Trends
in Psychiatry and Psychotherapy

JOURNAL ARTICLE PRE-PROOF
(as accepted)

Original Article

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Narges Barzgar, Hamid Poursharifi, Fereshte Momeni, Samaneh Hosseinzadeh

http://doi.org/10.47626/2237-6089-2022-0534

Original submitted Date: 14-Jun-2022

Accepted Date: 16-Dec-2022

Psychometric Properties of the Posttraumatic Cognitions Inventory-9 items in an Iranian sample

Narges Barzgar[ab], Hamid Poursharifi[b], Fereshte Momeni[b], Samaneh Hosseinzadeh[c]

a Student Research Committee, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

b Department of Clinical Psychology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

c Biostatistics Department, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

Submitting Author Contact Information: Ms. Barzgar, Narges
Tehran, Iran
mashhad
Iran (the Islamic Republic of)
9178684968

Introduction: The Posttraumatic Cognitions Inventory is a largely used measure to assess negative posttraumatic cognitions that are common among individuals with trauma-related disorders. There was a need to have a valid and reliable short form of it in Persian.

Objective: This study aimed to translate the Posttraumatic Cognitions Inventory-9 item (PTCI-9) into Persian, and evaluate its characteristics and psychometric properties.

Methods: This was a cross-sectional psychometric study using the translation and back-translation technique, experts assessed the content validity of the scale. Participants were 207 Iranian individuals recruited from the general population and 151 of them were trauma-exposed. Participants completed the Persian version of the PTCI-9, Beck Depression Inventory (BDI-II), and the WHO Quality of Life (WHO-QOL) scale. The psychometric properties of the Persian version of PTCI-9 were assessed using Exploration and Confirmatory factor analysis methods. Cronbach's α coefficient and Pearson's analysis were calculated, as well.

Results: Factor analyses supported a 3-factor model including the Self, World, and Self-blame subscales. The Cronbach's alpha of the Persian version of PTCI-9 (α=0.74) and its subscales (0.76, 0.82, 0.78) demonstrated its acceptable reliability. The Persian PTCI-9 also had strong test-retest reliability (r=0.79). The correlation between the Persian version of PTCI-9 and the BDI-II (r=0.60), and WHO-QOL (r=-0.54) indicated the convergent validity of the scale.

Conclusion: The Persian version of PTCI-9 showed acceptable psychometric properties. It is a brief and pragmatic measure that can be used in Iranian trauma-exposed patients for research and clinical purposes.

Keywords: Psychological Trauma, Cognition, Inventories, Psychometrics, PTSD.

Introduction

Over 70% of people experience traumatic events worldwide,[1] however; some of them (7-8%) develop Posttraumatic Stress Disorder (PTSD). The underlying mechanism of PTSD is the posttraumatic cognitions which are the main factors contributing to developing and maintaining PTSD. One of the most widely used instruments in assessing the mentioned cognitions is the Posttraumatic Cognitions Inventory (PTCI).[2] Although, a number of studies investigated its psychometric properties, the new short-form of Posttraumatic Cognitions Inventory with 9 items has not been fully studied, yet. Also, it needs to be translated into the Persian language and the structure, validity, and reliability of the Persian version of scale should be evaluated.

Trauma

Trauma has been defined in several contexts; trauma, as a non-ordinary event, is outside the range of human experience. Based on the universal emotional response, trauma is a stressor that would evoke significant symptoms of distress in almost everyone.[3] Although it was believed that trauma is limited to a specific list of events, such as earthquakes, assaults, and other specific events, trauma can be defined as an event that created a threat to life or physical integrity and produces an intense emotional reaction. Among all above definitions, regarding the Shattered assumption theme, trauma is an event that disrupts fundamental beliefs about self and world. These fundamental beliefs which are negatively altered are called posttraumatic cognitions. Posttraumatic cognitions refer to the negative thoughts and beliefs that occur after a traumatic experience.[4] After most people experience trauma in their lives, only a few of them develop PTSD or persistent PTSD symptoms; the difference is in their underlying cognitions. Traumatized individuals with more negative cognitions about self and the world and those with negative appraisals about the trauma and its consequences, can be characterized to have persistent PTSD. So, psychotherapy should correct these cognitions, and then the result is that the patients recover from PTSD.[2]

