Construction and Standardization of a Psychological Scale for Post-Traumatic Stress Disorder for adolescents and adults

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Abstract
The current study aims to construct and standardize a psychological scale for post-traumatic stress disorder for adolescents and adults, to contribute to the accuracy of the diagnosing of the cases in which the symptoms of their disorders overlap, which makes it difficult to diagnose accurately and therefore has negative effects in the treatment and psychological interventions, This study is based on the descriptive Correlational research methodology where the study sample consisted of (1881) subjects of which 1321 subjects were male whereas 560 subjects were female.

The subjects of this study were intentionally chosen from specialty clinics, hospitals, treatment centers, and from among the Paramedics of Civil Defense Department in Amman, Jordan, the scale was constructed based on the fifth Diagnostic Statistic Manual (DSM-5, 2013), following the verification of the validity and the reliability. The results of the study also showed that the matching of the difficulty level of the items were suitable for the items and fall within the acceptable level of the coefficients of difficulty, as they indicated the gradation in the difficulty of the items of the scale, and that they have appropriate coefficients of difficulty and the matching values of the items reflect appropriate matching, The findings also revealed that the performance of individuals on the scale is relatively stable, and also The statistical procedures proved the high values of the psychometric properties of the scale.

Finally, this research study pointed to some recommendations of which adoptive. The scale as a diagnostic test for the diagnosis of Post-Traumatic Stress Disorder in the mental health clinics and centers, as another recommendation was to conduct more research using the scale different age groups.

Keywords: construction, standardization, psychological scale, post-traumatic stress disorder.

Introduction

The progress witnessed in the field of psychotherapy today requires perseverance in developing methods of diagnosis and treatment, and identifying developments in order to achieve the maximum level of clinical psychological service for the patient. This is based mainly on the safety of the diagnosis, and access to information and facts that lead to the accuracy of the diagnosis. Which is the final step after collecting accurate data, in order to develop treatment plans.

Psychological and neurological measures are the most important tools that provide carefully formulated facts, and are based on scientific and methodological foundations. Which may vary across cultures in its suitability for use, and also varies according to the target age group. However, they are the most important diagnostic tools along with the interview and information collected from the case file and those around the patient.

Trauma is situations that attack a person's defense system and are therefore life-threatening, resulting in changes in an individual's personality and body. It may lead to anxiety disorders and cause disability (Everly & Mitchell, 2000). Since these traumatic incidents are considered one of the most important factors behind physical and psychological health problems, the research on their impact on

the individual, and the level of his physical and psychological capabilities are considered among the priorities of the psychological service, considering that they are daily problems and events that societies are hardly devoid of daily impact. Many of the symptoms experienced by individuals in all societies are evidence of the impact of accidents on them. For the diagnosis and treatment to be successful, a developed scale that has psychometric properties must be used to infer the impact of trauma on the individual after the traumatic event.

As post-traumatic stress disorder exposes the individual to a state of chaos that extends for very long periods in his life, and affects the psychological state of the person, which has a great impact on his thinking and thus on his personal behavior. It also shows effects on his emotional state (Damian et al, 2011).

The beginnings of interest in post-traumatic stress disorder go back to the end of the nineteenth century, when the psychological states of train and railroad victims who did not suffer physical injuries were observed (Gilliland & James, 1997). Doctors diagnosed soldiers with post-battle fatigue, and after (1900) the diagnoses of post-battle fatigue increased, and by 1980 Post Traumatic Stree Disorder (PTSD) was added by the American Psychiatric Association to the American Diagnostic and Statistical Manual in its third edition. Diagnostic Statistic Manual (DSM-III), the science of trauma, which studies the effects of trauma on various aspects of an individual's life, appeared in a scientific and in-depth study, in search of influencing factors and treatment methods (Mahdi, 2008).

