Original Article

Nurse-led action research project for expanding nurses' role in patient education in Iran: Process, structure, and outcomes

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Abstract

Background: Patient education is among the lowest met need of patients in Iran; therefore, expansion of that role can result in greater professional accountability. This study aimed to explain the practical science of the process, structure, and outcomes of a nurse-led action research project to expand the nurses' role in patient education in Iran.

Materials and Methods: This study was part of a participatory action research. Daily communications and monthly joint meetings were held from January 2012 to February 2014 for planning and management. These were based on the research protocol, and the conceptual framework included the Mobilizing for Action through Planning and Partnerships process by means of Leadership for Change skills. Data were produced and gathered through participant observations. Administrative data included project records, official documents, artifacts, news, and reports, which were analyzed through qualitative content analysis.

Results: A participatory project was established with three groups of participants organized from both academic and clinical fields. These consisted of a "core research support team," "two steering committees," and community representatives of clients and professionals as "feedback groups." A seven-stage process, named the "Nurse Educators: Al-Zahra Role Expansion Action Research" (NEAREAR) process, resulted from the project, in which strategic issues were gradually developed and implemented through 32 action plans and quality improvement cycles of action research. Audits and supervision evaluations showed meaningful changes in capacity building components.

Conclusions: A nurse-led *ad hoc* structure with academic–clinical partnerships and strategic management process was suggested as a possible practical model for expanding nurses' educational role in similar contexts. Implications and practical science introduced in this action research could also be applicable for top managers and health system policy makers in a wider range of practice.

Key words: Capacity building, Iran, nurses, patient education, professional role

Introduction

Patient education is an essential practice for effective clinical care in all nursing activities,[1,2] but it is still among the highest unmet needs of patients. Several researches have revealed persistent deficits in patient education services and the educational role of nurses in our hospitals.[3-7] In other words, the educator role has not been fully realized in the routine practice of nurses, as befits the expected positive image of nursing.[5,7,8] Organizational obstacles and professional struggles are known to be the main reasons for such perennial problems,[7,9,10] and these can be explored and managed simultaneously during intentional action research for organizational improvement and professional development.[11,12] Through these means, the role expansion program can result in improved quality of services and make capacity building for professional accountability engage with the growing needs of the community in patient education.[13,14]

According to the Medical Subject Headings (2014), capacity building means "organizational development, including enhancement of management structures, processes, and procedures within organizations and among different organizations and sectors, to meet present and future needs," and it is an important issue. However, little is known

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about the practical science needed for capacity building in both role expansion and patient education services in our context. In other words, organizational models for expanding the nurses' educational role in patient education services have not been described in any previous study conducted in Iran. To that end, the literature has shown considerable potential for nurses to take a lead role in patient education.[15] Therefore, a nurse-led role expansion program through action research projects, by considering situational barriers in professional development and facilitators for organizational capacity building in patient education, is suggested as an appropriate approach.[14] This study aimed to explain the practical science of the process, structure, and outcomes of a nurse-led action research project for expanding nurses' role in patient education, as an organizational model for solving patient education problems in Iran.

Background

Al-Zahra teaching hospital is one of the pioneers in providing patient education services in Iran. It began its involvement with patient education by establishing Health Education Office in 2010, following a proposal from the Deputy of Health in the Medical University of Isfahan,[16] but it lacked an appropriate number of human resources to provide patient education services. This problem was obvious at the beginning of the present study (January 2012), because only one responsible nurse and three other experienced nurses, each one trained to teach patients on one chronic non-communicable disease, were accountable for holding education sessions to a maximum average of 300 patients per month, and that was only a small proportion of the 7000–8000 patients who were hospitalized monthly. The hospital officials understood the necessity of extending patient education in all wards in order to meet the educational needs of all patients in accordance with the accreditation criteria. Therefore, favorable conditions for change in Al-Zahra and possible support from stakeholders interested in the development of patient education services led to an agreement for partnership on "a nurse-led project to explore strategies for an educational role expansion program."

