Promoting parental education of infants hospitalized in a children's hospital in Tabriz, Iran: a best practice implementation project

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ABSTRACT

Introduction: Parents of infants admitted to hospital have high information needs. A good educational program will improve the outcomes and communication needs of these parents. Results from some studies have shown that patient education in Iran is inappropriate and should be improved.

Objectives: The aim of this evidence implementation project was to evaluate the current practice and implement the best practice related to promoting patient education in a children's hospital in Tabriz, Iran.

Methods: A clinical audit was undertaken using the Joanna Briggs Institute Practical Application of Clinical Evidence System tool. Eight audit criteria that represent the best practice recommendations for patient education were used. A baseline audit was conducted followed by implementing multiple strategies, and the project was finalized with a follow-up audit to determine a change in practice.

Results: Significant improvements in the follow-up audit in comparison with the baseline audit were as follows: evaluation of patient learning has been undertaken to determine met and unmet needs (from 65 to 77%); patients' learning needs, readiness to learn, and their learning style have been assessed before the implementation of an educational initiative (from 55 to 66%); and educational resources in different formats (e.g., written handouts, brochures, and links to online materials) are available in the ward (from 33 to 77%). Strategies that were implemented to achieve change in practice included conducting workshops and conferences, determining a trained nurse as responsible for educating parents, training in discharge time, the presentation of educational films daily, conducting group training, and installing related posters in the department and patient's room. The other five criteria were less compliant with best practice in the follow-up audit rather than the baseline audit; however, all of them except one (Criterion 3) were still up to 75% compliant, which is considered excellent by the audit team.

Conclusion: The follow-up audit results indicated an improvement in providing parental education. It can be concluded that these interventions can facilitate the implementation of evidence into clinical practice.

Key words: best practice, clinical audit, evidence-based practice, neonatal ICU, parental education

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What is known about this topic?
- Caring for ill children is a challenging and stressful task for both physicians and nurses, as it needs educational and emotional support systems.
- Patient education in Iran and especially in Tabriz is inappropriate and should be improved.
- Clinical audit is a useful tool for improving patient education.

What does this article add?
- Interventions including conducting workshops and conferences can facilitate the implementation of evidence into clinical practice.
- Not all of the criteria were improved in the current audit project, which depends on situational changes such as nursing shifts.
- The health policymakers and top health care managers might use these results to implement and adhere to the suggested interventions in other settings to improve patient education in hospitals.

Introduction

Patient education is an important and challenging component of care during hospitalization and then in a community setting as well.[1] To provide effective education for patients and their caregivers, nurses should consider patients' needs and provide the information they want. This information differs among patients and needs to be individualized for each patient. Moreover, based on the different phases of a patient's recovery, they need different information.[2] Nowadays the growth in the use of electronic websites and technology-based health resources has empowered the patients and consumers in having the ease of access to use this information.[3] However, the quality and reliability of these resources are challenging issues.

The treatment team, while educating, must consider patients' educational and cultural backgrounds, as well as their general level of comprehension.[4] Furthermore, the level of patients' health literacy should be considered by the cure team and medical and nursing students.[5] Results of a recent review study indicated that the main barriers for nurses to conduct patient education in Iran were as follows: nursing shortage, unsupportive organizational culture, and low compliance of patients to education. In addition, the most important facilitators for patient education included selecting and training special nurses to provide education to patients, and providing patient education courses for nurses.[6] Another study by Farahani *et al.*[7] has shown that a range of cultural factors including patients' lifestyle, beliefs about the disease and treatment, the concealment of true diagnosis, different opinions regarding the preferred instructor, and ineffective communication can influence patient education in Iran.

Most of the information and counseling that patients and their caregivers need to have is related to dealing with emergencies, reducing fear and stress in experiencing the disease, and receiving correct and honest explanations.[8] A comprehensive educational plan for patients should include all types of learning methods such as media, web-based information system, printed materials, follow-up telephone calls, and discussions.[1,9,10] Developing a comprehensive plan for education, interdisciplinary cooperation, and holistic interventions to patient education will help patients and their caregivers get prepared for receiving information.[11]

