International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 11, Issue 1, pp: (187-194), Month: April 2023 - September 2023, Available at: www.researchpublish.com

Review Study on Decision Support for Nurse Care-Based Planning

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DOI: https://doi.org/10.5281/zenodo.8232727

Published Date: 10-August-2023

Abstract: **Objectives: Although preference elicitation techniques have been effective in helping patients make decisions that match their preferences, little is known about patient preferences that influence clinicians. clinical decision-making process and improve patient outcomes. The aim of this study was to evaluate a decision support system to elicit elderly patients' preferences for self-care and to make this information available to nurses in clinical practice - particularly in clinical practice. particularly its impact on nurses' care preferences and patient preferences outcomes. and patient satisfaction. Design: Three-group semi-experimental design with one experimental and two control groups (N = 151). In the experimental group, computer-processed information about individual patient preferences was entered into patient records for use in care planning. Results: Patient preference information changed nurses' care preferences to better match patient preferences and improve patient preference and physical activity fulfillment. In addition, greater consistency between patient preferences and nurse care preferences was associated with greater preference fulfillment and greater preference perception with higher patient satisfaction. Conclusion: This study demonstrated that decision support to take patient preferences and incorporate them into nursing care planning is an effective and viable strategy to improve nursing care. and patient outcomes.**

Keywords: **helping patients, nurses' care preferences.**

I. INTRODUCTION

However, research has demonstrated that health care providers cannot automatically infer what patients value, nor can they assume what care decisions are in a patient's best interest. 1,2 Studies of preferences for treatment of patients and health care professionals found that patient preferences are generally hard to pre- dict. 3–5 Also, it has been demonstrated that clinical outcomes perceived as excellent by health care professionals are not necessarily experienced in the same way by patients. 6,7 Recent literature has focused on the importance of including patient preferences in decisions regarding their care. 1,8,9 Also, there is increased emphasis on shared decision making between health care providers and patients, and on their working collaboratively to select the best care decisions. 1,10 This research emphasizes that judgments about the right care decisions This paper presents a study that tested the effect of eliciting elderly patients' preferences for self-care capability and providing this in- formation to nurses in clinical practice on nurses' care priorities and the patient outcomes of preference achievement and patient satisfaction. Although nursing theoretic frameworks have always emphasized the importance of including patients' perspectives, values, and preferences in care planning, care planning approaches to date provide little sup- port to assist nurses in eliciting patient preferences and integrating them into care decisions. The useful- ness of preference elicitation techniques based on util- ity theory or psychometric approaches has been demonstrated in medical care for eliciting patient preferences for treatment options or for imagined or experienced health states.11–15 However, to date the application of preference elicitation techniques in clinical practice has been limited. Computer-based applications for eliciting patient preferences have been developed primarily to assist patients in making decisions consistent with their preferences when facing complex treatment choices. Examples include the Shared Decision-making Pro- gram,

