

## Mothers' Experience of Children Peripheral Intravenous Catheterization: a qualitative content analysis

Masoumeh Abdolkhaleghi, Ph.D.<sup>1</sup>, Lida Nikfarid, Ph.D.<sup>2</sup>, Azarakhsh Hosseini, B.Sc.<sup>3</sup>, Faezeh Taslimi, B.Sc.<sup>3</sup>

1- Instructor, Department of Nursing, Faculty of Medical Sciences, Islamic Azad University, Saveh Branch, Saveh, Iran

2-Assistant Professor, Department of Pediatric Nursing, Faculty of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran (Corresponding author; l.nikfarid@sbmu.ac.ir)

3- Department of Pediatric Nursing, Faculty of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Received: 14 November, 2017

Accepted: 29 March, 2018

### ARTICLE INFO

#### Article type:

Original Article

#### Keywords:

Pain

Children

Mothers

Peripheral intravenous catheterization

### Abstract

**Background:** Peripheral intravenous catheterization is one of the most painful procedures in children settings. Based on evidence, most of children do not benefit from pharmacological and non-pharmacological methods of pain management for this procedure and family members consider this experience as one of the most distressing ones in the hospital. This study aimed to explore the experience of mothers who had experienced difficult vascular catheterization of their children.

**Methods:** This qualitative study using content analysis was carried out in different wards of a pediatrics referral center in Tehran, Iran (Markaz-e-Tebbi-Koodakan) in 2017. Purposeful sampling method was used to select 18 mothers who had suffered from their children's vascular catheterization. Deep semi structured interviews were used as the method of data gathering and qualitative content analysis was used for data analysis.

**Results:** The main category was "unperceived frustration" which includes three subcategories, "role of nurse", "inability to support" and "coping ability".

**Conclusions:** The present study increases our understanding of mothers' experiences of peripheral venous catheterization of their children. Despite being a routine experience for nurses, this experience appears to be very hard for mothers.

**Copyright:** 2018 The Author(s); Published by Kerman University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Citation:** Abdolkhaleghi M, Nikfarid L, Hosseini A, Taslimi F. Mothers' Experience of Children Peripheral Intravenous Catheterization: a qualitative content analysis. Journal of Kerman University of Medical Sciences, 2018; 25 (4): 355-364.

### Introduction

Peripheral venous catheterization is a common invasive procedure, considered by children and their families as the most painful and stressful of all medical procedures (1). However, for various reasons such as small age or emergency conditions, many children cannot benefit from

pharmacological and non-pharmacological pain-relieving methods (2-4). Obesity, dark skin, poor perfusion of limbs, and staff's lack of experience are among reasons which, have been mentioned in literature for failure in first attempts. Multiple tries cause more pain and distress (5, 6). Average time taken for peripheral venous catheterization in children is

between 2.5 minutes and 13 minutes, during which 2 to 10 attempts are made. Time of procedure longer than 30 minutes is referred to as a "Difficult IV Access" (7, 8). Watching children's suffering during medical procedures is stressful for parents, so that some parents have rated procedures requiring venipuncture of their children among the worst experiences of their lives (9-11). A study showed that inserting intravenous line in children leads to increased blood pressure and heart rate, and anxiety in parents, and these reactions are directly related to the child's distress (12-14). In another study conducted on children younger than 8 years, attending emergency department and requiring peripheral venous catheterization, the majority of parents (89%) preferred painless procedure. In addition, 65% of them agreed to wait an hour longer for the anesthetic gel to work, and 37% were willing to pay an extra 10000 \$ so their children would not feel any pain (15).

In Iran, for cultural reasons, mothers always accompany their children in the hospital. There are few settings in Iran which, follow standard guidelines for venipuncture pain management, duration and frequency of attempts for intravenous access (16). Mothers of some hospitalized children who have "difficult IV access" according to nurses, have to stand and watch prolonged attempts of nurses at peripheral intravenous catheterization of their children. Supportive programs to mitigate mothers and children's distress caused by this procedure can be developed if nurses know experiences and perceptions of mothers of children that undergo peripheral intravenous catheterization. Although there are many quantitative studies on the distress of the procedure for parents, there is a lack of qualitative researches on the experience, to deeply explain the feelings and

perspectives of mothers. The present study was conducted with the aim of exploring experiences of mothers of children undergoing peripheral intravenous catheterization.