Posttraumatic Cognitions Inventory (PTCI)

The most commonly used measure of posttraumatic cognitions is Posttraumatic Cognitions Inventory (PTCI). In 1999, Foa and her colleagues developed this scale. PTCI is a self-report measure that consists of 33 items on a 7-point Likert scale and evaluates 3 main domains -Negative Cognitions about Self, Negative Cognitions about World, and Self-Blame. It

differentiates traumatized individuals and those without PTSD. The PTCI detects PTSD patients correctly and highly correlates with the PTSD severity. The three domains of the scale can predict PTSD severity, depression, and anxiety very well.[2]

PTCI is also used in PTSD interventions research, because one of the hallmarks of successful treatment for PTSD is that a treatment can change post-traumatic cognitions. In a study, for example, after trauma-focused cognitive-behavioral therapy, trauma-related maladaptive appraisals (using PTCI to assess) changed and thus symptoms of post-traumatic stress disorder decreased. Both changes (cognitions change and PTSD symptoms change) were correlated; changes in the cognitions were anticipated and predicted a reduction in the symptoms of the disorder.[5] PTCI has been utilized to compare the effectiveness of trauma-related therapies, as well. A more recent study compared three short treatments: EMDR, stress management focused on trauma, and psychological first aid. In this study, PTCI was one of the three main tools besides the PTSD checklist and Beck Depression Inventory.[6] As the treatment of PTSD is associated with significant improvements in posttraumatic cognitions, hence, changes in PTCI scores, can predict the PTSD symptoms decline.[7]

Various studies have examined the psychometric properties of PTCI in a variety of populations, including adolescents,[8] people who have had vehicle accidents,[9] women who have experienced sexual violence,[10] and those who have experienced interpersonal trauma. This questionnaire has been widely used and has been translated and reviewed in various languages including Turkish,[11] German,[12] Korean,[13] and Chinese.[14]

PTCI-9

There was a need for a more pragmatic, brief, easy to administer measure because the original PTCI is not very feasible for busy clinicians. Foa and her colleagues (1999) suggested the PTCI can be shortened to be more useful for research and clinical applications. Therefore, in 2019, Wells and her colleagues developed a short form of PTCI. The shorten version consists of only 9 items and can reduce patient and therapist burden.[15] In the Foa's item pool for PTCI, the items represented 9 concepts. These 9 concepts are the generally negative view of self; perceived permanent change; alienation from self and others; hopelessness; negative interpretation of symptoms; self-trust; self-blame; trust in other people; and the unsafe world.[2] The nine items of PTCI-9 represent these main concepts. PTCI-9 is more practicable in research and clinical settings. It is also useful in electronic health records because it can reduce patients and health providers' burden. To be noted, the French version of PTCI-9 has been developed and studied recently (α = .78 to .80).[16]

Although the PTCI-9 is short and user-friendly, Iranian population cannot use it yet, as its' psychometric features in the Iranian population were unclear by now. This study aimed to translate the PTCI-9 into Persian language and report the psychometrics properties in the Iranian community, consequently.

Methods

Participants and Procedures

In this cross-sectional study in the Iranian population, a sample of 207 individuals participated through voluntary sampling. In all participants there were 46 men (22%) and 161 women (78%). The average age was 32 (±10) years in this study sample.

First, the English version of PTCI-9 was translated to Persian. The first draft of the translated scale was given to five non-psychology college students. They were asked to read the items and determine if all sentences are clear and meaningful. The back-translation process was conducted by an English language expert. Three psychology scholars compared the Persian and the English versions and confirmed the translation was rightfully conducted (after ordering a few minor revisions).

