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Development and Psychometric Tests of Midwife-Mother Relationship Scale (MMRS) in Delivery Room

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Abstract

Midwives have different aspects of responsibility in terms of the normal and high-risk pregnancy in delivery room. Thus, this study aimed to develop a scale for evaluating the midwife- mother relationship in delivery room. This study was conducted from August 2014 and October 2015 in Arak, Iran. The present mixed-methods sequential exploratory (quantitative-qualitative) study used the content analysis method to design an initial Scale through a review of the literature. The validity of the Scale was ensured by assessing the face validity, content validity and construct validity (exploratory factor analysis with 480 mothers who hospitalized at post-partum ward in hospitals of Arak province), and its reliability was ensured by assessing its internal consistency (using Cronbach's alpha) and by assessing its stability through the test-retest method. The qualitative stage of the study resulted in a 71-item Scale with four domains. Those with impact item index over 1.5, CVR over 0.42, and CVI over 0.79 were considered as valid; while the rest were eliminated resulting in a 48-item scale. After Performing the content and face analysis, a factor analysis was performed on 48 items of the scale, yielding a 43-item questionnaire with four domains, including "outcome", "expectations" "effective factors on care" and "therapeutic alliance" which explained 60.4% of the variance. The reliability of the scale was confirmed with a Cronbach's alpha of 0.93 and its stability was confirmed by an Interclass Correlation Coefficient (ICC) of 0.90. MMRS was a valid and reliable instrument for measuring midwife- mother relationship in delivery room. It is easy to use scale and contains the most significant features of midwife-mother relationship.

Keywords: midwife-mother relationship, validity, reliability, delivery room, psychometric assessment

1. Introduction

Exchange of information is done through oral and non-oral ways (Charlton et al., 2008). The ability for establishment of an adequate relation with coworkers, patients and others is the basis of clinical skills for providing ideal medical treatment as well as being the main core of desirable medical activities (Vakili et al., 2012). It is not possible to provide healthcare treatments without a thoughtful relation which is one of the main responsibilities of practitioners in the context of health (Asemani, 2011). Weakness in communicative skills among practitioners of healthcare reduces the chances for obtaining success and increases the chances for facing complaints and litigations (Vakili et al., 2012). Communication has been described as the most important skill of every health care provider in order to achieve therapeutic goals (Alimoradi et al., 2013). Earlier research at maternity wards has shown that appropriate communication is the determining factor of maternal consent with healthcare services. In fact, relationship in midwifery is the most important since midwives need to emphasis on the psychological and emotional dimension of health care (Khadivzadeh et al., 2015).

Communicative skills are considered as one of the most important requirements for people who work as providers of preliminary healthcare services (Brown et al., 2000).

Maternity care is a context in healthcare in which a special attention is paid to importance of an optimized relation (Rowe et al., 2002). Through caring, educational, counselling and supportive roles, the midwife is provided with unique opportunities for preventing psychological issues as well as improvement of psychological health among mothers, children and the entire families. Researches have shown that midwifes are able to provide support and provide healthcare for the entire family (Hassanet al., 2003). The relation between the midwife and mother is a mixture of the entire aspects of midwifery. This relation is necessary and important for the emotional aspect of experiencing birth as well as mother's positive experience during pregnancy, delivery and postpartum states (Dahlberg & Aune, 2013).