Hence, the researchers directed to prepare and standardize a psychological scale for PTSD because there is no local scale that contributes to diagnosing PTSD, in addition to the prevalence of PTSD, which reaches about (50% - 60%) of individuals suffering from PTSD in their lives, according to According to statistics from the National Trauma Center in Texas. It is a measure of a group of psychological and physical symptoms that an individual suffers from after going through a traumatic experience that may reach the point of stopping psychological life, and many physical and mental problems that may hinder normal life and affect the individual's standard of living.

The Problem of the study

Mental disorders overlap in their symptoms, and there is an increasing need to reach more qualitative and qualitative accuracy in diagnosis through the use of modern and appropriate tools for diagnosis in general, and for PTSD in particular. Because the specificity of this disorder is the variation in symptoms between individuals and the symptoms appear relatively late, that is, after exposure to the traumatic event for a period of not less than a month. And due to the lack of a modern and appropriate scale developed on the local environment and has psychometric properties..

Objectives of the study

1. The study aims to prepare and standardize a measure of post-traumatic stress disorder for an age group that is considered the most common in society, and suffers from life experiences in a way that may hinder personality development and personal,the social and professionalperformance.

2. It also aims to prepare a codified scale based on the modern theory of measurement and based on the use of the rating scale, which determines through the scale's paragraphs the extent to which the responses are matched on the rating scale.

3. Scientific contribution to the diagnosis of post-traumatic stress disorder.

The importance of study

Theoretical importance:

This study is considered the first of its kind locally in the preparation and legalization of a psychological scale to measure post-traumatic stress disorder.

Practical importance:

The study also contributes to adding a standardized measurement tool for diagnosing post-traumatic stress disorder.

The study also contributes to the development of the psychotherapist's performance in the task of diagnosis by adding a tool that helps to accurately identify the disorder.

Questions of the Study

1. What is the degree of congruence of the responses on the PTSD scale items with the Rating Scale Model derived from the Rash model?

2. What are the values of the item parameters for each item of the PTSD scale, depending on the rating scale?

3. What are the psychometric properties of the PTSD vertebrae?

Terms of the study

The scale Standardization: It is the final stage after designing the psychological test according to the procedures and rules for preparing the scale, interpreting the test scores and generalizing the results to the original community (Maamaria, 2002).

Post-traumatic stress disorder: The reaction to traumatic situations in which the individual faces the threat of death or threat and which are in the form of symptoms of intense fear and helplessness that the individual did not have before the traumatic event (American Psychiatric Association, 2000).

Procedural definition: It is what the respondents' measure as a quantitative expression of PTSD.

Study limits

The limitations of the current study are as follows:

1- Objective limits: The study is determined by preparing and codifying a scale for diagnosing post-traumatic stress disorder.

2- Human limits: Civil Defense Paramedics who lived through traumatic experiences and accidents, patients diagnosed with PTSD residing in Al-Istiklal Hospital and Al-Rashid Hospital, patients diagnosed with PTSD who attended Sir Bobby Charlton Center and private psychiatric clinics.

3- Time limits: The study was applied in the summer semester of the academic year 2020/2021.

4- Spatial limits: the study was applied in the directorates of Civil Defense in the Capital Governorate, Istiklal Hospital, Al-Rasheed Hospital, Dr. Muhammad Awab Abu Dnoun Clinic/Amman, Dr. Ashraf Al-Salhi Clinic/Amman, Sir Bobby Charlton Center.

The Study limitations

The current study is determined by the tool used and its psychometric properties, and the results depend in its generalization on a sample that has the same characteristics and the degree of its representation of the community from which it was taken.

Theoretical framework

This study came to prepare a standardized scale of post-traumatic stress disorder (PTSD) as one of the clinical psychological disorders whose prevalence is increasing globally due to the increase in natural or abnormal accidents in various countries of the world, which are shocking and sudden events whose level of impact varies between traumatic disorder or acute traumatic disorder and post-traumatic stress disorder. Trauma, and there is no local scale available to diagnose these disorders, specifically post-traumatic stress disorder.

The researchers believe that trauma is everything that threatens life, and causes total or partial disability in an individual's abilities.

Then we find that the fifth Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013) defines it as a severely stressful traumatic event that includes a personal experience that includes the threat of death for the same person, or for another person.

