Design and Evaluation of the Psychometric Properties of a Paternal Adaptation Questionnaire

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Abstract
The present study aimed to design and evaluate the psychometric properties of the Paternal Adaptation Questionnaire (PAQ). The study was a mixed (qualitative and quantitative) sequential exploratory study. In the qualitative phase, a preliminary questionnaire with 210 items emerged from in-depth interviews with 17 fathers and 15 key informants. In the quantitative phase, psychometric properties of the PAQ were assessed. Considering cutoff points as 1.5 for item impact, 0.49 for content validity ratio (CVR), and 0.7 for content validity index (CVI), items of the questionnaire were reduced from 210 to 132. Assessment of the content validity of the questionnaire demonstrated S-CVR = 0.68 and S-CVI = 0.92. Exploratory factor analysis resulted in the development of a PAQ with 38 items classified under five factors (ability in performing the roles and responsibilities; perceiving the parental development; stabilization in paternal position; spiritual stability and internal satisfaction; and challenges and concerns), which explained 52.19% of cumulative variance. Measurement of internal consistency reported a Cronbach’s α of .89 for PAQ (.61-.86 for subscales), and stability assessment of the PAQ through the test–retest demonstrated Spearman’s correlation coefficients and intraclass correlation coefficient of .96 (.81-.97 for subscales). It was identified that the PAQ is a valid and reliable instrument that could be used to assess fatherhood adaptation with the paternal roles and fathers’ needs, as well as to design appropriate interventions and to evaluate their effectiveness.

Keywords
paternal adaptation, parenting, psychometric properties, questionnaire, fathers

Introduction
Pregnancy and transition to parenthood are evolutionary events with important and complex consequences for parents (Barenski, 2010; Dabney, 2004; Deve & Johnson, 2008) that occur over time and result in the formation of new identities for adults (Barenski, 2010). Parenthood as the prominent sign of evolution in adults causes personal and social changes and challenges existing structures. For instance, the presence of a child in the family may create challenges such as losing freedom, financial problems, job interferences, loss of couples’ personal privacy (Cowan & Cowan, 2000; Katz-Wise, Priess, & Hyde, 2010), and increased demands for child care (Khambatta, 2011).

Following emphasis on the stressfulness of parenting, parenthood adaptation has become a research area of interest. On the findings of these researches, adaptation is defined as a coordination between personal needs and external demands and the applied methods in this regard (Walker & Alvin, 1994). Researchers believe that parenthood adaptation is the result of a family’s efforts to cope with the stressful condition of a child’s presence in the family and interactions between personal and environmental systems (Bowen, 1990), and fatherhood adaptation is defined as the adjustment of men with the paternal role and its related responsibilities and challenges (Ricci & Kyle, 2009). Parental adaptation is a variable with a wide spectrum ranging from nonadaptation to complete adaptation (Alessia & Roufeil, 2012).

For decades, most studies have focused on mother–child relations and have paid little attention to the father’s role (Shwalb & Shwalb, 2014). During recent years, remarkable progresses have been made in studies related to fatherhood; however, there are still many gaps in this area. In this regard, the researchers believe that the PAQ is a valid and reliable instrument that could be used to assess fatherhood adaptation with the paternal roles and fathers’ needs, as well as to design appropriate interventions and to evaluate their effectiveness.
to fatherhood and fathering, and theories have been designed to describe fatherhood, father–child relationships, and paternal roles (Lamb, 2004). Gray and Crittenden (2014) stated that fatherhood has a variety of impacts on men’s lives; for instance, the authors refer to changes in men’s relationship quality, sexual function, neuroendocrine system, and other related outcomes. Thus, the fathering of a child can yield negative health impacts on men (Gray & Crittenden, 2014).

A meta-analysis of available studies showed that men’s experiences of fatherhood can be categorized into three themes of “emotional reactions to the transfer stage including separation, surprise, and confusion”; “defining self-role as a father” and “revision in himself and relationship with partner” (Chin, Hall, & Daiches, 2011). Moreover, Genesoni and Tallandini (2009) defined pregnancy, birth, and postnatal as three stages of paternity. They believed that the greatest need to review and organize psychological aspects in men occurs during the pregnancy stage. Birth and delivery is a deep emotional moment, and the postpartum period is heavily influenced by external factors and considered the most challenging stage for fatherhood adaptation. Barenksi (2010) believes the process of the transition to fatherhood begins with the determination of a pregnancy. This is followed by the father’s exposure and involvement in the childbirth. The postbirth period extends opportunity to the father to interact with and begin to know his child and continue the transitional process into fatherhood (Barenksi, 2010).