## Methods

### Design of the study

The present qualitative study was conducted to explore experiences of mothers of children undergoing peripheral intravenous catheterization, using conventional content analysis. Qualitative content analysis is a systematic and objective mean of describing phenomena. Through content analysis, it is possible to distil words into fewer content-related categories (17).

### Participants and the setting

Study setting was Markaz-e Tebbi Koodakan, a pediatrics educational hospital in Tehran in 2017. Study participants (eighteen mothers) were purposively selected from those women whose children needed longer than 30 minutes for peripheral intravenous catheterization during their last hospitalization and their children had been considered as "difficult IV access" by nurses. Those who were able to speak in Persian and willing to take part in the study were included.

### Collection of data

Data were collected through interviews. Interviews were scheduled, as close to peripheral intravenous catheterization as possible and at the time that the participants feel readiness, to let them better remind their experience and feelings. Study inclusion criteria were not too restrictive, so that a wider range of mothers of different ages and educational, cultural and economic backgrounds, with children of different ages and

diagnoses could be included to provide richer data. Interviews lasted a minimum of half an hour, but varied according to circumstances. To encourage the mothers to describe their experiences, the interviews began with an open question "please describe your experience of your child's peripheral intravenous catheterization", and continued with further questions to extract richer data such as "what did you expect nurses to do at the time". Questions were rather guided by answers given by the interviewee. Interview location was decided according to mothers' preferences and attempts were made to provide a quiet place such as personnel's resting room, where mothers could have a cup of tea to relax. Interviews were recorded on a small MP3 player to remove the threat imposed by large recording systems.

The researcher visited different hospital wards on different shifts, and with cooperation of nurses selected the mothers whose child had recently had peripheral intravenous catheterization (according to study inclusion criteria), and interviewed them after explaining the study objectives and method, obtaining a verbal consent and arranging interview time and place.

The interviews and analysis of data extracted from transcribed interviews were carried out concurrently. Themes identified were modified (if necessary) with progress of further interviews. A manual method and a template analysis style were used to organize and manage our qualitative data. The interviews continued until saturation of data, when no new theme could be identified or further modification of themes was needed. Participants' contact numbers were obtained for confirmation of themes and results, and possible need for a re-interview.

The recorded interviews were transcribed, and then listened to again, to ensure accuracy of the transcriptions. In addition to modifications made, the participants' tone, pauses, voice trembling, and other notable matters were taken into account in the analysis, and were noted on the transcriptions.

### Data analysis

Data were analyzed as they were collected using qualitative conventional content analysis. To submerge in data and obtain an overall insight, each interview text was read several times. Then, meaning units were identified according to the study objectives and question. Important points were extracted from texts as open codes, considering implicit and explicit contents of the meaning units. These codes were then classified under broader titles according to similarities and differences. This process continued until secondary and the main categories were extracted (18).

Rigor of data was ensured by maximum diversity in sampling, careful recording of data, establishing good rapport with the participants through prolonged ward presence and involvement with the context, and review of the data obtained from the interviews and observations by the participants and the research colleagues. Written informed consents were obtained from all the participants, and assurances were given regarding confidentiality of the interviews and private data and their right to withdraw at any stage (19).

### Ethical consideration

The study had been approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (IR.SBMU.PHNM.1394.315). Informed consent forms were

used to inform the mothers about the purpose, plan, and period of the study and how data of the study would be used.

**Results**

Interviews were conducted with 18 mothers, aged between 22 years and 46 years (mean 32.6 years). From all, 5 mothers had only one child, and the rest had more than one child, including one that had 5 children. Other demographic characteristics have been shown in table 1. The obtained

results were categorized in one main theme (unperceived frustration) and three subthemes (role of the nurse, inability to support, and coping ability) as have been presented in table 2.

Despite the initial diagnosis and treatment process, the participants considered experiencing peripheral intravenous catheterization of their child as a factor for feeling frustrated, due to their inability to play their role as the protector of their own child, and talked about their feelings and how they were treated by nurses.

