

# Psychometric properties of parenting questionnaire (PSDQ) in a sample of Iranian society

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## Abstract

The current research aims to investigate the Psychometric Properties of the Parenting Dimensions and Methods of Parenting Questionnaire in Parents of Children. This is survey research and the statistical population includes 307 parents of 7-11 years old children of Mazandaran Province, Iran. Data were analyzed using the Pearson Correlation test. The results showed that this questionnaire enjoys proper structural validity. In this way, the results of the Exploratory Factor analysis showed a 3-factor structure that explains 46.75% of Variance in total. The results showed that the questionnaire enjoys appropriate psychometric properties in Iranian parents.

**Keywords:** validity, reliability, parenting

## INTRODUCTION

The most important necessity of this study is that any kind of study can join similar research in the scientific body of the world and we have to connect to the growing scientific stream of the world. Thus, it is necessary that we conduct this study, which is conducted in foreign countries, in our own country and report the extent of the differences and the similarities of results according to our cultural context. This is because overseas results are acceptable and highly valuable in their own right, but they cannot be generalized to other cultural and ethnic groups <sup>[1]</sup>. Hence, as no studies similar to the present study have been conducted in the field of psychometric evaluation of PSDQ of 7-11 year old children in Iran, the purpose of the study is to examine the psychometric properties of PSDQ among the parents of 7-11 year old children in Mazandaran.

## MATERIALS AND METHODS

This study was survey with a descriptive purpose. The population was the parents of 7-11 year old children in Mazandaran. Kameri (1973; quoted by Houman, 2005) <sup>[2]</sup> has stated that the sample group of 300 is good for factor analysis. Ferguson and Takane (2014) consider the minimum sample size needed for factor analysis 300 people. Thus, 300 parents of children aged 7-11 years in Mazandaran were selected as the sample <sup>[3]</sup>.

The multistage cluster sampling method was used in the study. In doing so, 3 cities were randomly selected from among different cities of Mazandaran. Then, 4 primary schools (12 centers overall) were randomly selected from

each city. Finally, 25 parents of children were randomly selected from each center as the final sample.

## Data collection tool

1. PSDQ <sup>[4]</sup>
2. Parental Competence Questionnaire (PCQ) <sup>[5]</sup>
3. Baumrind Parenting Questionnaire <sup>[6]</sup>

## Research procedure

In the first step, PSDQ was translated into Persian by the supervisor and then into English using Back-Translation Technique and the Persian version was translated by English to English specialist. Then the Farsi to English translation and English version of the questionnaire were compared and the necessary rewrites were done.

In the second phase, in cooperation with the school authorities, 20 parents of the selected children were invited to attend the school and received explanations on the test and

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the necessity of its preliminary implementation. The Persian version of PSDQ was administered on them in a preliminary study and the possible difficulties in the test items were solved using the results of this step.

In the third step, while visiting the schools, inviting the parents of the sample group, explaining the purpose of the study and emphasizing the confidentiality of the research results, PSDQ, PCQ, and Baumrind Parenting Questionnaire were administered to parents and the questionnaires were scored after collection.

In step four, to evaluate the test validity, construct validity by two methods of exploratory factor analysis by principal component analysis with oblique rotation (Promax) and convergent validity (correlation with other tests) were used. Using Pearson correlation by subclass correlation calculation of dimensions and methods of parenting with three sub-scales - authoritative, permissive and authoritarian parenting - Baumrind Parenting Questionnaire and total score of parenting adequacy scale were used.

In step five, to test the reliability of the test, two methods of validity estimation, including Cronbach's alpha to evaluate the internal consistency of the questionnaire and test-retest method with Pearson correlation for reliability, with 10 days interval, were performed again on 50 parents.

## RESULTS AND DISCUSSION

### Examining the first research question

The first question of the study is as follows:

How is the validity of PSDQ in parents of 7-11 years old children in Mazandaran?

Construct validity was used by exploratory factor analysis and convergent validity (correlation with other tests) to test this question.

#### • Exploratory factor analysis

The following steps were performed to perform exploratory factor analysis: In the first step, the mean of each question was examined and in the second step, the corrected correlation of each question or phrase with the total score was investigated [17]. Table 1 shows the standard skewness values and the modified corrected correlation of each question with the total score.