Materials and Methods

Design

This study was part of a participatory action research, "Nurse Educators: Al-Zahra Role Expansion Action Research (NEAREAR)" project, conducted using a mixed methods design. Action research consisted of iterative cycles and regular steps of planning and implementation that were developed over time through continuous observation and reflection. It was designed to identify practical ways to produce participatory action and to develop local theories about a particular situation.[12,17]

Conceptual framework

The guiding framework of organizational change in this action research included "Mobilizing for Action through Planning and Partnerships" (MAPP process)[18] and the 20-fold skills of Leadership for Change (LFC)[19] [Figure 1]. The mixed framework considered practical leadership skills alongside the implicit sevenfold theoretical principles of MAPP: 1. Systems thinking, 2. dialog, 3. shared vision, 4. data-based decision-making, 5. partnership, 6. strategic thinking, and 7. celebration of success, which guided our organizational action research process.[20]

Setting

The study setting was Al-Zahra teaching hospital, and related parallel and higher hierarchical departments in the three deputies of Ministry of Health, constituting the main subsystems of service delivery in our health system. Al-Zahra hospital is one of the biggest specialized medical centers in Isfahan, Iran, and maintains about 800 active beds, more than 35 specialty and subspecialty clinics, and approximately 40 clinical wards.

Participants and sampling method

On the basis of the conceptual framework MAPP, three groups of participants were organized through purposive sampling that included: (a) "Core research support team" consisting of three academic advisors and a tandem arrangement of external and internal change agents as nurse leader and line manager in the field, respectively;

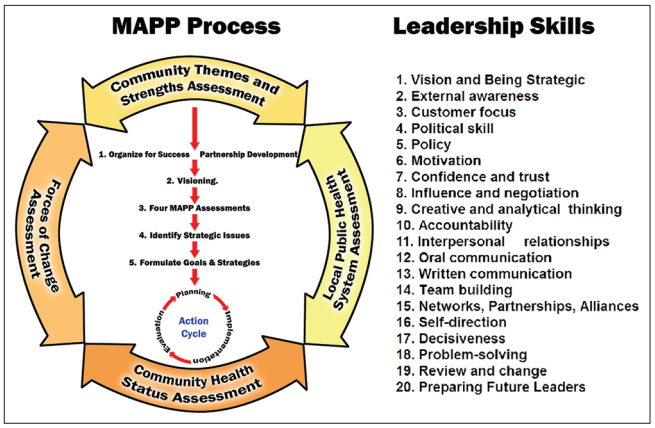

Figure 1: Mixed conceptual framework of "Nurse Educators: Al-Zahra Role Expansion Action Research" (NEAREAR project). Left: Mobilizing for Action through Planning and Partnerships (MAPP) process [20]*; right: 20-fold skills for Leadership for Change[19]** *Under Creative Commons Attribution-Non-Commercial-Share Alike, with permission for the illustration from National Association of County and City Health (NACCHO; www.naccho.org) **Summarized from the Leadership for Change (LFC™) ICN–INO workshop tool (Iran, 2011–2013)

(b) "two steering committees" with 36 members, including nursing and other professional authorities, consisting of intra-organizational and extra-organizational officials and experts; and (c) "broader community of feedback groups" composed of both clients and clinical professionals, selected and extended through various sampling methods, as described in Table 1. At the beginning of the project, almost a fifth of the nursing staff formally participated in the project by signing an informed consent; the remaining staff were also ineluctably engaged in the project, as they joined the project participants on the current plans developed during the organizational change process.

Data collection methods

Daily communications and monthly joint meetings were held from January 2012 to February 2014 to provide

Table 1: Four NEAREAR assessments and methodological details of related investigations for shared decision-making in joint meetings of experts, executives, and stakeholders*

