Iran J Psychiatry 2024; 19: 2: 193-206

Original Article *https://doi.org/10.18502/ijps.v19i2.15105*

Psychometric Properties of the Iranian Version of the Invalidating Childhood Environment Scale

Farima Rahmati[1], Maryam Aslzaker[1], Mohammad Noori[1], Imaneh Abasi[1*]

Abstract

Objective: To understand the consequences of an invalidating environment, it is essential to have a measurement tool with appropriate statistical properties. Thus, the primary aim of this study was to render the ICES (Invalidating Childhood Environment Scale) into Persian and subsequently evaluate the psychometric attributes of this translated version.
Method: Data were collected from 1221 nonclinical participants, including 1053 females and 168 males, who were students at medical universities in Tehran, Iran. Several questionnaires, such as the ICES, CTQ (Childhood Trauma Questionnaire), DTS (Distress Tolerance Scale), BIS-11 (Barratt Impulsiveness Scale), Self-Compassion Questionnaire, Dutch Eating Behavior Questionnaire, and EAT-26 (Eating AttitudesTest) were used in the study. The data sets were investigated through SPSS and R language to evaluate the ICES' reliability and construct validity. Additionally, Item Response Theory (IRT) was employed with the Graded Response Model (GRM) to measure the psychometric properties of each item in terms of difficulty and discrimination parameters.
Results: Confirmatory factor analysis indicated that both single-factor and two-factor models fit well for both maternal and paternal versions of the ICES. The internal consistency, as assessed by Cronbach's alpha, was high and satisfactory for both maternal (0.87) and paternal (0.87) versions. Notably, the IRT analysis revealed that item 9 performed poorly in both maternal and paternal versions. Compared to the one-factor model, the two-factor model demonstrated a superior fit. Additionally, the test-retest reliability of the ICES over two months demonstrated good reliability for both maternal and paternal versions (0.98). Divergent and convergent validity analysis revealed a significant negative relationship between childhood invalidation environment and distress tolerance ($r = 0.175$, $P < 0.01$) as well as self-compassion ($r = 0.142$, $P < 0.01$), which were inversely related to the ICES. Furthermore, there was a considerably positive correlation between the invalidating environment experienced during childhood and impulsivity, as evidenced by $r = 0.196$ and $P < 0.01$.
Conclusion: This study established the favorable psychometric properties of the Persian version of the ICES, indicating that this version is reliable and valid to assess the Invalidating Childhood Environment in the Iranian population. However, further investigations are warranted to reevaluate its validity and reliability.

Key words: *Borderline Personality Disorder; Emotional Regulation; Feeding and Eating Disorders; Parent-Child Relations; Psychometrics*

1. Department of Clinical Psychology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

***Corresponding Author:**
Address: Department of Clinical Psychology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran,Postal Code: 19839-63113.
Tel: 917-5749076, Fax: 0821 22433455, Email: Imanehabasi@gmail.com, i.abasi@sbmu.ac.ir

Article Information:
Received Date: 2022/09/06, Revised Date: 2023/06/06, Accepted Date: 2023/08/23

An invalidating environment refers to a situation where caregivers dismiss, devalue, and/or punish a child's specific emotional experiences (1). Such environments typically exhibit four main characteristics: (1) conveying inaccurate information, (2) misattributing emotions, (3) discouraging the expression of negative emotions, and (4) oversimplifying the process of problem-solving (2). This concept was first introduced in Linehan's biosocial theory (BT) to explain the etiology of Borderline Personality Disorder (BPD) (3). In this theory, she posits that some features of a maladaptive childhood environment lead to BPD development. Consequently, when biological predispositions or unique emotional vulnerabilities are present, being exposed to an environment characterized by invalidating parents can result in the development of maladaptive strategies for dealing with distressing emotions and challenging situations. Perceived invalidation results in emotion dysregulation and maladaptive behaviors. Compared to individuals with validating parents, those who have been subjected to invalidating parenting exhibit greater likelihood to suppress thoughts, fear their own emotions, and demonstrate increased levels of emotional vulnerability (4).

Numerous studies have reported associations between parenting styles, particularly invalidating environments, and adult psychopathology development (5). In their 2016 study, Hong and Lishner (6) found that both trauma-specific and general invalidation were linked to a wide array of personality traits as well as minor psychopathologies. As postulated by Linehan's biosocial theory (7), consistent invalidation can lead to difficulties in regulating emotions, resulting in a fragile self-identity and increased behavioral dysregulation. These elements may underpin common issues observed in individuals with borderline, narcissistic, and psychopathic personality traits. Furthermore, research findings suggest that there are considerable similarities in symptoms between borderline personality disorder and other conditions such as anxiety, depression, and post-traumatic stress disorder (PTSD). It is noteworthy that individuals suffering from these conditions tend to report incidents of early sexual trauma more frequently compared to those diagnosed with different disorders (8).

To evaluate the consequences of invalidation, a measurement tool with appropriate statistical features is essential. Haslam *et al*. developed the Invalidating Childhood Environment Scale (ICES), a self-report measure that evaluates parental invalidation during childhood up to the age of 18 (9). The ICES comprises 18 items, with 14 items focusing on invalidating parental behaviors (responded to separately for the father and mother). Additionally, the remaining four items of the scale evaluate three types of invalidating family environments (chaotic, perfect, and typical) and one validating family category (10). Originally, this scale was devised to study the relationships between invalidating environments, tolerance of distress, and eating disorders (10).

Other similar scales, e.g., the Parental Acceptance Rejection Questionnaire (11), measure the concept of Linhen's Invalidation experience (6). However, the ICES has fewer items than these scales, which is one of the advantages of this scale. In addition, since this tool explicitly addresses eating disorders and mental pathology in general, it can be argued that it is more related to mental pathology compared to other scales. According to Linehan's model, an invalidating environment gives rise to experiencing inaccurate emotions or invalidating a person's emotional experiences. Consequently, this can lead to difficulties in developing emotional regulation skills, a reduced capacity to tolerate emotional distress, and challenges in accurately identifying and labeling emotions. Many studies have shown an association between emotional dysregulation and various mental disorders (11-14). The ICES makes it possible to compare these studies.

To the best of our knowledge, psychometric properties of the ICES have been assessed exclusively in the United States (maternal invalidation alpha = 0.90; paternal invalidation alpha = 0.88) (15), France (maternal invalidation alpha = 0.84; paternal invalidation alpha = 0.87) (16), Portugal (non-clinical sample alpha = 0.912; clinical sample alpha = 0.932) (17), Turkey (maternal invalidation alpha = 0.84; paternal invalidation alpha 0.87) (18), and Spain (maternal invalidation alpha = 0.83; paternal invalidation alpha = 0.83) (19). The factor structure of the scale has demonstrated inconsistent results. Three models have been proposed so far. Existing models include a one-factor structure encompassing 14 items as suggested by Alpay, Bellur and Aydin (18), a two-dimensional model with 14 items as proposed by Puddington, Wright and Gagliesi (19) and Vieira, Gonçalves (17), and another study by Robertson, Kimbrel and Nelson-Gray (15) that recommended a one-factor model with the omission of five items (2, 8, 9, 12, 14). Considering that the third model has removed five items just by modification indices, in this study, we investigate two other cases and compare one-factor and two-factor models with 14 items.

Since the psychometric characteristics of the ICES have not yet been examined in the Persian language population, and given the importance of Linehan's Invalidation experience concept in research and clinical settings for Persian-speaking communities, this study aims to evaluate the validity and reliability of the Persian version of the ICES utilizing a nonclinical population. The primary aim is to evaluate the psychometric properties of the Persian ICES through various analyses, including IRT analysis, confirmatory factor analysis (CFA), internal reliability assessment, and examination of divergent and convergent validity. Consistent with earlier research findings, it was anticipated that the

Persian version of the ICES would exhibit robust psychometric properties.

