Developing and Validating a Questionnaire to Measure Attitude toward Child Adoption: A Psychometric Process

Abstract

Background: Despite the mutual benefit of adoption, due to the adverse attitude related to the barriers perceived by the couples, some people are not interested in adoption. The purpose of this study was to develop and validate a questionnaire to measure attitudes toward child adoption. **Materials and Methods:** This secondary analysis is part of a larger study on 178 infertile couples referring to the Afzalipour Infertility Center in Kerman, Iran. Factor Analysis (FA) was performed. The sampling was conducted using the convenience sampling method. The questionnaire was implemented using a mixed-method approach in three phases. Firstly, a pool was created. The second phase involved content validity. Lastly, construct validity was conducted. **Results:** The final version of the questionnaire with 20 questions had a total Cronbach's alpha of 0.70%. Six factors with eigenvalues of higher than 1.00 were extracted, which accounted for 52% of the total variance. These factors were "spiritual–psychological status of the new parents," "psychological status of the adopted child," "undesirable behaviors of others in the future," "anxiety of the new parents," "physical–behavioral characteristics of the adopted child," and "socio-economic factors." The model extracted from the Exploratory Factor Analysis (EFA) was confirmed by Confirmatory Factor Analysis (CFA). The 6-factor structure adequately fitted the data (Comparative Fit Index (CFI) = 0.93; root mean square error of approximation [RMSEA] = 0.047; X^2/df = 1.393; p = 0.002. **Conclusions:** The internal consistency and construct validity of the questionnaire were confirmed. This instrument can be used in clinical and research practices.

Keywords: *Adoption, attitude, infertility, instruments, Iran, psychometric*

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Introduction

Infertility is a crisis that psychologically threatens and emotionally pressurizes families. In Iran, the results of the analysis of 58,746 participants showed that the prevalence of primary infertility was 5.0% and the prevalence of secondary infertility was 2.0%. The prevalence of primary and secondary infertility by gender was higher in women (6% and 3%, respectively). The prevalence of primary infertility was more common in people under the age of 35 years.[1]

Adoption is an international issue whereby the adopted child and the adopting parents can establish a family to offer permanent child care and support. This new family acts as a replacement for the child's main family and is supposed to offer care and support that are more suitable than those provided by orphanages.[2] Adoption involves the delegating of the guardianship of parentless children to applicants who meet the necessary criteria.[3]

It has been shown that the number of children and gender are strongly related to contemplating adoption; thus, being a woman and having fewer children increases the likelihood of adoption.[4] Both couples' infertility, exposure to adoption-related situations, blood relation to the child, and lack of belief in the biological parent's superiority over the adoptive parent are also factors that reinforce adoption likelihood. People who care about the blood relationship with a child in family relationships or are concerned that adopted children may display adaptive, behavioral, or medical problems are less likely to consider adoption.[5] Despite the above-facilitating factors, the attitude toward adoption is generally negative.[6] Moreover, many couples mention cultural practices, fears of judgment, financial consequences, and

legal (technical) barriers as factors that hamper them from adopting a child or push them to consider other therapeutic methods. The long waiting duration for a child, exorbitant costs, red tape, and unnecessary bureaucracy along with multiple inspections and scrutiny of families, fingerprinting, analyses of criminal and medical records, and rigid laws[7] are some of the deterrents reported in many countries. In addition, the hope of becoming fertile in the future and a woman's sense of unfulfilled maternal role in case of adoption[8] are other barriers to adoption.

Child adoption is psychologically dissatisfying, and a number of familial factors that can hinder the practice of child adoption include high importance given to blood relations, blaming of women for infertility, unpredictable negative influences on the family, discrimination against the adopted child, and the family's reluctance regarding the adopted child's inheritance of properties.[9] The main challenges to child adoption in Iran are legal and cultural obstacles, the spouse's attitude toward child adoption, and the opinion of significant others.[10] Moreover, family disruption and a plethora of other factors have left many children unsupervised and deprived of adequate support and care.

Despite the mutual benefit of adoption, some people are not interested in adoption due to the outdated and generally adverse attitude toward adoption as well as various barriers perceived by the couples. For counseling and decision-making of infertile couples in infertility clinics, after the failure of Assisted Reproductive Technology (ART), an instrument investigating people's attitudes based on their needs and challenges regarding adoption seems to be very beneficial. The purpose of this study was to design and develop a tool for measuring infertile couples' attitudes toward adoption.