Four NEAREAR assessments	Titles of six investigations and details on their design and tools	a) Resources b) Validity and reliability/ Trustworthiness and rigor	NEAREAR approach a) Data collection method (time) b) Source/sources of data and sample size c) Sampling method	Analysis method
1. First assessment of "priorities for community health and educational needs"	1. "Priorities for Community Health": Qualitative investigation through summarizing recent literature and national/ provincial local statistics 2. "General Educational Needs Assessments and Specific Educational Needs Assessments": Qualitative investigations through receiving statistics of patients and local referrals	a) First hand valid statistics from the Ministry of Health and Medical Education (2011) and also Patients' hospitalization medical records and reports of diagnosis and educational needs in each wards (2011) b) Approval of experts in "two steering committees" (nursing and authorities) in agreement with the "core research support team"	For the first investigation (priorities assessment) a) Literature review and examining national statistics and local priorities in health system (2011-2012) b) Books, articles, conference proceedings, ministry documents, and reports of morbidity and mortality indicators c) Purposive sampling For the second investigation (needs assessments) a) Interview and group discussion sessions b) Two groups in each priority: patients and caregivers, nurses and care providers (n=6-12 cases in each group) c) Purposive sampling in each ward for each common priority (2012-2013)	1. Summarizing quantitative statistics (manually) 2. Qualitative content analysis (manually) for prioritizing diagnosis and identifying patients' educational needs in each ward
2. Second assessment of "local system and patient education services": strengths and weaknesses, opportunities and treats &	3. "Patient education inhibitors, and facilitators" through qualitative survey through nurses' reports ontwo open-ended questions and probing administrators view points	a) Self report questionnaire b) Confirmation of face and content validity of questions using opinions of six specialists and experts -And approval of results in expert groups and "core research support team"	a) Interview, observation, and self report datasheet (2012) b) Officials and nurses (n=110): 55% of 200 issued datasheets c) Proportional sampling in stages from medical- surgical, emergency, and critical wards to one-fourth of nursing forces	1. Quantitative and qualitative content analysis (MAXQDA2007 software) Integration of data in analysis stage
3. Third assessment of "structure, process, and outcomes of nurses' role in patient education"	4. "Nurses' educational role performances" through quantitative survey using a self-report questionnaire (with 13 multiple choices on basic variables and 14 main questions in a 5-point Likert scale) about implementation of the patient education standards in the structure, process and outcomes of patient educationin a containing	a) Confirmation of face and content validity using opinions of 12 specialists and experts -Confirmation of reliability with internal consistency (α=0.85) and test-retest correlation (r=0.86)	a) Observation, interview, and self-report questionnaire for NERP (2011-2012) b) Participant observation, daily communications/interview with nurses alongside written responses of nurses and nurse administrators to open questions including 85% of 200 issued questionnaires (n=169) c) Proportional sampling from internal, surgery, emergency, and intensive care wards to one-fourth of total (n=800) nursing forces	1. Descriptive statistical analysis (frequency, distribution, and central tendency indicators) (SPSS 18) 2. Qualitizing quantitative data and qualitative directed content analysis (manually)

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Table 1: Continue...

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	5. "Scoring of patient education documentation" through quantitative investigation on recorded files of common priority patients by by a checklist containing 10 main items in four-point Likert format about quality and quantity of records on patient education process	Tools: Confirmation of face and content validity using opinions of six specialists and experts. Confirmation of inter-rater reliability through three couples of shared observations (each on 10 and ICC=0.7) Results: As mentioned above	a) Observational scoring checklist (retrospective 2011-2012) b) Patient records and documentation files in a group of hospitalized patients (diabetes as the first educational priority) (*n*=70) c) Systematic random sampling of 9% of files of hospitalized patients with diagnosis of diabetes (*n*=792)	
	6. "Patient satisfaction from patient education" through quantitative investigation using "patients' satisfaction questionnaire on patient education " with 10 demographic multiple choices and 14 main questions in a five-pointed likert-type scale	Tools: Confirmation of face and content validity using opinions of 10 specialists and experts Confirmation of reliability with internal consistency (α=0.92) Results: As mentioned above	a) Verbal and written opinion survey b) Patients/companion (*n*=100) c) Convenience sampling from hospitalized patients in surgery, internal, and emergency wards in 1 week (*n*=540)	
Fourth Assessment of forces of change in the local healthcare system	Discussions on negative and positive forces of change (stakeholders, resources, facilities, programs, regulations, policies, etc.) and Identification of change strategies considering care providers' viewpoints according to evidences from above mentioned investigations			

*Developed in the "Nurse Educators: Al-zahra Role Expansion Action Research" (NEAREAR) project based on the primary patterns of the four assessments of the MAPP process.

strategic planning and management based on the research protocol and conceptual frameworks. Administrative data, including project records, official documents, artifacts, news, and reports, were produced and feedbacks were gathered through participant observations. Core data were summarized from administrative documents and evidence was gathered from the multiple stages of the study and actions, including "four NEAREAR assessments" by six investigations using the methods mentioned in Table 1. Related findings and interpretations were gradually cited in formal sessions with the steering committees or in daily interviews with feedback groups as the basis for decision-making and planning.