The quality of establishment of a relation is the basis of quality of care provided during pregnancy, delivery and postpartum states (Lundgren, 2004; Hunter et al., 2008). Childbirth is simultaneously a social, cultural, psychological and physiological process during which, the mother requires special expert support (Kordi et al., 2014). When the relation is backed up with trust between the Mother and Midwife, women with negative experiences regarding their previous pregnancies, will be prepared for a better experience of delivery. In this regard, trust is crucial for emotional aspect of childbirth (Leap, 2000; Lyberg & Severinsson, 2010). Several researches have shown that establishment of an effective relation between the midwife and mother in addition to continuous support of the midwife for mother have several different physiological and psychological benefits since the amount of pain is reduced, the amount of intake of painkillers is significantly reduced and in addition, of pregnancy and childbirth results are improved (Nilsson & Lundgren, 2009; Lowdermilk & Perry, 2006; Thorstensen, 2000). In contrast, weakness in communicative skills is associated with several negative effects on physical, psychological, social and economic aspects of healthcare. Problems in establishment of relation lead to indiscrimination of psychological and social needs, reduction of patient's participation level in healthcare programs, reduction of awareness among patients and errors in diagnosis (Holyoke, 1998). Hunter believes that occurrence of negative emotions among mothers such as fear, nervousness, desperation, stress, feeling of guilt and lack of adequacy; are resulted by providing inadequate information, weak relationships. Lack of opportunity for participation in decision making is the resultants of negative views and behaviors of staff of maternity care ward (Hunter et al., 2008).

There is a limited knowledge regarding the relational features between midwife and mother in different situations and condition, especially in situations in which the midwife is tasked with different levels of responsibility in normal and risky pregnancy states. It is clear that pregnant women have several basic needs and midwives are responsible for these issues. If we want the healthcare to have maximum beneficial results on the mother and child both, consideration for these interpersonal aspects seems necessary and crucial (Lundgren & Berg, 2007). Evaluation of the relation between the midwife and mother in delivery room aimed at ensuring the possibility for establishment of an effective relation, responsiveness, satisfaction of mothers' basic needs and also evaluation of effectiveness of communicational skills training programs; thus, researchers require application of valid instruments which are adaptable with the local culture of the subjects. Although that evaluation of validity must be the primary source of questions, reliability of the instruments is also a basic concern (Keen et al., 2003; Norcini, 2000). Evaluation of the relation between midwife and mother requires access to valid instruments in order to discuss the effects of training courses on the manner of establishment of relation between the mother and midwife in delivery room. Taking into account this point and also based on some articles it seems that such an instrument has not been yet developed in our country. The main purpose of this research was to develop and assessing the psychometric properties of the local instrument for evaluation of the midwife -mother relationship in delivery room.

2. Methods

2.1 Setting

The study was conducted in the maternity hospital of Arak University of Medical Sciences between August 2014 and October 2015 in Iran. During the study period, the average number of births ranged from 6- 10 births per day. The labor room has 7 double -bed units for women. Each woman is moved to birth room (with 5 single-bed) for delivery and remains in for two hours postpartum. After that, women are transferred to the postpartum maternity ward which has 20 beds, including 10 double rooms. Women are discharged 24 hours after a normal birth. Hospital policy does not allow fathers or other family members to be present during labor and birth. Midwifes provide care, support and assistance during birth for all women in the birth room and postpartum units. Due to staff shortages, a midwife is not usually with a laboring woman at all times. Oxytocin drips, amniotomies and

analgesic medications (e.g. pethidine) are used frequently to accelerate labor and relieve pain. Epidural analgesia performed by anesthesiologist; is seldom used and is not available for all women.Also, Cesarean section rate was 58.45% at 2014 (Kordi et al., 2014).The conditions of the hospital described above are believed to reflect common practice in Iran (Vafaei et al., 2013).

2.2 Design

This research was a part of a larger mixed method study .It was used both qualitative and quantitative approaches that performed in 2 stages. The first stage was an exploratory study with qualitative content analysis approach to define the concepts and dimensions of midwife- mother relationship in delivery room. In the second stage, quantitative phase; the validity and reliability of the scale were evaluated using standard methods.