Post-traumatic stress disorder is one of the disorders included in trauma science, which studies traumatic stress, which recognized trauma and related disorders under the name of "extreme stress reaction". In the US Diagnostic and Statistical Manual III,as for the World Health Organization in the International Classification of Diseases 10th Revision (ICD-10), it defined it as a response to a stressful situation that continues for a period that may be short or long, and it is threatening and catastrophic and causes distress to the individual.

This study relies on the Rush model because of the objectivity of the results and accuracy in the adoption of the scale and its results on the subjects of PTSD, which is considered a clear challenge in the percentage witnessed by societies, and

which may be difficult to diagnose because of the overlap of symptoms. The disorder is associated with the occurrence of many temporary or continuous changes in the body's systems, the most prominent of which are, according to studies, the immune system, where the symptoms include changes in the amygdala in the brain, Hypothalamus and pituitary gland stimulating adrenaline, increased cortisol, testosterone, norepinephrine and thyroxine function (Ironson et al, 1997).

Previous studies:

The study of Al-Rifai and Aladdin (2020), which aimed to examine post-traumatic stress disorder among a sample of those affected by the explosion of the port of Beirut , Lebanon on August 4, 2020, and its relationship to the variables of gender, age, educational level, social status and general health status. The study followed the descriptive analytical method. The study sample consisted of (211), (106) males and (105) females. The sample members were randomly selected from the affected areas: Karantina, Mar Mikhael, Gemmayzeh and Ashrafieh where an individual interview was conducted with each member of the sample to answer the items of the scale used. It is a measure of post-traumatic stress disorder prepared by "Davison" (2005). The following statistical methods were used: measures of scattering and central tendency, t-test, and analysis of variance test. The results of the study showed that there were statistically significant differences at the level of the total degree of the PTSD scale according to the gender variable in favor of females, and there were no statistically significant differences at the level of the total score of the PTSD scale according to the age variable (less than 25 years, from 25-39 years old, 40-54 years old, 55 years old and over). The results also showed that individuals with a primary education level and below are more likely to suffer from PTSD compared to their more educated peers in the other groups (intermediate, secondary, vocational, bachelors, postgraduate). The results also showed that there were no statistically significant differences at the level of the total degree of

post-traumatic stress disorder scale according to the social status variable. At the level of the general health status variable, statistically significant differences appeared in favor of individuals who suffer from a disease before the port explosion event.

The study of Al-Kubaisi and Al-Tamimi (2017) aimed at codifying the PTSD scale at the University of Baghdad. What distinguishes the scale is the number of its short and brief paragraphs, and its diagnosis is based on the classification of the American Psychiatric Association (APA), through which the researcher can apply it to a larger number of individuals. It is the scale developed by the scientist Foa and which has been applied in many foreign studies. This scale was applied to the legalization sample consisting of 800 male and female students (400) male and (400) female students from the University of Baghdad. The codification of this scale has gone through many stages of scientific procedures in this research. This scale included 17 items in its final form. Note that each statement contains four alternatives that vary in intensity. This scale was characterized by high stability by using Cronbach's alpha equation method and split halves. The factorial application was also used, which was characterized by a high factorial validity.

The study of Al taleb and Saleh (2016) revealed the general feature of post-traumatic stress disorder among volunteers in the Sudanese Red Crescent. It also aimed to know the differences in post-traumatic stress disorder among volunteers, which are attributed to the variables of gender, age, marital status, and educational level. To achieve these goals, the researchers used the Stress Disorder Scale Following the shock of their execution. They also used the descriptive approach in the research, and the research sample consisted of (60) male and female volunteers in the activity of managing corpses in the Sudanese Red Crescent, and they were selected in a simple random way, including (49) males and (11) females, and the results showed that the general characteristic of post-traumatic stress disorder is characterized by low And

there are differences in post-traumatic stresses due to the variables of age, marital status, and educational level. At the end of the research, the researchers presented a number of recommendations and suggestions.