with modules for benign prostatic hyperplasia, breast cancer, hypertension, ischemic heart disease, and low back pain that guide patients toward a decision congruent with their individual preferences for treatment outcomes. 16 CHESS, the Comprehensive Health Promotion Enhancement Support System, is designed for patients with AIDS/HIV infection, patients with breast cancer, acquaintances of rape victims, adult children of alcoholics, persons troubled by academic failure, and persons in need of stress management. Studies evaluating computerized systems for preference elicitation reported that study participants scored higher on measures of cognitive functioning and social support,17 had higher satisfaction with decision making and better scores on general health perceptions and physical functioning,16 and had a better understanding of their health states. 18 While preference elicitation techniques have been found useful for assisting patients in decision making, several authors have argued that information about patient preferences also can support clinicians in making decisions consistent with patient preferences and would lead to better patient outcomes. 6,8,15 However, there has been very little research addressing, first, whether information about patient preferences does in fact prompt clinicians to make care decisions consistent with patient preferences and, second, whether decisions based on patient preferences improve patient outcomes. One study addressing these questions was the SUPPORT study, a large, multisite clinical trial in which 4,300 terminally ill patients were randomly assigned to an intervention that involved a nurse clinician who helped elicit patient preferences, addressed pain control, and facilitated discussions among patients, families, and the health care team about advance care planning and treatment alternatives. The information about patients' preferences was shared with the patients' physicians based on the hypothesis that in- creased communication and understanding of prog- noses and preferences would result in earlier treatment decisions, thus leading to reductions in the length of time spent in undesirable states before death. 19 However, the SUPPORT intervention had no significant effect on the accuracy of physicians' understanding of their patients' choices or on patient outcomes assessed as numbers of days spent in the intensive care unit or in a coma before death, reported pain, and utilization of hospital resources. 19 Clearly, further studies are needed, investigating the effect of providing clinicians with information about patient preferences on clinical care decisions and patient out- comes. The purpose of the current study was to evaluate the effect of eliciting elderly patients' preferences for self- care capability and of providing nurses in clinical practice with this information on congruence between patient preferences and nurses' care priorities reflected in the nursing documentation; patients' preference achievement as outcomes of care; and patient satisfaction. Using a three-group quasi-experimental design with one experimental and two control groups, the following hypotheses were tested: nurses' care priorities addressed in the nursing documentation are more congruent with patient preferences for self-care capability when nurses are provided with information about patient preferences than when nurses are not provided with this information; patients' preference achievement at discharge is greater when nurses are provided with information about patient preferences than when nurses are not provided with this information; and patients are more satisfied with their care when nurses are provided with information about patient preferences than when nurses are not provided with this information.

In order to learn about the mechanisms in the relationships among information about patient preferences, care planning, and patient out- comes, this study also investigated the relationships between nurses' care priorities and preference achievement and between preference achievement and patient satisfaction. This study was envisioned as a first step in the development of a computer-based decision support system designed to assist nurses in eliciting and integrating patient preferences for self-care capability into care planning. Therefore, a goal of this study was to evaluate, through experience, the feasibility of the proposed elicitation strategy and its effectiveness in providing nurses with information about patient preferences for self-care capability, in order to set care priorities consistent with patient preferences and improve patient outcomes.

II. METHODS

The study sample consisted of 151 patients (49 – 51 per group) admitted for a minimum of three days to an acute care unit for the elderly at a university hospital. 0 percent African American; the mean duration of formal education was 12. 8 years (range 0 – 25 years, SD 3. 8 years); and two thirds of the patients (67. 0 per- cent) were admitted for medical reasons and one third for surgical reasons. The model for eliciting patient preferences for self- care capability uses a psychometric approach. These 13 dimensions rep- resenting the construct of self-care capability include those related to maintenance of bodily functions, such as mobility, nutrition, elimination, rest and activity, as well as those related to patients' health deviation, such as management of medications, treatments, and adjustment to lifestyle changes. During the elicitation process the patient may also describe in more detail the manifestation of a self-care problem under each dimension that is important to her or him to improve. The preference elicitation model contains four additional free fields to provide patients with the opportunity to include individually selected dimensions without being biased by the predefined dimensions in the preference model.

At the beginning of the preference elicitation inter- view, patients in this study were asked to state two or three self-selected dimensions that were particu- larly important to them to improve, which they consequently wished to be a focus for care. Next, patients were asked to examine carefully each of the self-care dimensions in the preference model and to assign importance weights on rating scales adjacent to each dimension. These scales ranged from not important (0) to very important (10), denoting the patients' ratings of the importance of improving their capability in each dimension. Dimensions were weighted equally and importance weights for all dimensions were added to a final score, providing an index of patient preferences for self-care capability that was used in the computation of patients' perceived preference achievement at discharge.