Caring for ill children is a challenging and stressful task for both physicians and nurses, as it needs educational and emotional support systems.[12] Health professionals should be aware of empathetic communication with parents, specifically those at risk of experiencing stress. In addition, parents should be involved from the beginning of their child's admission to the hospital.[13] Results of a review study showed that parents of children admitted to the NICU (neonatal ICU) have high information needs, and a clear conceptualization and theoretical work will improve better information outcomes and communication needs of NICU parents.[14] A comprehensive educational package for NICU parents should include information about their infant's medical condition and the NICU environment, along with basic information about infant care for first time parents.[15]

Raffray *et al.* in their study[16] indicated that communication barriers, insufficient human resources in NICU, and difficulties in breastfeeding were the main obstacles in the NICU wards which require a comprehensive educational program in this unit. Results from some studies showed that patient education in Iran[17] and especially in Tabriz[18] is inappropriate and should be improved. Therefore, in this study, we aimed at improving patient education in a children's hospital.

Aims and objectives

The aim of this evidence implementation project was to evaluate current practice and implement best practices related to the delivery of parental education in the NICU and infants ward of a children's hospital in Tabriz, Iran. The target population of this audit project is the parents of infants. Therefore, when we are talking about the patient here, we mean parents rather than infants. The specific objectives were as follows:

(1) To determine current compliance with evidence-based criteria regarding parental education by carrying out an initial audit in NICU and infants ward of a children's hospital in Tabriz, Iran.
(2) To implement strategies to address the gaps identified in evidence-based practice in NICU and infants ward of a children's hospital in Tabriz, Iran.

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(3) To conduct a follow-up audit to determine improvements in compliance with evidence-based criteria in the NICU and infants ward of a children's hospital in Tabriz, Iran.

Audit question

To what extent are nurses compliant to educating patients according to Joanna Briggs Institute (JBI) recommended practice?

Methods

The current evidence-implementation project used the JBI Practical Application of Clinical Evidence System, Getting Research into Practice (GRiP) audit and feedback tool which involves three phases of activity:

(1) Establishing a team for the project and undertaking a baseline audit based on the criteria informed by the evidence.
(2) Reflecting on the results of the baseline audit, and designing and implementing strategies to address non-compliance found in the baseline audit, informed by the GRiP framework.
(3) Conducting a follow-up audit to assess the outcomes of the interventions implemented to improve practice, and identify future practice issues to be addressed in subsequent audits.

Setting

The project was undertaken in the NICU and infants wards of a children's hospital in Tabriz, Iran. The NICU ward has 40 beds and 58 nurses; the infants ward has 23 beds and 28 nurses. The most prevalent problems of infants in these wards were neonatal hyperbilirubinemia, apnea, and respiratory distress. The delivery of education to the parents of the infants is the focus of this clinical audit and from this point forward the parents will be referred to as the patients.

Ethical considerations

This project was submitted and approved by the Ethics Committee of the Tabriz University of Medical Sciences (number IR.TBZMED.REC.1396.1261).

Phase 1: Team establishment and baseline audit

The audit team consisted of a lecturer who presented the results of each phase to the whole stakeholders and audit team, the physician and nurse who were the coordinators in the wards, a PhD student of health policy who designed the project and managed the audit team in all phases, the quality control expert of the hospital for conducting the interventions in phase 2, and research staff for collecting and analyzing the data. The audit criteria were derived from the best available evidence[19] and translated to Persian by two of the researchers. One of the criteria was related to nurses and used to interview nurses to measure this criterion. The others were measured by interviewing parents and observing the wards and documents. A meeting was conducted to familiarize the members with the project and discuss the audit criteria and data collection methods. The baseline audit to detect current patient education practice in NICU and infants wards was carried out in March 2018. We randomly selected 40 parents of infants with a hospital stay of more than 1 day who had signed a consent form to participate in the study. Table 1 shows the evidence-informed audit criteria used in the project (baseline and follow-up audit) as well as a description of the sample and approaches to measure compliance with the best practice for each audit criterion.

Phase 2: The design and implementation of strategies to improve practice (Getting Research into Practice)

Audit results were analyzed following the baseline audit to identify gaps between the current practice and the best practice recommendations. The project team summarized areas of excellent (over 75%), moderate (50–75%), and low (<50%) performance. In addition, they brainstormed barriers to the best practice, identified strategies and resources to overcome the barriers, and implemented strategies identified as feasible. We used the JBI GRiP tool to recognize barriers in practice and suggest changing strategies for improvement. Moreover, the required resources for the implementation of strategies were discussed by the audit team. We discussed the GRiP report in face-to-face meetings and gathered the opinions of the key stakeholders.