According to a recent study by Eskandari, Simbar, Vadadhir, and Baghestani (2016b), adaptation with the paternal role occurs when fathers achieve self-efficacy and satisfaction in fatherhood. When fathers feel that they are able to manage existing conditions and perform paternal tasks, they tolerate the paternal difficulties willingly and decide about having more children. Factors affecting paternal adaptation are classified into “facilitating factors” and “inhibiting factors” with both individual and social aspects. Individual factors are related to fathers’ attitude, knowledge, and skills, and social factors are associated with social norms and support. Although the quantity and quality of fathering research is improving in all societies, expanding knowledge about fathering behavior and its mechanisms (Shwalb & Shwalb, 2014) and measuring paternal adaptation (Eskandari et al., 2016b) is still necessary to plan effective interventions to improve paternal health.

The measurement of parental adaptation requires an appropriate standard instrument. Some questionnaires have been designed to investigate paternal experiences (Premberg, Taft, Hellstorm, & Berg, 2012), maternal adaptation experiences (Javadifar, 2012), fathers’ educational needs for perinatal care (Simbar, Nahidi, & Ramezankhani, 2010), fathers’ functional status (Tulman, Fawcett, & Weiss, 1993), and parental self-efficacy (Sherer et al., 1982). However, to the authors’ knowledge, there is not any valid and reliable scale to measure paternal adaptation status. A paternal adaptation scale can be used to identify fathers with paternal maladaptation and their needs, design appropriate interventions, and investigate their effectiveness (Eskandari et al., 2016b). This study was conducted to design and evaluate the psychometric properties of a Paternal Adaptation Questionnaire (PAQ).

**Methodology**

For the purpose of the present study, a mixed (qualitative and quantitative) sequential exploratory design was used (Tashakkori & Creswell, 2007). The research environment was health care centers affiliated with the Qom University of Medical Sciences of Iran, and participants were men experiencing parenting for the first time. The inclusion criteria for the participants were having one healthy singleton infant, aged >20 years, having the Iranian nationality, being able to speak Persian, and having no history of mental or physical diseases in the parents and infants. Sampling was done from February 2013 to August 2015. This study was conducted in two phases: qualitative phase (designing of the questionnaire) and quantitative phase (assessment of psychometric properties).

**Qualitative Phase: Designing of the Questionnaire**

This phase consisted of a qualitative study including interviews with fathers and key informants as well as a review of the literature. The result of this phase was item generation and a definition of paternal adaptation and its subscales. A qualitative study using an interpretive phenomenological design (Smith, Flowers, & Larkin, 2009) was performed to explain men’s perceptions and lived experiences of paternal adaptation. In-depth individual semistructured interviews were conducted with 17 fathers. A semistructured guide questionnaire consisted of the following open-ended questions: What do you think about fatherhood? Would you please explain your experiences of fatherhood? What does fatherhood mean to you? Interview guide questions were developed by reviewing the related literature and counseling with Iranian experts and was revised following a few pilot interviews. The participants were recruited by purposeful sampling method, and fathers from different socioeconomic positions participated. MAXQDA software (Version 10) was used to facilitate data management. The collected data were analyzed and categorized using Smith’s coding method (Smith et al., 2009).
To complete the concept and dimensions of paternal adaptation and item generation, interviews were conducted with 15 key informants including mothers (spouses of the participants) as well as 12 specialists in the fields of neonatology, educational sciences, religious counselor, counseling, midwifery, and clinical psychology who were recruited by a convenience sampling method. An extensive review of the related literature was performed in Science Direct, PubMed (including Medline), and Google Scholar, and some Persian databases including Scientific Data Base (SID), Azmooynar, and Ravansanji. The keywords used for the search were the following: father, paternal role, paternal adaptation, coping, parent, parenting, and fatherhood. This search encompassed articles and questionnaires related to fatherhood, adaptation, and parenthood. Additionally, some codes about paternal roles were extracted from the Holy Quran and other Muslim religious books.