Due to being in coronavirus quarantine time, data gathering was held online. From an overall sample of 398 visitors, 264 individuals participated, and a sample of 207 Iranian participants responded entirely to the Persian version of the PTCI-9, BDI-II, and WHO-QoL questionnaire. The response rate was estimated to be 78%. Also, 27 individuals participated in a 2-week retest.

Measures

PTSD Checklist for DSM-5 (PCL-5)

PTSD Checklist for DSM-5 is a self-report measure including 20 items.[17] This is widely used to assess PTSD symptoms based on DSM-5 criteria. Each item is rated on a Likert scale from 1 (Not at all) to 4 (Extremely). The Persian version of PCL-5 has acceptable psychometric properties.[18] In this study the symptom questions were excluded. So only questions 1 and 2 remained to check the traumatic experiences and their time of occurrence.

Post-traumatic cognitions (PTCI-9)

Wells et al. developed the short form of PTCI consisting of 9 items to briefly measure negative cognitions which are common after trauma. It assesses 3 domains of cognition including cognitions about self (3 items), cognitions about World (3 items), and self-blame (3 items). The items are rated on a Likert-type scale from 1 (Totally disagree) to 7 (totally agree). Wells showed the high reliability and validity of PTCI-9 in Veteran samples; the Cronbach's alpha for the total scale was .87, and the internal consistency of its subtypes was high as well—Self (α= .83), World (α= .85), and Self-Blame (α= .80). PTCI-9 significantly correlated with the PTCI and other measures including Clinician-Administered PTSD Scale ($r = .48$, $p < .01$), PTSD Checklist ($r = .58$, $p < .01$), Beck Depression Inventory-II ($r = .67$, $p < .01$), and Quality of Life Inventory ($r = -.51$, $p < .01$).[15] In

this study, the Persian version was used to evaluate factors of the Persian version of PTCI-9 and its psychometric features.

Beck Depression Inventory (BDI-II)

The Beck Depression Inventory-II consists of 21 items.[19] Each section assesses the depression symptoms which scored from 0 to 3. The Persian version of BDI-II is valid and reliable.[20] In this study, the Persian version of BDI-II was used to measure the presence and severity of depression in participants and to be used for illustrating the correlation of Post-traumatic cognitions with depression severity as convergent validity.

WHO Quality of Life (WHOQOL-BREF)

World Health Organization Quality of Life brief form consists of 26 items.[21] Two items assess the perception of the quality of life and overall health satisfaction, and the other 24 items measure QoL in 4 domains of physical health, psychological well-being, social relationships, and environment. Higher scores on this scale demonstrate higher quality of life..[22]

Data analysis

To examine the latent structure of the scale, exploratory factor analysis (EFA) via IBM SPSS 23.0 and confirmatory factor analysis (CFA) via R 3.5.1, Lavaan package were used. The sample was randomly divided into two subsamples with sizes 103 and 104 individuals in each group. EFA was carried out using principal component analysis and the Varimax rotation method to not allow correlations between the factors. Kaiser Meyere Olkin test (KMO) and Bartlett's Test were checked. The internal consistencies of subscales were assessed by Cronbach's alpha coefficient. The convergent validity of the scale was assessed by AVE (average variance extracted) and Composite Reliability (CR).

To confirm the extracted factors, CFA was used. Appropriateness of the model was assessed by the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) which should be smaller than .08, Bentler's Comparative Fit Index (CFI), which should be larger than .90, and Sattora-Bentler $\chi2$(S-B $\chi2$), which should not be statistically significant.

To investigate the Test-retest reliability, 27 people completed the PTCI-9 twice, with a retest interval of one week. Moreover, the Pearson correlation with BDI-II scores was applied to assess its' convergent validity. Besides, the current study calculated the correlation between PTCI-9 and WHO-QoL.