Phase 3: Follow-up audit postimplementation of change strategy

A follow-up audit was carried out in November 2018 using the same approaches as the baseline audit to evaluate changes in nurses' compliance with the same evidence-based audit criteria. The sample size in the follow-up audit was decreased to 35 nurses and parents of infants due to less patient and nurse involvement. Results of the follow-up audit and any other details about the process were disseminated back to stakeholders through five to six sessions which were held 15 days apart.

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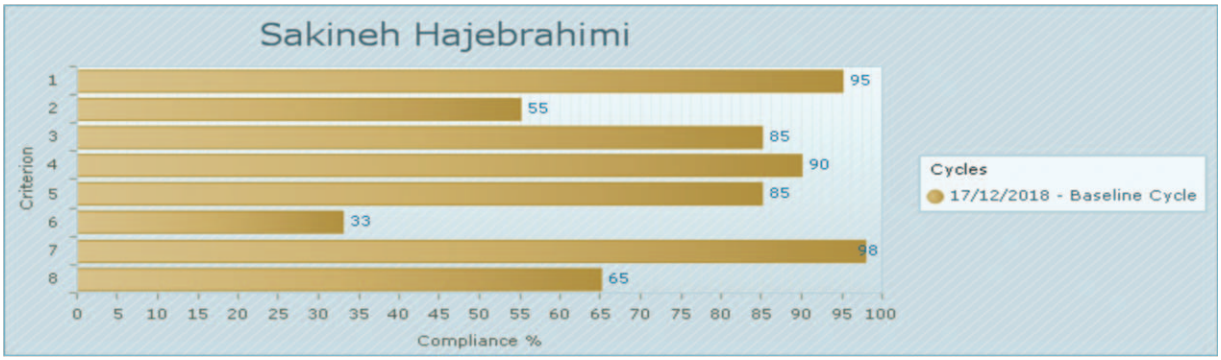
Table 1. Audit criteria

Audit criterion	Sample	Method(s) used to measure compliance with best practice
Nurses have received education about the basic principles of patient education	Baseline: 40 nurses Follow-up: 35 nurses	To interview nurses
Patients' learning needs, readiness to learn and their learning style have been assessed prior to the implementation of an educational initiative	Baseline: 40 families of infants Follow-up: 35 families of infants	To interview infants' families
An individualized teaching plan has been developed for every patient based on the assessment results	Baseline: 40 families of infants Follow-up: 35 families of infants	Documentation audit – review of infants' records
The teaching plan contains clearly identified goals and objectives, including appropriate teaching strategies	Baseline: 40 families of infants Follow-up: 35 families of infants	To interview infants' families
Educational resources have been developed based on evidence-based information and input from relevant patients	Baseline: 40 families of infants Follow-up: 35 families of infants	Documentation audit – review of infants' records
Educational resources in different formats (e.g., written handouts, brochures, and links to online materials) are available in the ward	Baseline: 40 families of infants Follow-up: 35 families of infants	Observation in the wards; to interview infants' families
Patients have received education relevant to their condition	Baseline: 40 families of infants Follow-up: 35 families of infants	To interview infants' families
Evaluation of patient learning has been undertaken to determine met and unmet needs	Baseline: 40 families of infants Follow-up: 35 families of infants	To interview infants' families

Results

Phase 1: Baseline audit

As shown in Fig. 1, the compliance degree of nursing education, appropriate teaching strategies, and relevant patient education in the baseline audit were 90, 95, and 97%, respectively. An individualized teaching plan based on patients' needs and evidence-based educational resources was 85% compliant with the best practice.



Criteria legend

1. Nurses have received education about the basic principles of patient education.
2. Patients' learning needs, readiness to learn and their learning style have been assessed prior to the implementation of an educational initiative.
3. An individualized teaching plan has been developed for every patient based on the assessment results.
4. The teaching plan contains clearly identified goals and objectives, including appropriate teaching strategies.
5. Educational resources have been developed based on evidence-based information and input from relevant patients.
6. Educational resources in different formats (e.g. written handouts, brochures, and links to online materials) are available in the ward.
7. Patients have received education relevant to their condition.
8. Evaluation of patient learning has been undertaken to determine met and unmet needs.

