The research utilization process: The use of guided imagery to reduce anxiety

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Abstract

In the rapidly changing health care environment, nurses need to keep current with developments, assess their applicability to practice, and make changes where appropriate. There is evidence that nursing research is underutilized and that a considerable gap exists between nursing research and practice (Bostrum & Suter, 1993; Brett, 1987; Sokop & Coyle, 1990). The objectives of a study carried out on a bone marrow transplant unit in a teaching hospital were to: (1) by introducing a framework for research-based care, enhance research utilization in a selected setting, and (2) evaluate the outcomes of research utilization on a specific clinical nursing problem chosen by nurses and researchers. This paper describes the research utilization

process and its outcomes, presents an evaluation of the participatory approach from the perspective of the participating nurses, and discusses facilitators and barriers to research utilization. Guided imagery was the intervention used to decrease patient anxiety.

In the rapidly changing health care environment, nurses need to keep current with developments, assess their applicability to practice, and make changes where appropriate. However, there is evidence that nursing research is underutilized and that a considerable gap exists between nursing research and practice (Bostrum & Suter, 1993; Brett, 1987; Coyle & Sokop, 1990). The objectives of a study carried out in a bone marrow transplant unit in a teaching hospital were to (1) enhance research utilization in a selected setting by introducing a framework for research-based care, and (2) evaluate the outcomes of research utilization on a specific clinical nursing problem chosen by nurses and researchers. Research utilization is the process in which relevant research is critically examined and applied to patient care. This paper describes the research utilization process and its outcomes, presents an evaluation of the project from the perspective of the participating nurses, and discusses facilitators and barriers to research utilization in a specific clinical setting. The clinical problem addressed was anxiety in patients having bone marrow transplants. The selected intervention was guided imagery.

Review of the literature

Nurses make insufficient use of their professional literature. They rarely subscribe to research journals (Stephens et al., 1992) and their use of health science libraries is less frequent than that of other professionals (Bunyan & Lutz, 1991; King, 1987). In the past it was thought that research utilization would increase as nursing research developed. Instead, the research-practice gap has grown. A survey by Bostrum and Suter (1993) reported that only 21% of a sample of 1,200

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ABRÉGÉ

LE PROCESSUS D'UTILISATION DE LA RECHERCHE: LA RÉDUCTION DE L'ANGOISSE PAR L'IMAGERIE MENTALE DIRIGÉE

Le contexte des soins de santé évolue rapidement et les infirmières doivent être à l'affût des dernières innovations, en évaluer l'applicabilité à leur pratique et procéder aux changements nécessaires. Il a été démontré que la recherche infirmière est sous-utilisée et qu'il existe un vaste fossé entre la recherche et la pratique infirmières (Bostrum & Suter, 1993; Brett, 1987; Sokop & Coyle, 1990). Les objectifs de l'étude menée dans l'unité de transplantation de moëlle osseuse d'un hôpital d'enseignement étaient les suivants: 1) améliorer l'utilisation de la recherche dans un milieu donné en introduisant un cadre pour les soins fondés sur la recherche, et 2) évaluation des résultats de l'utilisation de la recherche dans le cadre d'un problème en soins infirmiers déterminé par les infirmières et les chercheuses. Cet article décrit entre autres le processus d'utilisation de la recherche ainsi que ses résultats; de plus, il présente une évaluation de l'approche participative telle que perçue par les infirmières participantes et finalement, il discute des éléments qui favorisent l'utilisation de la recherche et de ceux qui lui causent des obstacles. L'imagerie mentale dirigée était l'intervention retenue pour réduire l'anxiété chez les patients.