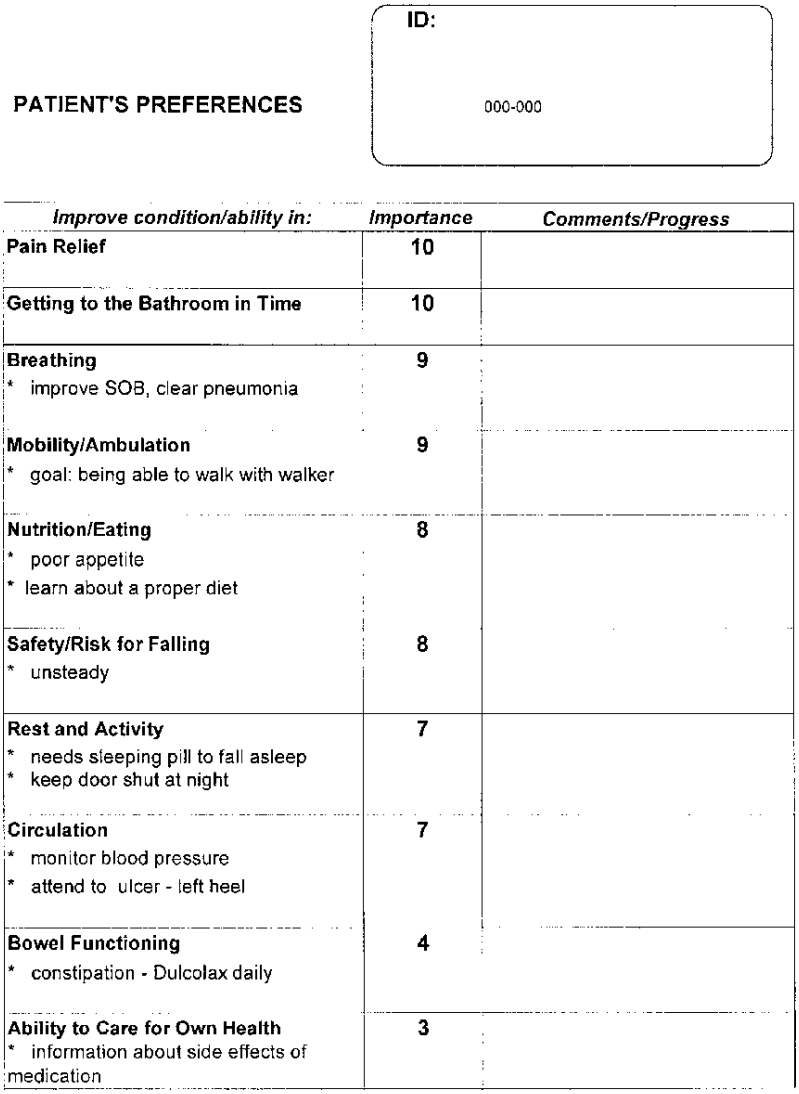
Patients were asked at discharge to review self-care dimensions that they had identified during the ad- mission interview by assigning them importance weights greater than zero, and to rate the degree of Again, rating scales ranging from 0 (no improvement) to 10 (complete achievement) adjacent to each self-care dimension were used. Achievement values were then multiplied by the importance weights assigned by patients during the admission interview. All products were added to a total score and, finally, the ratio between indexes of a patient's preferences for self-care capability obtained at admission and their achievement at discharge was computed. Nurses' care priorities for the patients' first three ad- mission days were abstracted from patients' charts ac- cording to a specially developed abstraction scheme described in more detail elsewhere. 21

Based on the amount, type, frequency, and location of documentation of nursing care aspects in patients' charts, a priority rating from 1 to 5 (with 1 as the highest rating) was assigned to each nursing care aspect using the heuristics developed in a separate study. 21 The validity of ratings of nurses' care priorities from patients' charts was established in a sample of ten patients by comparing the investigator's priority ratings to the priority ratings of two or three nurses who had cared for the same patient, yielding a total of 21 comparisons of ratings between investigator and nurses.