Method and Procedure
The Study Approach
The study population and its sample

This study is based on the descriptive approach, which is considered the appropriate scientific method for the study procedures, which allows verifying the characteristics of the psychometric scale and statistical analysis of the data available after application to answer the research questions.

T
able (1): Table of distribution of study sample members by gender and location

Total	Private hospitals and clinics	Sir Bobby Charlton Center	Civil Defense Directorate	
1321	11	186	1124	**Males**
560	6	554	-	**Females**
1881	17	740	1124	**Total**
100%	2%	39%	59%	**%**

Table (2): Table of details of the study sample by age and gender

I 75	smear streak	46 - 55	36-45	26-35	15-25	**Age**
27	113	177	412	694	458	**Number**
17	37	153	412	437	265	**Males**
10	put	24	-	257	193	**Females**

Study instrument
The study is based on preparing and standardizing a scale for diagnosing PTSD Scale. In preparing the scale, the researcher relied on the fifth American Diagnostic Statistical Manual DSM-5, which adopted eight criteria for diagnosis. These are the eight dimensions of the scale, where the paragraphs are designed on each dimension and each dimension is calculated according to the number of symptoms indicated by the guide

Scale validity:
The apparent validity of the post-traumatic stress disorder scale was verified by presenting it to (10) expert arbitrators in psychology departments in Jordanian universities, with the aim of judging the appropriateness of the formulation of the paragraphs and their relevance to their fields. Their observations and suggestions were taken, and the necessary modification and reformulation were made, and in light of the recommendations of the arbitrators, paragraphs were not deleted because they are unclear or to what extent they belong to

a topic for post-traumatic stress disorder symptoms.

The construct validity of the post-traumatic stress disorder scale was also extracted by calculating the difficulty and discrimination coefficients for the items of the scale, which reflect the ability of each item or item in the scale to distinguish among the responding individuals on the scale. Assumptions on which it is theoretically based that the items of the scale constitute consistent components,

It became clear from the analysis that the difficulty coefficients for the scale items ranged between (0.4211-0.50), as these coefficients reflect an appropriate difficulty level for the items and fall within the acceptable level of the difficulty coefficients (9.30-0.70). As for the coefficients, their range for the scale items ranged (0.21-0.50), and the total of (16) items of the scale ranged between 0.21-0.29), and they are the vertices (96, 99, 7, 3, 20, 15, 8,22, 93 , 19, 1, 12, 13, 10, 11, 18) which is less than the recommended value for appropriate coefficients of difficulty, which should be (0.30) or more.

Results

The first question: To what extent do the items of the PTSD scale match the assumptions of the Rasch model?

The paragraph response theory focuses on the availability of several assumptions in the performance of the individuals to whom the study tool is to be applied. Among these assumptions, the one-dimensional assumption; In the sense that there is a single ability that explains the performance of the individuals to be applied to the study tool on them, and that is why this theory was called one-dimensional models, and in order to verify this.

1. Verification of a one-dimensional assumption:

The one-dimensional assumption of the study data is examined by conducting factor analysis in the way of the basic components. To achieve one-dimensionality, it is required that the scale as a whole explains 40% of the variance, and that the first factor does not explain more than (15%) of the total variance. Accordingly, the factorial analysis of the scale items was carried out using the basic components method. The results indicated that the factors measured by the scale explained a total of (67.22%) of the variance, as this percentage of the explained variance is relatively high. The first factor also explained (14.66%) of the variance. This result indicates that the scale has fulfilled the two conditions necessary for the one-dimensional assumption, and this would indicate that what is measured by PTSD are homogeneous with each other and measure the same characteristic. The items of the scale are graded in terms of difficulty and require a response of a different degree that varies in their level of difficulty to the items constituting the scale. It is noted that the percentage of variance explained in the first factor is high compared to the percentage of variance explained in the second factor. It is also noted that the differences in the percentage of variance that explain all the remaining factors are close, and this confirms the achievement of one-dimensionality.

