

RESEARCH ARTICLE

A psychometric assessment of fathers' parenting practices scale: Insights into adolescent interactions from a social psychology perspective

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ABSTRACT

The primary objective was to develop a psychometrically sound instrument that accurately reflects the parenting behaviours of fathers in Pakistan, focusing specifically on their interactions with adolescent children. Employing a mixed-methods approach, an initial pool of 107 items was generated based on Skinner, Johnson, and Snyder's motivational model of parenting^[13], existing literature on parenting, and insights from six focus group discussions with fathers of adolescents. After a pilot study, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) with 300 fathers, resulting in a final 23-item scale. The model fit indices indicated strong validity. The psychometric evaluation confirmed that the newly developed 23-item scale is valid and reliable for assessing fathers' parenting patterns in Pakistan and similar cultural contexts. This tool contributes significantly to understanding paternal influences on adolescent development, facilitating further research and practical applications in parenting interventions.

Keywords: adolescent interactions; psychometric evaluation; parenting behaviors; EFA; CFA; scale validation

1. Introduction

Child development is viewed as a highly dynamic, interactive, and changing process. Parenting styles, in turn, are significantly influenced by certain cultural values, socioeconomic conditions, and parents' real-life experiences. Together, these depict an interplay that could significantly impact the different parenting styles exhibited and hence influence children's emotional, cognitive, and social development^[30].

However, whereas previous studies employed four general parenting styles: authoritarian, authoritative, permissive, and uninvolved, the bipolar nature of parenting behaviors appears to be growing even more complicated, in which parents sometimes manifest a combination of both positive and negative aspects^[19,26].

This demands a specific knowledge of how those behaviors work in children's development through

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diverse stages of life, from early childhood into adolescence.

Previous studies focused more on mothers' involvement and rarely included fathers' roles in a child's life. New studies indicate that paternal involvement is critical in ensuring children's sound mental health, self-esteem, and psychological adjustment^[8].

Fathers uniquely influence the dynamics of parenting, and through their actions, children's conduct and emotional security are influenced. Nevertheless, there is a huge knowledge gap when it comes to understanding fathers' precise practices of parenting, especially in the context of Pakistan^[5]. This is because most of the fathers originate from cultures, especially in Southeast Asia, where the conception is that fathers should be principal decision-makers and providers; therefore, they influence the family environments as well as the maternal roles in child care^[8,23]. This cultural approach points out the importance of culturally relevant instruments to measure paternal involvement and parenting style appropriately. Most of the research tools available are not sensitive enough to the different nuances of fathering across various cultures, leading to wrong conclusions about parenting dynamics^[4].

The reviewed literature shows a fundamental gap in research regarding parenting practices among fathers in low-income countries, such as Pakistan. With the vast body of studies on maternal parenting, it is evident that very few studies have addressed father parenting^[12]. This limits our understanding of the entire scope of parenting factors shaping the development of children in Pakistan.

To bridge this gap, there is a necessity for instruments that are culturally valid to appropriately measure the parenting practices of fathers^[4,24]. This will then advance our understanding of involvement by fathers and allow for focused interventions on improving parenting practices by gender. For example, researchers may be able to push a more well-rounded view of family dynamics or childrearing practices across different cultural contexts while exploring the roles of fathers and their involvement with children's development^[18].

For contextualization purposes, this study will utilize the Motivational Model of Parenting formulated by^[13], which is much more detailed and comprehensive than earlier models. It consists of six distinct dimensions: warmth, rejection, structure, chaos, autonomy support, and coercion. These dimensions enable a well-rounded analysis of parenting behavior because these are the factors related to a child development. Traditional models have always emphasized just a few dimensions, as the multidimensional view overemphasizes the complexity of parenting^[13]. As the motivational model^[13] considers both the positive dimensions- the warmth, structure, and autonomy support- and the negative dimensions- rejection, chaos, and coercion- it may be easier to understand why different behaviors lead to developmental outcomes.

