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## Psychometric Validation of Parenting Scale among College-going Girls in India

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### Abstract

**Background:** Parenting is a key variable of interest in psychological and psychiatric studies as parenting is known to shape the psychological makeup of an individual. However, most of the measures to assess parenting have been developed or validated for use in the western countries. Parenting practices varies from culture to culture and hence, a culture sensitive scale is required to assess the same.

**Aim:** The purpose of this study was to establish validity and reliability of the Parenting Scale developed by Bharadwaj, Sharma and Garg for use in Indian young adults in the present context.

**Method:** The sample of the study was 150 college going girls in the age range 18-21 years (mean age = 19.04 ± 0.96) from various universities of Delhi-NCR, India. The scale measures the role of fathers, mothers and both on eight dimensions.

**Results:** An exploratory factor analysis using principal axis factoring method through varimax rotation showed high loading for all 40 items under the eight domains of parenting, ensuring construct validity of the scale. The convergent validity of the scale was assessed using Average Variance Extracted (AVE). AVE was greater than 0.5, suggesting good convergence validity. The values of construct reliability for each domain indicated good internal consistency.

**Conclusion:** The scale has a logical factor structure and is a reliable and valid measure for use among young adults in India. The scale may also be validated for use in other South Asian countries as they share common socio-cultural features and practices.

**Keywords:** Parenting Scale, exploratory factor analysis, validation, reliability, college going girls.

### Introduction

The role of parents is imperative in an individual's development. Parents not just contribute to genetic makeup of the child, but also provide nurturance and psychosocial environment for them to develop as an individual. Parents are the primary socializing agents in the early years of their children. As individuals step into young adulthood, parents continue to influence their children, especially in the Indian cultural context, though the nature of their interactions changes [1].

Parenting practices and parent-child interaction patterns vary across cultures. Due to differences in cultural contexts, the upbringing and values to be passed on to the next generation are distinct. For instance, while the values autonomy, independent self-construal and low power distance are emphasized in western cultures, the eastern cultures accentuate on developing the values of connectedness, interdependent self-construal and high power distance [2, 3].

The construct of parenting and perceived parenting is usually conceptualised along the four parenting styles: authoritative, authoritarian, permissive and indifferent [4]. Most of the

measures available to assess the parenting construct follow the Baumrind dimensions of parenting. Moreover, these scales are usually developed in the western culture. As parenting practices varies from culture to culture, a culture sensitive scale is required to assess the same.

The purpose of this study is to validate the Parenting Scale developed by RL Bharadwaj and colleagues [5] for use in Indian young adults in the present context. It is a measure of perceived parenting that assesses the construct across eight dimensions of parenting to provide an elaborate inference from the scores. The scale also provides separate scores for mother, father and both to provide better insight into the multifaceted nature of parent – child interactions. The scale was developed and validated in 1998. Considering the utility of the scale, it is important to test the validity of the scale in the present context.

### Method

**Sample:** Data was collected from 150 college going girls enrolled in undergraduate courses in various universities of

Delhi-NCR, India in the age range of 18-21 years (mean age =  $19.04 \pm 0.96$ ).

**Ethical Considerations:** The study was approved by the review committee of the Indian Council of Social Science Research (ICSSR) (F.No. 3-147/2016-17/PDF). Written informed consent was obtained from all the participants.

**Measure:** The Parenting Scale is a 40-item scale that intends to measure perceived parenting. It is to be administered on individuals above 10 years of age to assess their perception of the way they were brought up by their mother, father and both across eight dimensions:

- i). Rejection vs. acceptance,
- ii). Carelessness vs. protection,
- iii). Neglect vs. indulgence,
- iv). Utopian expectations vs. realism,
- v). Lenient standard vs. moralism,
- vi). Freedom vs. discipline,
- vii). Faulty role expectations vs. realistic role expectations, and
- viii). Marital conflict vs. marital adjustment.

As reported by Bharadwaj and colleagues <sup>[5]</sup>, the test-retest reliability of this test is 0.72 and validity is 0.75. A pilot study was conducted on 55 college going students. The reliability of Parenting Scale was analysed by split-half method by Spearman and Browne formula. The coefficient of reliability was significant at 0.88.

