 in relation to the traumatic experience that troubled them most.

Table (1): Criteria of severity of PTSD symptoms

Degree	Severity of disorder	Score
1	No disturbance	0 – 30
2	Mild disturbance	31 – 40
3	Moderate disturbance	41 – 50
4	Severe disorder	51 – 60
5	Very severe disorder	61 - 90

Participants

Participants were recruited between May to August 2023. In order to maximize completion of the self-report measures and reduce participant burden, the self-report questionnaire was mailed to the participants, so they can fill it and return it back electronically. About 850 individuals were contacted by the researcher and the assistants and 770 (374 males and 396 females) responded and filled the self-reported PTSD-S-i30, their age ranged between 11-76 years old (m= 24.06 ± 13.581).

Results

In order to evaluate the psychometric properties of the PTSD-S-i30, the researcher examined validity and reliability of the scale items. The researcher performed the following statistical procedures:

Factorial analysis

The scale consists of 30 items distributed into 5 domains. Factorial analysis reflected that Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = 0.908), and Bartlett's test of sphericity was 12830.274, Sig. 0.000. The 30 items of the scale explained 63.974% of the cumulative variance between the scores of the study sample.

Table (2a): Factorial analysis (Re-experiencing) domain

No.	Re-experiencing (Recurring memories of the traumatic event)	Saturation
1	Do you have recurring thoughts about the traumatic event?	0.802
2	Do you have recurring scenes (images) related to the traumatic event?	0.792
3	Are you afraid of a repeat of the traumatic event?	0.671
4	Do you have disturbing dreams (night-mares) related to the traumatic event?	0.727
5	Do you get upset when someone reminds you of the traumatic event?	0.768
6	Are you disturbed when you see images that remind you of the traumatic event?	0.771
7	Do you feel disturbed when seeing or being at the place of the traumatic event?	0.656

Re-experiencing domain consisted of 7 items, with positive saturations ranged between 0.656 to 0.802.

Table (2b): Factorial analysis (Avoidance) domain

No.	Avoidance (avoiding thoughts that trigger the event)	Saturation
1	Do you avoid thinking about the traumatic event?	0.716
2	Do you avoid talking about the traumatic event?	0.761

3	Do you avoid situations that remind you of the traumatic event?	0.778
4	Do you avoid activities that remind you of the traumatic event?	0.648
5	Do you avoid participating in recreational activities?	0.596
6	Do you turn away from friends (tend to be lonely)	0.688

Avoidance domain consisted of 6 items, with positive saturations ranged between 0.596 to 0.778.

Table (2c): Factorial analysis (Negative changes in perception & mood) domain.

No.	Negative changes in perception and mood (Negative thoughts and mood swings)	Saturation
1	Do you feel guilty about yourself?	0.391
2	Do you have negative feelings towards others?	0.540
3	Do you have difficulty concentrating or not being able to achieve (achieve goals)?	0.796
4	Do you feel sad because of the traumatic event?	0.804
5	Do you find it difficult to sleep for several hours?	0.740
6	Are you feeling increasingly cautious?	0.582

Negative changes in perception and mood domain consisted of 6 items, with positive saturations ranged between 0.391 to 0.804.

Table (2d): Factorial analysis (Excessive excitement) domain.

No.	Excessive excitement and behavioral changes	Saturation
1	Do you feel unjustifiably angry?	0.657
2	Do you engage in violence/aggressive behavior against others?	0.793
3	Do you punish yourself (such as deprivation)?	0.513
4	Do you act impulsively without giving enough time to think?	0.750
5	Do you have the desire to break things (plates, cups, tools)	0.792
6	Do you have a desire to practice violent games (boxing, wrestling, karate)	0.792
7	Do you have a desire to play violent games on mobile / computer	0.778

Excessive excitement domain consisted of 7 items, with positive saturations ranged between 0.513 to 0.793.

Table (2e): Factorial analysis (Physiological changes) domain.

No.	Physiological changes	Saturation
1	Do you get acceleration in the heartbeat when remembering the traumatic event	0.875
2	Do you have rapid or shortness of breath when remembering the traumatic event?	0.904
3	Do you sweat when remembering the traumatic event?	0.871
4	Do you have the urge to vomit and feel sick when remembering the traumatic event	0.711

Physiological changes domain consisted of 4 items, with positive saturations ranged between 0.711 to 0.904.

Internal consistency

Table (3): Criteria for evaluation of level of correlations.