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practising nurses had implemented a new research finding in the previous six months. To explain the persistence of the research-practice gap, writers argue that nurses' information-related needs have not been met (Fox, Richter & White, 1989; Kaufman, 1992). The many barriers to research utilization include limited access to literature, including computerized resources (Cronenwett, 1987; Royle et al., 1994), lack of training in information-seeking and management skills (Royle et al., 1994; Stephens et al., 1992; Dorsch et al., 1990), a professional ideology that emphasizes practical rather than intellectual knowledge (Dealey & Berker, 1986) and a work environment that does not encourage supplemental information-seeking (Blythe & Royle, 1993). A survey of 5,000 nurses by Funk et al. (1991) indicated that barriers included factors associated with the nurses, the setting, the research, and the presentation of the research. Time constraints and lack of access to research literature were considered the greatest barriers. Nurses in a qualitative study by Royle et al. (1995) also emphasized problems of time and access.

Many articles stress the benefits of more effective use of research findings and describe methods for enhancing the use of research by nurses in the practice setting (McCaugherty, 1991; MacGuire, 1990; Topham & De Silva, 1988; Tanner, 1987; Cronenwett, 1987; Horsely et al., 1983; Umlauf & Sherman, 1992). King, Barnard and Hoehn (1981) discussed means of improving the dissemination of research results to nurses. Projects to increase nurses' use of research have also been described (Barnard & Hohn, 1978; Crane, 1985; Goode et al., 1987; Loomis, 1985) and various general models have been formulated to describe how research utilization occurs (Brett, 1987; Loomis, 1985). However, more knowledge is required about facilitators and barriers

experienced when nurses in particular settings transfer research results to the care of individual patients.

Methodology

As the purpose of the project was to increase research utilization, a participatory methodology was thought appropriate to encourage the nurses to invest in an undertaking that would require them to use professional literature in a new way. Staff nurse involvement in research-related activities is the best predictor of use of research findings in a clinical setting (Bostrum & Suter, 1993). Involving staff nurses also assists researchers to understand what motivates and inhibits individuals from using research in their day-to-day work. Action research, invented by Lewin (1951), was developed as a specific response to the practice-theory gap. It was defined by Halsey (1972) as a small-scale intervention in the functioning of the real world and the close examination of the effects of the intervention. Action research has been recommended as a way to bring about change in nursing (Sheehan, 1990; Holter & Schwarz-Barcott, 1993). The technique eliminates the distinction between the researcher and the subject by involving the latter in the process of research and promoting a feeling of ownership and commitment (Nolan & Grant, 1992).

Sample and setting

The sample consisted of 22 staff nurses (12 full-time, five part-time and five occasional part-time) and the nursing unit manager (n=23) from a 12-bed haematology/bone marrow transplant unit in a teaching hospital. The nurses had a mean of 14.48 years of nursing experience. Six nurses were under 30 years of age, five 30-39, ten 40-49 and two

Figure One: Framework for research-based care

Adapted from Evidence-based Care Resource Group. (1994a) Evidence-base care: 1. Setting priorities: How important is this problem? Canadian Medical Association Journal, 150(8) 1249-1254.

over 50. Twenty nurses held diplomas in nursing as their highest qualification. Two nurses held a BScN and one had a non-nursing baccalaureate degree. Seven nurses were enrolled in credit courses at community colleges or universities.

Intervention

The project involved an intervention in which nurses used the research literature as a basis for assessing and changing their practice. A questionnaire was administered to all participating nurses to collect demographic data. During modified Nominal Group Technique (NGT) sessions (Moore, 1987), the nurses identified and prioritized clinical problems, then selected a specific problem. The nurses and the project team held regular meetings to review and critique literature relevant to the problem, set goals, select an intervention and choose pre- and post-intervention measures. Meetings and ongoing communication with interested nursing managers and members of other health professions provided cooperation and support for the planned change in nursing practice. Two months after the intervention was initiated, focus groups were conducted to evaluate the action research techniques and gather qualitative data on the outcome of the intervention.

Analysis of data

The demographic data summarized above were collected by questionnaire and analyzed using descriptive statistical techniques. The tapes from the NGT groups and final focus groups were transcribed and a thematic analysis carried out. Minutes and recordings taken at meetings with the nurses provided supplementary data.