A strength of this model is that parental motivation is used as the impetus for certain parenting behaviors. The model includes intrinsic and extrinsic determinants of parenting practices, enabling a comprehensive view of why parents act in certain ways and providing guidance for interventions that can foster optimal parenting practices^[13]. Furthermore, the dimensions of the Motivational Model, such as warmth and autonomy support, are culturally relevant within both Western and Eastern cultures, which suggests that cultural context (e.g., Pakistan) should be considered when evaluating parenting practices.

The multidimensional nature of the Motivational Model is particularly resourceful in developing interventions directed toward improving specific aspects of parenting. This way, it becomes possible to determine relative strengths and weaknesses within each dimension of the different models, providing a personalized plan of intervention tailored to meet the needs of individual families instead of forcing them into some one-size-fits-all boxes^[11].

The Motivational Model of Parenting represents a significant advancement in parenting research. The multidimensional approach with the integration of positive and negative dimensions, emphasis on motivation, and adaptability in diverse cultural contexts are a few elements making it one of the most superior tools in understanding and improving parenting.

This research has aimed to fill the gap of the lack of appropriate culturally valid tools to measure fathers' parenting practices in Pakistan by developing an indigenous instrument based on the Motivational Model. Different scales in Pakistan^[14-16,21] has been developed but they weren't relvenat so a scall was needed to meet the current study objetives. This study on the role of fathers in child development aims to bring plurality and depth into the existing literature by shedding more light on the type of management of family and childcare practices across different cultural contexts.

2. Methods

The following steps were implemented in the current study.

Step 1: Items Pool Generation:

The initial phase of the study involved generating a comprehensive item pool using Guttman's facet analysis method, as established^[10,32]. A total of 107 items were crafted in Urdu, drawing from Skinner et al., model of parenting^[13] and informed by literature on various childrearing styles, including foundational works by^[3,6,20]. Six focus groups were convened to ensure a diverse representation of parenting perspectives, comprising 42 participants from varied socioeconomic backgrounds, with seven individuals in each group. These discussions were pivotal in identifying relevant themes and nuances in parenting practices. The dimensions of Skinner et al.'s parenting model^[13], which guided the item development, are illustrated in **Figure 1**.

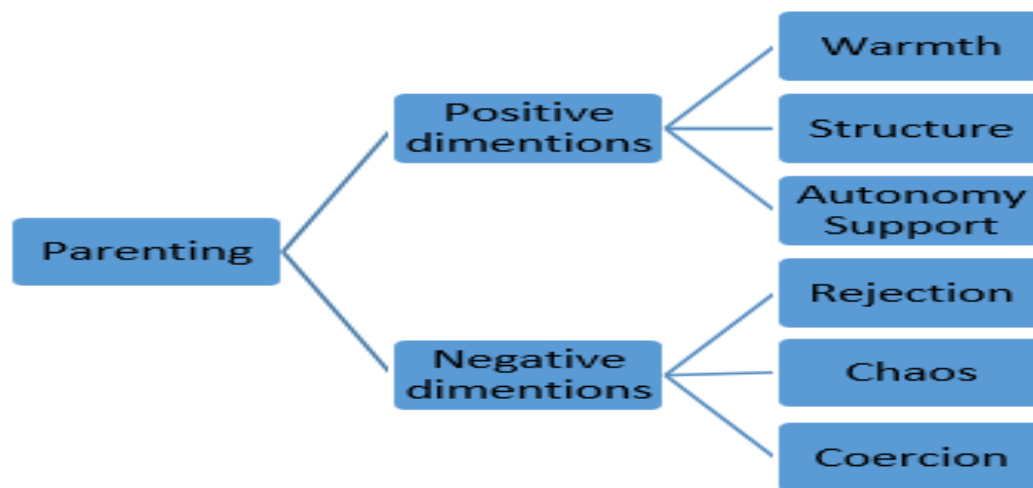


Figure 1. Skinner, Johnson and Snyder Model of Parenting.