2- Checking the assumption of positional independence:

Hambleton & Swaminathan, (1991), pointed out that the positional independence assumption is equivalent to the one-dimensional assumption. This means that the assumption of positional independence has been fulfilled on this scale

3- Verify the assumption of freedom from speed:

This assumption indicates that speed has no effect on the probability of responding correctly to the scale items; That is, the failure of the individual to answer the paragraphs of the scale is due to his low ability, and not to the effect of speed in answering the scale. And since the answer to the scale items does not depend on the speed of response, since it requires an assessment of clinical symptoms related to exposure to traumatic events, the theoretical construction of the scale contributes to achieving an assumption of speed on the scale items.

4- Evaluate the estimated information function for the items of the post-traumatic stress disorder scale.

To identify the values of the estimated information function for each of the items on the PTSD scale, the individual ability distribution was matched with the difficulty distribution of ability per item, where the results showed that the highest levels of difficulty intersect with the average level of the estimated ability Theta for the ability distribution. This applies to all items used in the PTSD scale.

The second question: The degree of congruence of the responses on the items of the PTSD scale with the Rating Scale Model emanating from the Rash Model?

To answer this question, the values of the paragraph difficulty coefficients were extracted according to the Rasch model and the internal and external matching values for each paragraph. To meet the responses to the paragraphs of the scale with the Rush model, some of the statistical indicators of JMetrik were used to estimate the parameters of the Rush model for appreciation measures for the testing of the model, as well as the paragraphs of the model as noted (Linacre, 2002): Statistical conformity of individuals For items (Total (ZSTD) Fit Statistic), this statistic is based

on the standard mean (Mean Square Statistic) (MNSQ), where the expected value is equal to or less than one when perfect match.

This statistic is used to match individuals and items to the model; With regard to individuals, the internal matching statistic (ZSTD) is a statistical indicator of unexpected behaviors that affect individuals' responses to the items they estimate. Thus it predicts whether something is unexpected when an individual responds to the paragraph. While the extrinsic matching statistic (ZSTD) is considered an alternative statistical indicator for the previous one, it has similar characteristics, but it is more sensitive to unexpected behaviors than the anticipating them. This is for each capacity assessment. As for the items, the external matching statistician (ZSTD) tests the fit of the item to the model, in general from individual to individual. If there is consistency between the observed responses of individuals on the paragraph and the probability of their success as expected by the model, then this means that there is consistency between the observed responses of individuals on this paragraph and the probability of their success. This indicates the agreement between the feature expressed in the paragraph and the feature expressed in the rest of the paragraphs, across the whole sample, and the meaning of this formula is complete. Whereas the ZSTD is a test of the stability of the relative difficulty of the items, across different ability levels; Any test of the consistency of the difficulty rating of the paragraphs at each ability level. The previous statistics are calculated through the program for each assessment of the ability of individuals, as well as for each assessment of the difficulty of the paragraphs. where an individual is not a fit to the model when the ZSTD value is greater than (2), or the MNSQ is the inner or outer MNSQ of (1); That is, it falls outside the limits of conformity, which are (0.7- 1.3).

1- Matching people

In order to identify the indicators of matching the study sample members, the ability of each sample member was determined, and the standard error was calculated in measuring the ability of the sample members. The internal matching statistic was also calculated for the unexpected behavior of the sample members that affects the responses, which is a statistical indicator for the items that are close to a certain level, and the external matching statistical indicator was calculated more sensitive to the behaviors other than for each of these estimates, and the external matching statistic was calculated It is an indicator that is expected of individuals about the items that move away from the level of their abilities, it shows the arithmetic mean, standard deviation and standard error for each estimate of the abilities of the study sample members, in measuring their abilities, as well as the averages of the squares of the external and internal matching statistic.

It is noted that the averages of the squares of the averages of the inner and outer matching squares were (1), which is the accepted value as an indicator of matching individuals. It is also evident that the arithmetic mean of the ability assessment values for the subjects of the study amounted to (-0.01), a value close to zero. It is also noted that the highest value of the ability was 1.93 compared to the lowest value of the ability -1.93, where all the values of the ability were between (-2), (2+), where this result is consistent with what was indicated by Hutchinson and Alastair, that the values of the ability that exceed (2+)) or less than (-2) is considered non-conforming.