Results

The research utilization process

The framework for research-based care adapted from a publication by the Evidence-Based Care Resource Group 1994a (Figure One) involved asking the following questions: How important is this problem? How should we manage this problem? How are we managing this problem? How can we improve the way we manage this problem?

1. How important is this problem?

Each nurse was asked to attend one of four NGT sessions to discuss clinical problems relevant to the setting. Sessions were attended by seven, five, two and two nurses respectively. Clinical problems suggested by participants were listed and discussed using the following preset criteria: (1) Is the problem common to the nursing practice in this setting? (2) Does the problem have important consequences for potential health benefits, potential risks, and costs? (3) Is there likely to be good evidence that addresses the problem? (4) Is there potential for change? (Evidence-Based Care Research Group, 1994a). Discussion led to the elimination of some topics and the refinement of others. Patient stress was identified as an important issue on this unit. Two rounds of voting resulted in the selection of relaxation therapy to reduce patients' anxiety as the topic of interest.

2. How should we manage this problem?

The intervention was decided using the following criteria: (1) Is it supported by the research literature? (2) Do the expected outcomes warrant the change in practice? and (3) Is it feasible in the situational context? (Evidence-Based Care Research Group, 1994b). Staff nurses did literature searches using CINAHL and MEDLINE, and requested relevant articles from the library. The researchers conducted further searches and critiqued the research articles for relevance, rigour of the design and methodology, significance of findings and applicability to the patients on the unit. They also prepared summaries of relaxation therapies such as humour therapy, therapeutic touch, music therapy and guided imagery.

3. How are we managing this problem?

The nurses explained that patients on the study unit who have bone marrow transplants experience chronic anxiety manifested in sleeping difficulties, associated with repeated, painful procedures such as bone marrow aspirations. They reported that there was no consistency in assessing, managing or documenting levels of anxiety.

4. How can we improve the way we manage this problem?

After discussing alternative relaxation therapies, guided imagery was chosen as the intervention to be used to reduce patient anxiety. Over a two-month period, two one-hour sessions of instruction and supervised practice were offered to staff by an instructor with experience in guided imagery techniques. Eleven nurses attended both sessions and a further seven attended one. The instructor began her second session with a summary of the first for those who had missed it.

During project meetings, nurses and researchers decided to assess the anxiety level of patients before and after guided imagery sessions and considered tools for measuring anxiety, including the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch & Luchene, 1983). These tools were rejected as being too complex for use with this patient population. The research team constructed a brief patient questionnaire incorporating a simple scale on which patients could identify their level of anxiety. In addition to the questions answered by the patient, the nurse conducting the session was to provide brief comments on the context of the guided imagery session and the precise techniques used. The patient questionnaire was tried on two patients.

In addition to training the nurses, the instructor demonstrated the technique to 11 members of the bone marrow support group. Analysis of the patient questionnaire, administered before and after the session, showed that most participants experienced a decrease in anxiety. The anxiety of participants who had low scores at the beginning of the session remained constant. The demonstration reinforced the nurses' belief that the technique might be effective with their patients.

Because of the small patient population, it was decided not to restrict guided imagery sessions to particular events. Nurses and patients would make decisions about the need for guided imagery. When the nurses decided that they were ready to begin using the technique in their practice, they made notations on the care plans of patients who might benefit from guided imagery.

Nurses' perceptions: The intervention and the participatory process

Only one nurse carried out a guided imagery session with a patient in the two months following the training. In the post-intervention focus groups, the researchers investigated the nurses' perceptions of both the intervention itself and the participatory process (see Table One).

Evaluation of the guided imagery intervention

Major themes that emerged from the focus group sessions related the guided imagery intervention to nurses' skills in guided imagery, characteristics of the work environment and strategies used to implement the guided imagery intervention.