Correlation value	Interpretation
+ 1	Full (absolute) correlation

From 0.70 to 0.99	Strong correlation
From 0.50 to 0.69	Moderate correlation
From 0.01 to 0.49	Weak correlation
0	No correlation

To find out the internal consistency of the scale items, the researcher used Spearman Correlation test to determine the correlation between items and domains, as presented in the following tables:

Table (4): Correlation between each item and the total score of re-experiencing domain.

	1	2	3	4	5	6	7	Total
R	1							
Sig.	-							
R	0.729**	1						
Sig.	0.000	-						
R	0.475**	0.568**	1					
Sig.	0.000	0.000	-					
R	0.448**	0.423**	0.330**	1				
Sig.	0.000	0.000	0.000	-				
R	0.497**	0.474**	0.346**	0.603**	1			
Sig.	0.000	0.000	0.000	0.000	-			
R	0.506**	0.470**	0.405**	0.561**	0.638**	1		
Sig.	0.000	0.000	0.000	0.000	0.000	-		
R	0.460**	0.407**	0.413**	0.411**	0.398**	0.397**	1	
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	-	
R	0.786**	0.773**	0.682**	0.730**	0.763**	0.769**	0.685**	1
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-
	Sig. R	R 1 Sig R 0.729** Sig. 0.000 R 0.475** Sig. 0.000 R 0.448** Sig. 0.000 R 0.497** Sig. 0.000 R 0.497** Sig. 0.000 R 0.460** Sig. 0.000 R 0.786**	R 1 Sig R 0.729** 1 Sig. 0.000 - R 0.475** 0.568** Sig. 0.000 0.000 R 0.448** 0.423** Sig. 0.000 0.000 R 0.497** 0.474** Sig. 0.000 0.000 R 0.497** 0.474** Sig. 0.000 0.000 R 0.506** 0.470** Sig. 0.000 0.000 R 0.786** 0.407** Sig. 0.000 0.000	R 1 Sig R 0.729** 1 Sig. 0.000 - R 0.475** 0.568** 1 Sig. 0.000 0.000 - R 0.448** 0.423** 0.330** Sig. 0.000 0.000 0.000 R 0.497** 0.474** 0.346** Sig. 0.000 0.000 0.000 R 0.497** 0.474** 0.346** Sig. 0.000 0.000 0.000 R 0.506** 0.470** 0.405** Sig. 0.000 0.000 0.000 R 0.460** 0.407** 0.413** Sig. 0.000 0.000 0.000 R 0.786** 0.773** 0.682**	R 1 Sig R 0.729** 1 Sig. 0.000 - R 0.475** 0.568** 1 Sig. 0.000 0.000 - R 0.448** 0.423** 0.330** 1 Sig. 0.000 0.000 0.000 - R 0.497** 0.474** 0.346** 0.603** Sig. 0.000 0.000 0.000 0.000 R 0.497** 0.474** 0.346** 0.603** Sig. 0.000 0.000 0.000 0.000 R 0.506** 0.470** 0.405** 0.561** Sig. 0.000 0.000 0.000 0.000 R 0.460** 0.407** 0.413** 0.411** Sig. 0.000 0.000 0.000 0.000 R 0.786** 0.773** 0.682** 0.730**	R 1 Sig. - R 0.729** 1 Sig. 0.000 - R 0.475** 0.568** 1 Sig. 0.000 0.000 - R 0.448** 0.423** 0.330** 1 Sig. 0.000 0.000 - R 0.497** 0.474** 0.346** 0.603** 1 Sig. 0.000 0.000 0.000 0.000 - R 0.506** 0.470** 0.405** 0.561** 0.638** Sig. 0.000 0.000 0.000 0.000 0.000 R 0.460** 0.407** 0.413** 0.411** 0.398** Sig. 0.000 0.000 0.000 0.000 0.000 0.000 R 0.786** 0.773** 0.682** 0.730** 0.763**	R 1 Sig. - R 0.729** 1 Sig. 0.000 - R 0.475** 0.568** 1 Sig. 0.000 0.000 - R 0.448** 0.423** 0.330** 1 Sig. 0.000 0.000 - R 0.497** 0.474** 0.346** 0.603** 1 Sig. 0.000 0.000 0.000 - R 0.506** 0.470** 0.405** 0.561** 0.638** 1 Sig. 0.000 0.000 0.000 0.000 - R 0.460** 0.407** 0.413** 0.411** 0.398** 0.397** Sig. 0.000 0.000 0.000 0.000 0.000 0.000 R 0.786** 0.773** 0.682** 0.730** 0.763** 0.769**	R 1 Sig. - R 0.729** 1 - Sig. 0.000 - - R 0.475** 0.568** 1 Sig. 0.000 0.000 - R 0.448** 0.423** 0.330** 1 Sig. 0.000 0.000 - R 0.497** 0.474** 0.346** 0.603** 1 Sig. 0.000 0.000 0.000 - R 0.506** 0.470** 0.405** 0.561** 0.638** 1 Sig. 0.000 0.000 0.000 0.000 - R 0.460** 0.407** 0.413** 0.411** 0.398** 0.397** 1 Sig. 0.000 0.000 0.000 0.000 0.000 - R 0.460** 0.407** 0.413** 0.411** 0.398** 0.397** 1 Sig. 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 <td< td=""></td<>