The Research Committee of the University of Social Welfare and Rehabilitation Sciences endorsed this research and the ethical code for this study is IR.USWR.REC.1399.174.

Results

As Table 1 shows, 108 individuals were married and 99 were not. Most participants had a Bachelor of Arts degree (37%) or Masters of Arts (32.4%). Most participants were students (33.3%) or employers (21.3%). The participants were recruited from various areas of residence in Iran including Tehran (20.8%) and Mashhad (35.3%) mostly.

Table 1 *The Socio-demographic Characteristics of Iranian Participants who answered the Persian version of Posttraumatic Cognitions-9 item*

Characteristic	Trauma		No Trauma		Full sample	
	n	%	*n*	%	*n*	%
Gender						
Female	121	80.1	40	71.4	161	78
Male	30	19.9	16	28.6	46	22
Marital status						
Single	71	47	20	35.7	91	44
Married	74	49	34	60.7	108	52.2
Divorced/widowed	6	4	2	3.6	8	3.9
Highest educational level						
Under diploma	7	4.6	4	7.1	11	5.3
Diploma	24	15.9	4	7.1	28	13.5
Upper diploma	7	4.6	5	8.9	12	5.8
Bachelor of Arts	57	37.7	20	35.7	77	37.2
Master of Arts	46	30.5	21	37.5	67	32.4
Ph.D. and more	10	6.6	2	3.6	12	5.8
Job-status						
Housewife	20	13.2	8	14.3	28	13.5
Student	52	34.4	17	30.4	69	33.3
Employer	30	19.9	14	25	44	21.3
Self-employed	20	13.2	9	16.1	29	14
other	23	15.2	5	8.9	28	13.5
having no job	6	4	3	5.4	9	4.3
Habitat [a]						
Tehran	32	21.2	11	19.6	43	20.8
Masshhad	51	33.8	22	39.3	73	35.3
Isfahan	5	3.3	4	7.1	9	4.3
Ahwaz	4	2.6	3	5.4	7	3.4
North of Iran	6	4	1	1.8	7	3.4

Other areas	53	35.1	15	26.8	68	12
Diagnosis [a]						
Nothing	134	88.2	48	87.3	182	87.9
Schizophrenia Spectrum	1	0.7	0	0	1	0.5
Bipolar disorder	1	0.7	0	0	1	0.5
Major depressive disorder	6	4	1	1.8	7	3.4
Anxiety disorders	7	4.7	5	9.1	12	5.8
OCD	2	1.3	1	1.8	3	1.4
PTSD	1	0.7	0	0	1	0.5

Note. *N* = 207. Participants on average 32 years old (*SD* = 10).
[a] Reflects the participants' answer to the self-report question "Do you suffer from a mental illness?".

Seventy-one participants (34.3%) had experienced Relational traumas. Others reported Loss of loved ones (10.1%), Academic/job-related trauma (8.7%), Difficult illness (4.8%), Childhood trauma (4.3%), Sexual assaults (2.9%), and Accident (2.9%) respectively. Also, 10 participants (4.8%) reported other traumatic experiences including dog attacks, war, physical fights, and insults from a father or a family member. 12 participants did not respond to the trauma question for personal reasons, and the traumatic experiences of 44 participants were only normal hassles. Moreover, 56 (27%) participants reported no traumatic experiences. Analysis of variance (ANOVA) and least significant difference (LSD) Post Hoc test revealed that participants with "relational trauma" differed from difficult illness, loss, and childhood trauma in terms of posttraumatic cognitions.

Through descriptive statistics, we calculated the mean and standard deviation of posttraumatic cognitions, depression, and quality of life. The average score of posttraumatic cognitions in the Iranian sample was 3.35 (SD = ±1.07); with the highest scores in the World subscale (4.45±1.51). The average depression score through BDI-II was 14.87 (SD = ±11.77). Regarding Quality of life, the mean of scores was 74.14 (the average scores of the subscales physical health, psychological wellbeing, social relationships, and environment were 19.79, 18.91, 9.52 and 26.00 respectively).