Skills and resources for using guided imagery. The nurses evaluated their guided imagery training positively. During focus group sessions, all nurses said they had enjoyed the guided imagery training sessions and learned from them. They believed that the practice sessions had helped them both to learn the technique and to understand how a patient experiencing guided imagery would feel. Except for one nurse who thought she needed more training, the nurses claimed that lack of confidence had not prevented them from doing sessions with patients. The nurses said that there were sufficient resources, including consultants and appropriate music tapes, available. There were also patients who could benefit from guided imagery. The nurses noted that some patients might be more receptive to guided imagery than others.

Age, culture and variations in health status influenced patients' willingness to be involved. However, the nurses agreed that at any time there were perhaps two patients who would be willing to try the technique.

Characteristics of the work environment. The major reasons nurses gave for not carrying out sessions with patients related to the nature of the work environment, including time constraints and work expectations. Nurses said that they could not carry out guided imagery sessions during the day without interruptions such as being called away to speak to someone or having to answer the phone. At night, they were short-staffed. They indicated that because they felt rushed, they were not in an appropriate frame of mind to hold a session.

In two focus groups, nurses were critical of the failure of the hospital to differentiate between the role of nurses on different units, noting that nurses in all areas of the hospital are given the same amount of time for emotional support and teaching in the workload measurement tool. One nurse stated:

"(It was) frustrating for us too because we went through the sessions and wanted to get started but had to put it at the low end of the priority scale. It is frustrating for a nurse thinking that there might be something that would be helpful for a patient and then not be able to use it because you have to do all these other things first."

When asked what the nurses, researchers, or the hospital could do to facilitate sessions, most nurses were unable to suggest specific strategies. One nurse noted that having more staff for the duration of the project would allow the nurses to be more involved, but that workload would return to normal once the project ended.

Role expectations. Attitudes of co-workers and their own perceptions of appropriate behaviour were also important. Nurses were convinced that they would be criticized by their colleagues if they isolated themselves with a patient for 20 minutes. Arranging with colleagues to cover for them during the time necessary to carry out the session was not considered an option.

Strategies used for implementing the intervention. No nurse made full use of the guided imagery training. The one nurse who

carried out a guided imagery session did not follow the procedure taught by the instructor. She explained that she was attending a patient undergoing a bone marrow transplant. Since she had to be present throughout the procedure, she had time to use the technique to distract the patient from her pain. As the session was unplanned, she invented her own script and used no music. She commented that nurses would have to adapt guided imagery to the circumstances in which they worked. Other nurses also explained how they were able to apply aspects of the technique in their professional practice or personal lives. For example, several nurses were now aware of the kind of relaxation tapes that the social worker made available to patients and were telling patients about them. Other nurses used elements learned from guided imagery to enhance their interaction with patients. One nurse encouraged a patient to think about a "favourite place" as part of an attempt to comfort her during a painful procedure. Another nurse noted:

"Well, one thing it reminded me of was the soothing quality of people's voices. When we did the one session and she made us go round and speak and read part of the script, I realized that sometimes we talk very fast and that we need to speak to people in a certain tone... very slowly and sometimes they can respond just to that fact if they are anxious and you are talking to them about newly diagnosed leukemia. I did a double take about that and caught myself a few times slowing down, lowering my voice, using a more calming voice in my interactions with them."

Several nurses bought relaxation tapes for their own use and several became more aware of the role that music and guided imagery can play in relaxation.

Evaluation of the participatory process: Nurses' perceptions

The main themes that emerged from focus groups concerning the participatory process included: The benefits of the participatory process, the work environment as a barrier to using the process, role expectations, and the role of research in nursing.

Benefits of the participatory process. Nurses attending focus groups agreed that the greatest advantage of the project was the opportunity to learn about the research process.

"The biggest advantage was that we all learned how the process worked. We are all interested and we all know how important research is."