Last, the extracted codes were utilized to develop items of the PAQ, and the categories were considered as the subscales of the PAQ. After several modifications of the generated items and subscales, the preliminary questionnaire was prepared for assessment of psychometric properties.

**Quantitative Phase: Assessment of Psychometric Properties**

This was a quantitative study to evaluate the psychometric properties of the PAQ including face, content, and constructs validity assessments as well as a reliability measurement of the questionnaire.

**Face Validity.** The face validity was assessed qualitatively and quantitatively through seeking the perspectives of 15 fathers by using the convenience sampling method. For qualitative face validity assessment, face-to-face interviews were performed to determine complexity, relevance, and ambiguity of the items. The items were modified according to the fathers’ viewpoints. In the quantitative face validity assessment, the participants were asked to determine the importance of each item in 5-points Likert-type scale. Also, the item impact score for each item was calculated using the following formula:

\[
\text{Item Impact} = \text{Frequency in percentage} \times \text{Importance}
\]

The items with an item impact score lower than 1.5 were omitted (Polit & Beck, 2006).

**Content Validity.** To evaluate content validity of the PAQ qualitatively and quantitatively, the questionnaires were assessed by 15 specialists in the fields of psychology, counseling, sociology, reproductive health, health education, and educational sciences. In the qualitative content validity assessment, the specialists were asked to judge the items regarding their grammar, choice of vocabulary, placement of items, and scoring (Polit & Beck, 2006). In quantitative content validity, content validity ratio (CVR) and content validity index (CVI) were calculated (Polit & Beck, 2006). Grant and Davis (1997) state that the number of specialists required to determine content validity can range from 2 to 20 people. To accomplish this, 15 specialists were asked to evaluate each item with regard to importance, simplicity, relevance, and clarity. A 3-point Likert-type scale (essential, useful but not essential, not essential) was used to determine items’ importance, and a 4-point Likert-type scale (not related, partially related, related, and completely related) was used with regard to relevance (Waltz, Strickland, & Lenz, 2010). CVR was calculated through the following formula:

\[
\text{CVR} = \frac{n_e - (N/2)}{N/2}
\]

where \(n_e\) stands for the number of specialists who have chosen the option “It is essential” and \(N\) is the total number of specialists. According to Lawshe’s (1975) table, the CVR score of 0.49 or above was considered significant. CVI was calculated according to the following formula:

\[
\text{CVI} = \frac{\text{Number of raters choosing points 3 and 4}}{\text{Total number of raters}}
\]

Items with a CVI higher than 0.79, between 0.70 and 0.79, and lower than 0.70 were considered suitable, needing modification, and unacceptable, respectively (Polit & Beck, 2006). The sum of content validity ratio (S-CVR) and sum of content validity index (S-CVI) were obtained through the calculation of mean of items’ CVR and CVI.

**Construct Validity.** Construct validity was evaluated through exploratory factor analysis (EFA) on 190 questionnaires completed by fathers. Munro (2005) states that the required number of respondents for EFA is between 3 and 10 persons per item, or a total of 100 to 200 respondents. Kaiser-Mayer-Olkin (KMO) and Bartlett tests were measured to assess sampling adequacy for EFA. To reach the significance level for the KMO and Bartlett tests, 190 fathers completed the PAQ. A multistage cluster sampling method from 16 health centers of 8 Qom civil areas was used to recruit subjects of the study. Since the maximum number of respondents could be 200 people, 13 questionnaires were assigned to each health care center and sampling was performed continuously for 2 weeks. Those fathers who met the study’s inclusion criteria were requested to complete the
PAQ. The items were examined regarding suitability to enter the analysis phase, and the items with commonalities of ≥0.4 or higher were chosen as the suitable items. The eigenvalue ≥1 and scree plot were used to determine the number of the extracted factors. The EFA with Promax rotation was performed by minimum factor loading of 0.4, minimum eigenvalue of 1, and limiting the number of factors to 5. Therefore, the PAQ’s factors were determined and items with high correlation were placed in the related factors.