Regarding EFA, the responses of a random subsample including 103 individuals were used for the EFA of scale. KMO test indicated very good sampling adequacy (0.654). Bartlett's Test was significant (chi-square value = 354.206, P-value < 0.05) that showed the items are correlated and factor analysis can be fitted. Latent factors were extracted by principal components analysis. The extracted factors were rotated with the Varimax method. This criterion suggested the three-factor structure for the PTCI-9, which explained 70.6% of the variance (See figure 1).

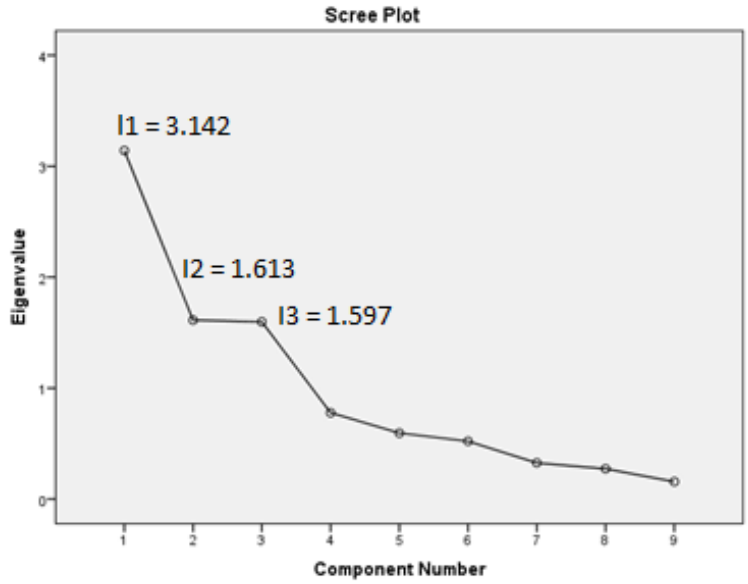

Figure 1 *The screen plot of three factors of Persian version of Posttraumatic Cognitions- 9 item, extracted by EFA with eigenvalues larger than 1*

Note. From a random subsample of Iranian people (N=103).The Rotated Solution Eigenvalues for the 3 components are 2.384, 2.285, and 1.682 respectively. The 3 factors explained 34.909, 52.828, and 70.571 Cumulative percent of variance for loading 1, 2, and 3, respectively.

The matrix pattern of the extracted factors is shown in Table 3. The first subscale (I1) is "cognitions about Self" with items 3,5,8,9, the second subscale (I2) is "cognitions about World" with items 2,4,6, and the last (I3) is "Self-blame" with items 1,7 (Table 2).

Table 2 *Factor Analysis of the Persian version of Posttraumatic Cognitions Inventory -9 item (PTCI-9) in the Iranian subsample.*

PTCI-9 item	Factor loading		
	1	2	3
Factor 1: Cognitions of the Self			
3. Somebody else would not have gotten into this situation.	**.670**	-.017	-.127
5. I have no future.	**.747**	.252	.122
8. I feel like I don't know myself.	**.685**	.175	.172
9. Nothing good can happen to me anymore.	**.910**	.080	.033
Factor 2: Cognitions of the World			
2. People can't be trusted.	.098	**.902**	.052
4. I can't rely on other people.	.235	**.881**	−.054
6. People are not what they seem.	.061	**.757**	.111
Factor 3: Self-blame			

1. The event happened because of the way I acted.	−.003	−.038	**.910**
7. There is something about me that made the event happen.	.107	−.141	**.880**

Note. *N* = 103. The extraction method was principal component analysis and Varimax rotation. Factor loadings above 0.50 are in bold. Adapted from "The Development of a Brief Version of the Posttraumatic Cognitions Inventory (PTCI-9)," by Wells, S. Y., Morland, L. A., Torres, E. M., Kloezeman, K., Mackintosh, M.-A., & Aarons, G. A. (2019). Assessment, 26(2), 193–208.