Table (5): Correlation between each item and the total score of avoidance domain.

		1	2	3	4	5	6	Total
1	R	1						
	Sig.	-						
2	R	0.625**	1					
	Sig.	0.000	-					
3	R	0.519**	0.586**	1				
	Sig.	0.000	0.000	-				
4	R	0.270**	0.282**	0.401**	1			
	Sig.	0.000	0.000	0.000	-			
5	R	0.175**	0.238**	0.221**	0.557**	1		
	Sig.	0.000	0.000	0.000	0.000	-		
6	R	0.340**	0.366**	0.440**	0.302**	0.465**	1	
	Sig.	0.000	0.000	0.000	0.000	0.000	-	
Total	R	0.681**	0.719**	0.736**	0.690**	0.660**	0.702**	1
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	-
		**	Correlation is si	gnificant at the 0	.01 level (2-tailed	l).		

Table (5) showed statistically significant correlation at 0.01 between all the items and the total score of the avoidance domain. The correlation value ranged between 0.660 to 0.736.

Table (4) showed statistically significant correlation at 0.01 between all the items and the total score of the re-experiencing domain. The correlation value ranged between 0.682 to 0.786.

Table (6): Correlation between each item and the total score of negative changes in perception & mood domain.

		1	2	3	4	5	6	Total		
1	R	1								
	Sig.	-								
2	R	0.579**	1							
	Sig.	0.000	-							
3	R	0.284**	0.417**	1						
	Sig.	0.000	0.000	-						
4	R	0.114**	0.211**	0.546**	1					
	Sig.	0.001	0.000	0.000	-					
5	R	0.044	0.120**	0.437**	0.624**	1				
	Sig.	0.218	0.001	0.000	0.000	-				
6	R	-0.059-	0.091*	0.315**	0.412**	0.445**	1			
	Sig.	0.103	0.012	0.000	0.000	0.000	-			
Total	R	0.527**	0.634**	0.771**	0.736**	0.674**	0.551**	1		
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	-		
	** Correlation is significant at the 0.01 level (2-tailed).									
	* Correlation is significant at the 0.05 level (2-tailed).									

Table (6) showed statistically significant correlation at 0.01 between all the items and the total score of the negative changes in perception and mood domain. The correlation value ranged between 0.527 to 0.771.

Table (7): Correlation between each item and the total score of excessive excitement domain.

		1	2	3	4	5	6	7	Total
1	R	1							
	Sig.	-							
2	R	0.569**	1						
	Sig.	0.000	-						
3	R	0.247**	0.299**	1					
	Sig.	0.000	0.000	-					
4	R	0.583**	0.513**	0.368**	1				
	Sig.	0.000	0.000	0.000	-				
5	R	0.367**	0.528**	0.390**	0.551**	1			
	Sig.	0.000	0.000	0.000	0.000	-			
6	R	0.310**	0.522**	0.303**	0.392**	0.625**	1		
	Sig.	0.000	0.000	0.000	0.000	0.000	-		
7	R	0.325**	0.560**	0.237**	0.428**	0.525**	0.787**	1	
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	-	
Total	R	0.658**	0.783**	0.537**	0.746**	0.787**	0.791**	0.779**	1
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-
	** Correlation is significant at the 0.01 level (2-tailed).								

Table (7) showed statistically significant correlation at 0.01 between all the items and the total score of the excessive excitement domain. The correlation value ranged between 0.537 to 0.787.

Table (8): Correlation between each item and the total score of physiological changes domain.

