Examining the relationship between patient-centred care and outcomes on a neuroscience unit: A pilot project

By Sonia Poochikian-Sarkissian, Richard A. Wennberg and Souraya Sidani

Abstract

Patient-centred care (PCC) has been adopted as the approach to care in various health care institutions. The extent to which PCC is actually implemented by nurses and the extent to which PCC is associated with positive patient outcomes are not clear. The purpose of this pilot study is twofold: to examine the extent to which staff nurses provided PCC to patients admitted to a neuroscience unit, as perceived by the nurses and patients assigned to their care, and to examine the relationships between implementation of PCC and patient outcomes.

A descriptive correlational design with repeated measures was used. Data were collected from 21 nurses and 14 patients from a neuroscience unit where PCC staff development initiatives had been implemented. PCC is operationalized as provision of individualized care, patient participation in care, patient education and counselling, and coordination of care. Patient outcome data related to symptom experience, functional status, self-care, and sense of personal control were gathered upon admission and one week after discharge.

Results indicated that nurses reported the implementation of PCC to a slightly higher extent than did patients. Significant relationships were found between aspects of PCC and patient outcomes in terms of sense of personal control and satisfaction with care. Findings from this pilot study will guide further improvement in the implementation of PCC to continuously enhance quality of nursing care, the neuroscience patient’s hospital experience and readiness for discharge.

Introduction

Patient-centred care (PCC) is generally defined as the extent to which health care providers, such as nurses, select and deliver interventions or treatments that are respectful of and responsive to the characteristics, needs and values of individual patients (Lauver et al., 2002; McLaughlin & Kaluzny, 2000). The essence of PCC is to recognize each patient as a unique person, to respect their values and beliefs, and to respond flexibly to the patient’s individual needs and preferences (Lauver et al., 2002; McCormack, 2003). The application of PCC implies that nurses will assess the individual patient’s characteristics, needs, values, and preferences, and select and implement interventions that are consistent with and responsive to the patient’s needs and preferences. Patient autonomy is respected by promoting active participation in care-related decision-making.

Étude des liens entre l’application du concept de « Soins centrés sur le patient » (SCP) et les résultats obtenus dans une département de soins en neurosciences : Un projet pilote

Sommaire

Le programme SCP a été adopté comme approche de choix pour l’administration des soins dans plusieurs établissements de santé toutefois, l’attention que les infirmières portent envers l’application de ce concept et les effets sur ses retombés favorables ne sont pas très bien connus. Le concept SCP est basé sur l’administration des soins individualisés, la participation du patient aux soins et à l’éducation, aux conseils et à la coordination des soins. Les objectifs de ce projet pilote sont d’examiner l’importance donnée à l’application du concept SCP aux patients admis sur le département de neurosciences telle que perçue par les infirmières, leurs patients et d’examiner les similarités et les différences de point de vue chez les deux groupes.

Une étude du type corrélationnelle descriptive avec répétition des évaluations fut utilisée. Les données furent accumulées auprès de 21 infirmières et 14 patients sur un département de neurosciences utilisant le concept SCP. Les données pour les patients ont été recueillies au moment de l’admission et une semaine après leur congé de l’hôpital.

Les résultats ont indiqué une moyenne de pointage plus basse pour les patients comparé à celle des infirmières dans la participation du patient aux soins, l’éducation et les conseils. Des liens importants ont été établis entre certains aspects du concept SCP et la variation des résultats aux niveaux de l’apport de contrôle plus personnel et de la satisfaction envers les soins reçus. Les résultats de ce projet pilote soulignent l’importance d’améliorer la mise en place du concept SCP afin d’augmenter la qualité des soins, rendre l’hospitalisation plus agréable et mieux préparer les patients pour leur départ de l’hôpital.
The delivery of PCC is hypothesized to yield positive outcomes for patients. The positive outcomes that patients may experience include increased understanding of their condition and treatment, increased ability to manage care at home after discharge, increased sense of personal control, increased satisfaction with care, enhanced functioning, and improved management of symptoms (Cahill, 1996; Chaaya et al., 2003).

There is limited research on the extent to which PCC is actually implemented in acute care hospitals and on its impact on neuroscience patient outcomes. The purposes of this study are:

1. To examine the extent to which staff nurses on a neuroscience unit, where PCC staff development initiatives have been given, engage in PCC, as perceived by neuroscience nurses and patients
2. To examine the relationship between PCC and neuroscience patient outcomes, assessed within one week post-hospitalization.