2.2.1 Participants and Data Collection

The participants of this study included 480 low-risk postpartum women who gave birth to a single healthy fetus over 37 weeks of gestation during the study period. Required sample size in scale development studies, it is often suggested that five to 10 subjects should be included per item, considering the number of items in the draft scale (Gungor & Beji, 2012). So with regard to 48 items, 480 mothers were selected for this phase of the study and they completed the questionnaire. To recruit the study sample, the post-partum maternity ward was visited every other day, and all mothers who met the inclusion criteria were interviewed by the researcher. As they remained in hospital for at least 24 hours after birth, the researchers aimed to invite all eligible women to take part in the study. None of them refused to participate. The questionnaire took approximately 15 minutes to answer and could be perceived by people with at least reading ability. Three researchers were involved in data collection (M.A, Z.K, and M.J) and two of them were involved in data analysis (M.A, F.Z).

2.2.2 Development and Psychometric of the Scale

The midwife-mother relationship in delivery room was measured by using of the "midwife-mother relationship scale" prepared by the researchers. The scale was constructed through two phase. In the first phase of the study (qualitative stage) a content analysis approach was applied to explore the midwife-mother relationship in delivery room. Data were obtained on midwives and mothers' perspectives in Individual interviews and on a detailed literature review by the authors. A total of 32 Individual interviews were performed with participants until data saturation was obtained. The interviews with midwife took place in the head midwife's office, since she did not attend during the interviews and with mothers took place at their bedside in postpartum ward. The goals and manner of the study were explained to the participants and their consent was obtained for recording interview. Interviews began with a general question such as: please tell me your experiences about relationship with midwifes/mothers and then continued with a few exploratory questions to achieve deeper information. The average duration of interviews was 30-45 minutes (min. and max. were 35 and 55 minute respectively). All the interviews were recorded and notes were taken. The transcripts were analyzed using the content analysis method. The researcher transcribed the interviews verbatim and read them all several times to obtain complete understanding of the data. Codes were extracted from words, sentences and paragraph in the transcriptions. These were considered as the meaning units. Then statements were formed from the meaning units. These statements in addition other statements, which were elicited from review of related scales and articles on provider- client relationship, were used to develop the introductory Persian language questionnaire for testing. At last the scale consisted of 48 items on a Likert five-point format (1, strongly agree; 2, agree; 3, undecided; 4, disagree; 5, strongly disagree).Additional questions regarding the mothers' age, gravida, para, education level, occupational status and habitant were also asked.

2.2.3 Instrument Validation

In the second phase of the study (quantitative stage) the validity of the questionnaire was evaluated using face validity, content validity, construct validity, internal consistency and test-retest reliability.

1) Face Validity: The face validity of the scale was determined using qualitative and quantitative methods. In the qualitative part, face-to-face interviews were conducted with 10 mothers, and the scale's level of difficulty, suitability, ambiguity, and probability of item misinterpretation or failure to understand the meaning of the words were assessed. In the quantitative part, the item impact method was used, and all of the items of the scale were assessed and scored based on a 5-point Likert scale with options including absolutely important (5 points), somewhat important (4 points), moderately important (3 points), a little important (2 points), and not important at all (1 point). Items given a score of 1.5 or higher were kept for further steps of the analysis. To evaluate face validity, experts and 20 mothers evaluated the clarity and fluency of statements and revised some of the items.

2) Content validity

The content validity ratio (CVR) was assessed by 20 experts' (reproductive health, midwifery, gynecologist, health education, nursing, anthropology, community health, psychologist and psychiatrist. Lawshe proposed that each of the topic expert raters on viewpoints reply to the following question for each item: "Is the skill or knowledge measured by this item 'essential,' 'beneficial, but not essential' or 'unnecessary' to the performance of the construct?" (Lawshe, 1975). According to Lawshe, if more than half the experts indicate that an item is essential, that item has at least some content validity; greater levels of content validity exist as larger numbers of experts agree that a specific item is essential. Using these presumption, Lawshe developed the formula CVR= [ne−N/2]/[N/2], where ne=number of experts indicating an item is "essential" and N=total number of experts [5]. In these study statements which had CVR<0.42 were omitted. In order to calculate the content validity index (CVI), 20 experts employed the method of Waltz and Bausell. They were asked to determine the relevancy, clarity and simplicity of each item in the questionnaire using a Likert-type scale (Waltz & Bausell, 2011). The CVI score for each statement was calculated by dividing the number of experts agreeing (i.e. scored 3 and 4 in the Likert scale) by the total number of them. Items with scores higher than 0.79 were accepted (Hyrkas et al., 2003).

