

**Psychometric Characteristics of the Childhood Trauma Questionnaire (CTQ) in an Iranian Sample**<sup>1</sup>Maryam Alagheband , <sup>2</sup>Naser Mohamadi Ahmadabadi, <sup>3</sup> Marjan Masoomi Fard<sup>1</sup>Department of general Psychology, Payam Noor University, Tehran, Iran<sup>2</sup>Faculty member of PNU<sup>3</sup>Payam Noor University, Tehran, Iran

**Abstract:**The Childhood Trauma Questionnaire (CTQ) is a brief self-report questionnaire that retrospectively assesses childhood abuse experiences among adolescents and adults. The goal of this paper is to investigate validity, reliability and factor structure of the CTQ in an Iranian sample. The sample consists of 400 guidance school students that selected through multiple-steps random sampling from guidance schools in Tehran. All students were asked to complete Childhood Trauma Questionnaire and Norouzie's child abuse questionnaire. To examine the reliability of the CTQ, methods of internal consistency (Cronbach's alpha), Split-Half and re were used. The coefficients, that obtained from these methods, respectively were 0.90, 0.75 and 0.94 showing that this scale had acceptable reliability. validity was assessed using concurrent validity, Exploratory Factor Analysis and correlation of subscales with each other and with the total scale. The results of factor analysis using varimax rotation showed four factors: 1. Emotional Abuse (EA), 2. Physical Abuse (PA), 3. Emotional Neglect (EN), 4. Physical Neglect (PN). Furthermore, the correlation of subscales with each other and correlation of the total score of CTQ and concurrent validity scales were significant and as expected. The findings of this study suggest that the CTQ is a reliable and valid measure of Childhood Trauma in Iranian guidance school students.

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The main causes of most psychiatric disorders are not known to a large extent. Nonetheless, the factors effective on these disorders can be divided to internal or personal factors (like genetics) and external factors or stressors. The interactive effects of these factors together are thought to pose psychological problems to individuals. Indeed, if internal factors are potential causes of psychological traumas, life experiences can also affect them (Young, Abelson, Curtis & Nesse, 1997). Among all life experiences, childhood tragedies and their effects on individuals' future life traumas have been attracted more attention of the researchers in the field of physiology. Childhood traumas, which are highly prevalent (Brown, 1996), are in connection with most of psychiatric disorders such as depression (Bernet & Stein, 1999, Lara, Klein & Kasch, 2000), substance abuse (Tucci, Kerr-Correa & Souza-Formigoni, 2010), personality disorders (Johnson, Cohen, Brown, Smailes & Bernstein, 1999), bulimia (Steiger, Jabalpurwala & Champagne, 1996), Anorexia (Webster & Palmer, 2000), Alcoholism (Windle, Windle, Scheidt & Miler, 1995), Adult dissociative symptoms (Draijer &

Langeland, 1999), suicide (Clements-Nolle, Wolden & Bargmann-Losche, 2009). These traumas include physical, emotional, and sexual abuses and also indifference to children (Larkin & Read, 2008). Considering the importance of these traumatic events

in childhood and their consequences in future life, researchers in this field have always been seeking for appropriate tools to evaluate mentioned incidents. A review of recent researches show that Childhood Trauma Questionnaire (CTQ) is one the most reliable and widely-used tools which has been translated into most of the languages such as German, Spanish, Dutch, Norwegian, and Italian and its validity and reliability have been investigated (Thombs, Bernstein, Lobbestael & Arntz, 2009). This questionnaire has been designed by Bernstein, Fink, Handelsman, Foote, Lovejoy, Wenzel, Sapareto & Ruggeiro in 1994. In 1955, Bernstein made some modifications to it and presented its final form with fifty three items. CTQ is a self-report tool and is employed to measure childhood abuse based on five subscales and also provides a total score which is a representative of Global Maltreatment Scale. The five subscales of CTQ are Emotional Abuse subscale (EA), Physical Abuse subscale (PA), Sexual Abuse subscale (SA), Emotional Neglect subscale (EN), and Physical Neglect subscale (PN). All CTQ items begin with the sentence "When I was growing up...". fifty out of fifty three CTQ items are used to measure Global Maltreatment Scale which is, in fact, the total score of the scale. Twelve out of these fifty items belong to Emotional Abuse subscale (EA). EA subscale investigates the psychological abuses such as feeling of contempt, threat, fear, and anxiety. An

example of the items of this subscale is: “My family members call me stupid, lazy, and ugly”.