The internal consistency of these 3 factors was assessed by Cronbach's alpha coefficient, all of them were larger than 0.7 that showed good consistency (See Table 3). Also, the internal consistency of the total scale is 0.739. AVE > 0.5, CR > 0.7, and CR > AVE were for three subscales, and then the convergent validity of the scale is appropriate (Table 3).

Table 3 *The internal consistency of the Persian version of Posttraumatic Cognitions-9 item (PTCI-9) in an Iranian sample*

components	Cronbach's alpha	Average Variance Extracted (AVE)	Composite Reliability (CR)
l1: Cognitions of the Self	0.761	0.730	0.746
l2: Cognitions of the World	0.827	0.864	0.870
l3: Self-blame	0.788	0.898	0.901

Note. l1 = loading 1, l2 = loading2, l3 = loading3

To confirm the latent structure of the scale, the CFA was conducted (See figure 2). The analysis was carried out on the second subsample (n = 104). The values related to the goodness of fit indices of the model are in the optimal range. The chi-square statistic value was 41.912 (df = 24), the Robust CFI is equal to 0.954, TLI is 0.931. SRMR is 0.076 and Robust RMSEA is 0.085 (0.039, 0.127; 90% CI). This model has the best indexes that show the three-factor extracted model is the best representation of the structure of the data.

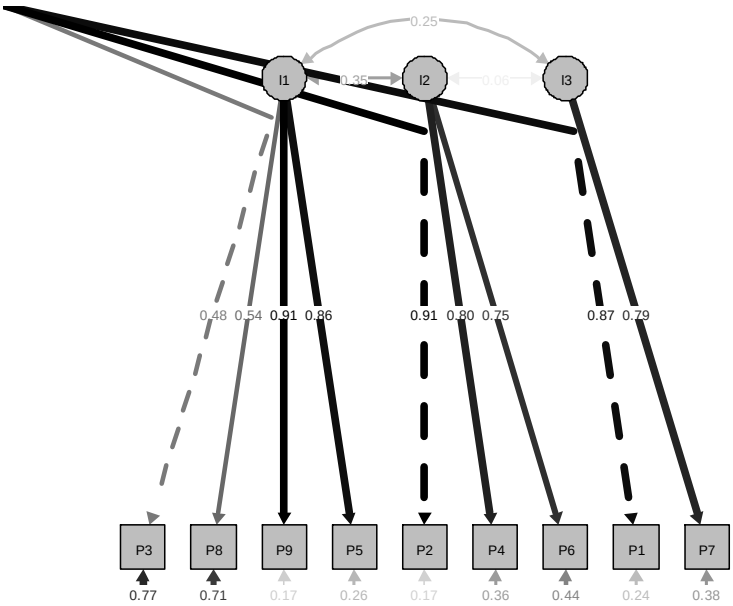

Figure 2 *Factor loadings for the Persian version of the Posttraumatic Cognitions- 9 item in the 104 Iranian sample.*

Note. N=104; I1=loading1, P1= item1.

The test-retest correlation of PTCI-9 scores showed acceptable test-retest reliability. Pearson correlations resulted in high correlations for the total scale and the 3 factors: R(total score)= 0.79, R(Self subscale)= 0.80, R(World subscale)= 0.79, R(self-blame subscale)= 0.68. They showed acceptable test-retest reliability having an interval of 7 days.

The Pearson correlation between PTCI-9 and BDI-II scores was significant (r = +0.60, p value = 0.05). The correlation between PTCI-9 and WHO-QoL was negative and significant (r = -0.50, p value = 0.05). So, the PTCI-9 was significantly correlated with depression and quality of life and therefore, it showed validity in the current study.