Execution methods

While obtaining the officials' formal agreements (from January to April 2012), an environmental and stakeholders' scan was performed, which led to the identification of power structure and key partners. Hence, the initial information required for entry into the first stage of the MAPP was provided in a participatory decentralized structure of the project. In addition, the steering committee approved a logo consisting of the words "patient education" and "NEAREAR project" for documentation and administrative correspondence purposes. A combination of MAPP principles and processes, as well as LFC skills, were used to conduct the execution stages of the study, while four different assessments were designed to complete the required data to analyze situational and administrative decisions, as summarized in Table 1. After validation of the assessment tools and executing related investigations, NEAREAR data were completed in the first 6 months, and utilized in experts' discussions and participatory decision-making sessions during the monthly joint meetings which were held to adopt strategies and action cycles. Before entering each stage, existing "tacit knowledge" of the participants,[11] consisting of participants' feedback and researchers' thoughtful reflections in terms of compliance with scientific and experimental evidences, was investigated. Then, the shared concepts were entered into the final drafts of the strategic plan and related action plans in the form of applicable strategies and programs for nurses' educational

role expansion, quality improvement cycles, or evaluation proposals.

Analysis and integration of qualitative and quantitative data

Since the required data for strategic planning were provided through triangulation of six quantitative and qualitative interrelated investigations, as mentioned in Table 1, analysis of the basic data was performed using different methods either manually or digitally through SPSS versions 18 , Microsoft Excel 2007, and MAXQDA 2007. The organizational structure and process of the role expansion action research were analyzed through conventional and directed qualitative content analysis. Shared interpretations of the constant analysis were integrated and summarized in a process matrix of qualitized data from the planning stage through to the MAPP stages. During the analysis, newly emerged codes and categories were added to the matrix and the modified process of the NEAREAR project was conceptualized [Table 2].

Ethical considerations

The present study was conducted after obtaining ethical permissions from the research council of Shahid Beheshti University of Medical Sciences (Project No.: 9670-86) and by coordinating with the authorities, as well as taking into consideration the "Research Provisions Frameworks of Isfahan University of Medical Sciences." Call for participation in the project was publicized online on the hospital's website (http://www.alzahra.mui.ac.ir), on Health Office link, and the project website (www.nurseeducator.ir). Informed consent was received in two stages at 6 month intervals, and considerations related to the confidentiality of data were observed with the agreement of colleagues.

Trustworthiness and rigor

Selection of valid and reliable instruments, triangulation of data in the different methods, and analysis at a minimum confidence level of 95% and test power of 90% assured the results of the quantitative investigations. In the qualitative part, dependability was considered through multiple methods, such as prolonged involvement with participants, continuous sharing of results in meetings, technical triangulation, member checking, and reflecting views on professional networks (mobile and project website). Such methods also validated the internal credibility (real improvement in practice) and external credibility (external judgments about the value of the knowledge resulting from the action research). Confirmability and authenticity were provided by periodic control of the results by the core research support team and presentation of the results at national and international conferences and congresses for peer review by expert groups. In addition, auditable documents on auxiliary data, which included a series of documents, audios, and minutes of joint meetings, daily field notes, and memoranda between researchers and participants, were collected for verification of the core data and to reach a common understanding of contradictory interpretations in the paradoxical findings.[11,21]

Results

Characteristics of the nurse participants

The main characteristics of the professional nurses who participated in this project included: An average number of 800 registered nurses (ranging from 785 to 883) between the years 2012 and 2014, with a Bachelor or Master of Science degree (91% and 9%, respectively), mean age of 32.4 years (ranging from 23 to 56 years), average work experience of 8 ± 6.3 years, and the majority were female (>96%), married (61.5%) and working on rotation shifts (78%). Approximately 70 nurses held administrative positions, including a matron, 25 supervisors, 41 head nurses, 4 charge nurses or nurse experts from the safety and quality improvement, clinical governance and accreditation units, along with the head of the Health Education Office who was appointed as health education supervisor.