Step 2: Content Validity of Items

Following the item generation, a rigorous content validation process was undertaken. This involved a panel of experts, including four PhD holders in clinical and applied psychology and two PhD scholars experienced in scale development and evaluation. During a structured meeting, these experts assessed each item for clarity, relevance, and comprehensibility.

Items were rated on a four-point Likert scale, facilitating a nuanced understanding of participant attitudes and perceptions. This scale ranged from 1 (strongly disagree) to 4 (strongly agree), allowing for a comprehensive measurement of agreement levels regarding specific parenting phenomena. Based on experts' feedback, seven items deemed irrelevant or repetitive were discarded, while the wording of ten items was refined for clarity. Consequently, 100 items were retained for the subsequent pilot study.

Step 3: Pilot Testing

The refined 100 items were then administered to 100 fathers to evaluate their clarity and relevance. This pilot testing aimed to identify vague or ambiguous terms within the items, ensuring the language was understandable to the target demographic.

Step 4: Item Analysis

For the item analysis phase, a test-retest method was employed to assess the reliability and correlation of the items. The 100-item scale was administered to 300 fathers, with a follow-up administration occurring two weeks later. The scores from both administrations were correlated to identify the most reliable items. Items demonstrating low correlation were eliminated, resulting in 72 items with a correlation coefficient of 0.4 or higher.

Step 5: Main Study

Exploratory Factor Analysis (EFA)

Subsequent to item analysis, data collection was conducted on the 72 items using a four-point Likert scale (Always = 4, Most of the time = 3, Rarely = 2, Not at all = 1) from a sample of 450 fathers residing in the Gujrat and Gujranwala districts. Participants were selected through purposive sampling, ensuring a diverse representation of fathers aged between 35 and 55 years. EFA was performed on the collected data, removing 39 items that did not contribute significantly to the essential factor structure.

Confirmatory Factor Analysis (CFA)

The remaining 33-item scale was distributed to 300 fathers with adolescent children for CFA. This analysis confirmed the validity of a 23-item scale, demonstrating strong model fit indices, thereby validating the scale's structure and ensuring its applicability for measuring parenting styles effectively. This systematic approach to scale development not only enhances the reliability and validity of the instrument but also contributes to a deeper understanding of parenting dynamics in the context of diverse cultural backgrounds.

Determination of Psychometric Properties of the Scale

A comprehensive validation process was undertaken using a large sample and rigorous statistical analyses to confirm the psychometric properties of the newly developed paternal parenting scale.

Sample and Procedure

Using convenient sampling, 500 fathers were selected from the cities of Gujrat, Gujranwala, and Lahore. This allowed for efficient data collection while ensuring representation across different urban settings. After obtaining written informed consent, participants completed a battery of scales, including the newly developed fathers' parenting scale and the Parenting Style Scale Urdu version^[2]. The study was approved by the Institutional Ethics Review Board (IERB#10-2024/AU).

Convergent Validity

Convergent validity was assessed using the 48-item Parenting Style Scale Urdu version^[2]. Positive parenting dimensions from this scale were hypothesized to correlate positively with corresponding positive

dimensions of the newly developed fathers' parenting scale. Negative dimensions were expected to correlate negatively. A significant positive correlation between the two scales would support the convergent validity of the new instrument.

Divergent Validity

The Parenting Style Scale Urdu version^[2] was used for divergent validity as well. This self-report measure employs a five-point Likert scale with six subscales demonstrating reliability coefficients of 0.88 and 0.91. It was hypothesized that dissimilar subscales of the new scale would either show a negative correlation or no correlation with the Parenting Style Scale Urdu version^[2], indicating the new scale's ability to support divergent validity.

Statistical Analysis

Data analysis was conducted using SPSS-22 and AMOS-22 software. Bivariate correlation, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and reliability and validity analyses were performed.

