

# Reliability And Validity of Thearabic Version of The Perceived Stress Questionnaire (PSQ)

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## Abstract

This study aimed to examine the validity and reliability of an Arabic version of the Perceived stress questionnaire which is Consisting of 30 items, the PSQ was developed as an instrument for assessing the stressful life events and circumstances that tend to trigger or exacerbate stress symptoms among parents of children with neurodevelopmental disorders. The process of validity went through four steps: (a) preparing the scale of content validity; (b) selecting the panel of experts; (c) compute the ratio of content validity (CVR) for each item. (d) Calculate the content validity index (CVI) for the total scale. the CVR for each item and the CVI for the entire scale are exceed the acceptable value, which is concluded that the PSQ is valid with a good content validity index 0.81. The reliability analysis "Cronbach's Alpha "was run to specify the internal consistency of the scale (perceived stress questionnaire ). The reliability analysis tested on 119 parents of children, and the results showed a Cronbach's Alpha value of (0.858). Therefore, these findings are supporting the use of this Arabic version of the scale among the parents and opening new ways for futures studies. And the Study recommends to use this scale in assessing perceived psychological stress levels among Arabic countries and among parents of children especially.

**Keywords:** Reliability, Validity, Perceived Stress Questionnaire

## 1. Introduction

The stress is a term used in professional, academic, and social settings. It is approved that some amount of pressure can benefit person's achievement. But, when the pressure goes above the capacity to deal with, it can cause psychological stress (1,2). Stress has a powerful impact on various aspects of a life, including but not limited to mood, energy level, relationships, work performance, and stress. Stress also cause and exacerbate a wide variety of health conditions. Reacting to chronic stress can impair individuals' ability to succeed in life aspects. In fact, stress can impact life and job performance in a variety of ways, including: difficulty making decisions, wanting to avoid or leave work, emotional swings, feelings of helplessness, and inefficiency (3).

It is no secret to anyone that psychological stresses are widespread in most people and affect at different levels according to the nature of the circumstances surrounding the person. Hence the importance of having a measure in Arabic to measure the level of psychological stress among people living in the Arab region in general and Iraq in particular, and everyone who speaks Arabic. Therefore, this international scale has been translated from English language into Arabic.

## 2. Methodology

### Study design

A quasi-experimental study design (one group pretest-posttest) was carried out to measure the ability of the instrument in terms of measuring the intended construct (perceived stress questionnaire), content validity was used to validate the Arabic version of the perceived stress questionnaire. One group pretest-posttest design is one of the most common used designs in nursing research in which that pretest serves as control or

comparison group.

### Ethical approval

This proposal was submitted to the Research Ethics Committee at the University of Babylon, College of Nursing. After the proposal was reviewed, the ethical approval was issued. Accordingly, the college approval was obtained to complete the process of data collection. The researcher clarified all issues related to the research topic, procedures, and expected benefits for all participants before deciding to be a part of the study.

### Study Setting and Data collection

The process of validity went through the following steps:

- (a) Preparing the scale of content validity.
- (b) Selecting the panel of experts.
- (c): Calculating the CVR and CVI for the PSQ

#### A: Preparing the scale of content validity

The first step of content validation is preparing the scale of content validity to ensure that experts have common understanding about the process of evaluating the scale items. In regard to the PSQ, experts were asked to rate each item on four levels, in which that (4) indicates "the item is essential to measure the parents' perceived stress"; (3) "the item is beneficial to measure the psychological stress"; (2) "the item is somewhat related to the topic"; (1) "the item is not related to the construct being measured.

#### (B) Selecting the panel of experts.

The selected experts were also asked to review the scale items in terms of the language being used and the level of understanding regarding to the writing level and make any appropriate comments or suggestion to be considered in the final version of the scale. Questionnaire was distributed to 12 experts from different universities of Iraq.