Materials and Methods

This mixed method analysis (exploratory sequential mixed methods design) was conducted in the whole of 2020 to create the "attitude toward child adoption" questionnaire and investigate its psychometric properties.

The questionnaire was developed and tested using a mixed-method approach in three phases. In the first phase, an item pool was created. Then, its validity was evaluated using the Content Validity Ratio (CVR) and Content Validity Index (CVI). In the third phase, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to assess its construct validity.

To set up the initial item pool, two approaches were applied, a review of qualitative studies and existing literature, and individual interviews. To investigate the attitude of people toward child adoption, its pros and cons, and their related challenges and conflicts, 60 participants, who agreed to participate in the interviews, were selected using a purposeful sampling method and were interviewed using a semi-structured interview design. To maximize the diversity of the interviewees, participants of both sexes with diverse age and occupation profiles, regardless of their marital status and fertility, were interviewed. Among them, infertile people and parents who were infertile before childbearing were seen. We created this tool according to the attitudes of diverse people in society and then, measured its psychometric properties among infertile people. Interviews were transcribed and data analysis was conducted using content analysis based on Graneheim and Lundman's method. The interviews were analyzed and codes were extracted. Then, codes were organized into categories. Finally, categories were converted into themes.

The initial item pool consisted of 50 items related to different aspects of positive or negative attitudes and perceptions toward child adoption (personal, cultural, economic, legal, religious, emotional, and the child- and the biological parents-related factors). The items were scored on a 4-point Likert scale ranging from 0 to 3 (from completely disagree to completely agree) with more positive attitudes gaining higher scores.

The second phase involved an assessment of content validity using CVR and CVI. To determine the content validity ratio, 10 specialists working in the fields of infertility health, midwifery, psychology, and health education accepted and completed the related forms. The CVR of each item was then calculated using the Lawshe formula. Because there were 10 evaluators in the present study, a minimum acceptable value of 0.62 was set for Lawshe. All items of the questionnaire had acceptable CVR (>0.80). Moreover, all items had an acceptable CVI (0.70–0.79). In the third phase, construct validity and internal consistency were assessed. Using the convenience sampling method, 178 infertile couples referring to the Afzalipoor infertility center in Kerman, Iran, were selected. The study inclusion criteria included couples referring to the infertility clinic for ART, and having no history of psychological disorders over the last 6 months (from October 2018 until March 2019). The study exclusion criterion was an unwillingness to participate in the study. All people referring to the clinic, who were willing to participate in the study, filled out the questionnaire. If the participants were illiterate, the researcher read out the items and recorded their responses.

The construct validity of the questionnaire was assessed using both EFA and CFA (Confirmatory factor analysis). Furthermore, the reliability of the instrument was assessed using internal consistency, and Cronbach's alpha value was reported. The reliability analysis and EFA were conducted using the SPSS software (version 19, SPSS Inc., Chicago, IL, USA). Barlett's test and the Kaiser–Meyer–Olkin (KMO) test were used to evaluate whether the data had been appropriate for the analysis. KMO is a measure of sampling adequacy with a value within the range of 0 and 1, which should be greater than 0.5 for a satisfactory factor analysis.

A cut-off value of 0.4 is used to identify significant factor loading. Principal component analysis (PCA) and the varimax rotation were conducted to identify a simple structure factor. To determine which factor should remain, we used an eigenvalue of higher than 1 as well as the screen plot. Cronbach's alpha coefficient was used to assess the reliability of the questionnaire. To analyze the data, CFA was performed using SPSS AMOS (version 21, IBM Corp., Armonk, NY, USA). Chi-square to the degree of freedom ratio (X^2/df) and some other indices were used to evaluate the model's fitness, with lower X^2/df values, that is, values of less than 5, being considered fit. A statistically insignificant Chi-square reveals the model's fitness, and other fitting statistics such as the Comparative Fit Index (CFI), Tucker Levis Index (TLI), and Goodness of Fit Index (GFI) are usually within the range of 0 and 1, with values greater than 90% indicating good fit. In the root mean square error of approximation (RMSEA), values <0.08 are considered appropriate.

Sample size calculation was based on the rule of thumb of five respondents for every item. Therefore, the sample size in this study (*n* = 178) was acceptable.