3) Construct validity

Factor analysis is a useful analytical tool that can assess the construct validity of the revised instrument (Keshavarz et al., 2013). The data were analyzed by principal components with varimax rotation were used from exploratory factor analysis methods to explore the factor structure of the scale. Exploratory factor analysis is generally applied in preliminary steps of the research. Results of exploratory factor analysis included 6 main output among which, the first to third and the fifth output are analyzed through SPSS version 20.

4) Reliability

Methods of internal consistency and test-retest were employed to assess reliability of the questionnaire (Dempsey & Dempsey, 1999). Cronbach's alpha coefficient is related to the degree of inter-relatedness among a group of items designed to measure a single construct. A reliability coefficient for internal consistency should be ⩾0.7-0.8. The repeatability of the scale was also evaluated using the test-retest reliability method. As a result 20 of mothers completed the scale twice in a 24-hour period (Mothers' hospital stay were 24 hours in the postpartum ward).

2.2.4 Ethical Considerations

Ethical approval was obtained from the Ethics Committee of Shahid Beheshti University of Medical Sciences (SBMU2.REC.1394.78) and Arak University of Medical Sciences. Also, informed consent was obtained from each mother. They were informed in detail about the purpose of the study. The following information was given to the participants: the voluntary nature of the participation, their right to privacy, anonymity, confidentiality and right to refuse to participate from the study at any time without any penalty.

3. Results

This study was conducted in Maternity hospitals of Arak province, Iran. Participants personal information revealed in Table 1. The qualitative stage of the study resulted in a 78-item scale with 4 domains. The similar items were merged together by the research team and the scale items were limited to 71-item scale. After item impact score index, 5 of the scale items were eliminated and the 66 items were considered important and suitable by the subject group and therefore, the items were preserved for application in next steps.

Table 1. Participants' personal information

Variable		n	%
Pregnancy	Wanted	367	76.5
	unwanted	113	23.5
Occupation	Housewife	409	85.2
	Worker	71	14.8
Habitant	Town	276	57.5
	village	204	42.5
Education	Less than diploma	217	45.2
	Diploma & Associate degree	193	40.2
	Bachelor	70	14.6

Economic status	Low income	167	34.8
	Middle income	243	50.6
	High income	70	14.6
Ethnicity	Persian	339	70.6
	Lore	49	10.2
	Turkish	83	17.3
	Kurdish	9	1.9
Antenatal Education classes	Yes	125	26
	No	355	74

Results of content validity ratio indicated that 11 items of the scale were less than the cutoff value of 0.42 and eliminated. Also, results of content validity index revealed that seven items had the values less than 0.7 and therefore eliminated from the list. As a result, 48 items (13 items for outcome, 17 items for expectations, 16 items for effective factors on care and two items for therapeutic alliance) remained for next step. In addition, the average content validity index was 0.95.

A 48-item scale with four domains was ultimately produced. To determine the construct validity of the scale, 480 mothers admitted in post-partum ward completed its final version.