3. Results

Test-Retest Analysis

Pearson correlation (**Table 1**) was conducted on the test-retest data^[7]. Items with correlations above 0.4 were retained, resulting in 72 highly correlated items out of the original 100 for further study.

Table 1. Pearson Correlation between the Scores in First and Second Administration of Fathers' Parenting Scale (N=300).

| Item No. | Γ | Item No. | Γ |
|----------|----------|----------|----------|
| 1 | .52** | 37 | .42** |
| 2 | .49 ** | 38 | .41** |
| 3 | .45 ** | 39 | .41** |
| 4 | .41** | 40 | .48** |
| 5 | .40 ** | 41 | .48** |
| 6 | .57** | 42 | .50** |
| 7 | .37 ** | 43 | .45** |
| 8 | .56** | 44 | .45** |
| 9 | .55 ** | 45 | .48** |
| 10 | .45 ** | 46 | .45** |
| 11 | .46** | 47 | .43** |
| 12 | .47** | 48 | .57** |
| 13 | .57** | 49 | .45** |
| 14 | .44** | 50 | .48** |
| 15 | .45** | 51 | .45** |
| 16 | .55** | 52 | .45** |
| 17 | .57** | 53 | .47** |
| 18 | .57** | 54 | .57** |
| 19 | .42** | 55 | .50** |
| 20 | .47** | 56 | .41** |

| Item No. | Γ | Item No. | Γ |
|----------|----------|----------|----------|
| 21 | .55** | 57 | .51** |
| 22 | .43** | 58 | .48** |
| 23 | .55** | 59 | .45** |
| 24 | .54** | 60 | .47** |
| 25 | .54** | 61 | .57** |
| 26 | .63** | 62 | .50** |
| 27 | .49** | 63 | .41** |
| 28 | .42** | 64 | .43** |
| 29 | .63** | 65 | .48** |
| 30 | .57** | 66 | .55** |
| 31 | .44** | 67 | .71** |
| 32 | .45** | 68 | .68** |
| 33 | .55** | 69 | .45** |
| 34 | .57** | 70 | .49** |
| 35 | .57** | 71 | .78** |
| 36 | .42** | 72 | .66** |

Table 1. (Continued)

Exploratory Factor Analysis (EFA)

The Kaiser-Meyer-Olkin (KMO) measure (**Table 2**) of sampling adequacy was 0.813, indicating appropriate sampling for the EFA.

Table 2. Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity (N=450).

| | KMO | Bartlett's Test of Sphericity | | |
|------------------------------------|------|-------------------------------|------|------|
| | | Chi-Square | Df | Sig. |
| Fathers' Parenting Practices Scale | .813 | 82116.391 | 6105 | .000 |

Note: ** $P < .01$

After varimax rotation, the EFA retained 33 items across six factors for further analysis, while 39 items were deleted due to poor factor loadings (**Table 3**).

Table 3. Factor Loading of fathers' parenting scale after Varimax Rotation (N=450).

| Sr. No. | Item No. | Factor I | Factor II | Factor III | Factor IV | Factor V | Factor VI |
|---------|----------|----------|-----------|------------|-----------|----------|-----------|
| 1 | Q7 | .737 | | | | | |
| 2 | Q24 | .672 | | | | | |
| 3 | Q41 | .666 | | | | | |
| 4 | Q23 | .637 | | | | | |
| 5 | Q18 | .584 | | | | | |
| 6 | Q9 | | .567 | | | | |
| 7 | Q27 | | .527 | | | | |
| 8 | Q28 | | .513 | | | | |