Ethical considerations

The present study was approved by the Ethics Committee with the code IR.KMU.REC.1399.472. After obtaining permission from the security unit of Afzalipour Hospital for its infertility center, we gained entry to the infertility clinic of the hospital. This is the biggest and the only governmental-educational infertility clinic. An informed consent form was obtained from every individual who filled out the questionnaire. Participants were ensured the confidentiality of their information.

Results

The demographic characteristics of the participants are presented in Tables 1 and 2. The mean age of the participants was 31.50 years and their mean infertility duration was 5.70 years [Table 1]. The demographic characteristics of the participants such as gender, education, occupation, income, residency, the reason for infertility, and frequency of previous ART are presented in Table 2. The total Cronbach's alpha of the first, second, third, fourth, fifth, and sixth subscales was 0.70, 75, 0.69, 0.73, 0.72, and 0.79, respectively.

Exploratory factor analysis

According to the results, Bartlett's test of sphericity was estimated at (X^2 = 835.09, df = 190; *p* < 0.001) and KMO was estimated at 0.721. Three factors with an eigenvalue of above 1.00 were eliminated, which accounted for 64% of the total variance. The eigenvalues of the six factors were 4.35, 2.62, 1.90, 1.53, 1.44, and 1.09.

The factors were labeled "spiritual–psychological status of new parents," "psychological status of the adopted child,"

Table 1: Age and years of infertility (min, max, and mean [SD])

Variable	Min	Max	Mean (SD)
Age	19	44	31.50 (5.22)
Years of infertility	0.50	22	5.70 (3.63)

Table 2: Demographic characteristics of participants) number and percentage)

Variable	N (%)
Gender	
Men	116 (65.20)
Women	62 (34.80)
Education	
Illiterate	4 (2.20)
Primary school	27 (15.20)
High school diploma	59 (33.10)
Two-year degree	23 (12.90)
Bachelor's degree	58 (32.60)
Master, PhD, or equal	6 (3.40)
Income	
Less than 237 US $	100 (56.20)
Between 237 and 474 US $	57 (32.00)
More than 474 $	14 (7.90)
Occupation	
Housewife	95 (53.40)
Government employee	56 (31.40)
Self-employed	15 (8.50)
Student	5 (2.80)
Health workers	2 (1.40)
Residency	
Urban	133 (74.70)
Rural	42 (23.60)
Cause of infertility	
Male	42 (23.60)
Female	34 (19.10)
Both	24 (13.50)
Unknown	70 (39.30)
Frequency of previous Assisted Reproductive Technology (ART)	72 (40.40)
	53 (29.80)
0	19 (10.70)
1	16 (9.00)
2	3 (1.70)
3	6 (3.40)
4	2 (1.10)
5	1 (0.60)
6	1 (0.60)
8	173 (97.20)
Others	
Total	

Table 3: The results of Exploratory Factor Analysis (EFA) using principal component analysis method with varimax rotation for the questionnaire

Number	Question	1	2	3	4	5	6
Q1	People other than the mother and father could raise and afford the expenses of an orphan.	0.75					
Q2	New parents' kindness to an adopted child can be the same as that to their biological child.	0.64					
Q3	New parents spend for an adopted child the same amount as that for a biological child.	0.64					
Q4	Accepting an adopted child has an afterlife reward.	0.50					
Q5	Religious issues are not in conflict with adoption.	0.76					
Q6	Having a child after the adopted child does not reduce the parents' love and acceptance of the adopted child.		0.80				
Q7	It is true that awareness of being an adopted child can have negative consequences for the child, but if we tell the child in a timely and correct manner, the possibility of psychological harm is low.		0.61				
Q8	Being adopted does not mean being unlucky.		0.59				
Q9	Fear and distress regarding the attitude of their family members and other people should not dissuade new parents from adoption.		0.57				
Q10	There is little possibility of the adopted child leaving the new parents after many years to find the biological parents.			0.86			
Q11	It is unlikely that the biological parents be found after many years.			0.84			
Q12	It is unlikely that acquaintances will tell the child about the adoption due to disputation with the adoptive parents.			0.70			
Q13	If I have an adopted child, I am always worried that she/he will realize that he/she is not our biological child.				0.88		
Q14	If I have an adopted child, I am always worried that he/she realizes that he/she is not our biological child.				0.76		
Q15	If I have an adopted child, I am worried about the point of view and attitudes of others.				0.69		
Q16	If I have an adopted child, I am worried that the adopted child will behave inappropriately in the future.					0.89	
Q17	If I have an adopted child, I am worried that the adopted child will have) a(genetic disease) s).					0.84	
Q18	If I have an adopted child, I am worried that the adopted child will not look like me and my spouse.					0.59	
Q19	Adopting is only suitable for people who have a good financial status.						0.89
Q20	Adoption is only suitable for people who have a good educational and social status.						0.88
Eigen value (pre-rotation)		4.35	2.62	1.90	1.53	1.44	1.08
Percentage of variance		21.76	13.14	9.52	7.67	7.21	5.47