Materials and Methods

Participants

Participants of this study included 1221 students, of whom 1053 (86.2%) were female and 168 (13.8) male. All of them were students at medical universities in Tehran, Iran. Regarding the participants' educational qualifications, 227 (18.6%) held diplomas, 584 (47.8%) possessed bachelor's degrees, 326 (26.7%) had master's degrees. Additionally, 21 individuals (1.7%) had incomplete doctoral degrees, while 63 (5.2%) had professional postgraduate degrees. With respect to marital status, 871 participants (71.3%) were unmarried, whereas 350 (28.7%) were married.

Measures

The Invalidating childhood environment scale (ICES) (10) is a self-report, retrospective measure that assesses the experience of invalidation for a child. The questionnaire covers two sections, with the first one comprising 14 questions that assess the mother and father separately. Participants answer these questions using a 5-point Likert scale, ranging from 1 (never) to 5 (always). They must determine how close their childhood conditions were to the content of each item. The second part describes four categories of family environments provided by Linehan, containing three categories of invalidating family environment (typical, perfect, and chaotic) and one category of validating family environemnt. In a typical invalidating family, the family focuses on successes and achievements, and the ability to control emotions is valuable. Perfect families are focused on hiding emotions as if they do not exist. There is no room for negative emotions in this kind of environment. In chaotic families, parents are generally unavailable to children due to substance use or severe financial difficulties.

In contrast to these three kinds of environment, validating families provide an environment where the child's emotions receive appropriate responses. The subject also answered this part on a 5-point Likert scale (1: “not like my family” to 5: “like my family all the time”). Participants must specify how close each item is to their family environment experience.

The Childhood Trauma Questionnaire (CTQ), developed by Bernstein, Fink (20), is a 28-item self-report inventory used retrospectively to gauge the intensity of various forms of childhood trauma. It comprises five clinical subscales, each with five items: Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, and Physical Neglect. A Minimization/Denial scale consisting of three items is also included in the CTQ to detect potential underestimation of abuse. Participants reflect on their childhood experiences to answer each item, rating it on a 5-point Likert scale where "never" is 1 and "very often" is 5. This results in scores between 5 to 25 for each trauma subscale. Three items of the Minimization/Denial scale are categorized dichotomously, with a "never" response scored as 0 and all other responses as 1. A total score of one or more on this scale indicates the potential underreporting of maltreatment, also referred to as "false negatives" (20). Regarding reliability, the CTQ showed a strong internal consistency with a Cronbach's alpha of .95 for the total scale (20). It also displayed good test-retest reliability in a subgroup (N = 40) over a 2- to 8-month period, with an intraclass correlation coefficient of .88 for the total scale (20). Specifically, in the Iranian context, Sajadi and Dehghanizade (21) reported a high internal consistency of 0.92 for the CTQ.

The Distress Tolerance Scale (DTS) is a 20-item self-report questionnaire, developed based on clinical experience and author discussions. It aims to capture a variety of coping strategies that individuals use in response to both anticipated and current emotional states, including anger, happiness, loneliness, anxiety, and depression. Each item is rated on a Likert-type scale, ranging from 1 (“never”) to 5 (“all the time”), indicating the frequency with which the respondent employs the specific coping strategy. This denotes the frequency with which the individual utilizes the particular coping strategy in their everyday life. In the study conducted by Simons and Gaher (22), the alpha coefficients for emotional distress tolerance, absorption by negative emotions, mental distress estimation, and adjustment of efforts for emotional relief were found to be 0.72, 0.82, 0.78, and 0.70, respectively. The total scale demonstrated a reported alpha coefficient of 0.82. Moreover, the intra-class correlation after a six-month interval was 0.61, indicating moderate test-retest reliability. Regarding psychometric properties, another study conducted by Tofangchi, Ghamarani and Rezaei (23) reported Cronbach's alpha and composite reliability for the DTS as 0.96 and 0.90, respectively, demonstrating high internal consistency and reliability. The convergent validity of DTS was reasonably good, with a value of 0.590. Additionally, the CFA supported the one-factor structure of the DTS. Overall, various research studies have confirmed the Distress Tolerance Scale as a reliable and valid tool for evaluating coping strategies associated with emotional distress.

The Barat Impulse Scale (BIS-11) is a comprehensive 30-item self-assessment questionnaire, which is widely employed for the measurement of impulsivity across various demographic groups (24-27). Respondents are asked to evaluate each item using a 4-point Likert scale, with 1 representing "rarely/never", 2 denoting "occasionally", 3 standing for "often", and 4 signifying "almost always/always". Elevated scores on the BIS-11 are indicative of higher degrees of impulsivity. To counteract response bias, a reverse scoring system is applied to 11 out of the total 30 items. This scale studies long-term behavior patterns by prompting participants to respond to questions about their actions and thoughts

without reference to a specific period. As such, the BIS-11 is considered a trait measure of impulsivity rather than a state measure (24, 27). The internal consistency reliability of the BIS-11 is assessed using Cronbach's alpha (α) (24). In a study conducted in Iran by Javid, Mohammadi and Rahimi (28), the reported Cronbach's alpha values were 0.63 for motor impulsivity, 0.47 for unplanned impulsivity, and 0.83 for the entire scale. These values suggest that the BIS-11 demonstrates acceptable internal consistency in assessing various dimensions of impulsivity.

The Self-Compassion Scale (SCS), formulated by Neff (29) in 2003, is comprised of 26 items rated on a five-point Likert scale, which extends from 1 (“Almost Never”) to 5 (“Almost Always”). The instrument includes three bipolar scales, namely self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. Together, these six subscales depict the scale variance. The factor loadings for these subscales were found to be within the range of 0.57 to 0.80. Neff (30) reported the following Cronbach's alpha coefficients for the SCS: 0.92 for the overall scale and 0.78, 0.77, 0.80, 0.79, 0.75, and 0.81 for the individual subscales, respectively, indicating good internal consistency. The test-retest reliability coefficient for the overall scale was 0.93, and for the subscales, it ranged from 0.85 to 0.88, suggesting a high degree of stability over time. In a separate study by Azizi, Mohammadkhani (31) in 2013, the reliability of the SCS was evaluated using the Cronbach's alpha method. The results yielded values exceeding 0.70, thereby affirming the scale's consistent and reliable quantification of self-compassion.

The Dutch Eating Behavior Questionnaire (DEBQ) is a scale, developed by Van-Stern in the Eating Behavior Questionnaire by Van Strien, Frijters (32) in 1986 to measure eating behaviors. It has 33 questions, each based on a five-point Likert scale ranging from 1 (“Never”) to 5 (“very often”). Cronbach's alpha coefficient for different subscales of this questionnaire was reported in a Dutch sample, between 0.79 and 0.99. Regarding the validity of this questionnaire, Wardle (33) indicated that this tool distinguishes clinical groups (such as people with anorexia nervosa) on two scales: emotional eating and eating outside the normal group. Salehi, Moghaddaszadeh (34) translated the questionnaire into Persian, re-translated it into the original language, and submitted it to the manufacturer. They showed that the scores of the emotional eating and restrained eating scales differ in the recipient and non-regime recipients, indicating the Persian form's relative validity. In this study, the internal consistency coefficient (Cronbach's alpha) for the scales of emotional eating, external eating, and inhibited eating were 0.87, 0.76, and 0.91, respectively.