**Procedure:** Exploratory Factor Analysis (EFA) identifies the number of good factor loadings of variables in establishing the model for further analysis in Confirmatory Factor Analysis (CFA). The good loadings and poor loading statements were extracted based on the Eigen value of one <sup>[6]</sup>. IBM SPSS and AMOS-22 software was employed for conducting the exploratory factor analysis using principal axis factoring method through varimax rotation to examine the factor loadings on eight dimensions of the scale to understand the logical basis of the scale and to examine construct validity. Convergent and discriminant validity of the scale was examined using composite reliability (CR) and average variance extracted (AVE).

## Results and Discussion

Exploratory factor analysis of the Parenting Scale with 40 items under eight domains, both for mothers and fathers was conducted. Rotation factor matrix was carried out using the Principal Axis Factoring method through Varimax rotation. Based on a sample of 150, the overall parenting shows better loadings within eight factors. The eight factors comprise of five items each.

The first factor is categorized as *Rejection vs. Acceptance*. For mothers, the loading range was from 0.68 to 0.79 (within the construct); Eigen value was 2.66 (which is above 1) and a cumulative frequency of 53.19% of total variance explained which defines a special set of scalars associated with a linear pattern that are known as characteristic roots and values of loading factors <sup>[7, 8]</sup>. For fathers, the loading range was from 0.72 to 0.78 (within the construct) and the Eigen value was 2.66 and a cumulative frequency of 57.63% of total variance explained.

In the second factor *Carelessness vs. Protection*, the loading range for mothers was from 0.62 to 0.90 and for fathers from 0.67 to 0.87 (both within the construct). The Eigen values were 1.83 and 1.75 with a cumulative frequency of 58.70% and 58.81% of total variance explained for mothers and fathers respectively.

In the third factor *Neglect vs. Indulgence*, the loading range for mothers was from 0.65 to 0.77 and for fathers it was 0.58 to 0.84 (both within the construct). The Eigen values were 2.12 and 2.14 with a cumulative frequency of 52.44% and 58.22% of total variance explained for mothers and fathers respectively.

For the fourth factor *Utopian Expectation vs. Realism*, loading range for mothers was from 0.51 to 0.89 and for fathers from 0.66 to 0.85 (both within the construct). The Eigen values were 1.78 and 1.72 with a cumulative frequency of 55.68% and 54.93% of total variance explained for mothers and fathers respectively.

In the fifth factor categorized as *Lenient Standard vs. Moralism*, loading range for mothers was from 0.5 to 0.850 and for fathers from 0.64 to 0.81 (both within the construct). The Eigen values were 1.83 and 1.93 with a cumulative frequency of 59.46% and 59.75% of total variance explained for mothers and fathers respectively.

For the sixth factor *Freedom vs. Discipline*, the loading range was 0.58 to 0.86 for mothers and 0.58 to 0.81 for fathers (both within the construct). The Eigen values were 1.93 and 1.83 with a cumulative frequency of 59.17% and 53.16% of total variance explained for mothers and fathers respectively.

In the seventh factor categorized as *Faulty Role Expectation vs. Realistic Role Expectation*, loading range for mothers was from 0.71 to 0.79 and for fathers from 0.62 to 0.83 (both within the construct). Eigen values were 1.78 and 2.01 with a cumulative frequency of 59.52% and 61.94% of total variance explained for mothers and fathers respectively.

In the eighth factor *Marital Conflict vs. Marital Adjustment* between the parents, the loading range was from 0.66 to 0.83 (within the construct). The Eigen value was 2.77 with a cumulative frequency of 55.47% of total variance explained.

The results of the Exploratory Factor Analysis from the present study sample obtained high loading for all 40 items under the eight domains of parenting and gives a strong logical ideology towards further analysis of validity.

**Average Variance Extracted (AVE) and Composite Reliability (CR) of Parenting Scale:** Table 1 depicts the measurement model validity of 40 items under eight domains of parenting along with construct validity (Convergent validity and Construct reliability). *Convergent validity* is defined as variables within a single factor that are highly correlated. This is evident by the factor loadings. In general, loadings greater than 0.50 and an average of above 0.70 for each factor are considered to reflect good convergent validity. <sup>[9], [10]</sup> The factor loading of each item for all the eight constructs is more than 0.5 which indicates high convergent validity. Convergent validity is considered high when each measurement item correlates strongly with its assumed theoretical construct i.e., the items that indicate a construct should converge or share a high proportion of variance in common.