**Table 1.** Standard skewness values and corrected correlation of each question with total score for scale questions.

Question	Skewness	Corrected correlation of questions with total score
1	0.66	0.511
2	1.46	0.444
3	0.002	0.419
4	1.29	0.349
5	0.39	0.541
6	0.007	0.517

7	1.11	0.415
8	0.49	0.711
9	0.60	0.300
10	1.06	0.342
11	1.12	0.313
12	0.80	0.403
13	0.88	0.298
14	0.93	0.603
15	1.13	0.315
16	1.01	0.398
17	0.95	0.617
18	-0.97	0.342
19	1.12	0.520
20	0.67	0.611
21	0.97	0.432
22	1.03	0.508
23	0.99	0.450
24	1.96	0.482
25	1.01	0.318
26	1.31	0.342
27	0.49	0.605
28	0.34	0.209
29	2.09	0.409
30	1.01	0.355
31	1.07	0.235
32	2.33	0.351

The results in Table 2 show that the standard skewness values for questions 29 and 32 are not between 1.98 and -1.98 and are therefore excluded from the analysis. Moreover, the corrected correlation coefficient of each question with total score for all questionnaire questions is above 0.20. Questions whose correlation with the total score is less than 0.20 and the standard skewness value is not between 1.98 and -1.98 should be excluded [8]. According to this logic, questions 29 of the authoritative parenting style and 32 of the authoritarian parenting style are excluded from the analysis.

In the third step, the correlation matrix of questions was examined. In the obtained correlation matrix (32\*32 matrix) out of 1024 correlation coefficients, more than one of them were above 0.30 [9].

In the fourth step, first, Kaiser-Meyer-Olkin (KMO) factor analysis was performed to ensure the sample volume adequacy factor analysis. Then, as the correlation between the test questions is the base of factor analysis, in step 5 Bartlett's test of sphericity was used to determine that the correlation between the variables is not zero, whose results are given in Table 2.

**Table 2.** Sampling adequacy and Bartlett's test of sphericity tests.

Sampling adequacy test (KMO)		0.69
Chi square		4633.03
Bartlett's test of sphericity tests	Degree of freedom	439
	Sig.	0.001

As is seen from the results of Table 2, the value of the sampling adequacy test is 0.69. Since this value is greater than 0.60, the sample size is adequate for factor analysis. Additionally, Bartlett's test of sphericity tests was significant ( $P < 0.001$ ), showing that the data correlation matrix is not zero in the population [9].

In the sixth step, the proper rotation was examined. In doing so, we first used oblique rotation and examined the correlation of factors. Table 3 shows the correlation between the factors resulting from oblique rotation.

**Table 3.** Correlations between factors resulting from oblique rotation.

Factors	1	2	3
1	1.00		
2	.515	1.00	
3	.411	.488	1.00

The results in Table 3 show that six of the correlations are above 0.41, so oblique rotation can be used [9].

Principal Component Analysis with oblique rotation (Promax) was used to perform factor analysis. Three factors with eigenvalues greater than one with factor loadings above 0.30 were obtained. Table 4 shows the factor loadings, common rates, eigenvalues and percentages of variance for three factors.

**Table 4.** Factor loadings, common rates, eigenvalues and percentages of variance.

Questions	Factor 1	Factor 2	Factor 3	Common parts
1	0.832			0.48
3	0.811			0.59
7	0.800			0.39
9	0.775			0.49
5	0.743			0.39
11	0.713			0.48
12	0.701			0.43
14	0.677			0.48
21	0.629			0.52
18	0.589			0.67
22	0.536			0.50
25	0.517			0.43
27	0.504			0.44

31	0.491			0.51
2		0.790		0.45
4		0.743		0.53
6		0.701		0.52
13		0.691		0.64
16		0.653		0.39
10		0.617		0.48
19		0.555		0.63
23		0.539		0.57
26		0.504		0.39
28		0.462		0.57
30		0.411		0.51
8			0.897	0.49
15			0.843	0.38
17			0.760	0.63
20			0.741	0.57
24			0.708	0.45
Eigenvalue	4.47	4.03	3.85	-
Percent of variance	23.33	14.39	9.03	-
Percentage of cumulative variance	23.33	37.72	46.75	-

The results in Table 5 show that the three-factor model above explains 46.75% of the variance in PSDQ scores.

**Table 5.** The frequency and number of questions related to the dimensions of exploratory factor analysis.

Aspect number	Aspect name	Number of questions	Questions
1	Authoritative	41	-12-11-9-7-5-3-1-25-22-21-18-14-31-27
2	Permissive	5	24-20-17-15-8
3	Authoritative	11	-16-13-10-6-4-2-30-27-26-23-19

### • Convergent validity

Convergent validity was also used to ensure the validity of the questionnaire, so that along with the implementation of PSDQ 3 sub-scales authoritative, permissive and authoritarian parenting, Baumrind Parenting Questionnaire and PCQ were implemented on the sample. Convergent validity was estimated by correlating the subscales of PSDQ with three subscales - authoritative, permissive and authoritarian - of Baumrind Parenting Questionnaire and the total score of PCQ. The results are given in Table 6.