The Eating Attitude Test (EAT-26) was designed and developed in 1979 by Garner and Olmsted (35) to assess eating disorders and pathological behaviors and identify anorexia nervosa and bulimia nervosa. The questionnaire has 26 questions and three dimensions and measures the attitude toward nutrition. Items are presented on a 6-point forced-choice Likert scale ranging from 1 ("never") to 6 ("always"). Cronbach's alpha coefficient for this questionnaire was reported to be between 0.68 and 0.85 (35). In the work of Ahmadi, Moloodi (36), the content and criterion validity of this questionnaire were evaluated as appropriate. Ahmadi *et al*. (2014) reported that the self-compassion questionnaire exhibited satisfactory concurrent validity. It also demonstrated internal consistency ranging from acceptable to high (0.76-0.92), and it showed moderate test-retest reliability (0.26-0.64).

Procedure

Individual data collection took place in Tehran, Iran, spanning four months, after obtaining ethics approval from Shahid Beheshti University of Medical Sciences, Ethics Board (Approval code: IR.SBMU.MSP.REC.1398.989). Participation in the study was entirely voluntary, and all participants were fully briefed on the study's objectives and procedures before providing their consent. Participants completed the questionnaires voluntarily. The inclusion criteria required participants' consent to participate, while the exclusion criterion was a lack of willingness to complete the inventory.

For precise translation, the inventory underwent two steps. Initially, it was translated into Persian by a fluent translator, and then it was back-translated into English by an English language specialist. Another proficient English speaker reviewed both English versions to ensure consistency. Content validity was assessed by eight clinical psychologists, who confirmed that the translation was smooth, fluent, and aligned with the intended purpose (Content Validity Ratio = 0.89). The participants were convinced of their voluntary participation in the study and that strict confidentiality would be maintained regarding their personal information, ensuring that it would not be utilized elsewhere.

Data Analysis

The ICES was evaluated using CFA to assess its factor structure. Reliability was evaluated based on Cronbach's alpha and test-retest reliability. Divergent and convergent validity were examined by investigating the associations between the ICES and other relevant measures, such as the Childhood Trauma Questionnaire (CTQ), Distress Tolerance Scale (DTS), Barat Impulse Scale (BIS-11), Self-Compassion Questionnaire, Dutch Eating Behavior Questionnaire, and Eating Attitude Test (EAT-26). To illustrate the goodness of fit of the hypothetical model, absolute and adaptive fixing indices were employed. The Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) were the key model fitting indicators. An RMSEA value smaller than 0.1 is deemed acceptable, and values smaller than 0.08 are preferable.

Additionally, the SRMR value must be better than 0.08 (Klein, 2011). Model fit is considered acceptable for the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI) when their values exceed 0.9, while 0.95 or greater shows a good model fit (37).

Results

The participants' average age was 28.31, with a standard deviation of 7.94, spanning an age range of 14 to 64 years.

Characteristics of the Items

The findings of IRT analysis using GRM are presented in Figures 1, 2, 3, and 4. The Item Response Category Characteristic Curves (Figure 1 and Figure 2) show the probability of selecting a specific option in each item in terms of the ICES. For instance, the curve of item 14 indicates that the possibility of choosing option 5 ("a lot") in people with lower ICES is high, and the likelihood of selecting option 1 ("not at all") in people with lower ICES is low. The IRT analysis results illustrate that item 9 is terrible in both maternal and paternal versions. The rest of the items showed well in extracting information from the participants. The outcome given in Table 1 demonstrates that in the Maternal group, items 1, 7, and 11 poorly fit with the data. In Paternal groups, items 7, 9, and 11 poorly fit with the data. Thus, these items were terrible with ICC.

Table 1. Goodness of Fit Statistics for each Item in Maternal and Paternal Groups in Invalidating Childhood Environment Scale

	Maternal				Paternal			
Items	**X2**	**df**	**RMSEA**	**P**	**X2**	**df**	**RMSEA**	**P**
Item 1	88.935	74	0.013	0.114	133.606	72	0.026	0.001
Item 2	203.206	71	0.039	0.001	215.672	76	0.039	0.001
Item 3	104.514	67	0.021	0.002	107.015	69	0.021	0.002
Item 4	76.040	55	0.018	0.032	88.820	58	0.021	0.006
Item 5	172.124	97	0.025	0.001	133.180	91	0.019	0.003
Item 6	85.580	62	0.018	0.025	91.585	68	0.017	0.030
Item 7	75.131	71	0.007	0.346	78.670	70	0.010	0.224
Item 8	242.708	89	0.038	0.001	177.032	64	0.038	0.001
Item 9	118.462	81	0.019	0.004	86.357	74	0.012	0.154
Item 10	159.337	66	0.034	0.001	144.664	68	0.030	0.001
Item 11	90.554	72	0.015	0.069	69.481	78	0.001	0.744
Item 12	257.500	90	0.039	0.001	193.961	81	0.034	0.001
Item 13	97.583	62	0.022	0.003	114.483	63	0.026	0.001
Item 14	315.925	92	0.045	0.001	255.306	89	0.039	0.001

The item information curves (Figure 3 and 4) indicate how much information each item can provide about ICES. In other words, the item information curve provides the discrimination power. The degree to which the slope of a given item is steeper means that the discrimination of the item is higher, and it can discriminate between the levels of apathy among participants. In both mother's and father's items, items 9 and 1 provide low information and lower discrimination between people.

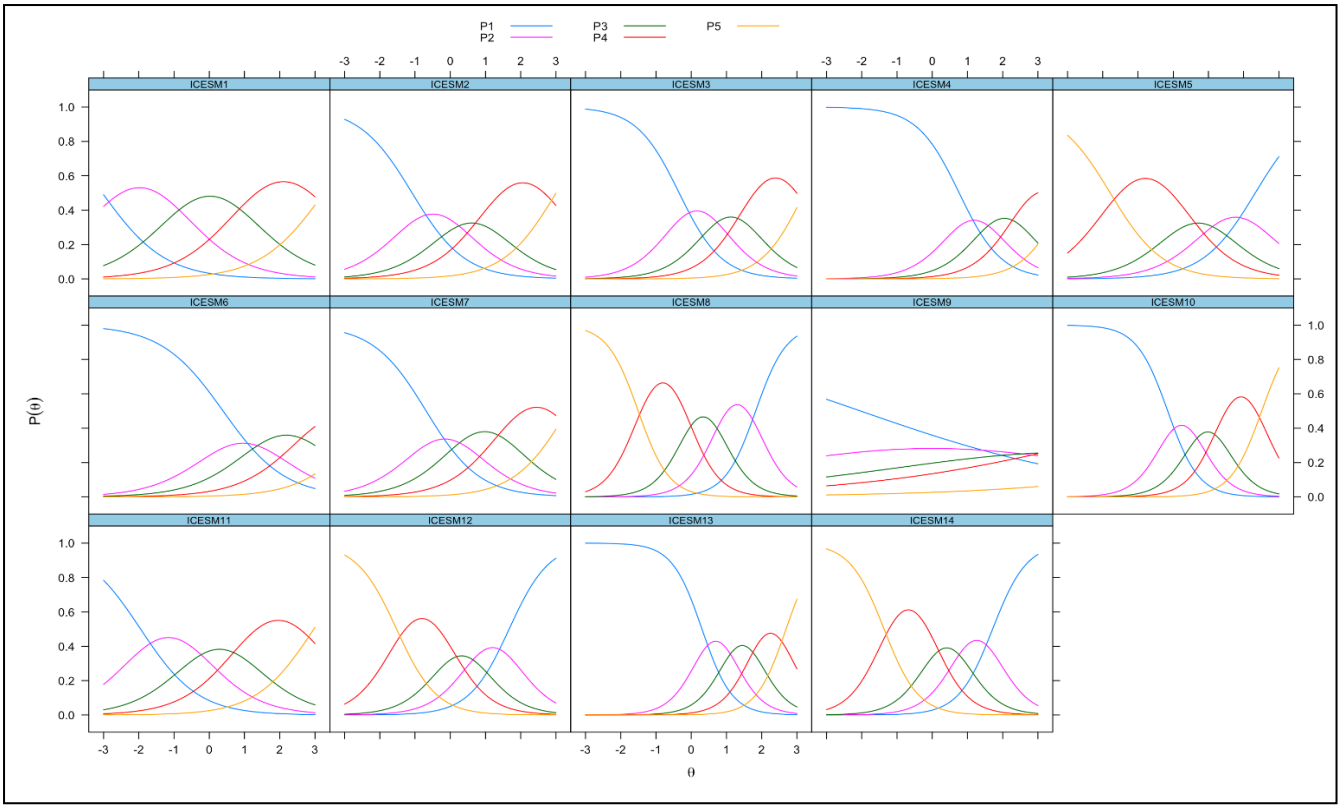

Figure 1. Characteristic Curves of Item Response Category for Mothers of Invalidating Childhood Environment Scale