2- Paragraph matching

(161) individuals were excluded because their answers did not match the model estimates, and then the analysis was conducted to verify the matching of the paragraphs by estimating the difficulty parameter for each of the paragraphs and extracting the internal and external matching.

The location of the paragraph was verified by means of the calibration average of the difficulty coefficient (Δ Difficulty), and the appropriate calibration value by extracting the square of the standard mean and standard error was used jMetrik

program, where the difficulty coefficient of the lowest value, such as negative values, indicates a decrease in the level of difficulty depending on the responses of the respondents on the scale. Each paragraph of the test of the difficulty or ease of the paragraph pattern, and its relevance to the model, is evaluated by extracting the WMS standard mean square of the paragraph relative to individuals, if the values of the WMS standard mean square, which reflect the level of randomness in case its value is small less than (1), which also indicates that their relevance Too much, according to the model data. As for the value greater than (1), it indicates that the data is less than the appropriateness level, so if the arithmetic mean reaches 1.5, this indicates that 50% of the data tend to be random, so the ideal average for this indicator is to be within (1). Accordingly, the individual items that are higher than the value (1) are balanced within the framework of the test as a whole if its indicators are close to (1). From the table ( ), the WMS standard mean square values for the paragraph relative to individuals ranged (0.89 - 1.11) with an arithmetic mean (1), and this indicates a suitable average fit for the scale as a whole. The values of the non-standard mean square UMS for the item ranged from (0.86 - 1.11) with an arithmetic mean (1). This result indicates that the items of the scale have a range of appropriate difficulty coefficients, and that the items matching values reflect an appropriate matching.

The third question: What are the values of the item parameters for each item of the post-traumatic stress disorder scale based on the rating scale?

To answer this question, the difficulty coefficient Δ Difficulty and the standard error values were calculated for each item of the scale in proportion to the nature of the grading used in the study. The scale values have been converted to suit the nature of the work of the statistical analysis program, which assumes that the scale starts from the value (0) for the listed scales.

The estimated values of the stability of individual scores (Ø) were extracted, which reflect the performance levels of the respondents on the scale. The results indicate that the stability of the spacing of individuals was 2.56, and that the number of layers was 3.74. The coefficient of stability of the spacing of individuals amounted to (0.87). This indicates that the individuals enjoy a stability coefficient between individuals that is relatively high, and this leads us to the conclusion that the performance of individuals on the scale is relatively stable.

Question 4: What are the acceptable psychometric indicators of the PTSD scale?

1- The validity of the scale:

The validity of the construction of the post-traumatic stress disorder scale was verified by conducting a confirmatory factor analysis, and the results of matching the constructivist model indicate that the calculated Chi-square value reached (Chi2) is (323.0), which is not a function at the level of (a α 0.05). The value of the Goodness of Fit Index (GFI), which is a quality appropriateness index, was (0.981), and in the same context, the Comparative Fit Index (CFI) reached the value (0.974), and the root mean square error of Approximation was (RMSEA) value (0.05). From these results we see that all the values of relevance are within the range of their acceptable range.

All the saturation values of the deserts on the factors to which they belong were higher than the value (0.30) with the exception of one paragraph (96) whose saturation coefficient reached (28) and was within the dimension of professional and social importance, and this result indicates that there is only one paragraph that needs to be deleted due to the low coefficient of saturation About the accepted value of the values of saturation coefficients (0.30). This result indicates that the scale has construct validity indications. The correlation matrix between the scale dimensions and its total score was also calculated.

It is clear that the dimensional correlation coefficients with the total score were all statistically significant at the level (0.05) or less. Also, all dimensions were statistically significant correlation coefficients. This result indicates that the

scale has significance of constructive validity because all dimensions are significantly related to the total score.