**Reliability.** To confirm the PAQ’s reliability, internal consistency was measured through Cronbach’s alpha calculation, and the questionnaire’s stability was determined through the calculation of the correlation coefficient of the test–retest and the intraclass correlation coefficient. Colton and Covert (2007) believed that evaluating the reliability of an instrument needs a sample of 25 respondents. This number seems to be as low as 10 for evaluating stability. In an attempt to confirm internal consistency, the PAQ was given to 30 eligible fathers chosen through a convenience sampling method. For evaluating stability through the test–retest method, the correlation of scores of the two tests with a 2-week interval was computed for 10 respondents chosen using a convenience sampling method. The SPSS software for Windows version 21.0 was used to perform all statistical analyses. A summary of the instrument development and psychometric evaluation is presented in Figure 1.

The ethics committee affiliated with Shahid Beheshti University of Medical Sciences approved the study (Decree Number: SBMUZ.Rec.1394.76). Aims and processes of the study were explained to fathers. They were assured of the confidentiality of collected data and the

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**Figure 1.** A summary of the instrument development and psychometric evaluation.

| Interviews with 15 key informants | Review of literature | In-depth interviews with 17 fathers |
|-----------------------------------|---------------------|-----------------------------------|
| Code extraction and initial pool formation (252 items) | Instrument design (210 items) | |
| Assessment of psychometric properties | Validity assessment | |
| Reliability assessment | Face validity | |
| Internal consistency | 26 items were deleted | |
| Test-retest | 2 items were added | |
| Intra-class correlation coefficient | 59 items were corrected | |
| Content validity | 56 items were deleted | |
| Constructs validity | 2 items were corrected | |
| Confirmation psychometric properties of PAQ (38 items) | 94 items were deleted | |
possibility of withdrawal from the study at any time. Last, participants signed a written informed consent before participating in this study.

Findings

Findings of the present study are presented in two parts: designing the instrument and assessing the psychometric properties of the PAQ.

Qualitative Phase: Designing of the Questionnaire

Interviews with the fathers and key informants and the literature review led to the explanation of the concept of paternal adaptation in four subscales: “understanding the fatherhood concept,” “attaining the requirements of fatherhood,” “understanding the paternal revolution and conversion,” and “stabilizing in paternal position.” On these findings, the initial pool included 252 items: 204 items were extracted from interviews with fathers, 25 items from interviews with key informants, and 23 items from the review of literature. The items were reviewed by the research team with regard to integrity and to find the repetitive and overlapping items, which led to the reduction of items to 210. A 5-point Likert-type scale was devoted to items of each subscale from 1 (strongly disagree/never) to 5 (strongly agree/always). This phase resulted in a preliminary questionnaire with 210 items.

Quantitative Phase: Assessment of Psychometric Properties

The stage of designing the PAQ was followed by the psychometric assessment phase during which the questionnaire was evaluated with regard to face, content, and constructs validity as well as reliability.

Face Validity. In the qualitative face validity assessment, 59 items were modified based on the fathers’ suggestions, 15 items were merged with other items because of overlapping content, and 1 item was omitted since it was judged as axiomatic. Fathers’ ideas helped in adding two items to the questionnaire. Ten items were deleted during the quantitative assessment of face validity because they obtained an item impact score lower than 1.5. Finally, the 187-item questionnaire entered the content validity measurement phase.

Content Validity. In the qualitative content validity assessment, specialists’ perspectives led to the omission of five items due to repetitiveness and the modification of two items. In quantitative validity assessment, CVR and CVI were computed and 51 items were omitted because CVR was lower than 0.49 and CVI was less than 0.7. S-CVR and S-CVI turned out to be 0.92 and 0.68, respectively. The outcome of content validity assessment was a 132-item questionnaire.

Construct Validity. During the assessment of construct validity, when the number of respondents reached 190 people, the KMO index reached the value of 0.87 and the result of Bartlett’s sphericity test became significant ($p = .000$). Therefore, the researchers stopped sampling and the construct validity was evaluated. The items were examined concerning their suitability to enter analysis, and 38 items with commonalities equal to or greater than 0.4 were recorded as suitable items. Scree plot was used to predict the number of scale’s factors. The scree plot suggested five factors that became the default for factor analysis (Figure 2).