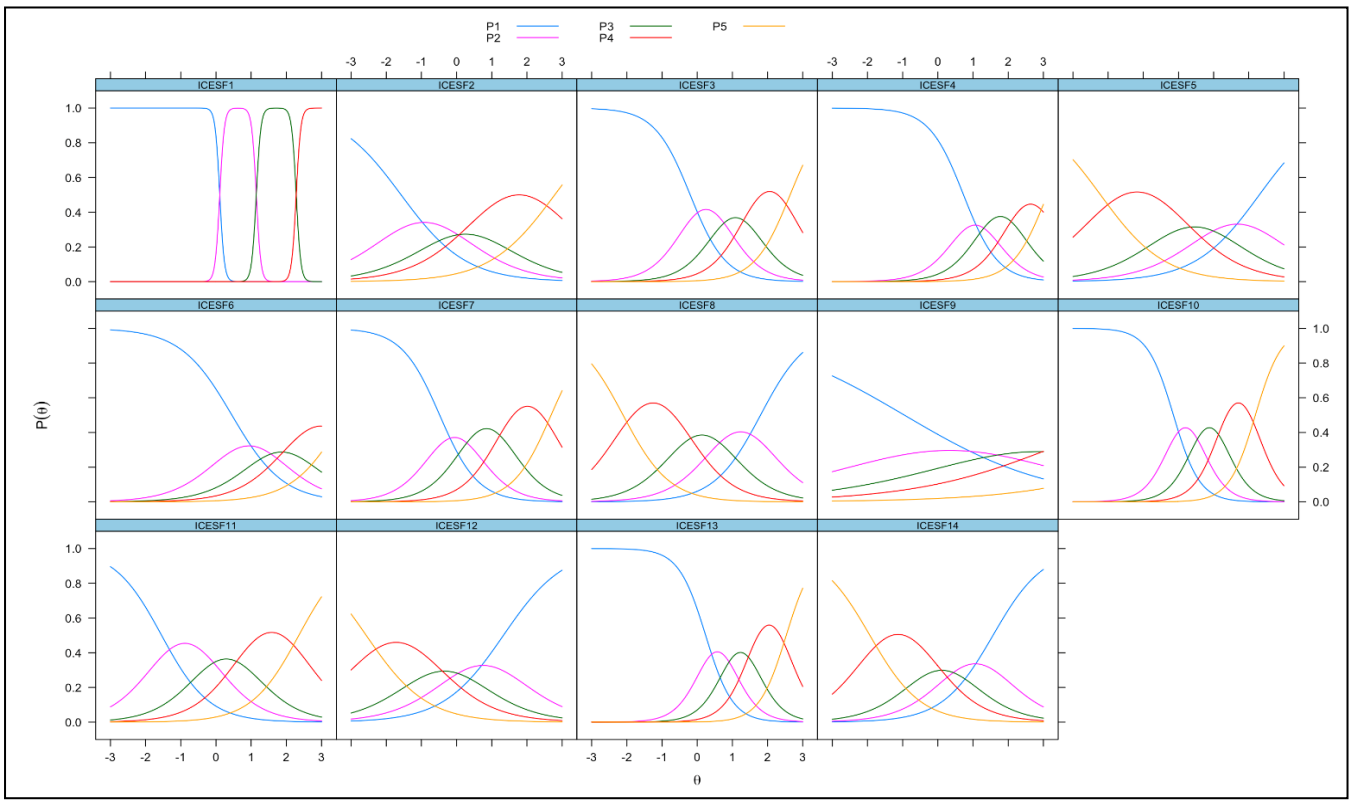

Figure 2. Characteristic Curves of Item Response Category for Fathers of Invalidating Childhood Environment Scale

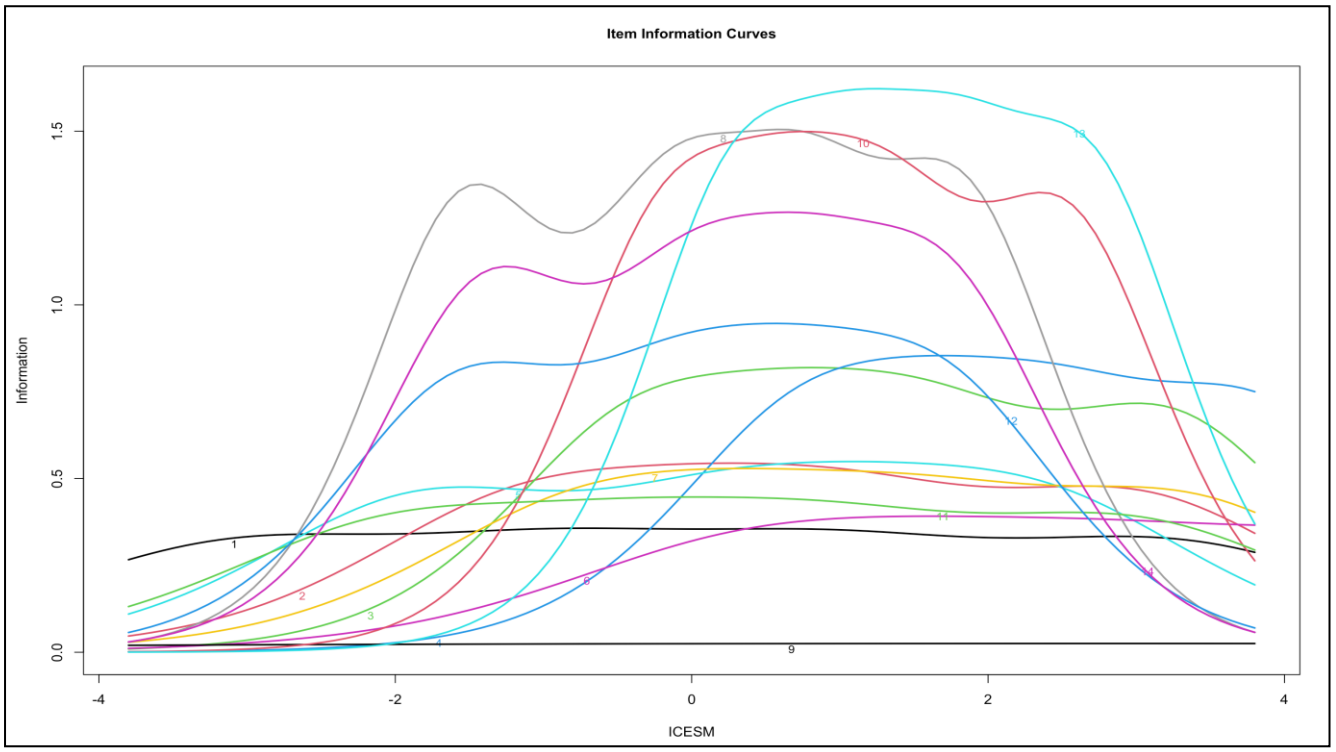

Figure 3. Graph illustrating the Item Information Curves of Mothers of Invalidating Childhood Environment Scale