The exploratory factor analysis was carried out on 48 items using the principal components method. The Kaiser-Meyer-Olkin value was calculated as 0.929. Therefore, the size of selected sample was found to be sufficient for execution of exploratory factor analysis. In addition, Bartlett's spherisity test indicated that exploratory factor analysis was adequate for realization of the structure of factor model at significance level of $P<0.0001$. This means that a discoverable relation exists between analyzed variables. The second output of exploratory factor analysis included values related to initial participation and extracted participation. Since the column of initial participation indicates the states of participations prior to extraction of factor or factors, the entire initial participations are equal to one. The minimum value of extracted participation should be 0.30 (Polit & Tanto Beck, 2009). And as the mentioned value grows larger, the extracted factors will be able to provide a better reflection of variables. The result of exploratory factor analysis and the values of extracted participation were between 0.335 and 0.844 for all items except 5 of them and the rest are considered suitable. The third output of exploratory factor analysis included three sections of initial special value. Special value of extracted factors with no rotation and especial value of extracted factors with rotation are showed in Table 2. In this study, we have put into effect the values higher than one, four factors with anticipatory power of 60.4% were extracted and further selected from the total changes in relation between the mother and midwife.

Table 2. Total variance explained

	(Initial eigen-values)			(Extraction Sums of Squared Loadings)			(Rotation Sums of Loadings)		
component	Total	%of variance	Cumulative%	Total	%of variance	Cumulative %	Total	%of variance	Cumulative %
1	21.887	45.598	45.598	21.887	45.598	45.598	9.417	19.619	19.619
2	3.275	6.822	52.420	3.275	6.822	52.420	7.831	16.314	35.933
3	2.129	4.436	56.856	2.129	4.436	56.856	7.743	16.131	52.063
4	1.703	3.548	60.404	1.703	3.548	60.404	4.003	8.340	60.404

Table 3. Rotated matrix of components of exploratory factor analysis for the M.M.R.S

Items of MMRS scale in delivery room	Rotated matrix of components			
	outcome	expectations	Effective factors on care	therapeutic alliance
1. Inappropriate ratio between midwifes and mothers	0.342	0.308	0.691	0.247
2. Being with mother in emergency cases	0.258	0.628	0.230	0.154
3. Understanding the mothers' needs and conditions	0.236	0.750	0.316	-

4. Ability to relationship with mother	0.377	0.278	0.610	-
5. Support and consolation of the mother	0.347	0.472	0.231	0.505
6. Timely obstetric care (conscientiousness)	0.361	0.280	0.581	0.209
7. Labour progress	0.786	0.197	0.259	0.177
8. Friendly and intimate relationship with mother	0.247	0.422	0.158	0.502
9. Friendliness of the midwife	0.269	0.586	0.278	0.263
10. Simple and complete answers to mother's questions (Mercer et al., 2004)	0.215	0.517	-	0.384
11. Patiently listening to mother's talk	0.345	0.597	0.122	0.422
12.Making eye contact during conversation	0.237	0.489	0.354	0.357
13. Having good memories of childbirth	0.819	0.233	0.191	0.188
14. Decrease mothers' stress by answering to her questions (Gungor and Beji, 2012)	0.281	0.393	0.239	0.600
15. A sense of relief during labor	0.811	0.249	0.254	0.182
16. Respecting the mother's privacy	0.218	0.149	0.541	0.173
17. Decreasing labour pain	0.801	0.152	0.205	0.223
18. Routine-based schedule	-0.141	-	-0.229	-0.448
19. Creating mother-newborn bonding				
20. The effort to attainment the mother and newborn's health	0.192	0.706	0.378	-
21. Teaching the pushing time	0.196	0.766	0.367	-
22. Putting yourself in mother's shoes for a better understanding	0.197	0.242	0.594	0.412
23. Midwife's patience, against mother's pain and screams	0.210	0.203	0.552	0.525
24. Mother-to-child care and attention	0.712	0.314	0.279	0.139
25. Tendency to future pregnancy	0.572	0.154	0.426	-
26. Midwife's experienced	0190	0.285	0.725	0.149
27. Trust to her midwife	0.751	0.198	0.315	0.182
28. Improved relationship with her spouse	0.756	0/216	0.300	-
29. Humanistic view to mother (Bova et al., 2006)	0.331	0.180	0.723	0.340
30. Mothers' health promoting behaviors	0.817	0.264	0.235	0.138
31. Mother attends to health center for baby care	0.780	0.230	0.320	0.185
32. Respecting the mother	0.215	0.553	0.305	0.502
33. Respect to the mother's companions	.0219	0.656	0.241	0.429
34. Talking with a gentle and kind tone	0.119	0.470	0.343	0.623
35. Episiotomy care teaching	0.227	0.705	0.256	-
36. Breast feeding teaching	0.214	0.777	0.309	-0.104
37.Being humble with the mother	0.319	0.263	0.553	0.342
38. Decisions-making in mode of delivery	0.830	0.243	0.243	0.168
39. Midwife's motivation	0.357	0.150	0.608	0.287
40. Respect to diversity of ethnicities	0.214	-	0.650	0.160
41. Appreciating the midwife's efforts in delivery room	0.339	0.285	0.704	0.153
42. Midwife's confidentiality	0.396	0.259	0.762	-
43. Respect to co-workers	0.181	0.687	0.348	0.377