2- Scale reliability

As for the reliability of the scale, it was calculated for the total score of the scale using Cronbach's alpha coefficient, where the total reliability coefficient of the scale was (0.94). Also, the dimensional reliability coefficients according to Cronbach's alpha equation ranged (0.53-0.86). The reliability was also calculated by the Getman method, which amounted to (0.93), and the coefficients of the domains ranged (0.52-0.84), and both reliability coefficients indicate that the scale has a high degree of reliability.

The first question: What are the characteristics of the items included in the PTSD scale?

The results of the study showed that the difficulty coefficients for the scale items ranged between (0.4211-0.53), as these coefficients reflect an appropriate difficulty level for the items, and that they fall within the acceptable level of difficulty coefficients (9.30-0.70). As for the discrimination coefficients, their range for the scale items ranged (0.21-0.50), and for total of (16) items of the scale, their coefficient of discrimination ranged (0.21-0.29), which is less than the recommended value for the appropriate difficulty coefficients, which should reach (0.30) or more. The items of the scale are graded in terms of difficulty and require a response of a different degree, grading their level of difficulty. This is due to the adoption of criteria for codifying the good test and the commitment to gradual difficulty in drafting the paragraphs, and also for the researcher's commitment to adhere to the appropriate drafting foundations and standards and clarity of the paragraphs, and also after taking the opinions of arbitrators with experience in the specialty.

The second question: the degree of congruence of the responses on the items of the PTSD scale with the Rating Scale Model emanating from the Rash Model?

To answer this question, the values of the paragraph difficulty coefficients were extracted according to the Rasch model and the internal and external matching values for each paragraph. And the use of some statistical indicators that are adopted by the (Jmetrik) program to estimate the parameters of the Rasch model for the estimation measures to test the individuals matching the model, as well as the items matching the model, according to what was mentioned by (Lina: This statistician depends in his calculation on the standard mean (MNSQ), where the expected value is equal to or less than one, upon exact match.

This statistical analysis is used to match individuals and items to the model; With regard to individuals, the internal matching statistic (ZSTD) is a statistical indicator of unexpected behavior that affects individuals' responses to items that are close to close.

Thus it predicts whether something is unexpected when an individual responds to the paragraph. While the extrinsic matching statistic (ZSTD) is considered an alternative statistical indicator for the previous one, it has similar characteristics, but it is more sensitive to unexpected behaviors than the anticipating them. This is for each capacity assessment. As for the items, the external matching statistician (ZSTD) tests the fit of the item to the model, in general from individual to individual. If there is consistency between the individuals' observed responses to the item and their probability of success as expected by the model, this means that there is consistency between the individuals' observed responses to this item and their probability of success on the test as a whole.

This indicates the agreement between the feature expressed in the paragraph and the feature expressed in the rest of the paragraphs, across the sample as a whole.

Whereas, the ZSTD is a test of the stability of the relative difficulty of the items, across different ability levels; Any test of the consistency of the difficulty rating of the paragraphs at each ability level. The previous statistics are calculated through the program for each of the ability estimates of individuals, as well as for each estimate of the difficulty of the items. where an individual is considered a non-fit

to the model when the ZSTD value is greater than (2), or the mean of the internal or internal MNSQs is (1); That is, it falls outside the limits of conformity, which are (0.7- 1.3). Table (5) shows the difficulty values for each of the paragraphs and the internal and external matching index.

The location of the paragraph was verified through the average calibration of the difficulty factor (Δ Difficulty), and the appropriate calibration value by extracting the square of the standard mean and standard error was used Metrik program, where the difficulty factor of the lowest value, such as negative values, indicates a decrease in the level of difficulty depending on the responses of the respondents on the scale Each paragraph of the paragraph difficulty or ease pattern test, and its relevance to the model, is evaluated by extracting the WMS standard mean square for the paragraph relative to the individuals. If the values of the WMS standard mean square, which reflects the level of randomness, if its value is small, is less than (1), and it also indicates a higher fit than necessary according to the model data.