**Table 1:** Average Variance Extracted (AVE) and Composite Reliability (CR) of Parenting Scale

Construct	Item	Factor Loadings														IR		SEV			
		F1		F2		F3		F4		F5		F6		F7		F8	M	F	M	F	
		M	F	M	F	M	F	M	F	M	F	M	F								
Rejection vs. Acceptance	1	.707	.758													.841	.864	.501	.426		
	2	.796	.774													.850	.873	.366	.401		
	3	.750	.761													.846	.868	.437	.420		
	4	.680	.720													.845	.869	.537	.481		
	5	.707	.781													.855	.877	.502	.390		
Carelessness vs. Protection	6			.628	.702											.851	.877	.605	.507		
	7			.906	.871											.858	.879	.179	.241		
	8			.673	.673											.838	.863	.547	.736		
	9			.671	.671											.840	.864	.549	.437		
	10			.870	.870											.840	.865	.243	.258		
Neglect vs. Indulgence	11					.650	.663									.854	.877	.577	.560		
	12					.746	.724									.844	.870	.443	.820		
	13					.779	.792									.850	.873	.393	.372		
	14					.729	.589									.839	.866	.468	.663		
	15					.764	.840									.838	.865	.416	.294		
Utopian Expectation vs. Realism	16							.748	.683							.850	.875	.440	.533		
	17							.892	.851							.836	.862	.204	.275		
	18							.779	.750							.845	.869	.393	.437		
	19							.516	.662							.840	.864	.733	.561		
	20							.583	.671							.846	.870	.660	.549		
Lenient Standard vs. Moralism	21									.734	.795					.855	.872	.461	.367		
	22									.633	.642					.843	.866	.549	.587		
	23									.583	.806					.848	.874	.660	.350		
	24									.850	.810					.849	.869	.722	.343		
	25									.756	.756					.840	.865	.571	.428		
Freedom vs. Discipline	26											.803	.582			.841	.880	.355	.444		
	27											.583	.635			.854	.868	.660	.432		
	28											.590	.759			.844	.865	.651	.363		
	29											.866	.812			.838	.880	.250	.484		
	30											.693	.660			.839	.868	.519	.404		
Faulty Role Expectation vs. Realistic Role Expectation	31													.745	.832			.839	.862	.661	.307
	32													.753	.752			.845	.862	.596	.274
	33													.798	.620			.842	.862	.423	.615
	34													.718	.746			.839	.871	.340	.443
	35													.772	.802			.845	.876	.564	.356
Marital Conflict vs. Marital Adjustment	36															.826	.714		0.31		
	37															.768	.746		0.41		
	38															.767	.744		0.41		
	39															.832	.715		0.30		
	40															.667	.824		0.55		
AVE		.53	.57	.57	.56	.54	.51	.51	.52	.51	.58	.51	.50	.57	.60	.59					
CR		.84	.87	.86	.86	.85	.80	.82	.84	.83	.87	.83	.81	.87	.88	.88					

A requisite for construct validity is score reliability. The internal reliability of the measurement models was tested by Fornell's Composite reliability also known as Construct reliability [11]. Composite reliability should be greater than the benchmark of 0.6 to be considered as adequate. [11] Table 1 indicates the value of AVE for each factor as greater than 0.5, suggesting good convergence validity. The CR values shown

in the table indicate the scale is reliable with good internal consistency.

**Discriminant validity of Parenting Scale:** *Discriminant validity* is the extent to which a construct is truly distinct from other constructs. It means that a latent variable should explain better the variance of its own indicators than the variance of other latent variables. In other words, the loading of an indicator on its assigned latent variable should be higher than

its loadings on all other latent variables. This can be checked by comparing the AVEs with the Squared Inter Construct (SIC) correlation for each of the constructs.