**Table 1.** Demographic characteristics of the participants

Age (years)	Range	22-46
	Mean	32.6
Education	Elementary school	2
	Middle school	5
	High school	9
	Bachelor's degrees	1
	Master's degree	1
Child age range	Infant	5
	Toddler	7
	Preschooler	4
	School aged	2
Disease of child	Acute	7
	Chronic	11
Time passed after diagnosis	Less than one month	5
	One month to one year	8
	More than one year	5

**Table 2.** Inductive process of extracting the main theme, subthemes and categories

Main them	Subthemes	Categories
Unperceived frustration	Role of nurse	Focus on procedure not child
		Conditioned support
	Inability to support	Impatience about child's pain
		Sense of being helpless
	Coping ability	Decrease of feeling helpless by time
		Gradual focus on disease instead of procedures
	Effort of rational intervention for facilitating the procedure	

### Role of nurses

The participants generally believed that nurses had no understanding of the extent of their suffering during peripheral intravenous catheterization of their child and had considered it as one of the most routine procedures that could happen to children in hospitals. Moreover, they believed that during peripheral intravenous catheterization, nurses only had focused on the procedure, and not on the mental and physical state of the children or their family.

One of the mothers whose child had been hospitalized for Hirschsprung and had several difficult IV experiences, described: *"Nurses take children to IV room in such a way, as if nothing is going to happen. It is our kid that is going to suffer for a couple of hours in that room, whose cries we hear; besides, whenever we enter the room, we are thrown out with a grouch"*.

In contrast, some participants acknowledged the presence of supportive nurses and spoke of their efforts to reduce child's discomfort. Mother of a child with leukemia revealed: *"By God, as soon as they realize the child might have a difficult IV, they won't touch him, and wait for a more experienced nurse. They have to do their jobs, and since our kids have been here for a long time, they've turned into a difficult IV"*.

### Inability to support

The mothers referred to their own experience of being behind IV room door or by the side of their child during this procedure as the most excruciating and difficult hospital experience. When they long to calm their child, they have to stand aside and watch him suffer. A 45-year-old mother whose child had been hospitalized for a bowel surgery for the first time said: *"I cannot describe the feeling. I didn't suffer as*

*much behind operating room door as I did during his venipuncture. I soothed myself by thinking that he is anesthetized in the operating room, but here I could hear his cries as they repeatedly attempted on him to find a vein"*.

A 33-year-old mother of a child that had been hospitalized for immune deficiency said: *"I pulled my child out twice during IV cannulation and told them I didn't want the procedure done because my child couldn't bear so much pain. Then, I realized that it had to be done, and he has to get his medication. You don't know what to do. You have your heart in your mouth when your kid cries, but you know you have to be patient. There's no other way"*.

### Coping ability

Mothers of children who had been frequently hospitalized for chronic diseases and had several experiences of peripheral intravenous catheterization seemed largely to be able to cope with this experience, and distress had abated. At the onset of treatment process of a chronic disease, mothers focus on painful hospital experiences. However, they gradually cope with these experiences and focus more on the child's disease and its prognosis.

Mother of a child that has been undergoing treatment for cancer for three years described: *"It was very hard at first when they took him for IV cannulation, but now it's normal because I know he needs it. I used to faint behind IV room door then, but now I go in and help the nurses. It is for he can get well, we have no choice. I now have the heart of a stone"*.

However, even after a long disease history, some mothers still emphasized the painful experience of IV cannulation, and asserted that this procedure was still excruciating for them. A mother of a child with cancer described: *"We've been coming*

*and going for four years now, and it's still the same old difficult IV, and when I see my child's frailty, I think he has worsened. He used to be stronger. But now what have been left of him after all medications are just bare bones. I don't know how much more he can take. It's still painful".*

## Discussion

In the present study, nurses regarded peripheral intravenous catheterization in pediatrics wards as a routine procedure. In addition, no effort is made to mitigate physical and mental pain of the child or his family. These results concur with those found in other studies in which the researchers argue that this procedure is considered unimportant by health providers (9, 20). Several studies have emphasized the use of pharmacological and non-pharmacological methods of reducing pain caused by peripheral intravenous catheterization (8, 21-24). Also, there should be some criteria in each setting for every procedure including the characteristics and qualification of the nurses involved in the procedure. It seems that greater importance should be given to procedural pain and pain reduction methods in children during undergraduate nursing curriculum in Iran.