Literature review
The literature review guided the development of the conceptual framework underlying this study.

A few studies have investigated the relationship between the provision of PCC and selected patient outcomes. In these studies, PCC was defined in terms of a model of shared decision-making, where health care providers promote patient participation in care-related decisions and in self-management. Kaplan, Greenfield and Ware (1989) found that patients with chronic diseases who were involved in decision-making demonstrated improvement in functional status and a reduction in the number of physiologic disease markers (e.g., controlled levels of blood glucose). Safran and colleagues (1998) reported enhanced adherence to medical advice and improved health outcomes amongst patients of primary care physicians who implemented PCC during clinic visits. Fremont and colleagues’ (2001) results indicated that patients with myocardial infarctions who did not receive PCC experienced poorer health and more cardiac symptoms than those who received PCC. Sidani (2008) showed that PCC provided by acute care nurse practitioners was positively associated with some domains of patient self-care ability and satisfaction with care.

Despite differences in patient populations and research methods, these findings provide preliminary evidence supporting the clinical benefits of PCC: patients who receive PCC show improvement in clinical and functional outcomes. Other scholars have suggested that PCC yields increased patient satisfaction with care and effective team performance (Reid Ponte et al., 2003; Wensing & Grol, 2000). Although encouraging, these findings are based on a focused definition and operationalization of PCC, where provision of PCC was equated with promoting patient participation in decision-making.

Theoretical perspective
The conceptualization of PCC adopted for this study represents a synthesis of the dimensions of PCC identified by Gerteis and colleagues (1993) and Radwin (2003). PCC refers to the provision of care that is consistent with patients’ individual needs and responsive to their preferences. This relatively new concept flourished through expansion of research by the Picker Institute.

The Picker Program for Patient-Centred Care explored patients’ needs and concerns, as perceived by patients. The following seven dimensions of PCC were defined: 1) respect for patients’ values, preferences, and expressed needs, 2) coordination and integration of care, 3) information, communication, and education, 4) physical comfort, 5) emotional support and alleviation of fear and anxiety, 6) involvement of family and friends, and 7) transition and continuity (Gerteis et al., 1993). Nurses contribute to every dimension of PCC by enhancing the personal aspects of caring or serving as the link between patients/families and other health care providers.

The implementation of PCC involves the following aspects, which were investigated in this pilot study: 1) individualization of patients’ care by attending to their needs and attempting to resolve their health-related problems, 2) participation of patients in their care and care-related decisions, 3) provision of education and counselling to patients, 4) coordination of patient care, and 5) demonstration of respect and caring.

The patient outcomes of interest include those previously found to be affected by PCC, or any of its five aspects, and those hypothesized to be enhanced as a result of PCC. Results from previous studies of PCC have supported its positive impact on patients’ symptom experience (Fremont et al., 2001) and functional status (Kaplan et al., 1989). Furthermore, it is expected that: 1) provision of patient education will enhance patients’ self-care knowledge (Lee et al., 1999), 2) coordination of care will be positively related to patients’ functional status (Irvine Doran et al., 2001), 3) PCC will be associated with increased patient satisfaction (Reid Ponte et al., 2003), decreased patient feeling of powerlessness, and increased patient ability to manage care at home (Cahill, 1996; Chaaya et al., 2003; Naylor, 2003). The following patient outcomes were investigated in this study: symptom experience, functional status, self-care, sense of personal control, and satisfaction with care.

Methods
Design
A descriptive correlational design with repeated measures was used to examine the extent to which PCC is implemented and to determine the relationships between the aspects of PCC and neuroscience patient outcomes. Nurses were requested to indicate the degree to which they provided PCC to patients assigned to their care by completing questionnaires measuring the five aspects of PCC. Patients were asked to respond to questionnaires at two points in time: within 48 to 72 hours of their admission to the unit (time
One), and within one week following discharge from hospital (time two). These timeframes are adequate for the outcomes to be achieved. At time one, patients were asked to complete questionnaires about patient outcomes (symptom experience, functional status, self-care, sense of personal control), and socio-demographic status. At time two, patients were asked to complete questionnaires measuring the five aspects of PCC (individualization of care, patient participation in care, patient education and counselling, coordination of care, respect and caring behaviour) and the outcomes measured at time one, plus satisfaction with care. Therefore, two versions of the questionnaires measuring the five aspects of PCC were used, one to be completed by neuroscience nurses and one by patients.