Figure 1. Compliance with best practice audit criteria in baseline audit (%) ($N = 40$). First, nurses have received education about the basic principles of patient education; second, patients' learning needs, readiness to learn and their learning style have been assessed prior to the implementation of an educational initiative; third, an individualized teaching plan has been developed for every patient based on the assessment results; fourth, the teaching plan contains clearly identified goals and objectives, including appropriate teaching strategies; fifth, educational resources have been developed based on evidence-based information and input from relevant patients; sixth, educational resources in different formats (e.g., written handouts, brochures, and links to online materials) are available in the ward; seventh, patients have received education relevant to their condition; eighth, evaluation of patient learning has been undertaken to determine met and unmet needs.

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Table 2. Barriers and strategies to compliance with best practice

Barrier	Strategy	Resources	Outcomes
Weakness of patient communication skills in nurses	Conducting workshop about patient communication and patient education for nurses, then evaluation with checklist	Seminar, slides, printed materials, worksheet, checklist	All nurses were prepared for communication and education
Weakness of nurses' clinical knowledge of diseases	Conducting conferences about common diseases in departments	Seminar, printed materials, worksheet, checklist, evaluation of the end of the course	All nurses received adequate education and acceptable grades
Absence of specialist nurse for individual training for parents about care giving for their infants	Determine a trained nurse as responsible for educating mothers	Human resource	A nurse trained and qualified for mothers' supplementary education
Mothers lacked knowledge and skills about correct breastfeeding and correct baby care	Training types and steps of breastfeeding in discharge time; presentation of educational videos to parents, conducting group training for parents, installing posters in departments	Educational materials, educational videos, posters	Mother's readiness to feed and care for the infant

The evaluation of patient learning, patients' learning needs assessment, and the availability of different educational resources in the wards were less compliant with the best practices (65, 55, and 32.5%, respectively).

Phase 2: Strategies for Getting Research into Practice

Four barriers to compliance with the best practice were identified, and strategies to overcome these barriers (as summarized in Table 2) were formulated and then implemented.

Barrier 1: Weakness of patient communication skills in nurses.

A training program including workshops and seminars about communication skills with parents of infants and their education was designed and implemented for nurses. All nurses in NICU and infants departments received this training. We held one seminar and three workshops, each session lasting 30–90 min. The workshops were conducted by the patient training supervisor and trained teachers. Then, the results of workshops and seminars were evaluated through an examination to test the participant's knowledge and skills. Participants had to attend the training and pass the examination. The coordinator of the audit project developed an educational package and conducted the seminar. The instructor of the workshops trained the participants. The training packages included fundamentals of communication skills, methods of communicating in the workplace, and methods of communicating with patients. Then, both of them conducted a test. All nurses of the two wards were prepared for communication and education.

Barrier 2: Weakness of nurses' clinical knowledge of diseases.

A training program including two educational conferences about common diseases of infants was implemented in two departments, lasting 45 min. Two physicians taught about common neonatal diseases and their ways of diagnosis and treatment. Knowledge of nurses before and after the training was assessed by performing a pretest and a posttest. The patient training supervisor and two physicians prepared educational packages and materials and organized the conference. All nurses received adequate education and got acceptable grades.

Barrier 3: Absence of specialist nurse for individual training of parents about caregiving of their infants.

A trained nurse was assigned as being responsible for educating parents about breast-feeding, lactation and milk storage, doing massage, personal hygiene, infant care, and infection control. In this strategy, it was decided to determine a nurse in each department as responsible for parents and mostly parents' education and taking on the main responsibility of parents' training, and providing them supplementary training about the above-mentioned issues. A specialized nurse is required to conduct educational activities, apart from clinical tasks. As a result, a nurse was trained and qualified for parents' supplementary education.

Barrier 4: Parents lacked knowledge and skills about correct breastfeeding and correct infant care.

In this strategy, nurses trained the types and steps of breastfeeding to parents at discharge time. Moreover, educational videos about the issue were provided for parents. Conducting group training by the nurse in charge of educating with parents was another strategy for this barrier. To educate parents accurately, group meetings with parents were organized when required.