Five factors that explained 52.19% of cumulative variance of the PAQ were identified using the minimum eigenvalues of 1. After Promax rotation and considering the factor loading of 0.4, the items forming each factor were identified. Table 1 reports the rotated factor matrix of the PAQ. The research team named the factors according to their content and moved items as follows: Item 13 was moved to Factor 4, Item 36 to Factor 5, and Item 31 to Factor 1.

Reliability. To ensure reliability, both internal consistency and stability of the PAQ were assessed. Internal consistency was measured through the calculation of Cronbach’s $\alpha$ at .862 for the whole instrument. To investigate stability, using the test–retest method, the correlation between the two testing occasions was computed. Correlation coefficient and intraclass correlation coefficient of the whole questionnaire was reported .962, which was statistically significant. Table 2 displays the results of questionnaire’s reliability assessment. After confirming validity and reliability of the PAQ, the instrument was finalized. The quantitative phase of this study resulted in a PAQ with 38 items and 5 subscales: “ability in performing the roles and responsibilities,” “perceiving the parental development,” “stabilization in paternal position,” “spiritual stability and internal satisfaction,” and “challenges and concerns” (Table 3).

Description of the Questionnaire and Scoring Procedures

The questionnaire was based on a 5-point Likert-type scale ranging from 1 to 5. The last subscale, “challenges and concerns,” was scored reversely. The range of scores for the whole questionnaire and its subscales are presented in Table 4. The total score of the PAQ and its subscales can be calculated and presented as percentages. The range of
Discussion

This study introduced a reliable and valid scale to assess paternal adaptation. The questionnaire is constructed from five subscales: “ability in performing the roles and responsibilities,” “perceiving the parental development,” “stabilization in paternal position,” “spiritual stability and internal satisfaction,” and “challenges and concerns.” It is demonstrated that paternal adaptation is defined as understanding the fatherhood concept, attaining the requirements of fatherhood involving adoption of some traits and performing fatherhood functions and responsibilities, and understanding the evolution and conversion. It ultimately leads to stabilization in paternal position concerning self-efficacy and parental satisfaction (Eskandari et al., 2016b). Fatherhood is a psychosocial concept made by the interaction of existing social structures such as family, society, and other circumstances concerning fatherhood (Ny, Plantin, Dejin-Karlsson, & Dykes, 2008). Fatherhood transition is a developmental process, and similar to other types of transitions, it is associated with different challenges. Provisions of help to fathers to cope with fatherhood and adapt to its associated changes lead to their health promotion (Barenski, 2010). Since fathers play a critical role in the health of families and children (World Health Organization, 2007), development of a PAQ as a valid and reliable instrument to measure the paternal adaptation was necessary to assess fathers’ adaptation with paternal role, identify fathers with paternal maladaptation and their needs, as well as to plan appropriate interventions, and evaluation of the interventions.

In the current study, a mixed methods exploratory study was conducted to design a PAQ. Initially, the questionnaire’s items were extracted from interviews with fathers and key informants as well as an extensive literature review. Since no study was found aiming to design and assessment of an instrument to measure paternal adaptation, the current findings are compared with those of similar instruments. Simbar, Nahidi, Ramezani-Tehrani, and Akbarzadeh (2011) conducted a mixed method exploratory study to investigate educational needs of fathers regarding perinatal care in Tehran. After conducting focus group interviews with men and women in the perinatal care units affiliated with Shahid Beheshti University of Medical Sciences and literature review, a questionnaire was developed with 62 items (Simbar et al., 2011). Premberg et al. (2012), using exploratory research, designed and assessed the psychometric properties of a questionnaire and studied the lived experiences of first-time fathers. To achieve this aim, they reviewed existing literature, conducted interviews with fathers, and held focus group interviews with specialists from various
Table 1. Rotated Factor Matrix of the PAQ.