Physical Abuse subscale (PA) consists of seven items. PA subscale evaluates physical punishment cases as well as physical abuse case. An example of this subscale's items is: “My family members punished me so hard that I got injured by it”. Sexual Abuse subscale (SA) also consists of seven items. Sexual abuse of individual, sexual harassment of sisters or brothers, and threatening to have sex are among the cases which are evaluated by this subscale. An example of the items of this subscale is: “Someone forced me to have sex or watch pornography”. It is worth mentioning that in the current study, the items related to sexual abuse subscale were eliminated from questionnaire because of the cultural constraints. Emotional Neglect subscale (EN) includes sixteen items. This subscale investigates being supported and cared, being praised and admired, being loved, and being dealt with and so on. An example of the items of this subscale is: “I had someone in family to share my problems with”. Physical Neglect subscale (PN) includes eight items. PN subscale measures the cases such as privation of appropriate parental tutelage, privation of sufficient food and clothing, and clash between family and police. An example of the questions of this subscale is: “I had to wear dirty clothes”. The remaining three questions belong to the Minimization /Denial subscale. The items of this subscale are considered in the calculation of Global Maltreatment Scale. An example of the items of this subscale is: “I had a totally normal childhood”. The validity and reliability of CTQ have been investigated by plenty of previous studies. Bernstein et al (1994) tested its validity by studying 286 participants who were addicted to alcohol and drugs. In addition, 68 of them were invited for Childhood Trauma Interview (CTI)<sup>1</sup>. A factor analysis of data acquired from CTQ was done using Principle Component Analysis (PCA) and Varimax Rotation and five factors were recognized: physical abuse, emotional abuse, emotional neglect, sexual abuse, and physical neglect. In addition, the results from Childhood Trauma Interview (CTI) were in a good accordance with CTQ results. In

another research on the validity of CTQ by Bernstein, Ahluvalia, Pogge, and Handelsman in 1997, 398 adolescent girls and boys from 12 to 17 years old, who had psychological problems, were questioned. Factors analysis was in accordance with the results from previous studies on addicted adults. Factors of physical abuse, emotional abuse, emotional neglect,

sexual abuse, and physical neglect were recognized which were similar to previous studies. To evaluate the reliability of CTQ, Cronbach's alpha method and re-re method were used. Results showed a good correlation (0.88). Furthermore, Cronbach's alpha for different factors have been reported to be between 0.79 and 0.94. In another research in 2001, Shcher, Stein, Asmundson, McCreary, and Forde have used CTQ to investigate the prevalence and consequences of child abuse in a community sample. They found that strong psychometric characteristics of CTQ have already been confirmed in clinical samples, but they decided to re-evaluate its reliability and re-analyze its factors because of informational limitations on the psychometric characteristics of CTQ in community samples. The acquired results were similar to those of previous works (Bernstein et al 1994, Bernstein et al 1997). Based on researchers' findings, a five-factor model can best describe CTQ and its application in community samples is completely appropriate. In this study, the internal Consistency of various CTQ factors were found by Cronbach's alpha to be between 0.75 and 0.95. Nevertheless, these are just a small part of the studies which have evaluated CTQ. A broader review of the studies on this tool reveals that widespread researches have been carried out in this field and almost all of them have reported its validity and reliability to be desirable (Lipschitz, Bernstein, Winegar, Southwicks, 1999- Carrion & Steiner, 2000- Lundgren, Gerdner & Lundqvist, 2002). Therefore, considering the confirmation of psychometric characteristics of this questionnaire in most countries, investigation of the validity and reliability of its Persian version is required in order to be used in Iranian studies on children. On this basis, the current study aims to investigate the psychometric characteristics of a 54-question version of CTQ in an Iranian sample.