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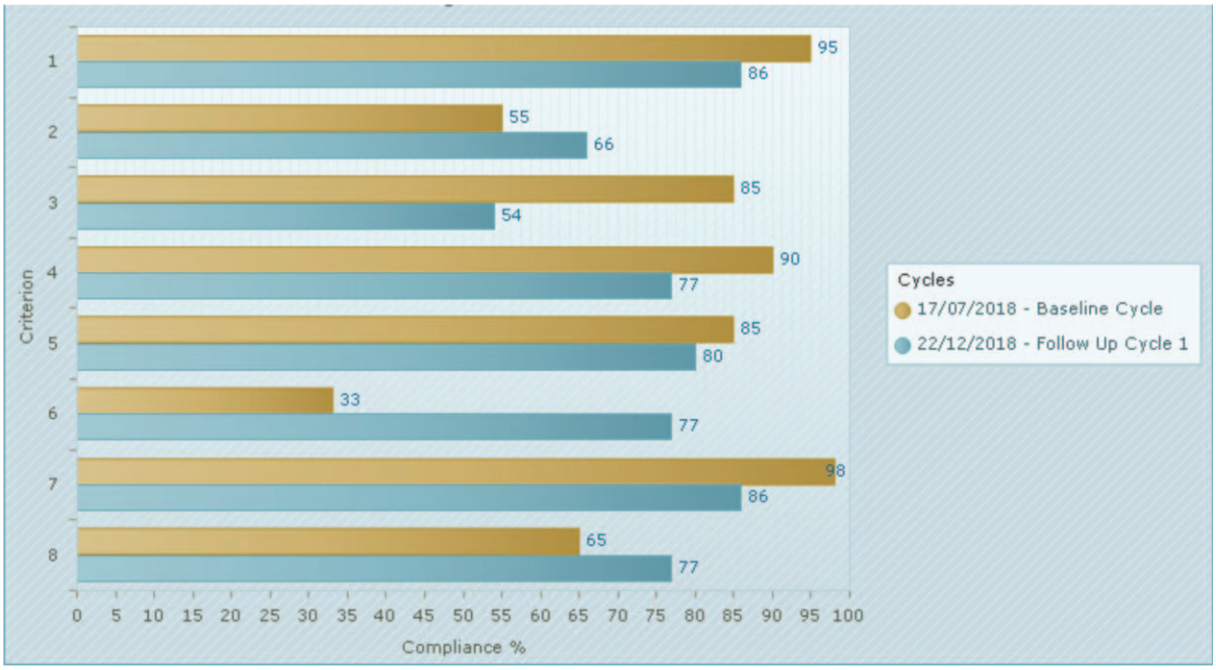
Parents shared their information and experiences, and the nurse responsible for educating provided the necessary training. In addition, the team installed educational posters of breastfeeding and infant care in two departments. Educational materials and documents were provided during training and at the discharge time. Results showed that parents' readiness to feed and take care of their infants was improved.

Phase 3: Follow-up audit

Figure 2 presents the follow-up audit results, compared with the baseline results. The compliance rate of Criterion 1 (nurses have received education about the basic principles of patient education) decreased from 95% in baseline audit to 86% in the follow-up audit. The compliance rate for Criterion 2 (patients' learning needs assessment) improved from 55 to 66% in the follow-up audit. Criterion 3 (an individualized teaching plan) achieved 54% in the follow-up audit, while this criterion was 85% compliant with the best practice in the baseline audit. Criteria 4, 5, and 7 also decreased in the follow-up audit from baseline audit (90–77%, 85–80%, and 98–86%, respectively). Criterion 6 (different formats of educational resources) improved from 33 to 77%. Finally, Criterion 8 improved from 65 to 77% in the follow-up audit.

Discussion

The current project aimed to improve the evidence-based patient education in NICU and infants wards of a children's hospital in Tabriz, Iran. Following an audit and feedback cycle using the JBI-GRiP tool, the project achieved improvements in compliance with the best



Criteria legend

1. Nurses have received education about the basic principles of patient education.
2. Patients' learning needs, readiness to learn and their learning style have been assessed prior to the implementation of an educational initiative.
3. An individualized teaching plan has been developed for every patient based on the assessment results.
4. The teaching plan contains clearly identified goals and objectives, including appropriate teaching strategies.
5. Educational resources have been developed based on evidence-based information and input from relevant patients.
6. Educational resources in different formats (e.g. written handouts, brochures, and links to online materials) are available in the ward.
7. Patients have received education relevant to their condition.
8. Evaluation of patient learning has been undertaken to determine met and unmet needs.

