

Patient Education Improvement: An Interventional Study in Iran

Jafar Sadegh Tabrizi¹, Sahar Farahsa^{2*}, Golshan Ashghari³, Gisoo Alizadeh²

¹ Health Services Management Research Center, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran. ² Iranian Center of Excellence in Health Management, Department of Health Services Management, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran. ³ Sina Hospital, Tabriz University of Medical Sciences, Tabriz, Iran.



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Abstract

Background and Objectives: Patient education is an integral part of standard health care delivery. Quality of patient education can influence patient satisfaction, medication side effect, patient independence, and overall effectiveness of care delivery. This clinical audit study was conducted to explore the quality of patient education in a sample hospital from Iran, identify potential improvement solutions, and evaluate the effectiveness of their implementation.

Methods: This before-after (interventional) study was conducted in the two internal wards of Sina hospital of Tabriz (Northwestern Iran). Following cyclic clinical audit method, a 6-step auditing procedure was conducted. The compliance of patient education practice with standards was recorded by a validated research-made check list which was developed based on national references. The level of compliance with standards before and after intervention was compared by one-sample *t* test.

Findings: The initial compliance of patient education with standards was 60%, 39%, and 65% for admission, hospitalization, and discharge, respectively. Auditing procedure identified 4 strategies to enhance quality of patient education, including providing patients with pamphlets and manuals on common the most frequent causes of hospitalization, installing educational posters on the walls, holding training meetings and workshops, updating patient education forms. Following implementation of these interventions, compliance of patient education during admission increased by 21.5% to 72.9%, during hospitalization by 75% to 68%, and during discharge by 20% to 78%.

Conclusions: Although there still is a significant gap between current patient education practices and those required by standard guidelines, our results suggests that continuous auditing and evidence-based intervention can increasingly improve the compliance level.

Keywords: Patient education, Clinical audit, Quality improvement, Quality of health care

Background and Objectives

Over the past 2 decades, health care reform centered on higher quality of care has become a national priority in many countries.¹ As proposed by the Institute of Medicine, healthcare quality is defined as “the extent to which the health services provided to individuals and patient populations improve desired health outcomes.”² A well-established approach to health care quality improvement is auditing; clinical audit is used to both monitor and improve quality of care.³

Based on definition proposed by National Institute for

Clinical Excellence, audit is described as “a quality improvement process that attempt to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change.”⁴ Accordingly, structural, process, and outcome dimensions of care are focused and systematically evaluated against pre-determined standards. Necessary changes will be implemented after audit and their effectiveness is examined by monitoring and follow up.⁵

Patient education is an integral part of quality health care delivery. Patient education is referred to as the process of providing learning opportunities for patients and their families to increase their knowledge about their disease, improve their skills in treatment-related tasks, and help to develop coping mechanisms. Studies increasingly

*Corresponding Author: Sahar Farahsa, Iranian Center of Excellence in Health Management, Department of Health Services Management, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran. Tel: +98f9143300682, Email: Sahar.farahsa@yahoo.com

show the benefits of educating patients for their health and quality of life. A study of 372 randomly-selected patients in dialysis department conducted by Life Option Council, found that provision of more education for patients were associated with the more effective of treatment process and higher well-being.⁶ Investing in patient education is important in terms of economy as well; studies show that patients who receive adequate information about necessary care for after discharge such as taking their medicines properly and making follow-up appointments on time are less likely to be re-admitted than those who do not receive this information.⁷⁻⁹ The ultimate goal of patient education program is to enable the patients to make useful autonomous decision about their own treatment progress.^{10,11} According to international principles and standards of patient education process, educating and learning must to be begun by the time of admission and continue up to patient discharge which all the details of education must to be documented and effectiveness of education be evaluated by care providers.^{12,13}

Patient education is a direct duty of health providers, in particular nurses.^{14,15} However, evidence shows that nurses often have troubles in effective education of patients. For instance, Kelo et al in a their qualitative study on behavior of nurses in the patient education found that the goal of this process is not clear to the nurses.¹⁶ At present, the situation of patient education in the Iranian health system is not clear and the potential barriers toward standard implementation of this process are to be explores. Based on this needs, this patient education audit was conducted to bring more clearance to the status of the issue and identify potential improvement strategies.