#### Method

The statistical population of current study involves all of school students in Tehran and the sample involves 400 students of Tehran schools. Firstly, the entire city was divided to 4 regions of North, South, East, and west and then, two schools from each region (one girls-only school and one boys-only school) were chosen randomly. Finally, fifty students of each school were chosen from names list by simple random sampling.

#### The Study Tools

Following questionnaires were used for data gathering:

Childhood Trauma Questionnaire (CTQ): this questionnaire was designed by Bernstein et al in 1994 and its 53-items final version was presented in 1995. It measures abuse in five subscales and also gives a total score which is called Global Maltreatment

<sup>1</sup> CTI is a structured interview to determine childhood traumas which was designed by Bernstein et al in 1994

Scale. The mentioned 5 subscales are: Emotional Abuse (EA), Physical Abuse (PA), Sexual Abuse (SA), Emotional Neglect (EN), and Physical Neglect (PN). A Five-Point Likert Scale is employed for scoring the items. Bernstein et al (1994) compared the results from Childhood Trauma Interview (CTI) with those of CTQ in order to determine the validity of CTQ and observed a good accordance. In addition, they acquired the mentioned five factors by means of exploratory factor analysis using varimax rotation. Moreover, the reliability of different CTQ factors was reported to be between 0.81 and 0.92 using -re and Cronbach's alpha methods which illustrate its desirable reliability.

Norouzie's Child Abuse Questionnaire: This questionnaire was used to specify the construct validity of Childhood Trauma Questionnaire (CTQ). The questionnaire was designed by norouzie in 1992 and has been used in various researches so far. Norouzie's Child Abuse Questionnaire has 16 items and measure two type of child abuse: physical and emotional. The scoring method of its most questions is Likert Scoring Method. An example of its questions is: someone, who is at least five years older than me, punishes me. Hosseini (1988) employed

Norouzie's Child Abuse Questionnaire to investigate the prevalence of child abuse among the girl students of guidance schools of Sousangerd city. He founded its content validity quite satisfying by taking account of the comments from experts and

professors. He also acquired a value of 0.90 for its reliability using the Split-Half method.

#### Findings of the Study

The information about the frequency and percentage of various child abuse types are listed in table 4-1. According to the frequency and intensity of each child abuse type among participants and based on the information of this table, about 29 percent of participants have reported very light and light emotional abuse, 19 percent have reported mild abuse, and 47 percent have claimed experiencing intense and very intense abuse. In the case of physical abuse, 81 percent reported light and very light abuse, 9 percent reported mild abuse and 5 percent reported intense and very intense abuse. In the case of emotional neglect, 73 percent reported light and very light neglect, 26 percent reported mild neglect and 14 percent reported intense and very intense neglect. The reports on physical neglect were: 82 percent faced very light and light neglect, 8 percent faced mild neglect, and 4 percent faced intense and very intense neglect. Finally, results show that in the case of total child abuse, 70 percent reported very light and light abuse, 19 percent reported mil abuse, and 18 percent reported intense and very intense abuse.

To determine the validity of CTQ in this study, three methods of concurrent validity, factor analysis, the correlation of subscales with each other and with total scale (subscales – scale correlations) were employed.

Table 1. Frequency and percentage of various child abuse types among participants

Total Number		Very Intense		Intense		Mild		Light		Very Light		Types of Child Abuse
Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	
100	400	8.25	33	38.75	155	19.5	78	22	88	7.25	29	Emotional Abuse
100	400	2	8	3.75	15	9.5	38	25.25	101	55.75	223	Physical Abuse
100	400	3.25	13	11.25	45	26.5	106	35.75	143	37.75	151	Emotional Neglect
100	400	1	4	3.25	13	8.25	33	19.5	78	63.5	254	Physical Neglect
100	400	3	12	15.25	61	19.25	77	20.25	81	49.75	199	Total Child Abuse

#### A. Concurrent Validity of CTQ

To investigate concurrent validity, CTQ and Norouzie's Child Abuse Questionnaire were distributed among students. Half of the participant firstly answered CTQ and then Norouzie's Child Abuse Questionnaire, while the other half firstly answered Norouzie's Child Abuse Questionnaire and then CTQ. This was done to control the effects originated from the answering sequence. Results showed that the correlation coefficient between the scores of groups studied with both questionnaires is

0.57 which can be considered as significant at the level of  $p < 0.001$ .