### C: Calculating the CVR and CVI for the PSQ

The content validity ratio (CVR) was calculated for each item on the PSQ based on the expert rating; items that were rated as "essential" or "beneficial" were given a score of "1", and items that were rated as "somewhat related" or "not related" were given a score of "zero". The CVR formula is:  $CVR = (N_e - N/2) / (N/2)$ ; in which that ( $N_e$ ) means panel members number that represents an item "essential or beneficial"; ( $N$ ) means the number of panels. CVR results of for each item on the scale are shown in (Table4). The acceptable value is 0.70 and the value of 0.80 is preferred<sup>5</sup>. Based on the calculations above, the CVR for each item and the CVI for the entire scale are exceed the acceptable value, which is concluded that the PSQ is valid with a good content validity index 0.81.

The reliability analysis "Cronbach's Alpha "was run to specify the internal consistency of the scale (perceived stress questionnaire). The reliability analysis tested on 20 parents of children, and the results showed a Cronbach's Alpha value of (0.858).

The Statistical Package for Social Sciences (SPSS- 27) was run out to analyze the collected information. The content validity ratio (CVR) was used to check validity of PSQ. Cronbach alpha coefficient of Arabic version of PSQ was calculated to check for the reliability of the scale. Descriptive statistics also were used to describe Parents' socio-demographic information data, as well as describing stress level.

### 3. Result and discussion

Psychometric properties have been examined in this study for the Arabic version of PSQ. The outcome results indicated that this version of the PSQ is a valid and useful scale for testing, screening and, detecting Psychological

stress level among Arabic speaking person especially parents of children with neurodevelopmental disorders. Results of the study show high scale reliability by calculating Cronbach Alpha which demonstrated highly acceptable value and high level of internal consistency between scale items. The total result of Cronbach alpha was (0.858) for the total scale. In addition, the result of Cronbach alpha for each individual item was also high (Table 1). The Cronbach Alpha is a strong evidence of the constructed instrument's fitting to the purpose meant to measure, Cronbach alpha checking the level of validity and reliability of instrument which they are the basics of scientific research, and the most important rules of interest to researchers, given its great impact on research and its results, and the ability to generalize these results. Cronbach's alpha has described as 'one of the most important and pervasive statistics in research involving test construction and use<sup>6</sup>.

CVI and CVR are strong indexes of content validity of an instrument before using it<sup>7</sup>, CVR and CVI are strong evidences of the validity of this instrument as the CVI is about 0.81 and CVR is about 0.90 they are high scores and they reflecting the well translation of the scale to the Arabic language as shown in (table4 ). In fact using validity is an essential factor to construct an instrument and apply it in both fields of research and practice and the best method to check it is through CVI as it is an early step that is critical to validate the constructed instrument, it indicate high level of quality that constructed instrument would be moreover, CVI is the most common method that using by nursing researchers in nursing researches for validating constructed instruments it is also widely used among other specialties for validating constructed instruments<sup>8,9</sup>.

**Table 1: Internal consistency reliability (homogeneity testing)**

Reliability Statistics: Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	84.53	83.200	.576	.849
Item 2	83.64	86.911	.158	.860
Item 3	84.21	81.286	.522	.849
Item 4	83.59	86.041	.240	.857
Item 5	84.21	83.286	.446	.852
Item 6	84.08	81.901	.540	.849
Item 7	84.36	87.487	.151	.859
Item 8	83.84	82.390	.479	.850
Item 9	84.10	82.702	.429	.852
Item 10	84.45	86.453	.276	.856
Item 11	83.97	85.669	.263	.857
Item 12	84.22	81.087	.618	.847
Item 13	84.45	88.978	.013	.863
Item 14	84.27	82.808	.483	.851
Item 15	84.24	82.508	.455	.851
Item 16	84.37	87.201	.175	.858
Item 17	84.13	90.355	-.092	.865
Item 18	84.01	80.212	.561	.848
Item 19	84.10	82.939	.456	.851
Item 20	84.38	82.830	.482	.851
Item 21	84.43	86.247	.321	.855
Item 22	83.83	82.429	.425	.852
Item 23	84.02	81.508	.529	.849
Item 24	84.18	83.638	.384	.853
Item 25	84.51	85.896	.327	.855
Item 26	83.98	80.068	.648	.845
Item 27	84.27	83.944	.371	.854
Item 28	83.46	82.657	.547	.849
Item 29	84.28	86.982	.239	.857
Item 30	84.11	85.454	.248	.857