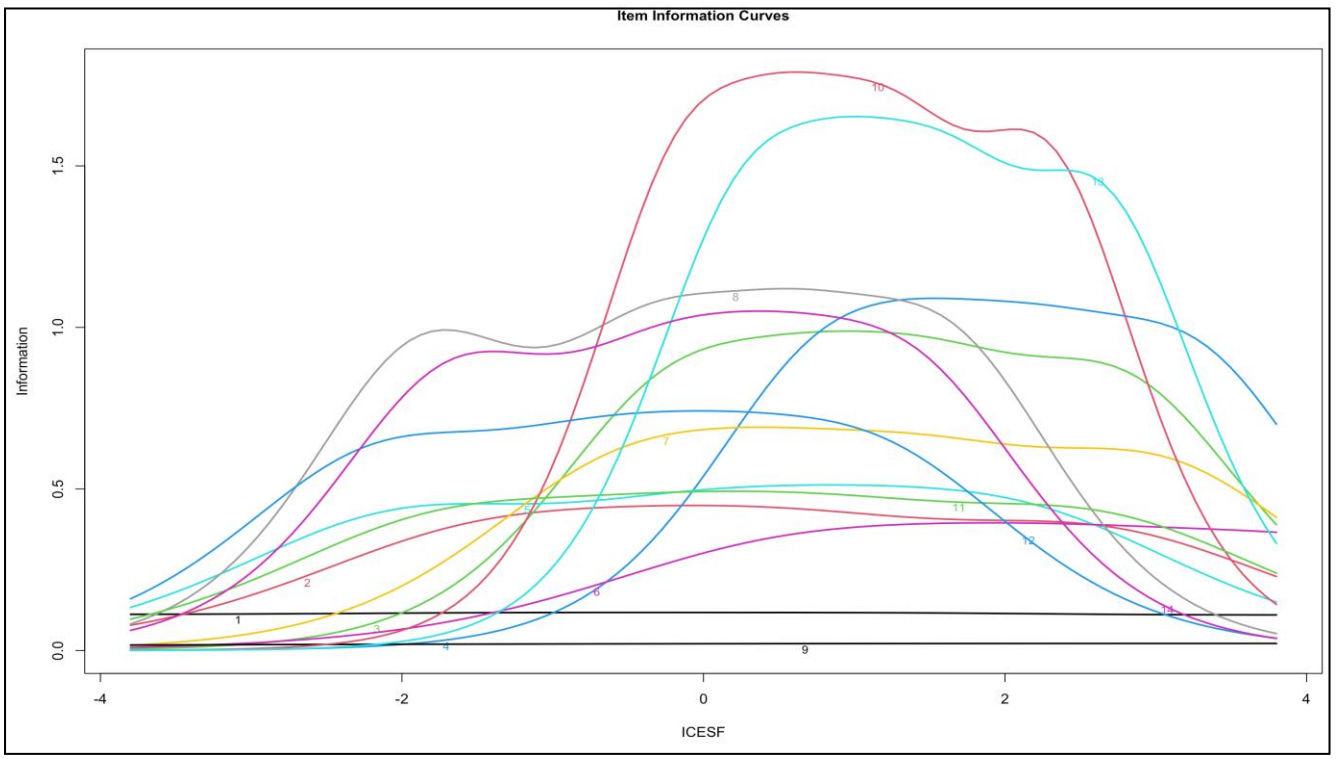

Figure 4. Plot of the Item Information Curves of Fathers of Invalidating Childhood Environment Scale

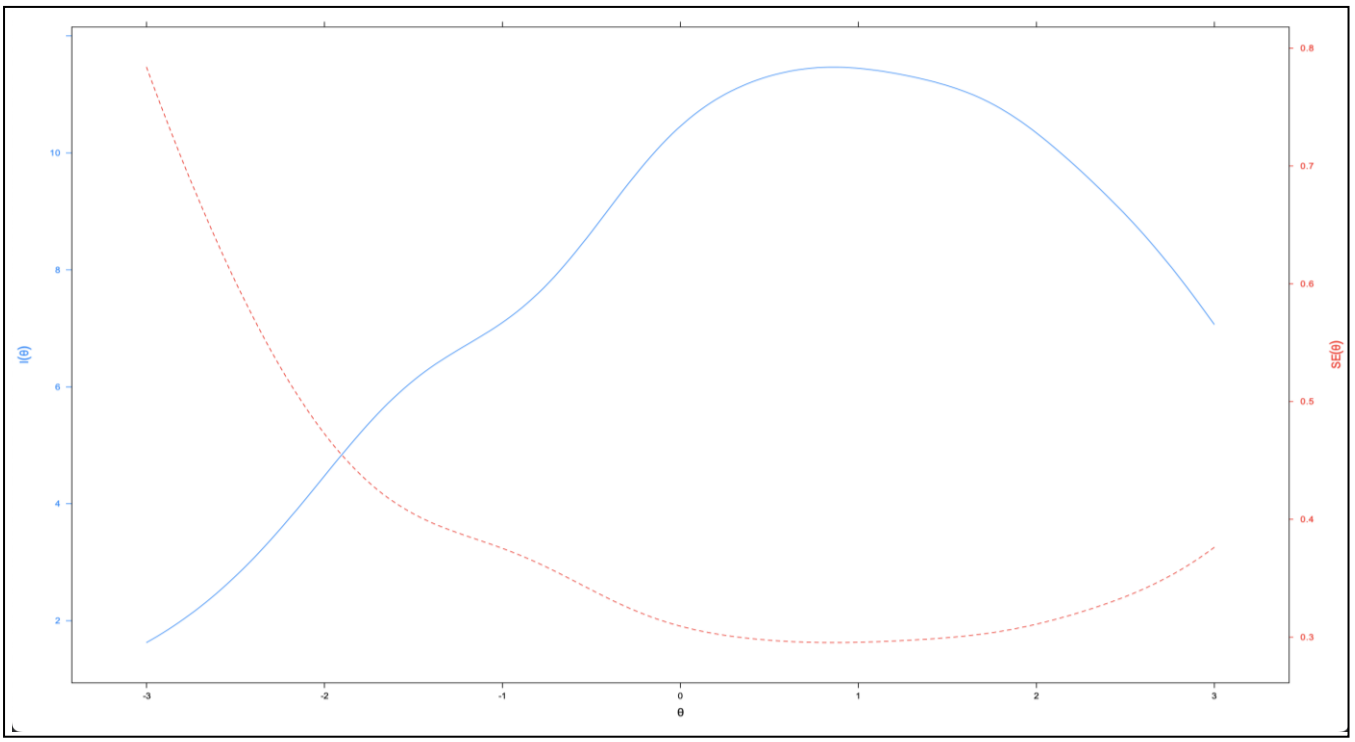

Figure 5. Graph Illustrating the Item Response Function for Mothers of Invalidating Childhood Environment Scale