The mean overall consistency score between the investigator's and nurses' care priorities was 0. This was higher than the mean consistency score of 0. 76 for priority ratings among nurses only, which was used as the gold standard for acceptable validity of chart abstractions as measure of nurses' care priorities. Satis- factory intrareader reliability of chart abstractions was demonstrated by 90 percent agreement on the numbers and types of self-care dimensions and priority ratings abstracted from patients' charts. Intrareader reliability was measured in randomly selected charts and blinded to patients' group assignment for 10 per- cent of the sample. Patient satisfaction is conceptualized as the degree of congruence between patients' expectations of nursing care and their perceptions of the care actually received. 22 At admission patients in all three groups were asked a few demo- graphic questions and completed the investigator-ad- ministered SIP.

At discharge, all patients completed the patient satisfaction questionnaire (LOPSS) and again the SIP. In experimental group A, patient preferences for self-care capability were elicited by the investigator at admission as described above. This information was entered immediately after this interview into a portable computer, processed, and printed out on a preference form in the order of the importance the patient had assigned to selected self- care dimensions. This preference form was stamped with the patient's identification and added to the patient's chart to be available to the nursing staff for care planning during the patient's stay at the unit. One copy was placed in the medical treatment record that nurses reviewed every shift; another copy was placed with the flow sheets on the patient's door to allow clinical assistants who normally do not read patients' charts to also review this information. Figure 1 shows a preference form for one of the patients in the study. Each preference form had a different content, which reflected the patient's individually selected self-care dimensions.

With a single glance at this form nurses could find concise information about dimensions of self-care that were more or less important to the pa- tient to improve, allowing these dimensions to be integrated into their care planning. In control group B, patient preferences were elicited in the same manner as in group A, but this information was not provided to nurses. In control group C, patients received the usual care. The evaluation of patients' preference achievement was completed with the investigator in experimental group A and control group B at dis- charge. The elicitation of patient preferences in the admission interview lasted, on average, 5 to 15 minutes. The evaluation of patients' perceived preference achievement at discharge took about 10 to 15 minutes. To avoid contamination of treatment, patients were enrolled in this study in a tandem arrangement where control group C was completed first, followed by con- trol group B, and finally by experimental group A.



PATIENT'S PREFERENCES

ID:

000-000

Improve condition/ability in:	*Importance*	*Comments/Progress*
Pain Relief	10	
Getting to the Bathroom in Time	10	
Breathing * improve SOB, clear pneumonia	9	
Mobility/Ambulation * goal: being able to walk with walker	9	
Nutrition/Eating * poor appetite * learn about a proper diet	8	
Safety/Risk for Falling * unsteady	8	
Rest and Activity * needs sleeping pill to fall asleep * keep door shut at night	7	
Circulation * monitor blood pressure * attend to ulcer - left heel	7	
Bowel Functioning * constipation - Dulcolax daily	4	
Ability to Care for Own Health * information about side effects of medication	3	

Figure 1: Sample of patient preference form.

III. RESULTS

Analysis of covariance (ANCOVA) was used for hypothesis testing to control for the possible confounding effects of physical functioning and comorbidity on nurses' care priorities and the patient outcomes of preference achievement and patient satisfaction. The first hypothesis tested was that nurses' care priorities were more congruent with patient preferences for self-care capability when nurses were pro- vided with preference information than when nurses were not provided with this information. The greater this ratio, the greater the proportion of matches and the higher the degree of congruence between patients' preferred self-care capability and nurses' care priorities. In the second ANCOVA model, overall discrepancy scores were used as dependent variables measuring the discrepancy between importance weights patients had assigned to self-care dimensions and ratings of nurses' care priorities.