The fifth output indicates the rotated matrix of components which includes the load factors for each of the variables in remaining factors after rotation. The first factor with special value of 21.887 included 12 items for which the range of load factor was between 0.582 and 0.820 maximally. The especial value of the second factor was 3.275 and included 12 items. The range of load factor for items was between 0.470 and 0.777. In addition, the especial value of the third factor was 2.129 and included 16 items with load factor range of between 0.468 and 0.762. Also, the fourth factor's especial value was 1.703 and included 3 items with load factor range of between 0.448 and 0.600. On this basis, according to results of exploratory factor analysis which was executed on 48 items, a number of 43 items were confirmed and distributed among 4 factors. The first factor was termed as outcome included 12 items. The remaining three factors had 12, 16 and 3 items respectively named as expectations, effective factors on care and therapeutic alliance.

In order to determine the reliability of research instruments the method of internal consistency was used and also the values of Cronbach's alpha coefficient different domains and for the entire scale in steps prior and proceeding to execution of exploratory factor analysis are summarized in Table 4.

Table 4. Cronbach's alpha value for the MMRS for steps prior and preceding to execution of exploratory factor analysis

Context of relation	Number of factors First step: 48 factors	Cronbach's alpha (first step)	Number of factors Second step: 43 factors	Cronbach's alpha (second step)
Outcome	13	0/90	12	0/90
Expectations	17	0/82	12	0/87
Effective factors on Care	16	0/74	16	0/75
Therapeutic alliance	2	0/84	3	0/84
Total	48	0/92	43	0/93