Findings according to the definition of organizational capacity building are as follows:

Structure and process of expanding the nurse's educational role: "Organizing for success in role expansion" was performed in a newly established decentralized structure of partnerships, in an action research project with the three groups of participants as previously mentioned. Role expansion was based on the MAPP process [Figure 1], which was guided by a tandem arrangement of an outsider action researcher as the project leader (PhD candidate in nursing with more than 12 years of experience in research and education in community health and nursing in universities, as well as 1 year of administration for the Research Deputy) and an internal co-researcher as an internal project manager (registered nurse with more than 15 years of experience in clinical care and supervision, as well as 1 year of experience as the head of the Health Education Office).

Preparatory investigations to identify the appropriate setting and stakeholders began a year prior to the formal partnership. Simultaneously, the main action researcher, as an external change agent, participated in the "LFC program" (LFC™), which was held from April 2011 to April 2013 by the International Council of Nurses and the Iranian Nursing Organization (ICN–INO). This program was designed to prepare nurse administrators to be ready to fully participate in health planning, policy, and management through a national training activity comprising

Table 2: Summary of executing process of the NEAREAR project*

1. Preparation phase

   Extracting priorities for role expansion of nurses in patient education

   Identifying stakeholders and forerunner organization for role expansion program

   Review of major common goals between researchers and organization

   Obtaining support from heads, managers, and authorities

2. Organize for success and develop partnerships

   Accepting *ad hoc* structure of action research project as the driving force and leverage for change in patient education status through the MAPP process

   Entry of project executives and attracting participation in two steering subcommittees

   Receiving feedback from different groups of services providers and recipients

   Gradual development of participation from four internal wards to all wards of the center

3. Shared vision and mission

   Development of 5-year vision statement of NEAREAR project with agreement of the core support team and steering committees considering professional and organizational strategic issues

   Notification of "vision and mission statement" through cyber professional networks (2012)

   Drafting similar vision statement for al-zahra health education office (2013)

4. Main results of NEAREAR assessments to provide appropriate data for planning

   Determining three priorities of non-communicable chronic diseases for general patients' education and nurses' empowerment programs, determining five common diseases in each ward according to hospitalized statistics

   Needs assessment for each prioritized condition followed by extracting the list of educational topics for planning specialized patient education programs in each ward through education link-nurses

   SWOT analysis in the subcategories of structure, process, and outcomes

   Strengths and opportunities: Welcoming optimization of patient education process by hospital authorities, accepting the structure of action research project as the driving force, and leverage for change in patient education status through Mobilization for Action through planning and partnerships in development of regulations and creation of facilities

   Obstacles and weaknesses: Staff shortages, lack of time for nurses to provide patient education, lack of motivation, lack of knowledge, skills, and capability of nurses in patient education, lack of educational space and appropriate facilities to conduct education, limited use or access to credible written media, lack of familiarity, use of diverse educational methods and resources, and lack of information about the facilities and motivation of forces, lack of supervision and coordination for patient education; patient satisfaction associated with educational role, especially education at admission and discharge in most cases was poor to moderate, and nurses' role performances in patient education process, in needs assessment, use of educational aides, explaining the goals, and determining the optimum level of learning, evaluation, and documentation were extremely poor. Less than 30% of patients' record contained only one to five brief nursing reports during hospitalization similar to these words:"Required training offered"". Ratio of recorded education to overall patient recordswas less than 10% and reporting style did not conform with the standards of patient education process

   Forces of change: Active steering committees: Alignment of the NEAREAR project goals with the Ministry of health and organization of policies to establish clinical governance; authorities' motivation to compete with other centers for first degree of excellence in the first national accreditation of medical centers; alignment of professional role expansion goals with the strategic goals of the center. Experienced forces besides fresh young nurses interested to collaborate with personal and organizational motives (such as occupational and social credibility, practice performance appraisal score, participation in research project, encouragement, and promotion)

5. Strategic issues for achievement of desirable outcomes and strategic planning categorized into six issues as follows:

   Enhancing a culture of team work through policy development and notification of inter-professional guidelines for implementation of patient education process enhancing inter-departmental cooperation with faculties, etc.