Methods

This before-after (interventional) study was conducted in the 2 internal wards of Sina hospital of Tabriz (Northwestern Iran). Following cyclic clinical audit method, we performed this study in 6 steps:

Step 1: In this step the subject of audit was selected by the team of auditing. Based on nominal group method, a group comprised of researchers, head nurses of internal wards, quality improvement expert, and the educational supervisor selected patient education as the subject of clinical audit. Selection of this subject was largely based on the fact that different wards had troubles in patient educations process.

Step 2: This step dealt with identifying the standards. The national accreditation standards of patient education during admission, hospitalization, and discharge were reviewed and the relevant criteria were extracted. Based on the standards, a researcher-made checklist was de-

veloped, with 19 bi-value questions (Yes/No) related to patient education during admission (5 questions), hospitalization (5 questions), and discharges (4 questions) and assessment of patient education documents (5 questions). The content validity of the checklist was confirmed by peer-review method and applying the comments of 11 experts in the field (CVI = 0.79, CVR = 0.69).

Step 3: In the third step the current situation of patient education was assessed based on the developed checklist. Data were gathered by direct observation of patient education process, interview with patients, and review of patients' medical records. The study sample consisted of all the conscious patients who had been hospitalized in the 2 internal wards during research time. Thirty-five patients were required and data were collected within 1 week.

Step 4: At this stage the results of clinical audit (current situation) was compared with the standards. The domains identified not to comply with standards, were investigated in discussion meetings to identify potential improving solutions.

Step 5: In the fifth step, interventions for improving the current situation were designed based on the formulated solutions in the previous step. Action plans for implementing the intervention was developed and the potential solutions were ultimately implemented.

Step 6: Two months after intervention, the audit was repeated to inspect if the interventions have left any improving effect. The answer "Yes" showed accordance with standards. Comparison of the results of the audit and re-audit was carried out using one-samples *t* test. Statistical analyses were carried out using SPSS version 16 software package. *P* values $\leq .05$ was considered as statistically significant.

Ethical Issues

This study was approved by the Ethical Committee of Tabriz University of Medical Sciences. The verbal consent of patients for participation was obtained.

Results

The results of patient education audit before intervention are shown in Table 1 and Figure 1. The percentage of compliance with the standards was 60% for education during admission, 39% for education during hospitalization, and 65% for education during discharge. The most important cases of non-compliance with the standards in the admission section were informing patients about the wards and their facilities (39%) and giving necessary safety advices to patients (41%). In the hospitalization section the lowest compliance was related to provision of educational pamphlets (0%) and educating about how to reduce

Table 1. Compliance of Patient Education Practices With Standards Before Intervention

Checklist Items	Percentage of Compliance
Education during admission	
1- Are patients informed about patient rights?	85
2- Are patients informed about the department and its facilities?	39
3- Are patients informed about their diseases and treatment processes?	50
4- Are patients informed about the importance of identification bracelet?	85
5- Are patients given necessary safety recommendations (like fall risk etc.)?	41
Average for education during admission	60
Education during hospitalization	
6- Are patients educated about their medicine and how to take it?	50
7- Are patients educated about their especial diet?	54
8- Are patients educated how to control their anxiety?	31
9- Are patients given appropriate advices concerning their disease and treatment process during hospitalization?	62
10- Are there any educational pamphlet available to patients?	0
Average for education during hospitalization	39
Education during discharge	
11- Are patients educated on how to take their medicine at home?	66
12- Are patients educated on how to follow especial diet at home?	66
13- Are patients given instructions for their after-hospital care?	61
14- Are patients informed about when to make a follow-up appointment?	66
Average for education during discharge	65
Documentation check	
15- Are patient education forms filled up properly in the part of education during admission?	46
16- Are patient education forms filled up properly in the part of education during hospitalization?	46
17- Are patient education forms filled up properly in the part of education during discharge?	46
18- Are the educator(s) ` name and position written in the patient education forms?	46
19- Is the effectiveness of educations controlled by head nurses?	40