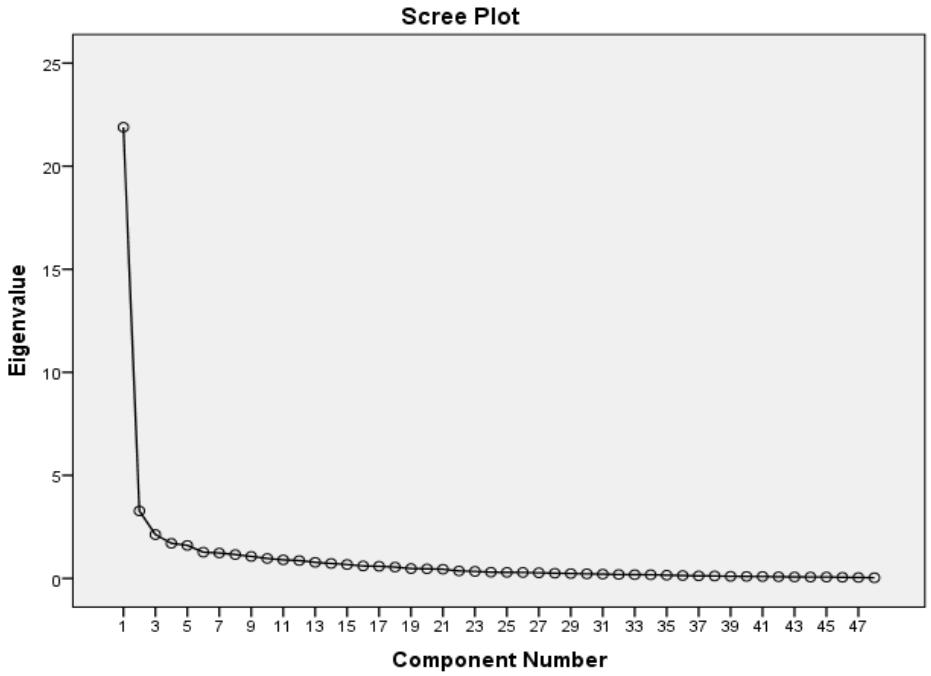

Figure 1. Factor analysis and scree plot used for determining the number of factors constituting the questionnaire

4. Discussion

The scale (MMRS) developed in the present study was designed with 43 items in four domains and has confirmed face, content (qualitative-quantitative), and construct (exploratory factor analysis) validities, A confirmed reliability was determined through the measure of internal consistency (Cronbach's alpha), and a confirmed stability was determined through the test-retest method. The results of factor analyses identified four domains for the assessment of midwife-mother relationship in delivery room in Iran, including "outcome", "expectations", "effective factors on care" and "therapeutic alliance"

According to reviewed literature, it seems that there had been no previous instruments developed for evaluation of the relation between midwife and mother in delivery room and utilized questionnaires in similar researches had either been translated from foreign languages or had been adjusted by the researcher in order to match the purpose of their research. The mutual and roughly predominant feature of questionnaires used in both previously mentioned states is their lacking in providing sufficient information regarding the quality of validity of research instrument. Such a disadvantage can challenge the publication of results of the research and in case of publishing; the reader might feel the lack of quality in validity of the questionnaire. Khadivzadeh et al. (2015) have developed a checklist for the purpose of evaluation of midwife's communicational skills in delivery ward. This questionnaire included 26 items and its content validity was approved by 10 scholars in department of nursing and midwifery. For determination of reliability, researchers have employed the internal consistency test and their reported value of Cronbach's alpha coefficient was 83%. One of the advantages of this study is determination of its instrument's reliability; however it is also accompanied with limitations and restrictions such as the number of members of scholars' board and not reporting the ratio and index of content validity (Khadivzadeh et al., 2015).

Vakili et al. (2012) developed an instrument for discussing interpersonal skills of healthcare providers. This instrument included 30 items in 7 main groups. Also for the purpose of validity ratio, the ideas of 14 experts were incorporated an in addition, for determining content validity, the calculation of validity ratio and validity index was performed. For the purpose of evaluation of reliability, researchers had used the method of internal consistency and also the values of Cronbach's alpha coefficient were calculated for the entire items and each item separately as well. The reported calculated value was 91%. One of the weaknesses or limitations of this instrument can be its lack of generalizability to other types of healthcare providers since it was merely developed for a certain group of healthcare providers. On this basis, this study is one of the few studies which in addition to providing a precise explanation regarding methods of performance, also has calculated the reliability and validity of the questionnaire based on the process of psychometrics (Vakili et al., 2012) .

In another study performed by Vafaei et al. (2012) aimed at analysis of barriers on establishment of effective relationship between the mother and Midwife, the content validity of the questionnaire was approved through performance of library studies and surveying a number of faculty members. Also its reliability was approved through performance of Cronbach's alpha coefficient test which resulted in the number of 82% for the questionnaire that was distributed among midwifes and 83% for questionnaires that were distributed among mothers. These numbers indicated the scientific validity of the questionnaire. In addition, for determination of validity of instruments, the content validity method was employed but lack of providing information related to manner of calculation of the instrument's reliability is also noticeable (Vafaei et al., 2013). Another roughly general feature among previous researches performed in Iran regarding this subject is a lacking in providing sufficient information regarding the process of determination of the validity of questionnaire. Taghi Zadeh et al. (2007) performed a research aimed at application of communicational skills by midwifes and its relation with satisfaction of patients. In this research, the authors have not provided any explanation regarding the manner of confirmation of validity of the questionnaire (Taghizadeh et al., 2007). Lack of providing information related to the process of determination of content validity of research instruments, was also evident in a research performed by Agha Barari et al. (2009). Although, this study clearly has stated the methods of determination of validity and reliability of research instruments (Aghabarary et al., 2009). In addition, in a research performed by Atari Moghadam et al. with the purpose of effect of communicational skills between physician and patient had merely mentioned the application of a 21 question questionnaire and no information have been provided regarding the processes of determination of validities and reliability of the instrument (Moghadam et al., 2010) .