| Sr. No. | Item No. | Factor I | Factor II | Factor III | Factor IV | Factor V | Factor VI |
|---------|----------|----------|-----------|------------|-----------|----------|-----------|
| 9 | Q22 | | .506 | | | | |
| 10 | Q39 | | .492 | | | | |
| 11 | Q12 | | | .487 | | | |
| 12 | Q19 | | | .475 | | | |
| 13 | Q11 | | | .474 | | | |
| 14 | Q14 | | | .457 | | | |
| 15 | Q33 | | | .455 | | | |
| 16 | Q49 | | | | .408 | | |
| 17 | Q69 | | | | .711 | | |
| 18 | Q64 | | | | .663 | | |
| 19 | Q44 | | | | .653 | | |
| 20 | Q61 | | | | .638 | | |
| 21 | Q68 | | | | .625 | | |
| 22 | Q66 | | | | | .625 | |
| 23 | Q54 | | | | | .625 | |
| 24 | Q59 | | | | | .624 | |
| 25 | Q65 | | | | | .622 | |
| 26 | Q60 | | | | | .619 | |
| 27 | Q57 | | | | | .557 | |
| 28 | Q48 | | | | | .489 | |
| 29 | Q56 | | | | | .485 | |
| 30 | Q70 | | | | | .476 | |
| 31 | Q71 | | | | | .449 | |
| 32 | Q72 | | | | | .672 | |
| 33 | Q55 | | | | | .662 | |

Table 3. (Continued)

Confirmatory Factor Analysis (CFA)

The initial CFA on a 33-item administered to 300 fathers yielded a comparative fit index (CFI) of 0.828, below the recommended threshold of 0.900^[28]. Modification indices were examined, leading to the removal of 10 repetitive or covarying items. A revised CFA (**Table 4 & Figure 2**) on the final 23-item scale showed excellent model fit, with a chi-square value of less than three, CFI greater than 0.957, and NFI and TLI in the acceptable range^[17].

Table 4. Improved Model Fit Indices for fathers' parenting scale (N=300).

| CMIN/DF | CFI | RMSEA | RMR | GFI | NFI | TLI | P Value |
|---------|------|-------|------|------|------|------|---------|
| 4.135 | .957 | .059 | .053 | .923 | .945 | .950 | .000 |