#### B. Factor Analysis of CTQ

Plenty of researchers have employed factor analysis method to investigate the construct validity of CTQ questionnaire (Bernstein et al, 1994- Bernstein et al, 1997- Shcher et al 2001- Lundgren et al, 2002- Paivio & Cramer, 2004). In this study, Principle Component Analysis (PCA) method was used for exploratory factor analysis of CTQ questionnaire. This method seeks to specify all of the variances of the taken variables series. For ultimate solving in

order to recognize the fundamental factors of this questionnaire and also its simple structure, varimax rotation method was employed. Questionnaire was given to 250 participants. After data analysis with Scree (Cattel, 1996) and Parallel analysis (Watkins, 2000), it was found that questionnaire has 4 important and significant factors with eigenvalues greater than 1. Table 3-2 illustrates the final statistical characteristics of CTQ questionnaire factors acquired by Principle Component method.

Based on the results shown in table 3-2, the eigenvalues for the first to fourth factors are respectively 8.8, 8.5, 5.8, and 2.2. The specified value of total variance of the scale for the first to

fourth factors are respectively 29.3 percent, 11.1 percent, 6.3 percent, and 4.1 percent. The variables' common variance coverage percentages by the first to fourth factors are respectively 58.7 percent, 20.8 percent, 12.3 percent, and 8.2 percent. Results of this investigation showed that 13 items were placed on the first factor, 6 items were placed on the second factor, 16 items were placed on the third factor, and finally 8 items were placed on the fourth factor. Based on the results from the research by Bernstein et al in 1994, these factors were respectively named "Emotional Abuse", "Physical Abuse", "Emotional Neglect", and "Physical Neglect".

Table 3-2. the final statistical characteristics of CTQ questionnaire factors acquired by Principle Component method

Items	Specified variance cumulated percentage	Specified variance percentage	Eigenvalue	Factor	Unity level	Indicators Factors
-29-22-16-10-9-8-2 42-40-39-37-36-33	29/3	29/3	8/8	1	%58/7	Emotional Abuse
32-30-27-25-23-5	40/4	11/1	8/5	2	%20/8	Physical Abuse
-20-17-15-12-7-4-1 -34-31-28-26-24-21 43-41-38	46/7	6/3	5/8	3	%12/3	Emotional Neglect
-19-18-14-13-11-6-3 35	50/8	4/1	2/2	4	%8/2	Physical Neglect

### C. Correlation of Subscales

One of the methods for specifying the construct validity of any is the existence of a satisfactory correlation of its subscales with each other as well as with the total scale (Anastasi, 1982). In this study, the internal correlation of the scores of subscales with each other and also with the entire questionnaire have been extracted and listed in table 3-3.

As can be seen from table 3-3, all subscales have a good and acceptable correlation with each

other as well as with total scale. The correlations between subscales themselves are from 0.38 to 0.78 and their correlation with entire questionnaire varies from 0.72 to 0.81. The minimum amounts of correlation coefficients belong to Emotional Neglect subscale and Physical Abuse subscale (0.38) and its maximum amount is between the total scale and Physical Abuse subscale (0.81).

Table 3-3. The correlation coefficients between subscales of CTQ questionnaire with each other and with total scale

Physical Neglect	Emotional Neglect	Physical Abuse	Emotional Abuse	Scales
			0/78**	Physical Abuse
		0/38*	0/68**	Emotional Neglect
	0/55**	0/41*	0/56**	Physical Neglect
0/78**	0/72**	0/81**	0/76**	Total scale

To determine the reliability of CTQ questionnaire in current study, three methods of re-test, split-half, and internal Consistency were used. In order for this, Pearson's Correlation Coefficient, Spearman-Brown correlation coefficient, and Cronbach's alpha were respectively used.