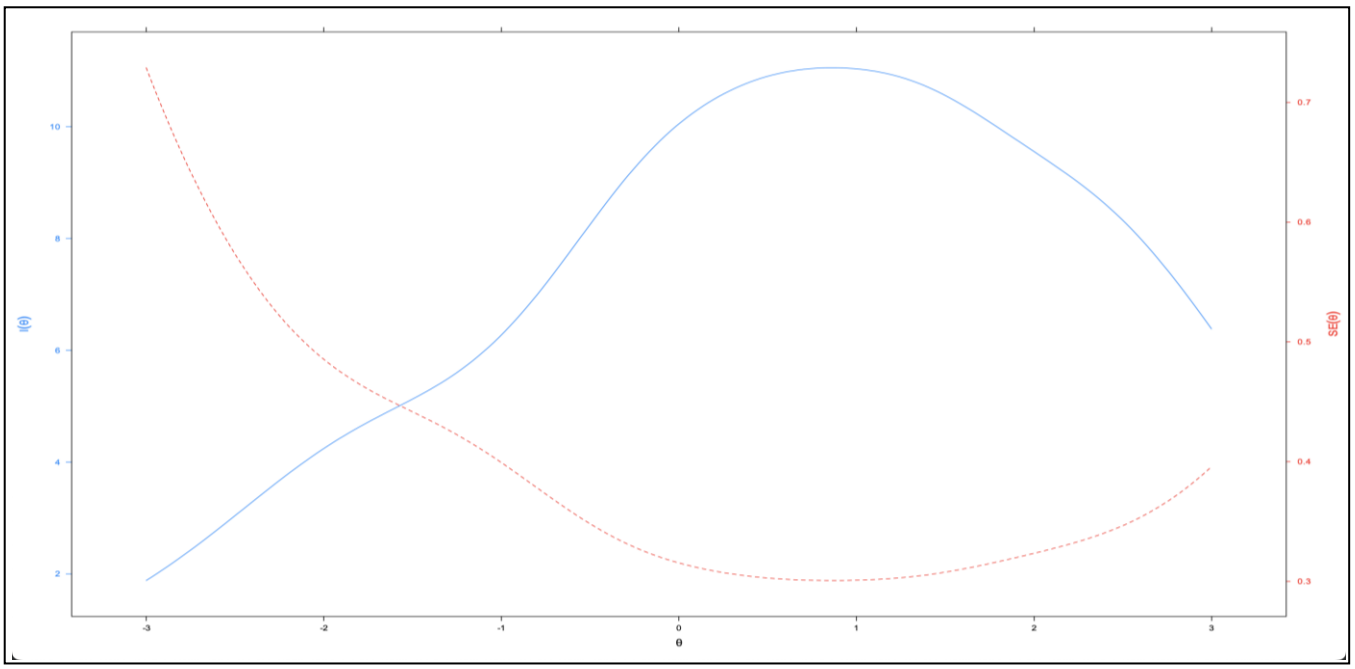

Figure 6. Graph Illustrating the Item Response Function for Fathers

Factor Structure of ICES

Prior to carrying out the CFA, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of 0.913, while Bartlett's test of sphericity returned a result of $\chi^2 = 6341.932$, P = 0.001. Both of these results attested to the suitability of the scale for identifying the

underlying components. Subsequently, the CFA was employed to assess the construct reliability of the ICES. Two models were considered: a single-factor model and a two-factor model, representing parental items separately. Fit indices for both models were examined to determine their appropriateness for the parenting-related items.

Table 2. Model Fit Statistics for CFA (Confirmatory Factor Analysis) of Invalidating Childhood Environment Scale

	Invalidation Scale	Chi-Square	Chi-Square/df	RMSEA	SRMR	CFI	IFI	TLI	AIC
Single-Factor Model	Maternal	241.948	3.902	0.049	0.033	0.971	0.971	0.958	45223.673
	Paternal	195.320	3.617	0.046	0.034	0.976	0.976	0.965	43290.231
Two-Factor Model	Maternal	256.259	3.824	0.048	0.032	0.970	0.970	0.959	45227.984
	Paternal	196.509	3.447	0.045	0.035	0.976	0.976	0.968	43285.420

Fit indices of the single-factor and two-factor models are reported in Table 1. According to these indicators, it can be seen that these indicators are more suitable in the two-factor model than the single-factor model. AIC index was also used to compare single-factor and two-factor models since the smaller value in this index indicates the model's superiority. In the present study, it can be observed that the two-factor model is superior to the one-factor model. Tables 2 and 3 show standard coefficients and T values for all paths of the single-factor model (child's life-making environment) and two-factor model (negative responses, lack of support) for items related to the mother and father. Based on T values, it can be concluded that all paths are significant.

Table 3. Standard Coefficients and T Values for All Paths of Single-Factor and Two-Factor Models in Mother-Related Itemsof Invalidating Childhood Environment Scale

Items	Single-Factor Model		Two-Factor Model			
			Maternal Negative Responses		Maternal Lack of Support	
	β	t	β	t	β	t
Item 1	0.543	15.984	0.489	RI		
Item 2	0.533	15.767			0.535	14.706
Item 3	0.661	18.609	0.641	16.221		
Item 4	0.609	17.493	0.638	14.875		
Item 5	0.468	14.156			0.544	RI
Item 6	0.526	15.587	0.535	13.662		
Item 7	0.630	17.945	0.625	14.907		
Item 8	0.653	23.932			0.803	18.797
Item 9	0.157	5.108	0.158	5.042		
Item 10	0.759	20.48	0.791	16.505		
Item 11	0.582	16.889	0.558	16.923		
Item 12	0.535	22.386			0.786	18.58
Item 13	0.746	20.241	0.757	16.312		
Item 14	0.604	RI			0.8	18.767

Table 4. Standard Coefficients and T Values for All Paths of Single-Factor and Two-Factor Models in Father-Related Items of Invalidating Childhood Environment Scale

Items	Single-Factor Model		Two-Factor Model			
			Paternal Negative Responses		Paternal Lack of Support	
	β	t	β	t	β	t
Item 1	0.446	13.773	0.31	11.087		
Item 2	0.492	15.017			0.396	14.816
Item 3	0.685	19.638	0.727	20.589		
Item 4	0.618	18.138	0.655	RI		
Item 5	0.484	14.819			0.548	19.086
Item 6	0.528	15.943	0.508	15.725		
Item 7	0.66	19.095	0.652	19.388		
Item 8	0.636	18.58			0.798	29.579
Item 9	0.156	5.09	0.177	5.852		
Item 10	0.781	21.595	0.838	21.667		
Item 11	0.578	17.186	0.581	17.672		
Item 12	0.522	20.403	0.771	28.431	0.798	29.579
Item 13	0.737	20.727	0.73	21.158		
Item 14	0.62	RI			0.826	RI

As shown in Table 2, the t-test for all paths was more significant than 1.96, indicating that all routes were meaningful.

As shown in Table 3, the t-tests for all paths exceeded the statistical threshold of 1.96, indicating that all paths were meaningful.

Reliability

Two methods were utilized to investigate the reliability of the questionnaire: internal consistency and test-retest reliability. The results from Cronbach's alpha indicated favorable internal consistency for the questionnaire as a whole and its two components: negative responses and lack of support. For the maternal items, the Cronbach's alpha was 0.87, with the maternal negative responses and lack of maternal support components having reliability coefficients of 0.82 and 0.81, respectively. Similarly, for the father-related items, the Cronbach's alpha was 0.87, with the fatherly negative responses and lack of paternal support components showing reliability coefficients of 0.83 and 0.81, respectively. These findings demonstrate the instrument's overall reliability and consistency across its components. The test-retest reliability of the questionnaire in the items related to the mother responses was 0.99, 0.98, and 0.98 for the whole questionnaire, with negative maternal responses and lack of maternal support, respectively. The test-retest reliability of the questionnaire in the items related to the father responses was 0.99, 0.99, and 0.98 for the whole questionnaire, with negative paternal responses and lack of paternal support, respectively.

Validity

To assess this questionnaire's convergent and divergent validity, the relationship between two components of negative responses and lack of support in items related to the mother and father with childhood injuries, distress tolerance, eating behavior and attitude, self-compassion, and impulsivity was assessed and presented in Table 4.