| Factor | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|--------|----------|----------|----------|----------|----------|
| 1. I meet my child’s emotional needs. | .725     | . . . . . | . . . . . | . . . . . | . . . . . |
| 2. I meet my spouse’s emotional needs. | .674     | . . . . . | . . . . . | . . . . . | . . . . . |
| 3. I mind my child’s medical and health care issues. | .671     | . . . . . | . . . . . | . . . . . | . . . . . |
| 4. I care about my child’s safety. | .670     | . . . . . | . . . . . | . . . . . | . . . . . |
| 5. I have a friendly and intimate relationship with my child. | .645     | . . . . . | . . . . . | . . . . . | . . . . . |
| 6. I spend enough time on my child’s bring-up. | .647     | . . . . . | . . . . . | . . . . . | . . . . . |
| 7. I seek knowledge concerning the way to bring up my child. | .647     | . . . . . | . . . . . | . . . . . | . . . . . |
| 8. I am careful with choosing suitable companions for my family. | .639     | . . . . . | . . . . . | . . . . . | . . . . . |
| 9. I manage and tackle my family problems. | .634     | . . . . . | . . . . . | . . . . . | . . . . . |
| 10. I plan to educate my child. | .619     | . . . . . | . . . . . | . . . . . | . . . . . |
| 11. I provide my family with comfort and peace. | .613     | . . . . . | . . . . . | . . . . . | . . . . . |
| 12. I prepare my child for social life. | .542     | . . . . . | . . . . . | . . . . . | . . . . . |
| 13. I enjoy bringing up my child. | .504     | . . . . . | . . . . . | . . . . . | . . . . . |
| 14. I understand the concept and meaning of life better. | .796     | . . . . . | . . . . . | . . . . . | . . . . . |
| 15. I have been more responsible since my childbirth. | .725     | . . . . . | . . . . . | . . . . . | . . . . . |
| 16. My child’s birth has given meaning and purpose to my life. | .706     | . . . . . | . . . . . | . . . . . | . . . . . |
| 17. I have reached completion after being a father. | .625     | . . . . . | . . . . . | . . . . . | . . . . . |
| 18. I have been less anxious and more relaxed. | .597     | . . . . . | . . . . . | . . . . . | . . . . . |
| 19. I have improved my temper and behavior since my childbirth. | .596     | . . . . . | . . . . . | . . . . . | . . . . . |
| 20. I understand my parents’ parental feelings better since my childbirth. | .406     | . . . . . | . . . . . | . . . . . | . . . . . |
| 21. My child’s fortune is the common goal of my wife and I. | .512     | . . . . . | . . . . . | . . . . . | . . . . . |
| 22. I can obtain enough knowledge for bringing up my child. | .672     | . . . . . | . . . . . | . . . . . | . . . . . |
| 23. My wife and I have stricken a balance between our relationship and the new circumstances. | .652     | . . . . . | . . . . . | . . . . . | . . . . . |
| 24. I have enough ability and skill to take care of my child. | .649     | . . . . . | . . . . . | . . . . . | . . . . . |
| 25. I attained enough knowledge about child bring up and its concomitant problems before my child’s birth. | .645     | . . . . . | . . . . . | . . . . . | . . . . . |
| 26. My responsibilities in taking care of my child are clear. | .602     | . . . . . | . . . . . | . . . . . | . . . . . |
| 27. Our home atmosphere is peaceful and comfortable. | .569     | . . . . . | . . . . . | . . . . . | . . . . . |
| 28. I can manage the present conditions. | .535     | . . . . . | . . . . . | . . . . . | . . . . . |
| 29. I meet my responsibilities well as a father. | .512     | . . . . . | . . . . . | . . . . . | . . . . . |
| 30. I trust in God in time of trouble. | .777     | . . . . . | . . . . . | . . . . . | . . . . . |
| 31. My child’s religious bring-up is important to me. | .646     | . . . . . | . . . . . | . . . . . | . . . . . |
| 32. I have come to a better understanding of meaning and concept of life. | .634     | . . . . . | . . . . . | . . . . . | . . . . . |
| 33. I am content that I’m a father. | .631     | . . . . . | . . . . . | . . . . . | . . . . . |
| 34. I am hopeful of the future of mine and my child. | .590     | . . . . . | . . . . . | . . . . . | . . . . . |
| 35. I am proud of myself as a father. | .530     | . . . . . | . . . . . | . . . . . | . . . . . |
| 36. I can spend time on my personal and favorite issues. | .411     | . . . . . | . . . . . | . . . . . | . . . . . |
| 37. My child’s crying and insomnia worries me. | .844     | . . . . . | . . . . . | . . . . . | . . . . . |
| 38. Inability and vulnerability of my infant extremely worries me. | .827     | . . . . . | . . . . . | . . . . . | . . . . . |

Note. PAQ = Paternal Adaptation Questionnaire.