"undesirable behaviors of others in the future," "anxiety of the new parents," "physical–behavioral characteristics of the adopted child," and "socio-economic factors." The screen plot also indicated six factors [Table 3]. In addition, the model extracted from EFA was confirmed by CFA. The 3-factor structure displayed a good fit with data (CFI = 0.93; TLI = 0.91; RMSEA = 0.047; X^2/df = 1.393; p = 0.002) [Table 3]. X^2/df value of less than 5 is acceptable.[11]

Discussion

This study was designed to develop and conduct a questionnaire for the assessment of attitudes toward child adoption. The psychometric properties of this tool including reliability (internal consistency) and factorial structure (CFA and EFA) were evaluated in a sample of infertile people.

In addition, the Item Response Theory (IRT) could also be employed for deep evaluation of the psychometric properties of each item, which induces a higher sense of confidence when including key items in the tool.[12] Moreover, the Classic Test Theory (CTT) was utilized for analyses. The IRT model requires a large sample of >1000. Therefore, to finalize the tool for obtaining accurate results, the consistency of our data with that of a longitudinal study must be evaluated. This questionnaire was found to

have medium internal consistency and desirable construct validity.

Accordingly, the six factors extracted included "spiritual–psychological status of the new parents (a)," "psychological status of the adopted child (b)," "undesirable behaviors of others in the future (c)," "anxiety of the new parents (d)," "physical-behavioral characteristics of the adopted child (e)," and "socio-economic factors (f)." It is noteworthy that worries about the future were dominant that have led to a more negative attitude toward child adoption in Iran. These worries are related to the adopted child. Factors such as her/his probable biological parents, as well as acquaintances' behaviors and attitudes, are not so dominant in studies in other cultures. Attitude toward child adoption reflects major trends and different aspects.

Regarding dimension (a), it can be seen that ethical, religious, and moral values are effective in the attitude toward child adoption.[13,14] Dimension (b), with 4 items, is related to worries about the psychological status of the adopted child because they can experience more externalizing and internalizing problems.[15] Integration of the adoption status, adoption communicativeness, adoption information seeking, and relationship with birth parents as possible influences in the adoption process are the factors of subscale (c).[16] Anxiety about the return of birth parents or other family members[17] and mastery and control[18] on the adoptee are generalized causes of worries of the adoptive parents [subscale (d)]. Behavioral problems and unknown hereditary or non-hereditary diseases are other concerns of adoptive families that are related to the lack of family history information [subscale (e)].[19-21] Legal, social, and official issues are among the obstacles to adoption in some countries, which are presented in dimension (f).[22,23]

Four of the five factors in our study had only three or fewer indices (items), which limits short screening tools. However, the existence of a few items in a factor does not necessarily reduce its accuracy[24] but it may lead to biased estimation of parameters and standard errors.[25] Also, the response bias might be considered due to the inclusion of self-reported questionnaires for data collection.

A limitation of the study was that four of the six factors in our study had only three or fewer indices (items), which limits short screening tools. The existence of a small number of items in a factor does not necessarily reduce its accuracy;[24] however, it may lead to biased estimation of parameters and standard errors.[25] Moreover, response bias, to provide socially desirable answers, should be considered due to the use of a self-reported questionnaire for data collection.

Conclusion

The findings can be generalized to other countries because a deep review investigated the literature published about the attitude of people toward child adoption. According to the results of this study, the reliability (internal consistency) and construct validity (EFA and CFA) of the adoption questionnaire for infertile couples were confirmed. However, in light of the study's limitations, caution should be practiced in the interpretation of the results. There is a need for further longitudinal studies in multiple settings using random sampling methods.

Conflicts of interest

Nothing to declare.

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