Table 5. Correlation between Child's Life-Making Environment, Negative Responses, and Lack of Support in Items Related to Mother and Father with Childhood Trauma and Distress Tolerance

Raw	Variable	1	2	3	4	5	6	7	8	9
1	Childhood Traumas									
2	Eating behavior	0.191**								
3	Attitude to eating	0.123**	0.619**							
4	Tolerance of distress	-0.175**	-0.189**	-0.206**						
5	Self-compassion	0.142**	-0.136**	-0.192**	0.507**					
6	Impulsivity	0.196**	0.244**	0.215**	-0.200**	-0.079**				
7	Mother Negative Responses	0.191**	0.177**	0.165**	-0.227**	-0.158**	0.207**			
8	Mother Lack of support	0.036	0.122**	0.162**	-0.186**	-0.193**	0.127**	0.608**		
9	Father Negative Responses	0.163**	0.184**	0.179**	-0.235**	-0.186**	0.157**	0.729**	0.473**	
10	Father Lack of support	0.060	0.134**	0.187**	-0.199**	-0.242**	0.123**	0.465**	0.758**	0.589**

As can be seen in Table 4, in the items related to the mother, the childhood traumas have a significant relationship with the mother negative responses ($r = 0.191$, $P < 0.01$) and father negative responses ($r = 0.163$, $P < 0.01$). Furthermore, in eating behavior there is a significant relationship between mother negative responses ($r = 0.177$, $P < 0.01$), mother lack of support ($r = 0.122$, $P < 0.01$), father negative responses ($r = 0.184$, $P < 0.01$), and father lack of support ($r = 0.134$, $P < 0.01$). Tolerance of distress has a negative and significant relationship with mother negative responses ($r = -0.227$, $P < 0.01$), mother lack of support ($r = -0.186$, $P < 0.01$), father negative responses ($r = -0.235$, $P < 0.01$), and father lack of support ($r = -0.199$, $P < 0.01$). Still, the relationship between lack of support and childhood injuries is significant. Self-compassion also has a negative and significant relationship with mother negative responses ($r = -0.158$, $P < 0.01$), mother lack of support ($r = -0.193$, $P < 0.01$), father negative responses ($r = -0.186$, $P < 0.01$), and father lack of support ($r = -0.242$, $P < 0.01$). Still, the relationship between this variable and distress tolerance and self-compassion is inversely significant; thus, the divergent validity of the present scale is supported.

Discussion

This reserach investigated the psychometric properties of the Iranian version of the ICES using a nonclinical sample in Iran. Linehan first developed the concept of invalidating environments based on dialectical-behavioral therapy (38). However, this ICES was based on the work of Mountford, Corstorphine (10). The ICES assesses childhood experiences of invalidation using questions from parents. This scale first evaluated invalidating childhood environments concerning eating disorders (10).

The main aim here is to evaluate the psychometric properties of the ICES in the Iranian population. Specifically, the study sought to compare the fit of the two-factor model to the one-factor model. Both the two-factor and one-factor models exhibited good fit indices, including CFI, SRMR, RMSEA, and AIC, suggesting that both models adequately represented the data. Moreover, CFAs performed on a clinical sample of individuals with eating disorders (ED) suggested that the data were better represented by the two-factor model as opposed to the one-factor model. The two-factor and one-factor models obtained in our study were aligned with the models obtained in other studies, such as the model obtained in the USA (15), the CFA used in the

French version (16), the model obtained in the Portuguese version (17), and the model established in the Spanish version (19). These studies demonstrate that the ICES factor structure is consistent among Western cultures.

Since Iran has almost a cultural system similar to the Western culture, obtaining a similar factor structure can be justified. The results obtained from the CFA of this study differed from the factor analysis obtained in the study of Holden, Lambert (39). Their research found three factors: the mother's invalidation, the father's active invalidation, and the father's passive invalidation. One of the reasons they came to different conclusions from previous and present studies was that they analyzed 28 items together and came up with three factors. However, in the present and prior studies, 14 questions from mothers and 14 from fathers were analyzed separately. The results of our research were confirmatory and consistent with Linehan's theory of conceptual model (7). Our first factor consisted of 9 items, which according to Linehan's view, these nine items can be evaluated around the main features of the invalidating family environment created by Linehan. These three main attributes involve dismissing communication related to personal experiences and self-generated behaviors, penalizing emotional displays while intermittently reinforcing emotional escalation, and simplifying problem-solving and goal achievement. Additionally, the second factor identified in this study encompasses the supportive and emotional behaviors exhibited by parents.

The reliability of the questionnaire ranged from 0.81 to 0.87, indicating that the questionnaire had good reliability. These results confirm the previous findings that showed that this scale has good internal reliability both in the nonclinical population (9, 10) and clinical population (10, 18, 40).

Self-compassion, distress, and impulsivity questionnaires were used to assess the ICES's convergent and divergent validity. From the beginning of birth onwards, self-compassion develops in the child (41), and an excellent parental style causes self-compassion (42), better tolerance of distress (43), and management of impulsivity (44) in the child. Parenting style is one of the main factors influencing self-compassion, distress tolerance, and impulsivity (41-44). Therefore, the convergent and divergent validity of the ICES questionnaire was assessed using self-compassion, distress tolerance, and impulsivity. The invalidating childhood environment exhibited a negative and significant correlation with distress tolerance and self-compassion, both of which were inversely related to the ICES.

Conversely, there was a positive and considerable correlation between an invalidating environment during childhood and impulsivity. The results also demonstrated that eating behaviors and attitudes toward eating as well as eating disorders in general with an invalidating childhood environment resulting from both parents have a positive and significant relationship of 0.122 to 0.244. Based on the obtained results, it is hypothesized that an invalidating environment in childhood can be a risk factor for eating disorders, which is in line with the leading research study of this tool (10). Unlike previous research (9, 17) that did not find a significant relationship between eating attitudes and the existence of an invalidating environment in childhood, our paper exhibited a considerable correlation between a disability environment in childhood and eating attitudes. These results hypothesize that invalidating environments in childhood can lead to eating disorders in individuals (9, 10, 45). According to Linehan and Dexter-Mazza (46), invalidating environments may cause emotional dysregulation, leading to eating disorders.

Compared to other studies, one of the advantages of this paper is the widespread sample population, which increases the validity of the obtained results. Additionally, no suitable instrument measures the components of the invalidating childhood environment in the Iranian society. Therefore, this paper can pave the way for future research, especially studies on personality disorders in Iran.

Limitation

One potential constraint of this study resides in the utilization of a nonclinical sample. This choice, while pragmatic, may place boundaries on the broader applicability of our findings, potentially limiting their extrapolation to clinical demographics. However, given that the results of factor analysis from previous studies have been contradictory, repeating the study with the last target population is justified for comparing the two-factor and single-factor models. In addition, the homogeneity between men and women in the sample is not the same, with a high percentage of the participants being women.

Conclusion

Overall, the obtained findings demonstrated the ICES to be reliable for assessing invalidating childhood environments in the Iranian population. The CFA revealed favorable fit indices for both the two-factor and one-factor models. Additionally, the divergent and convergent validity analyses provided further support and indicated that an invalidating childhood environment is negatively and significantly associated with distress tolerance and self-compassion, which is inversely related to the ICES. Invalidating environments in childhood had a positive and meaningful relationship with impulsivity. The reliability of the questionnaire ranged from 0.81 to 0.87, indicating that the questionnaire had good reliability.

Acknowledgment
The authors would thanks to all participants and students for collaboration in this study.

Conflict of Interest
None.