Cronbach's Alpha = .858; Number of items = 30

Table 2 : Guttman Split-Half Coefficient

Reliability Statistics			
Cronbach's Alpha	Part 1	Value	.736
		N of Items	15 <sup>a</sup>
	Part 2	Value	.739
		N of Items	15 <sup>b</sup>
	Total N of Items		
Correlation Between Forms			.821
Spearman-Brown Coefficient	Equal Length		.902
	Unequal Length		.902
Guttman Split-Half Coefficient			.902
a. The items are: Item 1, Item 2, Item 3, Item 4, Item 5, Item 6, Item 7, Item 8, Item 9, Item 10, Item 11, Item 12, Item 13, Item 14, Item 15.			
b. The items are: Item 16, Item 17, Item 18, Item 19, Item 20, Item 21, Item 22, Item 23, Item 24, Item 25, Item 26, Item 27, Item 28, Item 29, Item 30.			

Table 3: Confirmatory factor analysis

KMO and Bartlett's Test <sup>a</sup>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.529
Bartlett's Test of Sphericity	Approx. Chi-Square	1959.796
	df	435
	Sig.	.000
a. Based on correlations		

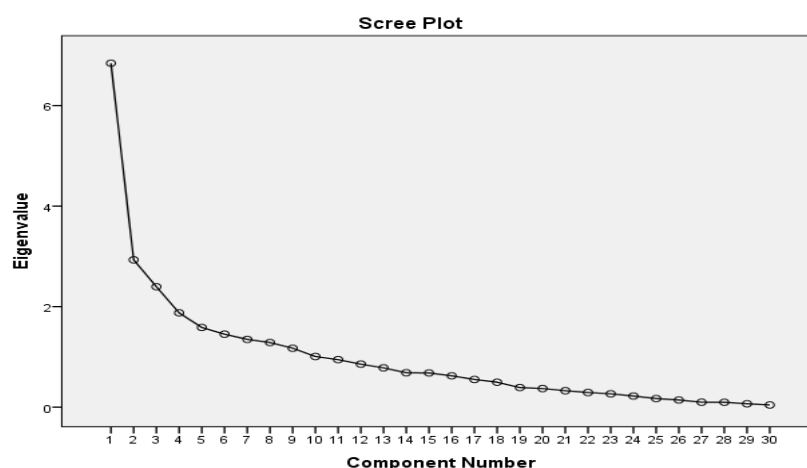


Table 4: Content Validity

Items	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	Experts in Agreement	Ne-n/2	CVR
Item 1	1	1	1	1	1	1	1	1	1	0	1	1	11	5	0.83
Item 2	1	1	1	1	1	1	1	1	0	1	1	1	11	5	0.83
Item 3	1	1	1	1	1	1	1	1	1	1	1	0	11	5	0.83
Item 4	1	1	1	1	1	1	1	0	0	1	1	1	10	4	0.67
Item 5	1	1	1	1	1	0	1	1	1	1	1	1	11	5	0.83
Item 6	1	1	1	1	1	0	1	1	1	1	1	1	11	5	0.83
Item 7	1	1	1	1	1	0	1	0	1	0	1	1	9	3	0.50
Item 8	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 9	1	1	1	1	1	0	1	0	0	1	1	1	9	3	0.50
Item 10	1	1	1	1	1	1	1	0	1	0	0	1	9	3	0.50
Item 11	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 12	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 13	1	1	1	1	1	1	1	1	1	0	1	1	10	4	0.67
Item 14	1	1	1	1	1	1	1	1	1	1	1	0	11	5	0.83
Item 15	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 16	1	1	1	1	1	1	1	1	1	1	1	1	10	4	0.67
Item 17	1	1	1	1	1	0	1	0	1	0	1	1	9	3	0.50
Item 18	1	1	1	1	1	1	1	1	1	1	1	0	11	5	0.83
Item 19	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 20	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 21	1	1	1	1	1	1	1	0	1	1	1	0	10	4	0.67
Item 22	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 23	1	1	1	1	1	1	1	1	1	1	1	0	11	5	0.83
Item 24	1	1	1	1	1	1	1	1	0	1	1	1	10	4	0.67
Item 25	1	1	1	1	1	0	1	0	1	0	1	1	9	3	0.50
Item 26	1	1	1	1	1	1	1	1	1	1	1	0	11	5	0.83
Item 27	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 28	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Item 29	1	1	1	1	1	1	1	0	1	1	1	1	11	5	0.83
Item 30	1	1	1	1	1	1	1	1	1	1	1	1	12	6	1.00
Proportion Relevance	1	1	1	1	1	0.8	1	0.7	0.866667	0.766667	0.966667	0.733333			
Average proportion of items judged as relevance across the 12 experts															
Content validity ratio CVR													0.90		
Content validity index CVI														0.81	
CVR=(Ne - N/2)/(N/2)															
Ne= Number of panel members indicating an item "essential,"															
N= The number of panel															
CVI= Total Scale validity															