The nurses believed that the project gave them a better appreciation of the relationship between research literature and practice and most claimed that the participatory process helped them to get involved in the research process. The advantages gained from participating in the project were offset by barriers limiting their commitment. These barriers resembled those hindering their ability to implement the guided imagery intervention and were related to the immediate work environment, the expectations that management and other health professionals had of nurses, and beliefs that nurses had about the role of nurses in research.

The work environment. Nurses agreed that the participatory approach to research did not fit their work environment. Time was felt to be the greatest constraint. Some nurses noted that while they had attended meetings they came late, left early or were interrupted. Other problems resulted from the constraints of workplace organization. It was necessary to hold several sessions to discuss particular topics to include nurses working on different shifts. Participants noted that the provincial health care budget cutbacks meant that they were sometimes short-staffed and that some people had gone home before meetings started.

"It was difficult because the groups were so small (i.e., 2-3). It was hard to get any real group thing going. It was difficult to get a sense that the groups were moving in the same direction. It seemed like little isolated episodes rather than a group process."

Table One: Major themes from the post-intervention focus group

1. Evaluation of the guided imagery intervention
 - Skills and resources for guided imagery
 - Training
 - Resources
 - Suitable subjects
 - Influences of the work environment
 - Time constraints
 - Organizational structures
 - Role expectations
 - Own expectations
 - Expectations of others
 - Use of guided imagery
 - Adaptation for practice
 - Adaptation for personal use
2. Evaluation of the participatory process
 - Benefits of the participatory process
 - Learning and participating in the research process
 - Influence of the work environment
 - Time constraints
 - Communication problems
 - Role expectations
 - Work priorities
 - Workload measurement
 - Relationship of research to nursing
 - Stake in research project

Most nurses accepted the inevitability of multiple meetings. One said: "I thought it was about right to talk to everybody and get everybody's feedback." Although not all nurses were happy with the clinical problem chosen, most believed that they had sufficient input into the selection.

Role expectations. An important constraint related to role expectations. Traditional, direct patient care tasks, reinforced by the hospital workload measurement tool (GRASP), had priority for nurses. They felt that lengthy undertakings such as guided imagery were not accommodated in the time allowance for teaching and emotional support. One participant remarked: "We find that the patient care is so consuming that there is no time for other things." Another nurse explained that on a busy ward there were priorities that came before research:

"The issue of doing research is important because it's a unique patient group and we see that need, but there are basic needs that come first. I guess that always has to come ahead of any of the other things we would like to do for ourselves - personally, professionally, developmentally. You have to do the basic task things."

The role of research in nursing. Nurses varied in the commitment they felt to the project. Some carried out literature searches and read articles about relaxation therapy. Some were more conscientious than others in attending meetings and training sessions. Speaking of the early meeting, one nurse said:

"I always accepted it as our project at that point. Whatever we wanted to look at, there was an opportunity."

Other statements: "We were expected to come", "You expected a response from everyone", showed that some nurses felt coerced into taking part. Some noted that they worked hard and taking part in research activities was extra work. It was also argued that while nurses sometimes have a slack period at night when they could read or do a search, they did not have the time to participate fully and therefore did not have a commitment to the project.

Discussion

Factors influencing research utilization in this project included the perception that the nurses have of their role, the work environment, the philosophy and organization of the institution, and finally the way in which research utilization is introduced. Funding and assessing research were not problematic on this occasion because the nurses had assistance in locating and critiquing relevant literature.

Nurses' perceptions

Most nurses participating in this project were diploma-prepared and had no courses in nursing research. While many appreciated the importance of research in improving patient outcomes, some failed to appreciate that research-related activities are a legitimate aspect of a nurse's role. Rather than feeling ownership of the research utilization project, some nurses perceived project-related activities as duties imposed by others. Their primary commitment was to their patients and was expressed in performing tasks. The belief that research activities are of low priority partly accounts for nurses neglecting research utilization tasks such as literature searching.