References
1. Crowell SE, Beauchaine TP, Linehan MM. A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. Psychol Bull. 2009;135(3):495-510.
2. Musser N, Zalewski M, Stepp S, Lewis J. A systematic review of negative parenting practices predicting borderline personality disorder: Are we measuring biosocial theory's 'invalidating environment'? Clin Psychol Rev. 2018;65:1-16.
3. Lynch TR, Trost WT, Salsman N, Linehan MM. Dialectical behavior therapy for borderline personality disorder. Annu Rev Clin Psychol. 2007;3:181-205.
4. Sauer SE, Baer RA. Validation of measures of biosocial precursors to borderline personality disorder: childhood emotional vulnerability and environmental invalidation. Assessment. 2010;17(4):454-66.
5. Bartsch DR, Roberts R, Proeve M. Relationships between parental borderline symptom severity, empathy, parenting styles and child psychopathology. Clin Psychol. 2022;26(2):211-21.
6. Hong PY, Lishner DA. General invalidation and trauma-specific invalidation as predictors of personality and subclinical psychopathology. Pers Individ Differ. 2016;89:211-6.
7. Linehan MM. Cognitive-behavioral treatment of borderline personality disorder: Guilford Press; 2018.
8. Bohus M, Dyer AS, Priebe K, Krüger A, Kleindienst N, Schmahl C, et al. Dialectical behaviour therapy for post-traumatic stress disorder after childhood sexual abuse in patients with and without borderline personality disorder: a randomised controlled trial. Psychother Psychosom. 2013;82(4):221-33.
9. Haslam M, Mountford V, Meyer C, Waller G. Invalidating childhood environments in anorexia and bulimia nervosa. Eat Behav. 2008;9(3):313-8.
10. Mountford V, Corstorphine E, Tomlinson S, Waller G. Development of a measure to assess invalidating childhood environments in the eating disorders. Eat Behav. 2007;8(1):48-58.
11. Carpenter RW, Trull TJ. Components of emotion dysregulation in borderline personality disorder: a review. Curr Psychiatry Rep. 2013;15(1):335.
12. Haynos AF, Fruzzetti AE. Anorexia nervosa as a disorder of emotion dysregulation: Evidence and treatment implications. Clin Psychol: Sci Pract. 2011;18(3):183.
13. Racine SE, Wildes JE. Emotion dysregulation and symptoms of anorexia nervosa: the unique roles of lack of emotional awareness and impulse control difficulties when upset. Int J Eat Disord. 2013;46(7):713-20.
14. Ford G, Waller G, Mountford V. Invalidating childhood environments and core beliefs in women with eating disorders. Eur Eat Disord Rev. 2011;19(4):316-21.
15. Robertson CD, Kimbrel NA, Nelson-Gray RO. The Invalidating Childhood Environment Scale (ICES): psychometric properties and relationship to borderline personality symptomatology. J Pers Disord. 2013;27(3):402-10.
16. Compagnone P, Monaco GL. Validation française du questionnaire d'évaluation de l'environnement invalidant durant l'enfance: the Invalidating Childhood Environments Scale (ICES). Eur Rev Appl Psychol. 2015;65(1):43-52.
17. Vieira AI, Gonçalves M, Machado BC, Rodrigues T, Machado PPP, Brandão I, et al. Psychometric properties of the Portuguese version of the Invalidating Childhood Environment Scale. Eat Weight Disord. 2020;25(1):195-203.
18. Alpay EH, Bellur Z, Aydin A. The reliability and validity of the Invalidating Childhood Environment Scale (ICES)–Turkish Version. Dusunen Adam - J Psychiatry Neurol Sci. 2018;31(1):40.
19. Puddingtona MM, Wright E, Gagliesi P. Confirmatory Factor Analysis of the Invalidating Childhood Environment Scale in Spanish (ICES). Univ Psychol. 2020;19.
20. Bernstein DP, Fink L, Handelsman L, Foote J. Childhood trauma questionnaire. Assessment of family violence: A handbook for researchers and practitioners. 1998.
21. Sajadi F, Dehghanizade Z. A survey on the relationship between alexithymia and dissociation experiences with eating attitudes in girl students of Shahid Chamran University of Ahvaz. J Shahrekord Univ Med. 2016;18(5):8-17.
22. Simons JS, Gaher RM. The Distress Tolerance Scale: Development and validation of a self-report measure. Motiv Emot. 2005;29:83-102.
23. Tofangchi M, Ghamarani A, Rezaei H. The Psychometric properties of Distress Tolerance Scale (DTS) in women with tension-type headaches. JAP. 2022;12(4):34-43.
24. Fossati A, Di Ceglie A, Acquarini E, Barratt ES. Psychometric properties of an Italian version of the Barratt Impulsiveness Scale-11 (BIS-11) in nonclinical subjects. J Clin Psychol. 2001;57(6):815-28.
25. Hollander E, Rosen J. Impulsivity. J Psychopharmacol. 2000;14(2 Suppl 1):S39-44.

26. Moeller FG, Dougherty DM, Barratt ES, Oderinde V, Mathias CW, Harper RA, et al. Increased impulsivity in cocaine dependent subjects independent of antisocial personality disorder and aggression. Drug Alcohol Depend. 2002;68(1):105-11.
27. Moeller FG, Dougherty DM, Barratt ES, Schmitz JM, Swann AC, Grabowski J. The impact of impulsivity on cocaine use and retention in treatment. J Subst Abuse Treat. 2001;21(4):193-8.
28. Javid M, Mohammadi N, Rahimi C. Psychometric properties of an Iranian version of the Barratt Impulsiveness Scale-11 (BIS-11). Psychological Methods and Models. 2012;2(8):23-34.
29. Neff KD. The development and validation of a scale to measure self-compassion. Self Identity. 2003;2(3):223-50.
30. Neff K. Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. Self Identity. 2003;2(2):85-101.
31. Azizi A, Mohammadkhani P, Lotfi S, Bahramkhani M. The validity and reliability of the Iranian version of the Self-Compassion Scale. Practice in Clinical Psychology. 2013;1(3):149-55.
32. Van Strien T, Frijters JE, Bergers GP, Defares PB. The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. Int J Eat Disord. 1986;5(2):295-315.
33. Wardle J. Eating style: a validation study of the Dutch Eating Behaviour Questionnaire in normal subjects and women with eating disorders. J Psychosom Res. 1987;31(2):161-9.
34. SALEHI FJ, MOGHADDASZADEH BM, AMIN YA, Nemati M. The role of attentional bias and eating styles in dieters. 2013.
35. Garner DM, Olmsted MP, Bohr Y, Garfinkel PE. The eating attitudes test: psychometric features and clinical correlates. Psychol Med. 1982;12(4):871-8.
36. Ahmadi S, Moloodi R, Zarbaksh MR, Ghaderi A. Psychometric properties of the Eating Attitude Test-26 for female Iranian students. Eat Weight Disord. 2014;19(2):183-9.
37. Kline RB. Principles and practice of structural equation modeling: Guilford press; 2023.
38. Linehan MM. Skills training manual for treating borderline personality disorder: Guilford press; 1993.
39. Holden RR, Lambert CE, Billet MI, La Rochelle M, Fekken GC. Factor structure and proposed scoring revision of the Invalidating Childhood Environment Scale: Getting more from less. Curr Psychol. 2023;42(7):6022-30.
40. Sturrock BA, Francis A, Carr S. Avoidance of affect mediates the effect of invalidating childhood environments on borderline personality symptomatology in a non-clinical sample. Clin Psychol. 2009;13(2):41-51.
41. Bluth K, Park J, Lathren C. Is parents' education level associated with adolescent self-compassion? Explore (NY). 2020;16(4):225-30.
42. Hall JL. An examination into the relationship between self-compassion and parenting styles. 2015.
43. Saleem S, Renshaw KD, Azhar M, Giff ST, Mahmood Z. Interactive effects of perceived parental rearing styles on distress tolerance and psychological distress in Pakistani university students. J Adult Dev. 2021:1-10.
44. Molina MF, Musich FM. Perception of parenting style by children with ADHD and its relation with inattention, hyperactivity/impulsivity and externalizing symptoms. JCFS. 2016;25:1656-71.
45. Haslam M, Arcelus J, Farrow C, Meyer C. Attitudes towards emotional expression mediate the relationship between childhood invalidation and adult eating concern. Eur Eat Disord Rev. 2012;20(6):510-4.
46. HINDMAN R, BECK JS. A clinical handbook of psychological disorders: a step-by-step treatment manual. LWW; 2015.