Table 2. Stability Coefficient and Interclass Correlation Coefficient of the PAQ’s Components.

| Factor                              | Cronbach’s α coefficient | Interclass correlation coefficient | Test–retest correlation coefficient |
|-------------------------------------|--------------------------|-----------------------------------|-----------------------------------|
| Subscale of ability in performing the roles and responsibilities | .852                     | .819                              | .819                              |
| Subscale of perceiving the parental development | .643                     | .922                              | .922                              |
| Subscale of stabilization in paternal position | .861                     | .978                              | .978                              |
| Subscale of spiritual stability and internal satisfaction | .792                     | .896                              | .896                              |
| Subscale of challenges and concerns | .613                     | .826                              | .826                              |
| Total                               | .892                     | .962                              | .962                              |

Note. PAQ = Paternal Adaptation Questionnaire.
**Table 3.** The PAQ at the End of Assessment of Psychometric Properties.

| As a father . . .                  | Never | Rarely | Sometimes | Often | Always |
|-----------------------------------|-------|--------|-----------|-------|--------|
| 1. I meet my child’s emotional needs. |       |        |           |       |        |
| 2. I meet my spouse’s emotional needs. |       |        |           |       |        |
| 3. I mind my child’s medical and health care issues. |       |        |           |       |        |
| 4. I care about my child’s safety. |       |        |           |       |        |
| 5. I have a friendly and intimate relationship with my child. |       |        |           |       |        |
| 6. I spend enough time on my child’s bring-up. |       |        |           |       |        |
| 7. I seek knowledge concerning the way to bring up my child. |       |        |           |       |        |
| 8. I am careful with choosing suitable companions for my family. |       |        |           |       |        |
| 9. I manage and tackle my family problems. |       |        |           |       |        |
| 10. I plan to educate my child. |       |        |           |       |        |
| 11. I provide my family with comfort and peace. |       |        |           |       |        |
| 12. I prepare my child for social life. |       |        |           |       |        |
| 13. My child’s religious bring-up is important to me. |       |        |           |       |        |

| I feel that . . . after my child’s birth. | Strongly disagree | Disagree | Have no idea | Agree | Strongly agree |
|------------------------------------------|-------------------|----------|---------------|-------|----------------|
| 14. I understand the concept and meaning of life better. |       |        |               |       |                |
| 15. I have been more responsible. |       |        |               |       |                |
| 16. My life has meaning and purpose now. |       |        |               |       |                |
| 17. I have reached completion. |       |        |               |       |                |
| 18. I have been less stressed and more relaxed. |       |        |               |       |                |
| 19. I have improved my temper and behavior. |       |        |               |       |                |
| 20. I can understand my parents’ parental feelings more. |       |        |               |       |                |
| 21. My child’s fortune is the common goal of my wife and I. |       |        |               |       |                |

| I easily cope with being a father because . . . | Strongly disagree | Disagree | Have no idea | Agree | Strongly agree |
|-------------------------------------------------|-------------------|----------|---------------|-------|----------------|
| 22. I can obtain enough knowledge about bringing up my child. |       |        |               |       |                |
| 23. My wife and I have stricken a balance between our relationship and the new circumstances. |       |        |               |       |                |
| 24. I have enough ability and skill to take care of my child. |       |        |               |       |                |
| 25. I attained enough knowledge about child bring-up and its concomitant problems before my child’s birth. |       |        |               |       |                |
| 26. My responsibilities for taking care of my child are clear. |       |        |               |       |                |
| 27. Our home atmosphere is peaceful and comfortable. |       |        |               |       |                |
| 28. I can manage the present conditions. |       |        |               |       |                |
| 29. I meet my responsibilities well. |       |        |               |       |                |