In contrast to domestic researches, in foreign researches the authors have generally mentioned the sources related to validation and standardization of applied instruments or alternatively, have provided details related to processes of determination of the reliability and validity of the instrument. Through this, they ensure and aware the reader from the quality of validity of applied instruments. For example, Gungor & KizilkayaBeji (2012) have developed two scales for evaluation of maternal satisfaction in postpartum ward for the purpose of evaluation of mothers' experiences in postpartum ward. Their questionnaires were arranged based on 5 degrees Likert scales.

They have evaluated the reliability and validities of their questionnaires and according to the process of content validity, 45 and 44 items were respectively developed for each questionnaire through a factor analysis with 10 factors.

Results of factor analysis indicated that the developed instrument was able to anticipate 63% of changes imposed. Also the reliability of both questionnaires was reported to be 0.91 (Gungor & Beji, 2012).

Rossitter et al. (2008) developed a scale for the relation between midwife and mother in delivery room in terms of Ph. D. thesis. In this study, according to the process of content validity, 43 items were developed for the instrument through factor analysis with ten factors. Results of factor analysis indicated that the developed instrument was able to anticipate 49.9% of changes imposed. And the total reliability of the instrument was also calculated as 80% (Rossiter, 2008). Extraction of factors, from the point of views of mothers and midwives was the result of qualitative research and execution of an integrated study for the purpose of development of the questionnaire were some of advantages of this research. Also the manner of determination of content validity was not explained and since the reliability and validity of this instrument is not tested on other types of subjects and populations, it cannot be translated and applied for researches in Iran. In both previously mentioned researches, the authors have provided good explanations regarding the processes of determination of validity (former study) and reliability. It can be observed that in most mentioned studies, even with a good reliability and validity of research instruments, as a result of lack of providing adequate information regarding the process of evaluation, the reader might not be provided with enough and sufficient information. With respect to the direct and linear relation between validity of findings of a research and validity of instruments of the research, the necessity of paying more attention to this issue is felt more than before.

5. Conclusion

In this research, Researchers tried to develop a valid instrument for evaluation of the relation between the midwife and mother in delivery room and by providing sufficient information regarding the process of evaluation of validity and reliability of the scale. This is the first time of development of such instrument based on psychometrics process and by taking inspirations from the ideas of subjects and a significant number of different experts, paying attention to preservation of simplicity, fluency, consideration for abbreviations and considering the feasible orderliness of items are the advantages of this study. In the meanwhile, lack of access to similar previous researches in domestic areas and lack of evaluation of the aforementioned instrument on other types of subjects and populations can be considered as limitations of this study. Results of this research have shown that the developed instrument has the sufficient validity for acting as a scale of Midwife-Mother relationship (MMRS) in the studied population. But still, it is not totally free from errors and is not necessarily adaptable for other groups of healthcare providers. With respect to the necessity of obtaining a valid instrument in domestic areas for evaluation of Midwife-Mother relationship, the authors of this article suggest that the same instrument should be generalized or be tested for its generalizability to other groups by other researchers. Results of this study can be considered by researchers of our country for realization of such an important goal.

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Competing Interests Statement

The authors declare that there is no conflict of interests regarding the publication of this paper.

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