   Managing empowerment of workforce on patient education

   Creating support infrastructure (motivational, production and distribution of media and writing materials, collection of credible processes, educational board, Bluetooth, answering phone, site, etc.)

   Attracting multidisciplinary participation (nursing, medical, nutrition, psychology, etc.) and inter-professional coordination at organizational to provincial level

   Promotion of culture of patient education (by role modeling through education management and planning, provision of mission and vision, distribution of subjects in process and description of duties and guidelines, organizing group education, pamphlets, updating site and HIS information of the center, referrals and follow-up, needs assessment of patient education)

   Monitoring and feedback for modifying structure, process, and outcome with three plans of supervision, evaluation, and audit

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6. Action planning
Development of 34 action plans (8 in 2012, 18 in 2012-2013, and 8 in 2013-2014)
Each action plan was implemented considering three main themes including optimization of structure, clear explanation of process, and evaluative indicators or tools
Development of 30 evaluation indicators of structure, process, and outcomes and finally notification of five indices each year for monitoring role expansion progress and patient education development
7. Quality improvement through action cycles
Quality improvement cycles simultaneous with research in four steps of plan, act, observe, and reflect
Drafting 10 quality improvement plans and provision of four research proposals for quality control, monitoring, and evaluation

*Content analysis directed by "Mobilizing for action through planning and partnerships" (MAPP) stages and modified based on the data that emerged during executing the NEAREAR project (Iran, 2012-2014)

five interrelated program components: Workshops, ongoing learning activities, mentor and mentorship, individual development plans, and team project. The authorities' agreement on the partnership to set up a decentralized nurse-led project (NEAREAR) was facilitated by delivering the researcher's educational and research resume and a detailed scheduled action plan on proposed sessions and actions in advance of the exploratory phase.

As a result of the preplanning actions, joint meetings between academic and clinical partners gradually led to shared decision-making on "visioning and strategic planning." Accordingly, the common goal of the partners was determined as "increasing patient satisfaction through accountability to the educational needs of the patient" with the first priority focus on "realizing nurses' educational role." Executing process of the project is summarized in the qualitative content analysis matrix [Table 2]. In addition, the interdisciplinary structure of the joint committee led to a closer performance between the associated workforce of "health education," "patient education," and "medical education" in three extra-organizational independent structures of the health system: Deputies of health and treatment in the clinical service sector and deputies of education and research at the medical education sector at the Medical University of Isfahan. *Thirty-two action plans* were gradually developed and delivered to administrator of the "Planning and Practice Appraisal Unit." After several modifications, related action plans were announced to relevant units by the top manager of "Deputy of Support and Development Human Resources" at the hospital. The process findings were conceptualized in a MAPP-like practical organizational model called the "NEAREAR process," which was a combination of visionary strategic planning process and action research cycles using four assessments, different from the assessments of the main MAPP model [Figure 2].

Because of the nature of action research, all proposed action plans that passed through action cycles were completed progressively over 1–2 years from 2012 to 2014, in a non-linear and reciprocal style and leading to optimization of the role expansion program. During this process, every new idea, based on scientific evidence or the practical experiences of researchers or participants, went through consecutive stages of idea presentation, gaining feedback from the broader community (experts, nurses, and clients), verification in the steering committee, and finally approval and announcement by the top managers. Due to manpower shortage and limitation of facilities and financial resources, in each program, priority was given to the use of existing workforce capabilities and current facilities and resources, alongside in-service scientific cooperation and technical collaboration delivered by the outsider project leader.

Outcomes of nurses' educational role expansion: A 5-year vision and mission statement was developed and 32 strategies written for a 1–2 year period for capacity building in patient education and expansion of the nurses' educational role. Depending on the target groups (respectively among the administrative personnel or clinical staff), strategies formed two main themes: "Improvement in management and leadership for patient education services" and "optimization of organizational culture and process on patient education services from admission to discharge." Accordingly, 32 action plans were proposed; each one included a scheduled plan that identified detailed actions, responsible persons, timing, and monitoring process. Each action plan implemented three elements, "reinforcing structure," "optimizing executing process," and "progress indicators," as evaluative outcomes.