The AVE of a latent variable should be higher than the SIC correlations between the latent variable and all other latent variables. [12], [13] For mothers, the square root of AVE for Rejection vs. Acceptance is greater than the SIC for all constructs ( $\sqrt{0.53} = 0.728 > 0.15, 0.53, 0.24, 0.22, 0.04, 0.28$ ); square root of AVE for Carelessness vs. Protection is greater than the SIC for all dimensions ( $\sqrt{0.57} = 0.754 > 0.15, 0.22, 0.01, 0.20, 0.31, 0.04$ ); square root of AVE for Neglect vs. Indulgence is greater than the SIC for all dimensions ( $\sqrt{0.54} = 0.734 > 0.53, 0.22, 0.17, 0.25, 0.05, 0.18$ ); square root of AVE for Utopian Expectation vs. Realism is greater than the SIC for all dimensions ( $\sqrt{0.51} = 0.714 > 0.24, 0.01, 0.17, 0.25, 0.05, 0.18$ ); square root of AVE for Lenient Standard vs. Moralism is greater than the SIC for all dimensions ( $\sqrt{0.51} = 0.714 > 0.22, 0.20, 0.25, 0.03, 0.01, 0.09$ ); square root of AVE for Freedom vs. Discipline is greater than the SIC for all dimensions ( $\sqrt{0.51} = 0.714 > 0.04, 0.31, 0.05, 0.01, 0.19, 0.16$ ); square root of AVE for Faulty Role Expectation vs. Realistic Role Expectation is greater than the SIC for all dimensions ( $\sqrt{0.57} = 0.754 > 0.28, 0.04, 0.18, 0.09, 0.16, 0.01$ ). Thus, the square root of average variance extracted for each factor is greater than the corresponding squared inter construct correlation (SIC). Hence, the discriminant validity of the scale for mothers can be accepted.

For fathers, the square root of AVE for Rejection vs. Acceptance is greater than the SIC for all constructs ( $\sqrt{0.57} = 0.754 > 0.27, 0.61, 0.37, 0.31, 0.03, 0.30$ ); square root of AVE for Carelessness vs. Protection is greater than the SIC for all dimensions ( $\sqrt{0.56} = 0.748 > 0.27, 0.33, 0.03, 0.19, 0.15, 0.11$ ); square root of AVE for Neglect vs. Indulgence is greater than the SIC for all dimensions ( $\sqrt{0.51} = 0.714 > 0.61, 0.33, 0.23, 0.34, 0.05, 0.24$ ); square root of AVE for Utopian Expectation vs. Realism is greater than the SIC for all dimensions ( $\sqrt{0.52} = 0.721 > 0.37, 0.03, 0.23, 0.10, 0.01, 0.25$ ); square root of AVE for Lenient Standard vs. Moralism is greater than the SIC for all dimensions ( $\sqrt{0.58} = 0.761 > 0.31, 0.19, 0.34, 0.10, 0.01, 0.25$ ); square root of AVE for Freedom vs. Discipline is greater than the SIC for all dimensions ( $\sqrt{0.50} = 0.707 > 0.03, 0.15, 0.05, 0.01, 0.11, 0.25$ ); square root of AVE for Faulty Role Expectation vs. Realistic Role Expectation is greater than the SIC for all dimensions ( $\sqrt{0.60} = 0.774 > 0.30, 0.11, 0.24, 0.25, 0.25, 0.01$ ). Thus, the square root of average variance extracted for each factor is greater than the corresponding squared inter construct correlation (SIC). Hence, the scale structure supports the discriminant validity between factors in the context of fathers.

## Conclusion

The psychometric properties of the Parenting Scale were assessed in the present study. The exploratory factor analysis explained the logical structure of the scale and ensured the construct validity as all items showed high factor loading under the eight domains of parenting. The scale's AVE and CR values computed to assess for the convergent validity indicated that the tool is valid and has a good internal consistency.

The results thus obtained show that the scale has a logical factor structure and is a reliable and valid measure for use among young adults in India. The items under each dimension of the scale measure the intended construct. The scale is therefore a useful measure for assessing perceived parenting

in the Indian context. Future studies may be conducted to translate the scale in different Indian languages and validate in sub-populations of India for wider use and applicability. The reliability and validity of the tool may also be investigated for other South Asian countries that share several common socio-cultural practices and features in the context of parenting and socialization of individuals.

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**Declaration of Interest:** There are no conflicts of interest.

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