The work environment

Events affecting the work environment were not always conducive to the success of the project. During the study, staff on the night shift was reduced and Social Contract days were imposed. Consequently, nurses perceived the unit as short-staffed. Reduced night staff partly explains why nurses did not carry out the guided imagery intervention with patients having difficulty sleeping. However, unit culture and organization were also factors.

The institution

The nurses' opinions about what nursing tasks should be given priority were influenced by institutional policy. Nurses indicated that the workload measurement tool (GRASP) acted as a means of prioritizing their work. Activities not included in the scheme were

perceived as less important and participation in research-related activities was not included. Nurses agreed that the tool gave too little weight to the psychosocial dimension, patient teaching and emotional support. However, they did not mention any strategies for change and did not seem aware that they could influence the content of the tool for their unit and patient group.

Introduction of research utilization

The variable commitment of the nurses to the project, and the incomplete success of the intervention caused the researchers to reassess their role. They had been tempted to provide more resources and leadership to the nurses during the latter part of the project when it became evident that nurses were not providing guided imagery for patients. It was decided that to intervene might cause nurses to carry out a few sessions, but was unlikely to change practice once the project ended.

The researchers believed that they might not have done enough to enable the nurses to feel ownership of the project. As university faculty without cross-appointments to the institution, they were distant from patient care activities. There was a clear need for role models to demonstrate the application of the intervention to patient care and provide support to staff.

Stakeholders such as physicians and members of other health professions worked with the nurses in early planning sessions for the project and subsequently received regular reports from the nurse manager. However, patients and their families were only included in the project through the demonstration of guided imagery techniques to the bone marrow support group. In future projects, inclusion of patients as participants and greater collaboration with other health professionals should be considered.

Conclusions

The research utilization project was unable to fulfil its objectives completely. The action research process was used to introduce research utilization in a selected setting and staff nurses were involved in the stages of selecting and defining a clinical problem and planning an intervention. The nurses learned a new therapeutic technique, but were only partially successful in introducing it into their practice. As a result, patient outcomes could not be assessed. The process was fruitful in revealing some facilitators and barriers to nurses' involvement in the application of research to practice.

Traditionally, research utilization was described as a linear process with information moving from the producer to the user. Recent research has suggested that the process is much more complex (Stetler & DiMaggio, 1991) and new models have been developed. Caplan and Rich (1975) proposed a research utilization continuum which moves from conceptual to instrumental utilization. In conceptual utilization, users are influenced in their thinking about an issue by their knowledge of one or more studies, but do not put their knowledge to any documentable use. Instrumental utilization involves discrete, clearly identifiable attempts to base some specific actions on the results of research findings (Polit & Hungler, 1993).

In evaluating attempts to change practice in complex nursing environments, it is important to examine process as well as patient outcomes. Nurses participating in the project demonstrated conceptual utilization of research both in increased intellectual awareness and in adapting their nursing practice to take account of research on guided imagery. They understood the potential benefits of the intervention for their patients and had acquired the skills in assessing patients' levels of anxiety and need for the procedure. At the beginning of the project, nurses had identified anxiety as a major issue for their patient population. Learning about guided imagery provided insights about how to respond constructively to that anxiety. However, personal and institutional values, job and organizational structures, and time constraints meant that they did not attempt to reproduce interventions as described in the literature. Literature on research utilization does not discuss measurement or analysis of outcomes that derive from, but do not replicate, interventions described in the original research. It is important to assess how

modifications and adaptations of interventions influence patient outcomes.

Weiss (1980) suggests that research usually enters practice through the phenomenon of "knowledge creep", the slow process by which knowledge percolates through an institution. Research utilization may not always result in the wholesale adoption of interventions. Researchers and practitioners must be aware that interventions developed in controlled or experimental settings may not be feasible in other work settings. For nurses to move along the continuum toward instrumental utilization, their role perceptions, work environment and institution and educational strategies must change to allow them

constantly to evaluate and modify their practice. The goal in future projects will be for nurses and the research team to form more effective partnerships and develop strategies to promote instrumental utilization and patient outcomes.

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