As for the value higher than (1), it indicates that the data is less than the appropriateness level, so if the arithmetic mean reaches 1.5, this indicates that 50% of the data tend to be random. Therefore, the ideal average for this indicator is to be within (1). Therefore, the individual items that rise above the value (1) are balanced within the test framework as a whole if its indicators are close to (1). From the table ( ), the WMS standard mean square values for the paragraph relative to individuals ranged (0.87-1.13), with an arithmetic mean (1). This indicates a suitable average fit for the scale as a whole. The values of the non-standard mean square (UMS) of the item in relation to individuals ranged (0.81-1.26) with an arithmetic mean (1). This result indicates that the items of the scale have a range of appropriate difficulty coefficients, and that the items matching values reflect an appropriate matching. This is due to the fact that the scale has been built on the basis of a scientific methodology and based on the DSM5, which is a reference for accurate diagnosis.

The third question: What are the values of the item parameters for each item of the post-traumatic stress disorder scale based on the rating scale?

To answer this question, the Difficulty coefficient and standard error values were calculated for each item of the scale in proportion to the nature of the grading used in the study. Where the scale's grading values have been converted to suit the nature of the work of the statistical analysis program, which assumes that the grading starts from the value (0) of the listed scales. Table (6) shows the difficulty coefficients and the standard errors' values. Where the values of the parameters of difficulty coefficients calculated according to the Rasch model ranged (-0.34-0.3) with an arithmetic mean of the difficulty coefficients of zero value.

Also, the estimated values of the stability of individual scores (Ø) were extracted, which reflect the performance levels of the desirable ones on the scale. The results showed that the stability of the spacing of individuals was 2.56, and that the number of layers was 3.74. The coefficient of the stability of the spacing of the individuals was (0.87). This also indicates that individuals have a relatively high inter-individual stability coefficient among them. This leads us to the conclusion that the performance of individuals on the scale is relatively stable. This confirms the accuracy of the scale in diagnosing individuals and detecting post-traumatic stress disorder, as the sample covered individuals affected by the disorder according to their symptoms or traumatic circumstances and incidents they had experienced.

The fourth question: What are the acceptable psychometric indicators of the PTSD scale?

The modern theory emphasizes by analogy, assuming that the scale is valid if it fulfills the one-dimensional condition according to the Rasch model, which requires that in order to achieve one-dimensionality, the scale as a whole explains 40% of the variance. After conducting a factorial analysis of the scale items,the results indicated that the factors

measured by the scale explained a total of (67.22%) of the variance, which is a relatively high indicator of the explained variance, as the first factor explained the percentage of (3.3%) of the variance. This confirms that the measure of post-traumatic stress disorder in children and adults has fulfilled the two conditions necessary for the one-dimensional assumption. Thus, what is measured by the items of the PTSD scale are homogeneous with each other and measure the same characteristic that was designed to measure them, and the items of the scale are graded in terms of difficulty and require a response of a different degree that varies in their level of difficulty.

The reliability of the scale that was calculated for the total score of the scale using Cronbach's alpha coefficient reached (0.94) for the scale as a whole. The reliability was also calculated by the Gutman method, which amounted to (0.93) and that both reliability coefficients indicate that the scale has a high degree of reliability.

Thus, the psychometric properties of the scale are accurate and objective quantitative indicators for its adoption. This is because the paragraphs of the scale were derived from the dimensions referred to in the American Statistical and Diagnostic Manual in its fifth edition, which is considered a reference guide for workers and specialists.

Recommendations

The study concluded with a set of the following recommendations:

- Using the scale as a primary diagnostic tool for PTSD cases, which the study demonstrated high psychometric properties, as the scale was designed based on the eight basic items for diagnosing PTSD according to the DSM5 in clinics, centers and hospitals that work on diagnosing and treating PTSD cases.

- Since this scale was designed as a tool for diagnosing cases of PTSD for the age groups of adolescents and adults, it is recommended that another tool be circulated to the rest of the age groups that were not included in the study sample.

-Conducting more studies on the PTSD scale.

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