| I am satisfied with having a child because . . . | Never | Rarely | Sometimes | Often | Always |
|-------------------------------------------------|-------|--------|-----------|-------|--------|
| 30. I trust in God in time of trouble. |       |        |           |       |        |
| 31. I owe my financial blessings to the presence of my child. |       |        |           |       |        |
| 32. I am pleased to be a father. |       |        |           |       |        |
| 33. I am hopeful of the future of mine and my child. |       |        |           |       |        |
| 34. I enjoy bringing up my child. |       |        |           |       |        |
| 35. I am proud of myself as a father. |       |        |           |       |        |

| I am stressed and worried because . . . | Never | Rarely | Sometimes | Often | Always |
|----------------------------------------|-------|--------|-----------|-------|--------|
| 36. My child’s crying and insomnia worries me. |       |        |           |       |        |
| 37. Inability and vulnerability of my infant extremely worries me. |       |        |           |       |        |
| 38. I can’t spend time on my personal and favorite issues. |       |        |           |       |        |

*Note. PAQ = Paternal Adaptation Questionnaire.*
fields such as sociology, psychology, and midwifery. It led to a questionnaire with 46 items.

Face validity, content validity, construct validity, and reliability are required for the assessment of psychometric properties of an instrument (Burns & Grove, 2009; Hajizadeh & Asghari, 2011; Lobiondo-Wood & Haber, 2006; Polit & Beck, 2013; Waltz et al., 2010). The face validity of the PAQ was ensured through eliciting the ideas of 15 fathers. Also, content validity was determined through perspectives provided by 15 specialists. Simbar et al. (2011) evaluated the face and content validity of their questionnaire through eliciting the opinion of 10 reproductive health specialists. Likewise, Premberg et al. (2012) evaluated face validity with the help of eight first-time fathers. However, they did not represent any information regarding the method employed to assess content validity.

To assess construct validity of the PAQ, EFA was utilized that resulted in five factors that explained 52.19% of cumulative variance of the PAQ. In Premberg et al.’s (2012) study, EFA extracted four factors that explained 44% of cumulative variance. Simbar et al. (2011) presented no information regarding construct validity of the fathers’ educational needs instrument.

In the process of reliability assessment, this study obtained a Cronbach’s α of .89 for internal consistency and a correlation coefficient of .96 for stability through the test–retest method with a 2-week interval. In Simbar et al.’s (2011) study, the reliability was assessed through the test–retest and split-half methods. They reported a correlation coefficient of .96 for split-half and .92 for the test–retest methods. The result of internal consistency assessment through Cronbach’s α was .65 to .82 for subscales of the instrument in the Premberg et al. (2012) study.

The current PAQ was designed and evaluated in Iran to assess paternal adaptation. Although this questionnaire was designed based on Iranian men’s experiences of parenting, it is believed that the meaning and experiences of fatherhood, the concept of paternal adaptation, and inhibitors and facilitators of parental adaptation are same in Iranian men and men in other societies (Barenski, 2010; Bradley, Boath, & Mackenzie, 2004; Carneiro et al., 2012; Eskandari, Simbar, Vadadhir, & Baghestani, 2016a, 2016b; Graham, 2007; Kowlessar, 2012; Lewis & Lamb, 2003; Mbekenga, Lugina, Christensson, & Olsson, 2011; Premberg, Hellström, & Berg, 2008). Therefore, the assessment of psychometric properties of this scale in other societies is suggested to improve its generalizability to other contexts and cultures.

**Conclusion**

It was identified that the PAQ is a valid and reliable instrument that can be used to assess fatherhood adaptation with the paternal role. The PAQ with 38 items as a valid and reliable instrument is an easy to answer questionnaire that can measure paternal adaptation conveniently. Although the PAQ is designed and evaluated based on the Iranian context and culture, it can be used by health care professionals over the world with a similar culture and context.

**Limitations**

Unwillingness of some fathers to participate in the study may be considered as a limitation of this study since they might have different experiences of paternal adaptation that may affect the results of this study. For example, those fathers with unpleasant experience of fathering may be ignored in sampling.

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