Discussion

This study aimed to evaluate the psychometric features of the Persian version of PTCI-9 in the Iranian population. We studied PTCI-9 because not only does the PTCI-9 has been found to have better structural validity and adequate psychometric properties[23] than PTCI, it is a shorter measure, as well. The data supported the 3-factor structure model fit with 3 subscales of negative cognitions about "Self", "World", and the "Self-blame". We reported the mean and standard deviation for the total score and the 3 subscales. The reliability and validity of PTCI-9 were also assessed in Iranian general population in the time of Covid19 pandemic lock down.

Structure

The analysis revealed that the 3-factor structure best fitted the data. This is the same as the Wells' PTCI-9 structure model and previous studies that have confirmed 3 factors structure [15,16,23,24]. Although the literature supports the 3 factors model for PTCI-9, the PTCI did not fulfill a consistent factor structure, nor consistent validity in recent studies[23]. Before PTCI-9 development, PTCI was used with some revisions; for example, researchers in Northern Ireland removed 8 items (PTCI with 25 items); in Korea removed 5 items (PTCI with 28 items), and in China removed 4 items (PTCI with 29 items) to fit the structure[8,13,14] . Currently, there is agreement that PTCI-9 is a promising alternative measure of PTCI[23,24]. Although in Wells' study, every 3 subscales of the original PTCI-9 include 3 items; in this research, "item 3" loaded in the Self subscale instead of the Self-blame subscale. So, the Self subscale consisted of 4 items, and the Self-blame subscale was included of only 2 items. So, the 3-factor solution fitted the data without any exclusion. This had the best indexes in CFI, TLI, RMSEA, and SRMR. In the English version of PTCI-9, Wells and her colleagues found an acceptable fit, meeting CFI and SRMR cutoffs, and very close to meet the recommended cutoff for RMSEA [15]. The difference in the third item ("Somebody else would not have gotten into this situation.") might be due to the difference in languages, as this sentence does not seem to have a concept of Self-blame in the Persian language. As the PTCI (or PTCI-9) are culture-based measures, the structural model and the items involved are highly affected by culture and language. In fact, it seems that the low factor loading of item 3 in factor 1 was due to the cultural and linguistic incompatibility of this item with Iranian society. Indeed, in different countries and cultures, the structure model of PTCI-9 needs some revisions, as for PTCI. Generally, PTCI-9 is highly context related.

Reliability

The Persian version of PTCI-9 demonstrated strong internal consistency (α=.74); same as the French version of PTCI-9 that has been developed and studied recently (α = .78 to .80).[16] Internal consistency through Cronbach's alpha was confirmed for the total scale and the 3 subscales. This finding supported the original study done by Wells (2019); they found strong internal consistency (α =.87) and also strong associations between PTCI-9 scores and PTSD measures. Consequently, they concluded that PTCI-9 is a part of the PTSD diagnosis. Test-retest reliability for the total scale, the World subscale, and the Self subscale showed to be acceptable, and the Test-retest reliability was adequate for the Self-blame subscale. The wells' study did not report its test-retest reliability, but the origin PTCI with 33 items had shown great test-retest reliability in a week interval.[2] The current study duplicated that and reached the same results. Based on psychometric studies of the PTCI (not the PTCI-9) in other languages, the Dutch version has shown sufficient validity and reliability (α = .95); the same as the Korean version (α = .97), and the Turkish version (α = .93).[11–13,25] It is necessary for other countries to study the psychometric features of the short version (PTCI-9) based on their context of culture and language. Moreover, the analysis showed that those participants with "relational trauma" differed from difficult illness, loss, and childhood trauma in terms of posttraumatic cognitions. In fact, the average score of PTCI-9 was significantly higher in the participants with relational trauma. Further studies with various distinct trauma-exposed samples are required to identify the status of posttraumatic cognitions reliability in different types of traumas.