**Table 6.** Correlation matrix between the subscales of PSDQ with the total score of PCQ and Baumrind Parenting Questionnaire subscales.

PSDQ	Scales	Baumrind Parenting Questionnaire subscales			PCQ
		Authoritative	Permissive	authoritarian	
	Authoritative	0.81 P = 0.0001	-0.42 P = 0.0001	-0.31 P = 0.0001	0.89 P = 0.0001
	Permissive	-0.45 P = 0.0001	0.77 P = 0.0001	0.45 P = 0.0001	-0.58 P = 0.0001
	Authoritarian	-0.39	0.43	0.75	-0.65

P = 0.0001

P = 0.0001

P = 0.0001

P = 0.0001

As the results of Table 6 show, there is a significant relationship between the subscales of PSDQ with the subscales of Baumrind Parenting Questionnaire and the total PCQ core ( $P = 0.001$ ). The obtained relationship value indicates the convergent validity of PSDQ.

### Examining the second research question

The second research question is as follows:

How is the validity of PSDQ among the parents of 7-11 years old children in Mazandaran?

Two methods of validity estimation, including the internal consistency method (Cronbach's alpha coefficient) and test-retest method (re-test with 10 days interval on 50 parents) were used to evaluate the validity of PSDQ. Their results are shown in Tables 7 and 8.

#### • Internal consistency coefficient (Cronbach's alpha)

Cronbach's alpha coefficients were obtained from 307 subjects in the subscales to assess the internal consistency of PSDQ. The coefficients obtained for the whole sample as well as the male and female subjects are presented in Table 7 separately.

**Table 7.** Cronbach's alpha calculated for the research sample in the 3 subscales of PSDQ after eliminating inappropriate questions.

Scales	The number of questions	Cronbach's alpha calculated for the whole sample	Cronbach's alpha calculated for mothers	Cronbach's alpha calculated for fathers
Authoritative	14	0.821	0.755	0.702
Permissive	5	0.811	0.800	0.766
Authoritarian	11	0.809	0.780	0.719

As Table 7 shows, Cronbach's alpha coefficients were 0.821 for authoritative parenting style, 0.811 for permissive parenting style, and 0.809 for authoritarian parenting style after eliminating inappropriate questions. Overall, according to the results of Tables 7, the subscales of the questionnaire show good internal consistency dimensions (i.e., greater than 0.70). Thus, as the Table 7 indicates, the internal subscales of PSDQ are acceptable.

#### • Test-retest reliability

To ensure reliability, 50 parents were re-administered within 10 days. The test-re-test results are given in Table 4-12.

**Table 8.** Calculated test-retest for the 3 subscales of PSDQ after removing inappropriate questions.

Factors	Retest coefficient	
Authoritative parenting style	$r=0.77$	$P = 0.0001$
Permissive parenting style	$r=0.69$	$P = 0.0001$
Authoritarian parenting	$r=0.70$	$P = 0.0001$

Table 8 results show that the test-retest reliability for the subscales ranged from 0.69 to 0.77.

### Implications for Family Therapy/Practice

Parenting practices have a significant role in the development of psychological problems among children [10]. Early recognition of the children exposed to inappropriate parenting practices and early and appropriate interventions for them seem to be essential [11]. One of the needs of appropriate interventions is valid and reliable tools like PSDQ, which is one of the factors affecting the prediction and recognition of

these disorders [12] that shows the necessity of the present study.

On the other hand, parents' parenting practices directly affect the personality of children in adolescence [13]. Inappropriate parenting approaches can cause psychological problems in childhood and in the academic, occupational, social, familial and personal performance of the individual like low self-esteem, low failure tolerance, interpersonal problems, academic performance decline, and lack of friendliness [14]. Moreover, the child is at the risk of depression and substance abuse in adolescence [15], impaired job performance, and decreased life quality in adulthood [16].

According to the aforementioned and that psychological problems will not naturally decrease and need appropriate interventions [17], the existence of valid tools for identifying factors related to psychological problems should be of primary importance, which doubles the necessity of this point.

### Limitations

1. This study had been only conducted on the parents of students who were from Mazandaran and has not included the parents of students of other provinces.
2. The subjects of the current study included healthy children's parents and other population groups such as the parents of children having psychological disorders were not included in the study.
3. The criterion-referenced tests were limited in this research.

### Suggestions for Future Research

1. Since this study had been conducted on the parents of students from Mazandaran, it is suggested that a research be carried out on the parents of students from other provinces so that the results could have more efficiency.
2. Since the subjects of this study included healthy children's parents, to have more efficient results, it is suggested to investigate the psychometric features of this questionnaire in the parents of children having psychological disorders.
3. It is suggested that more criterion-referenced tests be utilized for investigation.

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