On the other hand, if a self-care dimension was important to the patient but was a low nurse priority, then the discrepancy score for that dimension was high. Thus the lower the discrepancy scores the higher the congruence between patient preferences and nurses care priorities. Seventy-four percent of self-care dimensions selected by patients were addressed at least once in patients' charts in the experimental group, com- pared with 55 percent in the control group, a difference that was significant. Also, mean discrepancy scores were significantly lower in the experimental group than in the control group.

Thus, hypothesis 1 was supported: nurses' care priorities were more congruent with patient preferences when nurses were provided with this information than when nurses were not. The second hypothesis tested was that patients' preference achievement was greater when nurses were provided with information about patient preferences than when nurses were not provided with this information.

The third hypothesis tested was that patients' satisfaction was greater when nurses were provided with information about patient preferences than when nurses were not provided with this information. Table 3 shows that adjusted group means for patient satisfaction were not significantly different across groups, and the third hypothesis was not supported.

Therefore, a fourth question addressed the relationship between patients' preference achievement and congruence between patient preferences and nurses' care priorities. Zero-order correlations showed that there was no significant relationship be- tween preference achievement and the match variable (r = —0. 01, P = 0. 95) that reflected whether self-care dimensions selected by patients were addressed in the nursing documentation at least once. But there was a significant negative correlation (r = —0. 26, P < 0. 01) between preference achievement and discrepancy scores— that is, the less the discrepancy, or the more congruent nurses' care priorities were with the im- portance patients placed on self-care dimensions, the better were patients

Table 1: Effect of Providing Nurses with Information about Patient Preferences on Patient Satisfaction: Adjusted Group Means for the Outcome Measure Patient Satisfaction, by Experimental Group

	Control Group C(n = 51)		Control Group B(n = 50)		Experimental Group A(n = 49)		
	Mean	SD	Mean	SD	Mean	SD	F Score
Patient satisfaction	241.4	36.2	244.2	34.8	247.4	34.5	0.16

NOTE: The means in this table have been statistically adjusted for subjects' physical functioning and comorbidity.

Table 2: Effect of Providing Nurses with Information about Patient Preferences on Physical Functioning: Differences among Groups in Physical Functioning as Measured by the SIP at Admission and atDischarge

	Control Group C(n = 51)		Control Group B(n = 50)		Experimental Group A(n = 49)		
Dependent Variable	Mean	SD	Mean	SD	Mean	SD	F Score
SIP admission score	67.2	24.7	60.1	22.0	60.8	22.5	1.44
SIP discharge score	58.4	24.8	49.4	21.6	38.5	21.6	9.67**
SIP change score	8.8	14.9	10.7	19.4	22.4	18.5	8.7**

**$P < 0.01$

NOTE: SIP indicates Sickness Impact Profile.

for self-care capability. This finding indicates that bet-ter preference achievement in the experimental groupcould indeed be attributed to nursing care that was more consistent with patient preferences.

Finally, the relationship between patients' preference achievement and patient satisfaction was investigated.The correlation between these variables was significant (r = 0.31, P < 0.01). Patients who had a higher preference achievement were also more satisfied withnursing care. Thus, while there was no significant direct effect of the experimental treatment on patient satisfaction, there was an indirect effect, since patientsin the experimental group had a significantly higher degree of preference achievement, which in turn was significantly associated with greater patient satisfaction.

Additional Findings: Physical Functioning

Physical functioning was measured as a control variable but provided additional interesting results. Table4 shows analysis of variance results for group differences on SIP scores measuring physical functioning atadmission and discharge and change scores from ad- mission to discharge. While there were no significant differences in SIP scores between the three groups at admission, there were significant differences at dis- charge. Scheffe's test used for post-hoc testing showedthat it was the experimental group that did significantly better, while the control groups were similar atdischarge. Thus, patients in the experimental group not only had a better preference achievement, but alsoshowed a greater improvement in physical function- ing from admission to discharge. This supports the validity of findings for the supported second hypothesis and provides additional evidence of the effective-ness of the experimental treatment in improving patient outcomes.