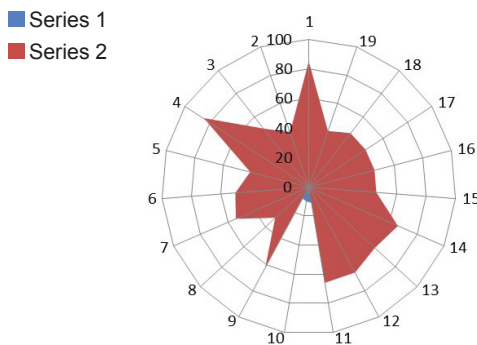


Figure 1. Radar Chart of Compliance With Standards Before the Interventions

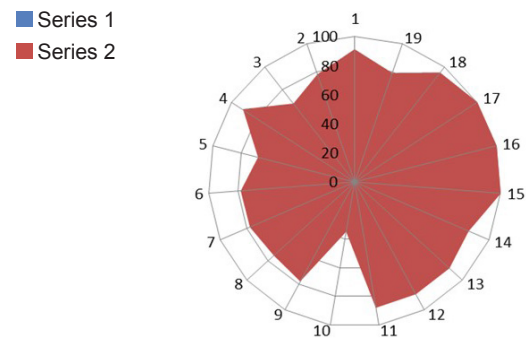


Figure 2. Radar Chart of Compliance With Standards After the Interventions

anxiety (31%). During the discharge, giving instructions for after-hospital care gained the lowest percent of compliance (61%). Patient education forms were not filled out according to standards in 54% of cases. Effectiveness of education had been evaluated only for 40 % of the patients.

After identification of factors with inadequate compli-

ance with standards, discussion meetings were held with head nurses and the audit team, to review the problems and formulate solutions. As a result, the following interventions were deemed appropriate to implement:

Preparing pamphlets and manuals: patients were provided with pamphlets and manuals on common the most

Table 2. Compliance of Patient Education Practices With Standards After Intervention

Checklist items	Percentage of Compliance
Education during admission	
1- Are patients informed about patient rights?	91
2- Are patients informed about the department and its facilities?	78
3- Are patients informed about their diseases and treatment processes?	68
4- Are patients informed about the importance of identification bracelet?	91
5- Are patients given necessary safety recommendations (like fall risk etc.)?	68
Average for education during admission	79
Education during hospitalization	
6- Are patients educated about their medicine and how to take it?	78
7- Are patients educated about their especial diet?	78
8- Are patients educated how to control their anxiety?	75
9- Are patients given appropriate advices concerning their disease and treatment process during hospitalization?	78
10- Are there any educational pamphlet available to patients?	35
Average for education during hospitalization	69
Education during discharge	
11- Are patients educated on how to take their medicine at home?	88
12- Are patients educated on how to follow especial diet at home?	88
13- Are patients given instructions for their after-hospital care?	88
14- Are patients informed about when to make a follow-up appointment?	85
Average for education during discharge	87
Documentation check	
15- Are patient education forms filled up properly in the part of education during admission?	100
16- Are patient education forms filled up properly in the part of education during hospitalization?	100
17- Are patient education forms filled up properly in the part of education during discharge?	100
18- Are the educator(s) ` name and position written in the patient education forms?	95
19- Is the effectiveness of educations controlled by head nurses?	79

frequent causes of hospitalization, including diabetes, drug poisoning, and deep vein thrombosis. These pamphlets were prepared and confirmed by the quality improvement and clinical governance experts and the training supervisor. The pamphlets were placed in special locations in the wards and the nurses were asked to give them to patients.

Attaching educational posters on the walls: Two posters on diabetes and necessary cares during hospitalization were prepared and attached on the walls of internal wards.

Holding training meetings and workshop: in a meeting with nurses of the internal wards, the importance of patient education process and its steps was explained in detail by the hospital's quality improvement expert and nurses were offered educational booklets. Head nurses were informed that they must control the effectiveness of educations as a part of their duty. Further, a training workshop was held for newly entered nurses. In this workshop the nurses were taught how to educate patients during admission, hospitalization, and discharge and they were asked to study more about common causes of hospitalization.