The most important strategic issues that were implemented are as follows: (1) Enhancing a culture of team work; (2) managing empowerment programs, including educational supports and training courses for nurses and other professional experts on the patient education process; (3) attracting participation in the production of valid educational pamphlets and sharing the required contents and materials for personnel and patients, either manually or virtually through intranet (correspondence automation and hospital information system) as well as the center's website on the internet; (4) establishing and

Figure 2: NEAREAR process for strategic planning of the nurses' educational role expansion**NEAREAR process derived from content analysis of the executing process of the "Nurse Educators: Al-Zahra Role Expansion Action Research" project (Iran, 2012–2014)

implementing innovative directive regulations (policies and procedures) for inter-professional coordination and participation in patient education, as well as announcing related guidelines and defining job descriptions to enable greater accountability for the educational needs of the patients; (5) managing hospital records and documentations, including designing and implementing a structured form for patient education documentation; (6) enhancing inter-departmental cooperation with faculties in continuing programs to close the education–service gap, auditing, and quality improvement; (7) considering motivational programs such as coercion, persuasion, and advantages for annual performance appraisal and overtime, introducing role models (notification of "Specialized Educator Nurses" in three priority non-communicable diseases with formal notes), creating a formal position of "Education Link-Nurse" in each ward, and introducing active personnel and cooperative managers in the awards ceremony; and (8) strengthening the management and leadership structure through active learning of team building, counseling, mentoring, networking, supervision, and corrective controls, motivation, etc.

In addition to the above-mentioned qualitative outcomes on structural and procedural capacity building, an important qualitative progress indicator was input of the statement "patient education development for the healthy people–healthy community strategy" into core strategic issues of the hospital, which has been installed in every ward and unit since October 2013. The other qualitative indicator was a real commitment from top managers as evidenced by the early (2 years) implementation of the 5-year vision of the project along with following action plans in quality improvement cycles and auditing proposals of the other academic partners.

Moreover, about 30 quantitative indicators were developed to evaluate project progress in achieving common goals of the project in three components, structure, process, and outcome, for both the nurses' role expansion program and patient education services. From these indicators, five indicators were selected to determine the degree of the program 's progress by the administrator of the "Planning and Practice Appraisal Unit," for auditing each year. The first set of auditing indicators in 2013–2014 were: "Percentage of educator nurses," "ratio of trained to untrained patients," "specific patient satisfaction score variations," "participation hours in Patient Education Empowerment Workshops by nurses," and "production rate and printing numbers of validated pamphlets for patient education." All of these indicators were calculated from each ward in an Excel datasheet monthly through cumulative twice-weekly reports.

Audits and supervision evaluations showed meaningful changes in capacity building components. Some outcome findings are as follows. Two years after initiation of the program, quantitative indicators of role expansion, such as percentage of educator-nurses and educator-nurses to patients ratio, as well as general indicators of nurses' participation in empowerment programs (workshops and development of educational pamphlets), have increased 2–5 times in each ward. Mean scores of patients' satisfaction with educational services have also increased significantly in the areas of welcome and discharge education. According to the role expansion definition, the quantitative aspects of the nurses' educator role have increased in all wards, but this rate differs between wards, and this difference is based on internal and external motivational factors. The participants stated: "There is a need to implement more educational, motivational, and supervision programs, in order to facilitate quality improvement in the provision of patient education services. Furthermore, it is important to strengthen the infrastructures and increase corrective controls for continuous quality improvement of the previously mentioned plans and procedures."

Discussion

Capacity building was realized through the participation of academic nurse experts and clinical nursing staff along with other authorities in an action-oriented research for both professional development and organizational improvement goals. Introduced localized organizational structures and NEAREAR process were designed to mobilize actions through planning and partnerships, which facilitated nurses' role expansion in patient education. This led to strategies and outcome indicators within a legal and ethical framework which are in line with the definition of role expansion.