IV. DISCUSSION

Summarizing the results, the present study found that eliciting patient preferences and providing nurses with this information resulted in significantly higher congruence between patient preferences for self-care capability and nurses' care priorities as reflected in the nursing documentation; significantly greater preference achievement; and significantly better physical functioning at discharge. In the context of existing literature on evaluating the effect of providing clinicians with information about patient preferences on clinical decision making and patient outcomes, this study's findings contribute to an area where the knowledge base has yet been sparse. The current study's findings differ from those of the SUPPORT study that found that information about patient preferences failed to influence physicians' care decisions and to improve patient out- comes. 19 Much has been written about the possible reasons for the failure of the SUPPORT intervention that tested the effect of providing physicians with information about the preferences of dying patients on physicians' decisions and patient outcomes, including aspects of the professional culture and power structures in the physician– patient relationship. The types of preferences that were elicited addressed life-and-death issues, thus be- ing completely different from patient preferences for self-care capability in this study. Also, the SUPPORT study used a different methodology for preference elicitation, and nurses were the mediators who elicited and provided information about patient preferences to physicians.

As pointed out by the SUPPORT investigators, there is no support in the literature for the expectation that physicians will change their behavior toward patients on the basis of a change in the practice of nursing.19

This may suggest that the methods and circumstances by which information about patient preferences is elicited and conveyed and how well clinicians accept it as useful, as well as the do- main involved, may be important factors in the success of these types of interventions. Also, information about patient preferences may be more readily accepted and integrated into patient care by nurses than by physicians, since this is consistent with underlying nursing philosophy that emphasizes the need to integrate patients' values, beliefs, and goals into decisions about patient care. At first glance, it may seem somewhat surprising that the experimental treatment had no direct effect on patient satisfaction. Another reason may be the influence of other factors unrelated to the effect of the experimental treatment on patient satisfaction. Variables in the literature found to be associated with patient satisfaction are continuity of care, age, education, patients' expectations, illness status, treatment outcome, health providers' behaviors, and their interpersonal relationships with patients,25,26 and the acquisition of knowledge and experience by a patient over repeated visit. 27 These possible sources of variation in patient satisfaction, in combination with the use of an instrument that may not have been particularly sensitive to the experimental treatment, may explain why there were no significant differences among the study groups on total patient satisfaction scores.

However, there was a positive relationship between preference achievement and patient satisfaction.

This finding is consistent with results reported by Larrabee et al. ,28 who found that a patient's goal achievement was a predictor of the patient's perceived quality of nursing care. Also, this finding is consistent with the results of several studies in which treatment outcomes were identified as contributing to patient satisfaction. 29,30 However, treatment outcome is one of the less frequently measured variables associated with patient satisfaction. 26 Instruments to measure patient satisfaction with patient care usually include attributes such as admission, house staff, food services, other miscellaneous services, and health providers' behavior. 26,31

The significant relationship between preference achievement and patient satisfaction found in this and other studies suggests that the achievement of patients' preferred health states and desired goals should be included more often in the measurement of patient satisfaction.

V. CONCLUSION

This study demonstrated that the technique for eliciting patient preferences and including them in nursing care planning used in this study is an effective and feasible strategy for improving nursing care and patient outcomes.

This nursing study defined the con- cept of patient preferences for self-care capability conceptually, anchored it theoretically, developed a tool for eliciting and integrating patient preferences into nursing care, tested it in clinical practice, demonstrated its applicability and, finally, provided evidence of its effectiveness for improving nursing care and patient outcomes.

While tested as a paper-based version in this study, the elicitation technique described here can be enhanced by developing a computer-based decision support system to assist nurses in eliciting patients' preferences; process this information into a

format useful for care planning and make it available to the rest of the care team; integrate information about patient preferences as part of the computer-based patient record; use patients' preference achievements as a measure for outcome evaluation; or use preference in- formation for research to gain a better understanding of aspects patients consider important to reach their desired health states.

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