Note: ** $P < .01$

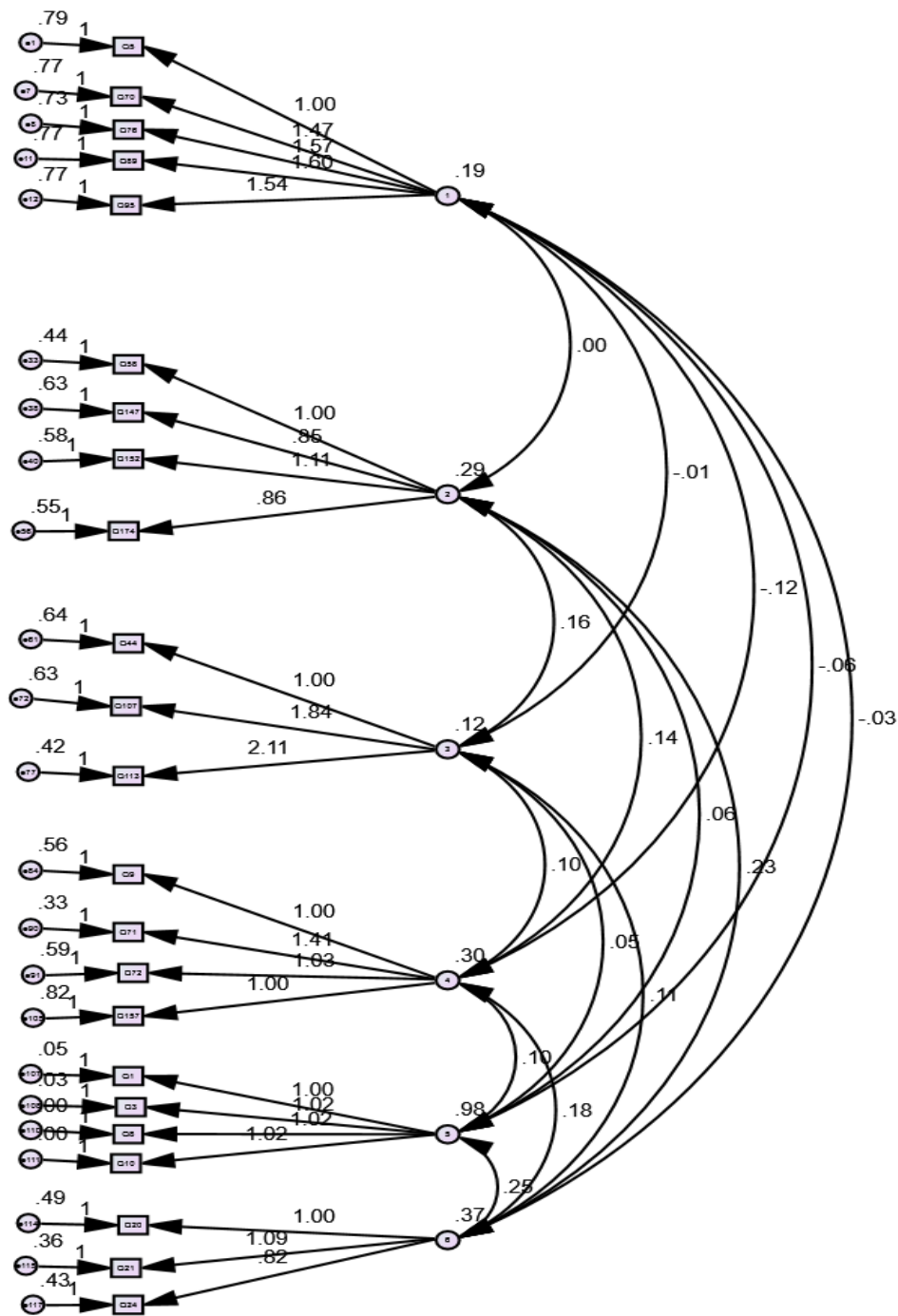


Table 5. Alpha Reliability of six Subscales of fathers' parenting scale (N=200).

| Subscale | Items | Cronbach's Alpha |
|------------------|-------|------------------|
| Warmth | 05 | .822 |
| Rejection | 04 | .814 |
| Structure | 03 | .802 |
| Chaos | 04 | .716 |
| Autonomy Support | 04 | .591 |
| Coercion | 03 | .772 |
| Total | 23 | .924 |

Convergent validity (**Table 6**) was supported by the positive correlation among the six similar factors of the Fathers' Parenting Practices Scale and the Parenting Style Scale Urdu Version^[2].

Table 6. Correlation Between Parenting Style Scale Urdu version with Fathers' Parenting Practices Scale for convergent validity (N=200).

| Subscales of FPPS | Subscales of the level of parenting style scale | | | | | |
|-------------------|---|-------------|--------------|----------|------------|------------|
| | Compassionate | Controlling | Conventional | Avoidant | Supportive | Aggressive |
| Warmth | .511** | | | | | |
| Rejection | | .712** | | | | |
| Structure | | | .900** | | | |
| Chaos | | | | .697** | | |
| Autonomy Support | | | | | .722** | |
| Coercion | | | | | | .821** |

**Correlation is significant at the .01 level (2-Tailed)

Divergent validity (**Table 7**) was confirmed by the negative correlation among the six dissimilar factors of the two scales.

Table 7. Correlation Between Parenting Style Scale Urdu version with Fathers' Parenting Practices Scale (FPPS) for divergent validity (N=200).

| Subscales of FPS | Subscales of the level of parenting style scale | | | | | |
|------------------|---|---------------|----------|------------|------------|--------------|
| | Controlling | Compassionate | Avoidant | Supportive | Aggressive | Conventional |
| Warmth | -.421** | | | | | |
| Rejection | | -.321** | | | | |
| Structure | | | -.400** | | | |
| Chaos | | | | -.721** | | |
| Autonomy Support | | | | | -.711** | |
| Coercion | | | | | | -.211** |

**Correlation is significant at the .01 level (2-Tailed)

In summary, the comprehensive validation process, including a large sample, test-retest reliability, EFA, CFA, and convergent and divergent validity assessments, provides strong evidence for the psychometric

properties of the newly developed fathers' parenting scale. This robust instrument can be used confidently in future research and clinical applications.