This change is the result of professional autonomy and self-determinism that involves the development of nursing knowledge and skills in a specified legal and ethical framework to perform the enhanced roles and duties which can broaden the boundaries of the discipline within nurses' therapeutic activities.[22,23]

In terms of the"organizational structure of patient education", it was enhanced by setting up a participatory action research project as an *ad hoc* structure with a core support team having members equipped in the knowledge and skills of research, patient education, and leadership for change. This nurse-led project with academic–clinical partnerships enabled innovative planning and shared decision-making for change to occur by empowering the nurses. Golabchi and Faraji[24] have suggested, "In *ad hoc* structures, irrespective of positions and titles, professional groups have the power to conduct project management. Experts believe that this decentralized structure creates a diversity of services in the dynamic and complex environment of health care, especially when establishing innovations and technologies." We just experienced such issues in our participation with stakeholders, in addition to verifying decisions as a technique for rigor of results and ensuring institutionalization of action research programs without surplus organizational resources or unusual research founds.[11] Institutionalization of decisions in our action research is in line with the results of research by Bastani *et al*. for institutionalizing patient education through cooperative enquiry (as an action research approach) in a small area of a neurosurgery ward with 12 participant nurses.[25]

In terms of the "process of executing nurse educators' role expansion," the project was led through a MAPP-like dynamic process named NEAREAR process, with an additional preparation phase and four different situational assessments providing the data required for managerial decision-making on role expansion. Hershey also considered that the MAPP process was effective in comprehensive assessment, use of common sense, and considering forces of change through management. This took place by accelerating planning and decision-making in the public health area to promote community health,[26] and we experienced these specific benefits in our localized process on promoting patient education. In addition, in the NEAREAR process, we substituted the final stage of the MAPP with a repetitive action research cycle to ensure continuous quality improvement process. According to this finding, we experienced the same issue that was suggested by Chenoweth and Luck in their work on quality improvement in discharge planning through action research. In accordance with their opinions, we believe that the particular benefits of using action research over traditional quality management approaches include the generation of relevant information required to set realistic goals and take decisive actions. In addition, these factors need to be supported by staff, management, and health service consumers, as well as by extending respect, trust, and cooperation among participants, which in turn facilitates a system-wide appreciation of the complex aspect of healthcare services and allows the participants to consider those aspects requiring change.[27]

According to the " outcomes of the role expansion action research", the main strategies implemented in the field through action plans and programs, which were analyzed in another study, showed six strategic themes in the NEAREAR project: (1) Developing interdisciplinary policy and procedure guidelines; (2) empowering human resources; (3) establishing infrastructure and supporting systems; (4) attracting interdisciplinary cooperation through inter-departmental coordination and partnerships; (5) promoting patient education culture through visionary leadership/management; and (6) improving the quality by monitoring and periodic evaluation for modifying structures, processes, and outcomes.[28] These strategic issues were the outcome of deliberate efforts by researchers to adhere to the main strategies and models of managing change, and they consisted of a power-coercive strategy in a political model, normative-re-educative strategy in a collegial model, and an empirical–rational strategy in a bureaucratic model.[29-31] Moreover, these strategies are in line with recommendations from other native researchers to remove contextual barriers and enhance facilitation.[5,7,9,32] The effectiveness of some strategies has been proven in quasi-experimental studies, such as the benefits of supervision on nurses' patient education,[33] efficiency of nurses' empowerment on patient education performances,[34] and optimizing the organizational culture of patient education on patients' outcomes.[35]

Conclusion

A nurse-led, decentralized MAPP-like structure with academic–clinical partnerships is suggested for the expansion of the nurses' educational role in the health system of Iran. In order to prioritize the main strategies for role expansion in other settings, it is recommended that strategies be explored by implementing NEAREAR process as a practical model of strategic planning in a participatory professional structure. However, this is the starting phase of leadership and management of change, and this must be followed by continuous quality improvement cycles and ongoing academic–clinical cooperation.

Considering the principles of the MAPP, role expansion is facilitated by strategic thinking and visionary leadership in order to accelerate cooperation on planning and implementing change. The local model introduced in this study can equip nurse managers and leaders with the practical science of planning processes necessary to expand nurses' role in patient education. There are implications for policy makers and top managers in health services to consider capacity building issues in patient education services. This can be achieved through facilitating coalitions or partnerships, strengthening strategic management and leadership for change, by providing support for nurse-led projects in other settings.

Study limitations

Strategies and programs extracted from this study may have limited generalizability in other contexts because of the localized nature of action research. However, the introduction of the conceptual framework MAPP and the newly emerged NEAREAR process, which contains detailed explanations of the methods of executing role expansion, including structural considerations of the partnerships involved, may increase the transferability of the study's results to similar fields.

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