		1	2	3	4	Total
1	R	1				
	Sig.	-				
2	R	0.831**	1			
	Sig.	0.000	-			

3	R	0.647**	0.693**	1		
	Sig.	0.000	0.000	-		
4	R	0.425**	0.477**	0.587**	1	
	Sig.	0.000	0.000	0.000	-	
Total	R	0.864**	0.894**	0.872**	0.733**	1
	Sig.	0.000	0.000	0.000	0.000	-

^{**} Correlation is significant at the 0.01 level (2-tailed).

Construct validity

Table (9): Correlation between each domain and total score of the scale.

Dom	ain	Re-experiencing	Avoidance	Negative chang- es in perception & mood	Excessive excite- ment	Physiological changes	Total score
Re-experiencing	R	1					
	Sig.	-					
Avoidance	R	0.657**	1				
	Sig.	0.000	-				
Negative changes in perception & mood	R	0.576**	0.598**	1			
	Sig.	0.000	0.000	-			
Excessive excitement	R	0.455**	0.490**	0.569**	1		
	Sig.	0.000	0.000	0.000	-		
Physiological changes	R	0.607**	0.520**	0.523**	0.470**	1	
	Sig.	0.000	0.000	0.000	0.000	-	
Total score	R	0.826**	0.806**	0.808**	0.782**	0.762**	1
	Sig.	0.000	0.000	0.000	0.000	0.000	-
		** Corre	lation is significar	nt at the 0.01 level (2	?-tailed).		

Correlation is significant at the 0.01 level (2-tailed).

Table (9) showed statistically significant correlation at 0.01 between the total score of each domain and the total score of the scale. The correlation value between the re-experiencing domain and the total score of the scale was 0.826, the correlation between avoidance domain and the total score of the scale was 0.806, the correlation between negative changes in perception and mood domain and the total score of the scale was 0.808, the correlation between excessive excitement domain and the total score of the scale was 0.782, and the correlation between physiological changes domain and the total score of the scale was 0.762.

These results indicate good internal consistency between the items and the domains of the scale.

Reliability

Table (10): Criteria for interpretation of alpha coefficient.

Cronbach's alpha	Interpretation
$\alpha \ge 0.9$	Excellent
$\alpha \ge 0.8 - >0.9$	Good
$\alpha \ge 0.7 - >0.8$	Acceptable
$\alpha \ge 0.6 - >0.7$	Questionable
$\alpha \ge 0.5 - >0.6$	Poor
>0.5	Unacceptable

To answer the second question "What are the indicators of reliability of the items of the PTSD-S-i30?" the researcher used two methods: Cronbach alpha coefficient and split-half method for the items of the scale.

Table (11): Reliability of scale items using alpha Cronbach and split-half method.

Domain	No. of items	Alpha coefficient				
Cronback	Cronbach alpha					
Re-experiencing	7	0.861				
Avoidance	6	0.786				
Negative changes in perception & mood	6	0.722				
Excessive excitement	7	0.853				
Physiological changes	4	0.864				
Total	0.931					
Spearman-Brown Split-half co	0.811					
Guttmann split-half coeffic	0.805					

Table (8) showed statistically significant correlation at 0.01 between all the items and the total score of the physiological changes domain. The correlation value ranged between 0.733 to 0.894.

Table (11) showed that alpha coefficient for the items of re-experiencing domains was 0.861, alpha coefficient for the items of avoidance domains was 0.786, alpha coefficient for the items of negative changes in perception & mood domains was 0.722, alpha coefficient for the items of excessive excitement was 0.853, alpha coefficient for the items of Physiological changes was 0.864, and alpha coefficient for the whole scale was 0.931. In addition, Split-half coefficient by using Spearman-Brown equation was 0.811, and Guttmann split-half coefficient was 0.805. This result indicates good reliability of the items of the scale.

These results reflected that the scale has good internal consistency, high validity and reliability, which means that the scale has good psychometric properties and suitable to measure the severity of PTSD symptoms.

Recommendations

- To perform a study about the prevalence and severity of PTSD symptoms among individuals from different age groups.
- To increase the attention about validation of psychometric properties of scales and measures in the field of mental health.
- To train researchers how to evaluate the psychometric properties of mental health scales.