## 4. Conclusion

In conclusion, this study which deals with the psychometric properties to evaluate the Arabic version of perceived psychological questionnaire PSQ. The PSQ is a reliable and valid instrument for the evaluation of psychological stress level. The

findings of this study demonstrate that the perceived stress questionnaire have high internal consistency and high reliability over the time, also a content validity indicates that the scale measures the intended subjects among parents. Therefore, these findings are supporting the use of this Arabic version of the scale among the parents and opening new ways for futures studies.

## 5. Recommendations

Study recommends to use this scale in assessing perceived psychological stress levels among Arabic countries and among parents of children with neurodevelopmental disorders especially, also, study recommend further assessment for reliability and validity of this instrument as it is a sensitive instrument.

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### Appendix 1 ( English version of scale )

No.	Items	Almost	Sometimes	Often	Usually
1	You feel comfortable				
2	You feel that there are many demands on you				
3	You are upset and grouchy				
4	You have many things to do				
5	You feel lonely and isolated				
6	You find yourself in conflict situations				
7	You feel that you are doing the things you really love				
8	You feel tired				
9	You are afraid of not being able to achieve your goals				
10	You feel calm				
11	You have many decisions to implement				
12	You feel frustrated				
13	You are with your full potential				
14	You feel nervous				
15	It seems that you have accumulated problems				
16	You feel rushed				
17	You feel safe and protected				
18	You have a lot of worries				
19	You are being pressured by others				
20	You feel discouraged				
21	You enjoy yourself				
22	You are afraid of the future				
23	You do things because they must be done, not because you want them				
24	You feel criticized or condemned				
25	You feel the fun				
26	You feel mentally exhausted				
27	You have a problem with relaxing				
28	You feel your responsibilities are increasing				
29	You have your own time				
30	You feel pressure from deadlines				

## Appendix 2 ( Arabic version os scale )

ت	الفقرات	نادرا	احيانا	غالبا	دائما
1	تشعر بالارتياح				
2	تشعر أن الكثير من المتطلبات مُلقاة على عاتقك				
3	تشعر بانك مستاء وضيق الخلق				
4	تشعر بانه لديك الكثير من الاشياء للقيام بها				
5	تشعر بالوحدة و العزلة				
6	تجد نفسك في حالات صراع				
7	تشعر أنك تؤدي الأعمال او الاشياء التي تحبها فعلاً				
8	تشعر بالتعب				
9	تخاف ألا تتمكن من تحقيق أهدافك				
10	تشعر بالهدوء				
11	لديك الكثير من القرارات التي يجب تنفيذها				
12	تشعر بالإحباط				
13	تشعر بانك مُفعمٌ بالطاقة				
14	تشعر بالتوتر				
15	يبدو لك ان المشاكل قد تراكمت عليك				
16	تشعر أنك مندفع				
17	تشعر بالأمان				
18	لديكمخاوف كثيرة				
19	تتعرض لضغوط من الآخرين				
20	تشعر ان عزيمتك مثبتة				
21	تستمتع بوقتك				
22	تخاف من المستقبل				
23	تقوم بالاشياء لأنه يجب عليك القيام بها، وليس لأنك تريدها				
24	تشعر بانك تتعرض للانتقاد				
25	تشعر بالمرح				
26	تشعر أنك مُتعب نفسيا				
27	تعاني من مشاكل في الاسترخاء				
28	تشعر بان مسؤولياتك زادت				
29	تشعر ان وقتك ملك لك				
30	تشعر بالضغط بسبب التقيد بمواعيد محددة				