Validity

Face validity and content validity of the Persian version of PTCI-9 were acceptable because five non-psychology students filled out the first draft and could understand it completely. Afterwards, three professors of psychology commented on the translation and back-translation. After some minor corrections were conducted, the experts reached an agreement. No item from the English version of PTCI-9 was not excluded. To verify the convergent validity of PTCI, previous studies have used PTSD and depression measures. This study, by the significant correlation between the PTCI-9 and depression, showed the convergent validity of the Persian PTCI-9 as to be impeccable. In addition to Foa[2] and Wells studies[15], others showed significant correlations between PTCI and depression, as well. Sexton (2018), for example, demonstrated a significant correlation between PTCI and measures of PTSD and depressive symptoms. Although they used the original PTCI with 33 items, they found 4 factors loaded in the sample of military traumatized veterans. They confirmed its convergent validity through good-to-excellent correlations with PTSD, depression, and resilience.[26] In a Korean study of the PTCI with female victims of sexual violence, they showed the PTCI correlation with depression and anxiety symptoms.[13] The association between PTCI-9 and depression measure indicates that the PTCI-9 may be useful in examining how posttraumatic cognitions relate to depressive symptoms after exposure to a traumatic event. The 3 factors loadings (Negative cognitions about Self, Negative cognitions about World, and self-blame) suggest a similarity with the cognitive triad of depression from the Beck's paradigm (view of self, world, and future); for example, Shin et al. found out that self-blame seemed to be related to depression and anxiety rather than trauma symptoms.[13] Moreover, depressive symptoms were significantly correlated with "negative cognitions about the self" than with "negative cognitions about the world", or certain PTCI-9 items overlap with general depressive thinking (e.g., "Nothing good can happen to me anymore"). These results may suggest that PTCI-9 can assess cognitions of trauma-related depression. Therefore, the PTCI-9 is a standardized brief version of the measure that can be used in PTSD and trauma-related depression research. Convergent validity in this study was also calculated by the significant correlation between PTCI-9 and WHOQoL.

Individuals who have experienced trauma are prone to develop symptoms of post-traumatic stress disorder.[27] In such situations, the PTCI-9 can be used as an appropriate screening tool to help identify people prone to developing PTSD. Using such tool leads to more accurate evaluation, follow-up, and even prevention in people with traumatic experiences. The Persian version of PTCI-9 with great psychometric features may be useful in clinical and research settings, especially in the age of the COVID-19 pandemic. In a nut shell, the Persian version of PTCI-9 is a standardized brief version of the measure that can be used for Persian-speaking populations, in PTSD and trauma-related research.

Limitations and suggestions

In this community-based study, the participants were not divided based on PTSD or Trauma. So further psychometric studies on PTSD and different types of traumatized populations are suggested. The instruments could be evaluated in a study with an appropriate sample size in different clinical and non-clinical groups. Further validation of the PTCI-9 needs to be conducted by administering this shortened measure among participants to ensure that the identified factors have practical and clinical significance. Given previous findings that posttraumatic cognitions vary according to the type of traumatic event an individual experienced[2], it is necessary to evaluate the scale's factor structure, validity, and reliability in particular samples (e.g., individuals who have experienced a relational trauma) to ascertain if the PTCI-9 performs similarly across all samples and therefore, it can be utilized across all types of samples.

In the Persian version of PTCI-9, the Item 3 did not load in self-blame factor. Hence, to overcome this limitation, there is a need for adaptation of item 3 ("Somebody else would not have gotten into this situation") to become easily perceived by Persian-speaking populations so that it would reflect self-blame concept. Otherwise, another item should be developed as an alternative to item 3 to represent self-blame in Persian speaking population. Further validation of the PTCI-9 needs to be conducted by administering this shortened measure to participants to ensure that the identified factors have practical and clinical significance. Further replication of the PTCI-9 psychometric properties is suggested.

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