The results reveal that in such a procedure, nurses do not take any particular professional measures to alleviate pain and provide emotional support for children or their family. This finding agrees with those of other studies in this area in Iran. In a descriptive study, researchers assessed status of pain relief in pediatrics department in hospitals of one of the big cities in Iran, and argued that pain assessment and relief do not appear to be planned or consistent, and that there is an obvious need for raising awareness and providing further pain-management

facilities in pediatric wards (25). In researchers' clinical experiences workload, lack of training and knowledge and less emphasize on the pain and psychological issues in comparison to treatments, which are ordered by physicians, were some of the reasons for the problem. Also, almost all nurses working in pediatric wards in Iran have general certification for nursing which, means they have passed few hours for training in children's hospitals. It seems that more emphasize on specialization of nursing in different areas especially pediatric fields and inclusion of more lessons on evidence-based pain management for children are needed. The current amount of time allocated in the nursing curriculum to the teaching of pediatric nursing and the general subject of pediatric pain appears inadequate. Thus, once working in pediatric wards, nurses begin to follow conventional thinking in hospitals and regard peripheral intravenous catheterization trivial and mundane, and provide the least psychological care for children and their families. The presence of family members in procedure room and coaching child by them, considering an IV team in hospital to take the responsibility of venipuncture of "difficult IV access" children and mentoring new nurses for a determined time for being trained in venipuncture of children, are some of recommendations proposed in literature (8, 24, 26, 27). In addition, giving certification for IV access in children, and using technological methods for finding veins like trans-illumination and considering other IV access methods when there is little chance for peripheral intravenous catheterization, should be noticed (28).

Presence of parents in particular and their mental support, and teaching children how to divert their attention, are frequently suggested in various studies as effective methods

for reducing distress of children and their parents (29, 30). Yet, in the present study, the mothers' presence by their children's side had been prohibited during venipuncture, and the nurses had provided no guidance or support. In a study conducted on communication of nurses with children during painful procedures, lack of time, staff shortage, and fatigue were given as reasons for nurses' lack of attempt to prepare children for these procedures (31).

However, it is seen that in the case of children with chronic diseases who frequently visit hospitals, prolonged contact with experienced nurses creates a sense of familiarity and closeness, and makes experienced nurses give greater importance to psychological support of these children and their families (32). It has been explained in the literature that prolonged and frequent hospitalization of children, can lead to a type of close nurse- parent relationship which culturally is approved; however, it might be questioned if it is seen from a professional perspective. In one qualitative study on experiences of nurses and parents about communication in children settings, it has been concluded that even in long term relationship between nurses and parents, because of lack of time and skill of nurses and workload of wards, despite less unsupportive behaviors of health care givers, still centrality of the communication is the treatment of child. So that psychological needs of parents are being neglected (33). Further studies should be conducted in this area.

One of the findings in the present study was the mothers' inability to support their children when they were suffering. This extremely frustrating experience is considered as the most painful hospital experience for many mothers. This finding is in agreement with the results of some previous studies (3, 30, 34). On the other hand, parental distress and

behaviors during painful procedures are important, and researchers suggest that parents, through being more supportive during painful procedures, can decrease their children distress and anxiety and this makes them more satisfied (35). On the other hand, using pharmacologic and non- pharmacologic methods of procedural pain management for children undergoing venipuncture, nurses can indirectly lessen the suffering and distress of parents. Some of these methods frequently have been tested in Iranian children population, and their effectiveness has been supported; though, their routine application in practice is not considered by nurses. Periodic seminars related to pain management, giving regular pamphlets and booklets to nurses, allocating a separate room for procedures with special facilities for presence of parents, establishing a pain management committee in hospital, revising the curriculum of pediatric nursing for more emphasize on the concept of pain in children, ongoing in- service training and supervision and presenting the results of recent researches about pain management in children are some of the recommended strategies in the literature in relation to improving the knowledge and practice of pain management in children (8, 23, 31, 36).

In summary, the results of the present study support previous studies in this area (30). Researchers believe that parents' coping with stress during painful procedures in children, depends on many factors including education, cultural background, age, previous experience, and also support systems available to them (31). Also, parents can better cope with painful procedures in children if they are actively encouraged by nurses; and it will help parents to ask for support to ease these procedures (37).



## Conclusion

Although generalization is not the aim of the qualitative study, the results of this study combined with the results of quantitative studies on the procedure of children's venous catheterization, reveal that this routine and less distressful-estimated procedure needs to be more considered by nurses, as the suffering and distress of parents witnessing it are more than what is rated by health care providers.

Mothers expect nurses to have a greater supportive role to reduce the suffering. The results of the present study are applicable to pediatric and neonatal nursing care, management and education. Clinical nurses should understand the suffering, consider their supportive role for child and his family and try to use evidence-based methods to reduce the pain and distress related to this procedure. Nursing managers should assess pediatric nurses' knowledge in this area, and training should be provided according to their needs. Moreover, clinical application of this knowledge should also be constantly monitored.