4. Discussion

In the collectivistic culture of Pakistan, family dynamics, respect for authority, and conformation hold prime importance and defines the basis of parenting practices^[33]. Traditionally, fathers are more authoritative, while mothers are considered supportive and nurturing. Different division of roles leads to varying parenting styles that can profoundly influence adolescents' development. Research has indicated that most Pakistani fathers have been reflected to have what is termed "affectionless control," which is a form of upbringing that can affect the emotional and psychological well-being of teenagers negatively, especially in a culture that emphasizes highly on obedience^[27].

The existing literature suggests that culturally sensitive tools are needed to measure these parenting styles because several research studies conducted using instruments belonging to the Western context may not be rich enough to capture the cultural flavors of Pakistani families^[31]. For instance, the Parental Authority Questionnaire has recurred to poor internal consistency in the Eastern cultural context and thus has urgent application when assessments are culturally sensitive^[25]. The final difference between male and female parenting is reflected in how males are more freely raised than females, with the latter getting more overprotective parenting styles^[22].

The development of a tool based on the culturally valid assessment of fathers' parenting practices is important for the following reasons: This tool mirrors the cultural context of Pakistan and will be more accurate in providing insight into how fathers interact with children, the expectations placed on them, and the perceived role in the family structure^[2]. Moreover, earlier attempts to measure parenting styles in Pakistan have not used proper psychometric validation^[29]. A novel newly constructed instrument with good validation processes like exploratory factor analysis will be used to ensure the actual detailing of complexities regarding fathers' parenting practice within this culture.

Besides, many of the presently available measurement tools focus mainly on what parents feel concerning their parenting styles to neglect the adolescent's viewpoint^[9]. The inclusion of the perspective of their adolescents regarding the fathers' parenting practice will offer a holistic comprehension of the play dynamics and how these practices impact their development and welfare. Lastly, the existing literature suffers from methodological weakness, which entails that the concepts of parenting styles lack explicit operational definitions, although culturally appropriate measures are conspicuously absent^[1]. In providing answers to these questions, the new tool contributes to a nuanced understanding of parenting in Pakistan and its implications for adolescent mental health and development.

5. Conclusion

This tool will fill a vital gap in the present literature, providing insight into the parenting dynamics pertinent to Pakistani families. By focusing on the specificity of culture, psychometric validity, and the adolescent's perspective, this tool would enable an understanding of how fathers impact the development of their children within a collectivistic culture. Future research should utilize this tool to understand the links of the relationships between fathers' parenting practices and adolescent outcomes with the socio-cultural context in Pakistan.

6. Limitations

Therefore, this study contributes significantly to the understanding of fathers' parenting practices, but it is important to be aware of a few limitations. First of all, the sample size and even the biasness in choosing the participants may influence the psychometric validities of this tool. Last but not least, the use of self-reporting data both from the father and the adolescent youth may exhibit biased responses as they tend to depict what might seem socially desirable rather than their authentic experiences.

7. Recommendations

Further studies engaging a greater spatial scope encompassing regions from different parts of Pakistan can be used to present cultural diversity in the analysis. Longitudinal studies can help understand how fathers expand their parenting practices over time and these continued practices contribute to the adolescent's development over the long term. Mixed-method approaches, like interview qualitative studies, enrich the understanding of fathers' parenting experience. Finally, training programs for practitioners to improve and successfully utilize a new tool can further be undertaken to enhance the application of culturally relevant parenting assessments in clinical and educational settings.

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Ethics Approval Statement

The study was approved by the Institutional Ethics Review Board of the Air University, Islamabad, Pakistan (IERB#10-2024/AU).

Conflict of interest

The authors declare no conflict of interest.

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