**A. -Re Method.** To specify the re reliability of CTQ questionnaire, it was given to 100 participants

who had also attended validity evaluation s. After 4 weeks, participants were re-tested again. Validity coefficients for entire questionnaire, Emotional Abuse, Physical Abuse, Emotional Neglect, and Physical Neglect subscales were 0.75, 0.65, 0.63, 0.55, and 0.57, respectively.

**B. Spilt-Half Method.** In order to evaluate the reliability of CTQ questionnaire, the questions were

divided to even and odd parts. Score of participants were calculated for each part and the correlation coefficient between these two parts was calculated based on modified Spearsman-Brown correlation coefficient. These coefficients for total scale, Emotional Abuse, Physical Abuse, Emotional Neglect, and Physical neglect subscales were 0.94, 0.85, 0.84, 0.69, and 0.68, respectively.

**C. Internal Consistency.** In order to evaluate the internal consistency of CTQ questionnaire

Cronbach's alpha coefficient was employed. According to the acquired results, alpha coefficients for entire questionnaire, Emotional Abuse, Physical Abuse, Emotional Neglect, and Physical neglect subscales were 0.90, 0.79, 0.78, 0.67, and 0.65, respectively, which are highly-satisfying. A summary of the CTQ questionnaire reliability obtained by different methods are listed in table 3-4.

Table 3-4. Reliability coefficients of CTQ questionnaire for current study

Total scale	Physical Neglect	Emotional Neglect	Physical Abuse	Emotional Abuse	Scales coefficients
0/75	0/57	0/55	0/63	0/65	Re
0/94	0/68	0/69	0/84	0/85	Split-Half
0/90	0/65	0/67	0/78	0/79	Cronbach's Alpha

### Discussion and Conclusion

Acknowledging the importance of childhood trauma evaluation, this study was carried out to investigate the psychometric characteristics of childhood trauma questionnaire. The findings showed that CTQ has desirable validity and reliability. This finding is in good accordance with previous researches (Carrion and Steiner, 2000- Shcher et al, 2001- Lundgren, Gerdner, and Lundqvist, 2002). In this study, three methods of concurrent validity, factor analysis method, and the correlation of subscales with each other and with total scale were employed to investigate the validity of questionnaire. In concurrent validity the correlation of this questionnaire with Norouzie's Child Abuse Questionnaire at the level of  $p < 0.001$  was significant. On the other hand, in the case of the investigation of validity by factor analysis method, the placement of items on factors, expect in one occasion, is exactly the same as the results from principle component analysis done by Bernstein et al in 1994. The only exception is the item number 9. This item is "I witnessed my mother or one of my sisters was being smacked". This item in the original questionnaire is located below the Physical Neglect subscale but in factor analysis of this study it has been loaded on Emotional Abuse factor. This may occur because in this item, physical Abuse is focused on other members of family and not on the person himself/herself. In the case that other members of family, not the person himself/herself, are exposed to Physical Abuse, the person may feel unsafe and upset psychologically rather than physically. It is worth mentioning that because of the elimination of items related to Sexual Abuse subscale, the number of items used in current study's CTQ questionnaire is different from the number of items in the original questionnaire.

Finally, while evaluating the validity of CTQ, the last method revealed a satisfactory correlation of subscales with each other and also with the total scale. After investigating the validity of CTQ questionnaire, its reliability was also evaluated using -re, split-half, and internal consistency methods. The coefficients resulted from -re method and internal consistency for entire questionnaire were found to be 0.75 and 0.90, respectively, which shows an appropriate reliability of the questionnaire. These results match well with previous findings (Bernstein et al, 1994- Shcher et al, 2001- Lundgren et al 2002). In addition, the correlation coefficients were found by split-half method to be 0.94 for total scale and from 0.85 to 0.68 for subscales. These acquired coefficients along with two other methods confirm the reliability of this questionnaire even more.

According to the findings of this study, it can be said that this scale consists of four-factor structure and has a desirable validity and reliability. Nonetheless, since size of the sample is small and is limited to just students, it cannot be generalized to all of the community members. Therefore, it is suggested that its factor structure, validity, and reliability should be investigated in a broader sample which involves all of the community levels.

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