Researchers found common issues in their interviews that mothers wished to emphasize:

- Nurses should be assessed by their managers before they attempt venipuncture for younger children or those with difficult IV.

## References

1. Moadad N, Kozman K, Shahine R, Ohanian S, Badr LK. Distraction using the BUZZY for children during an IV insertion. *J J Pediatr Nurs* 2016;31(1):64-72.
2. Blaivas M, Lyon M. The effect of ultrasound guidance on the perceived difficulty of emergency nurse-obtained peripheral IV access. *J Emerg Med* 2006;31(4):407-10.
3. Pagnutti L, Bin A, Donato R, Di Lena G, Fabbro C, Fornasiero L, et al. Difficult intravenous access tool in patients receiving peripheral chemotherapy: A pilot-validation study. *Eur J Oncol Nurs* 2016;20:58-63.
4. Malyon L, Ullman AJ, Phillips N, Young J, Kleidon T, Murfield J, et al. Peripheral intravenous catheter duration and failure in

- Parents (especially mothers) should be regarded as active members for supporting and training their children, and they should be asked whether they wish to be by their children's side during the procedure.

- More experienced nurses with greater clinical skills should volunteer to do difficult IV cases, should have a humanistic and professional attitude toward this issue, and aim to provide physical and psychological support for the child and his family.

## Acknowledgment

The authors would like to thank all the participants of this study for their contributions and the nurses who helped us to have the opportunity for interview with the participants. This work was supported by Shahid Beheshti University of Medical Sciences (grant numbers 66000689-94/11/27).

## Declaration of Conflicting Interests

The authors declare no conflicts of interest with respect to the authorship and/or publication of this article.



- paediatric acute care: a prospective cohort study. *Emerg Med Australas.* 2014;26(6):602-8.
5. Leidel BA, Kirchhoff C, Bogner V, Stegmaier J, Mutschler W, Kanz K-G, et al. Is the intraosseous access route fast and efficacious compared to conventional central venous catheterization in adult patients under resuscitation in the emergency department? A prospective observational pilot study. *Patient Saf Surg* 2009;3(1):1.
  6. Duff A. Incorporating psychological approaches into routine paediatric venepuncture. *Arch Dis Child* 2003;88(10):931-7.
  7. Crowley M, Brim C, Proehl J, Barnason S, Leviner S, Lindauer C, et al. Clinical Practice Guideline: Difficult Intravenous Access. *Emergency Nurses Association* 2011;pp1-17.
  8. Haile D, Suominen P. Technologies in pediatric vascular access: have we improved success rate in peripheral vein cannulation? *Acta Anaesthesiol Scand.* 2017;61 (7): 710-13.
  9. Haas NA. Clinical review: vascular access for fluid infusion in children. *Crit care.* 2004;8(6):478-84.
  10. Piira T, Sugiura T, Champion G, Donnelly N, Cole A. The role of parental presence in the context of children's medical procedures: a systematic review. *Child Care Health Dev.* 2005;31(2):233-43.
  11. McMurtry CM, McGrath PJ, Chambers CT. Reassurance can hurt: Parental behavior and painful medical procedures. *J pediatr.* 2006;148(4):560-1.
  12. Lioffi C, White P, Franck L, Hatira P. Parental pain expectancy as a mediator between child expected and experienced procedure-related pain intensity during painful medical procedures. *Clin J Pain.* 2007;23(5):392-9.
  13. Pruitt LM, Johnson A, Elliott JC, Polley K. Parental presence during pediatric invasive procedures. *J Pediatr Health Care.* 2008;22(2):120-7.
  14. Kennedy RM, Luhmann J, Zempsky WT. Clinical implications of unmanaged needle-insertion pain and distress in children. *Pediatrics.* 2008;122(Supplement 3):S130-S3.
  15. McMurtry CM, McGrath PJ, Asp E, Chambers CT. Parental reassurance and pediatric procedural pain: A linguistic description. *J Pain.* 2007;8(2):95-101.
  16. Amouzeshi Z, Unesi Z, Saadatjoo SA. Mothers' Knowledge of pediatric pain management in the pediatric ward of Valli-e-asr hospital in 2011. *J Birjand Univ Med Sci.* 2013;19(4):448-54 [In Persian].
  17. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs.* 2008;62(1):107-15.
  18. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24(2):105-12.
  19. Speziale HS, Streubert HJ, Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative*: Lippincott Williams & Wilkins; 2011.
  20. Wolfram RW, Turner ED. Effects of parental presence during children's venipuncture. *Acad Emerg Med* 1996;3(1):58-64.
  21. Cummings JA. Pediatric procedural pain: how far have we come? An ethnographic account. *Pain Manag Nurs* 2015;16(3):233-41.
  22. Nikfarid L, GHAMAR YR, Namazian M, Namdar F, AZAM NM. Comparison of EMLA cream versus local refrigeration for reducing venipuncture-related pain in pediatric patients of Children's Medical Center, 2008. *Iranian Journal of Nursing Research* 2010; ; 5(16): 32 -7 [In Persian].
  23. Razaghi N, Givari A, Tatarpoor P, Hoseini A. Comparing the effect of two methods of distraction and touch on intensity of pain related to venipuncture in 5-10 years old children. *Iran Journal of Nursing.* 2012;25(77):50-9 [In Persian].