Figure 2. Compliance with best practice audit criteria in follow-up audit (%). First, nurses have received education about the basic principles of patient education; second, patients' learning needs, readiness to learn and their learning style have been assessed prior to the implementation of an educational initiative; third, an individualized teaching plan has been developed for every patient based on the assessment results; fourth, the teaching plan contains clearly identified goals and objectives, including appropriate teaching strategies; fifth, educational resources have been developed based on evidence-based information and input from relevant patients; sixth, educational resources in different formats (e.g., written handouts, brochures, and links to online materials) are available in the ward; seventh, patients have received education relevant to their condition; eighth, evaluation of patient learning has been undertaken to determine met and unmet needs.

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practice recommendations. The postimplementation audit showed significant improvement in three out of eight criteria, which were much lower at baseline audit.

The baseline audit in this study showed that parents of infants in NICU and infants wards received an education; however, this education was not adequate. Compliance of parental educational needs assessment and evaluation for education with the best practice at the baseline audit was only 55 and 65%, respectively. The reason for noncompliance with the best practice might be the lack of time of the nurses and lack of knowledge about the importance of parent education. In addition, some barriers such as language barriers, and cultural barriers might be other reasons. Results of a study indicated that the educational needs of infants and their parents were high when some other special conditions such as low birth weight, male sex, low social status, and poor language skills of the parents existed.[20] Another study showed that early-term delivery was a risk factor of high educational needs of parents.[21] Results of a Cochrane systematic review revealed that the education about infant behavior such as infant sleep potentially enhances parents' knowledge; however, this is not confirmed in the included studies of the review.[22] Patient education and assessing their individual educational needs have been confirmed in other studies.[23–26] Lack of knowledge among nurses about parental education, lack of knowledge of nurses about illnesses, and nurses' lack of communication skills were recognized as nurse-related barriers of education in a review study in Iran,[6] which is in line with our results. To address this issue in the wards of NICU and infants in the current study, interventions including conducting workshops and conferences, determining a trained nurse as responsible for educating parents, training in discharge time, presenting educational films for parents, conducting group training, and installing posters in the department were designed and implemented. After implementing these interventions, results had shown to be improved. Results of a study showed that using printed educational materials for healthcare professionals can be useful for improving evidence-based practices.[27]

Baseline audit in the current study showed that the availability of different educational resources in the wards was less compliant with the best practices (32.5%). The reason for this might be the lack of resources such as human and financial resources in the hospital. Furthermore, the acceptability of some educational materials by the parents of ill infants due to cultural barriers or other reasons should be considered. Some factors such as the reading ability of parents should be considered in designing education materials in hospitals.[28] New educational methods such as video-assisted patient education have been shown to have positive impacts on patient satisfaction and based on the results of a study it was highly appreciated for patient education by the users.[29] Similarly the use of educational videos was effective in improving patient's skills in another study.[30] Nurses play an important role in educating patients and their families, so they should be more skillful in training patients.[31] Based on the results of these studies regarding different methods of education, we implemented interventions such as providing educational videos at discharge time, installing posters in departments, and group meetings with parents about their important issues. As the follow-up audit showed, the compliance of this criterion had improved to 77%.

Although five out of eight criteria were less compliant with the best practice in follow-up audit compared with the baseline audit; however, all of them except one (Criterion 3) were still up to 75% compliant, which is considered excellent by the audit team. One reason for the decrease in the compliance rate of these criteria might relate to the nurses due to changing work shifts in different phases of the study, and infants' clinical problems might be the other reason. There was an 8 month time interval between the baseline audit and follow-up audit, and in this time, some of the nurses might have been changed in these wards. However, this long time interval was one of the limitations of this audit project. To keep these results unchanged and make them improved, we must continue to implement the designed interventions and evaluate the outcomes in specific time intervals.

Conclusion

The current evidence implementation project used a clinical audit process to monitor parental education in a children's hospital setting. The audit results indicated an improvement in providing patient education. It can be concluded that the interventions such as conducting workshops and conferences, determining a trained nurse as responsible for educating parents, training in discharge time, presenting educational films for parents, conducting group training, and installing related posters in the department can facilitate the implementation of evidence into clinical practice. Further audits will need to be carried out to monitor practice and affect change as required. The health policymakers and top healthcare managers might use these results to implement and adhere to the suggested interventions in other settings to improve patient education in hospitals.

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Conflicts of interest

There were no conflicts of interest to disclose.

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