Annex (1)

Posttraumatic stress disorder scale – PTSD-S- i30 – DSM 5 DR. Mahmud Said, Ph. D					
NAme: Da	NAme: Date:				
Personal information:					
Gender	☐ Male	☐ Female			
Age		years old			

Education level	☐ Secondary and less☐ University		
Job	☐ I work / an employee ☐ I do not work/ a housewife		
Social status:	☐ Single ☐ Married ☐ Divorced ☐ Widower/ widow		

Traumatic event: (please answer the questions as if you were seeing what happened in front of you and how it affected you)

Have you experienced a traumatic event?	□ Yes	□No		
Did you feel that your psychological state has event? ☐ Yes ☐ No	change	d following this		
Has it been more than a month since these symptoms after the accident? ☐ Yes ☐ No				
Has your performance at work been affected?	☐ Yes	s □ No		
Have your social relationships been affected?	☐ Yes	s □ No		

(It must be ensured that the symptoms are not caused by drug treatment, abuse of drugs or addictive substances, or other illnesses)

Please answer the following questions as you remember what happened to you during the past week.

- 0 = never happened
- 1 = Sometimes (occurred once a week)
- 2 = often (occurred 2-4 times a week)
- 3 = always (got 5 or more times a week)

No.	Paragraph	Never	Sometimes	Mostly	Always			
Re-experiencing – (Recurring memories of the traumatic event)								
1	Do you have recurring thoughts about the traumatic event?	0	1	2	3			
2	Do you have recurring scenes (images) related to the traumatic event?	0	1	2	3			
3	Are you afraid of a repeat of the traumatic event?	0	1	2	3			
4	Do you have disturbing dreams (nightmares) related to the traumatic event?	0	1	2	3			
5	Do you get upset when someone reminds you of the traumatic event?	0	1	2	3			
6	Are you disturbed when you see images that remind you of the traumatic event?	0	1	2	3			
7	Do you feel disturbed when seeing or being at the place of the traumatic event?	0	1	2	3			
Avoidance - (avoiding	thoughts that trigger the event)			-				
8	Do you avoid thinking about the traumatic event?	0	1	2	3			
9	Do you avoid talking about the traumatic event?	0	1	2	3			
10	Do you avoid situations that remind you of the traumatic event?	0	1	2	3			
11	Do you avoid activities that remind you of the traumatic event?	0	1	2	3			
12	Do you avoid participating in recreational activities?	0	1	2	3			
13	Do you turn away from friends (tend to be lonely)	0	1	2	3			
Negative changes in	Negative changes in perception and mood - Negative thoughts and mood swings							
14	Do you feel guilty about yourself?	0	1	2	3			
15	Do you have negative feelings towards others?	0	1	2	3			
16	Do you have difficulty concentrating or not being able to achieve (achieve goals)?	0	1	2	3			

17	Do you feel sad because of the traumatic event?	0	1	2	3
18	Do you find it difficult to sleep for several hours?	0	1	2	3
19	Are you feeling increasingly cautious	0	1	2	3
Excessive excitement	and behavioral changes				
20	Do you feel unjustifiably angry?	0	1	2	3
21	Do you engage in violence/aggressive behavior against others?	0	1	2	3
22	Do you punish yourself (such as deprivation)?	0	1	2	3
23	Do you act impulsively without giving enough time to think?	0	1	2	3
24	Do you have the desire to break things (plates, cups, tools)	0	1	2	3
25	Do you have a desire to practice violent games (boxing, wrestling, karate)	0	1	2	3
26	Do you have a desire to play violent games on mobile / computer	0	1	2	3
Physiological change	3				-
27	Do you get acceleration in the heartbeat when remembering the traumatic event	0	1	2	3
28	Do you have rapid or shortness of breath when remembering the traumatic event?	0	1	2	3
29	Do you sweat when remembering the traumatic event?	0	1	2	3
30	Do you have the urge to vomit and feel sick when remembering the traumatic event	0	1	2	3

Posttraumatic stress disorder scale (PTSD-S-i30).

Severity of the dis- order	The grand total of the evaluation result	Degree
There is no distur- bance	0 – 30	1
Minor disturbance	31 – 40	2
medium disturbance	41 – 50	3
severe disorder	51 - 60	4
A very severe dis- order	61 - 90	5

^{*} Grade 5 calls for a broader diagnosis and a high probability of having a disorder associated with post-traumatic stress disorder from the same category.

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Limitations of the study

The main limitation of the study included difficulties in data collection from the targeted participants.

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Conflict of interest

There are no conflicts of interest to be declared.

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