24. Olsen K, Weinberg E. Pain-Less Practice: Techniques to Reduce Procedural Pain and Anxiety in Pediatric Acute Care. *Clin Pediatr Emerg Med*. 2017;18(1):32-41.
25. Borhani F, Bagherian S, Abaszadeh A, Ranjbar H, Tehrani H, Soleimanizadeh L. Correlation between anxiety and pain due to intravenous catheters in children with thalassemia. *Sci J Iran Blood Transfus Organ* 2012;9(2): 170-4.
26. McMurtry CM. Pediatric needle procedures: Parent-child interactions, child fear, and evidence-based treatment. *Canadian Psychology/Psychologie canadienne*. 2013;54(1):75-9.
27. Rauch D, Dowd D, Eldridge D, Mace S, Schears G, Yen K. Peripheral difficult venous access in children. *Clin Pediatr (Phila)* 2009;48(9):895-901.
28. Curtis SJ, Craig WR, Logue E, Vandermeer B, Hanson A, Klassen T. Ultrasound or near-infrared vascular imaging to guide peripheral intravenous catheterization in children: a pragmatic randomized controlled trial. *CMAJ* 2015;187(8):563-70.
29. Cohen LL, Bernard RS, Greco LA, McClellan CB. A child-focused intervention for coping with procedural pain: Are parent and nurse coaches necessary? *J Pediatr Psychol* 2002;27(8):749-57.
30. Spagrud LJ, von Baeyer CL, Ali K, Mpofu C, Fennell LP, Friesen K, et al. Pain, distress, and adult-child interaction during venipuncture in pediatric oncology: an examination of three types of venous access. *J pain symp manag* 2008;36(2):173-84.
31. Mohebbi P, Azimzadeh R. Barrier of implementing non-pharmacological pain management in children and presented interventions by nurses. *J Holist Nurs Midwifery* 2014;24(2):40-8 [In Persian].
32. Karimi R, Daneshvar Z, Sadat Hoseini A, Mehran A, Shiri M. Perceptions of parents and nurses on needs of hospitalized children's parents. *Journal of hayat*. 2008;14(1):31-9 [In Persian].
33. Aein F, Alhani F, Mohammadi E, Kazemnejad A. Marginating the interpersonal relationship: Nurses and parent's experiences of communication in pediatric wards. *Iranian Journal of Nursing Research*. 2008;3(9):71-83 [In Persian].
34. Gonzalez JC, Routh DK, Armstrong FD. Effects of maternal distraction versus reassurance on children's reactions to injections. *J Pediatr Psychol* 1993;18(5):593-604.
35. Kristjánsdóttir Ó, Unruh AM, McAlpine L, McGrath PJ. A systematic review of cross-cultural comparison studies of child, parent, and health professional outcomes associated with pediatric medical procedures. *J Pain*. 2012;13(3):207-19.
36. Bagheriyan S, Borhani F, Abbaszadeh A, Miri S, Mohsenpour M, Zafarnia N. Analgesic Effect of Regular Breathing Exercises with the Aim of Distraction during Venipuncture in School-aged Thalassaemic Children. *Iran J Ped Hematol Oncol* 2012; 2(3):116-22.
37. Loghmani L, Borhani F, Abbaszadeh A. Factors affecting the nurse-patients' family communication in intensive care unit of kerman: a qualitative study. *J Caring Sci* 2014;3(1):67-82.