Correcting patient education forms: education forms

were changed in some cases and head nurses were asked to place them in all the medical record folders and make sure that they will be filled out properly.

Two months after implementing the above-mentioned interventions, the surveyed wards were re-audited on patient education. The results of the re-audit are presented in Table 2 and Figure 2. The compliance with the standards was increased to 79% for the education during admission, 69% for the education during hospitalization, and 87 % for the education during discharge. All the patient education forms were filled out completely. While the name of the educator was still not written in 5% of the forms, lack of evaluation of education effectiveness reduced to 21%. Comparing the total compliance of patient education checklist with the standards in the pre- and post-intervention phases by one-sample *t* test confirmed statistical significance of improvement ($P = .03$).

Discussion

According to the performed investigations and comparing the patient education process in the internal wards of Sina hospital against the national standards, patient education

was not in a good and acceptable situation and the overall adherence to the standards was low before interventions.

While patient education during admission improved after intervention there is room for further improvement, specially in the case of safety advices and fall risk which is of most importance.^{17,18} Preventing falls is significant not only from patient safety aspect, but also in economic terms. Haines et al assessed the cost effectiveness of educational programs and they showed that provision of the complete training program in addition to usual care will likely both prevent falls and reduce costs of health services.¹⁹

Being an important aspect of standard patient care, education of patients during hospitalization involves providing information about special diet, activity and movement, and communications and offering appropriate advices concerning disease and treatment process.¹⁸ Our intervention remarkably increased the compliance of this factor with the standard. However, there is more opportunity for improvement. Educational materials related to common diseases must to be available to the patients and their relatives consistent with their education level and understanding. Several studies have shown that educational pamphlets and leaflets can increase patients' awareness on information they need.^{20,21}

Educations during discharge should provide information on after-hospital care, medication therapy, and appropriate diet.²² Senobari et al showed that educations of mothers in the time of discharge, decreased the likelihood of neonatal jaundice in the first week, which finally led to reduced readmission rate and hospital costs.²² Other studies have also shown that the quality of patient education during discharge can be elevated by appropriate interventions.²³ Although our intervention significant increased the compliance of patient education during discharge with the standards, patients expressed the need for more education.

Some previous researchers have reported that education process was unclear in their surveyed hospitals and most nurses had not sufficient information on patient education process.^{24,25} Congruently, in our hospital, the education forms had not been completed properly and in some cases they did not exist in the medical records. Our investigative meetings with nurses revealed the reasons were lack of time and awareness.

Documentation is important because it can show treatment progress and materials which have not been educated yet.²⁶ In the surveyed hospital, most often education of patients was taken place in an informal condition and thus the content of education are not documented by nurses. However, after changing education forms and describing items required to be filled for nurses, all the education forms were filled up.

Patient education will not be complete if the effectiveness and result of educations is not evaluated by nurses. The aim of evaluation is to control the quality of education and ensure that the patients really obtain the required information. Evaluation may also help identify patients' new educational needs.²⁷ In the surveyed wards, although effectiveness education was carried out to some extents, most nurses were not aware of its importance. However, after understanding the importance of issue as emphasized in the intervention, evaluation significantly improved.

Our study identified a number of barriers towards standard patient education in the surveyed hospital. One important challenge was that nurses had not sufficiently understood the education process and therefore, and thus patient education had been performed in an unorganized manner. Marcum et al report inadequate time and staffing as barriers for patient education.⁸ Also Haddad identified nurses' work condition and educational skills as the main barriers to patient education.²⁸ Patient-centric approach to education has proved powerful in effective patient education.^{29,30} Future studies should also consider the role of senior managers and their involvement in patient education process and evaluation as a potentially influencing variable.²⁸

Conclusions

This interventional study successfully identified poor aspect of patient education in the studied hospital and improved their compliance with standard. Nonetheless, the present patient education situation is far from full compliance with the standard, calling for further investigation and intervention. A major finding of our study was the limited awareness of nursing staff on the importance and nature of patient education process, which we conjecture to be widespread in Iranian hospitals. Therefore, our study may inspire future efforts in promoting patient education practice.

Authors' Contributions

The authors made equal contributions to this study.

Competing Interests

The authors declare no competing interests.

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