**Setting**
The study was conducted on the neuroscience unit of a university-affiliated hospital. This unit housed patients with various neurological and neurosurgical conditions and nurses with different skills.

**Sample and inclusion criteria**
The target populations were neuroscience staff nurses and patients on the same unit. Nurses were selected if they met the following inclusion criteria: 1) are registered nurses (RNs) or registered practical nurses (RPNs), and 2) consent to take part in the study. Patients were eligible if they met the following inclusion criteria: 1) are 18 years of age or older, 2) cognitively intact, as ascertained by nursing staff, 3) able to communicate in English, and 4) consent to participate in the study.

**Procedure**
Approval for conducting the study was obtained from the Research Ethics Board of the institution. The researchers introduced the study to nurses, and recruitment of nurses and patients began at the same time. A research assistant (RA) followed up with the nurses to provide detailed information about the study, obtained their written consent, and provided a copy of the questionnaires to complete at their convenience. Within a week, the RA contacted the nurses to remind them to return their completed questionnaire, in a sealed envelope, into a box located on the unit.

The RA informed the unit care leaders of patient eligibility criteria and requested their assistance in identifying patients who met the criteria. The RA approached patients who expressed interest in the study, described the study in detail, obtained their written consent and administered the questionnaires within 48 to 72 hours of admission and provided a copy of the questionnaire with a return stamped envelope within one week of discharge. A phone call was made by the RA to remind patients to complete and send the questionnaires by mail.

**Materials/measures**

**Nurses:** Nurses were requested to complete a questionnaire inquiring about demographic and professional characteristics (i.e., age, gender, education, employment status and position, work schedule and length of employment in nursing), and about their perception of individualization of care, patient participation in care, patient education and counselling, and coordination of care. All measures have been used in previous studies with nurse practitioners and patients on general surgical and medical units and have demonstrated acceptable psychometric properties.

**Individualization of care:** was measured with relevant items adapted from the Patient-Centred Comprehensive Care subscale of the Individualized Care Index developed by van Servellen (1988). Four items measure attendance to patients’ needs; three items reflect resolution of patients’ health-related problems; five items assess provision of care according to patients’ preferences. A six-point numeric scale is used, anchored with ‘not at all’ and ‘very much so’ responses. Higher scores indicate higher levels of individualization of patient care. This scale demonstrated acceptable reliability (alpha: .80; Sidani et al., 2000).

**Patient participation in care:** was measured with five items developed by Sidani et al. (2000). A six-point numeric rating scale is used with the anchors ‘not at all’ and ‘very much so.’ Higher scores indicate higher levels of patient and family involvement in care and care-related decisions. The alpha coefficient was .88 (Sidani et al., 2000).

**Patient education and counseling:** was measured with nine items from the Patient-Centred Comprehensive Care subscale described above. The same rating scale and score interpretation was used. The items were internally consistent with an alpha coefficient of .89 (Sidani et al., 2000).

**Coordination of care:** was measured with seven items adapted from an instrument developed by Shortell and colleagues (1991). Participants were asked to indicate if patient care was coordinated to avoid unnecessary delays in care. A five-point Likert scale, ranging from ‘strongly disagree’ to ‘strongly agree’ was used. Higher scores indicated higher levels of perceived coordination. The scale demonstrated high internal consistency reliability (alpha > .75; Shortell et al., 1991; Sidani et al., 2000).

**Patients:** Patients were requested to respond to items related to their demographic characteristics (i.e., age, gender, education, marital status and employment). Information on their medical diagnosis, co-morbidities and type of surgery was extracted from the patients’ medical records. The same measures (described above, adapted to reflect the patient’s perspective) were used to assess the patients’ perception of individualization of care, participation in care, education and counselling, and coordination of care. In addition, the following outcome variables were measured.

**Symptom experience:** was measured with an adapted version of the Symptom Distress Scale (McCorkle & Young, 1978). It consists of items assessing nausea, appetite, insomnia, pain, mobility, fatigue, bowel pattern, fever, and shortness of breath. A six-point numeric rating scale is used assessing level of severity, anchored with ‘not at all’ and ‘very much so.’ Higher total scores indicated severe symptom experience. It is a reliable measure, with an alpha coefficient > .85 (Sidani et al., 2000).
Properties of the Medical Outcome Study-Short Form 36 (SF-36) (Ware et al., 1993). The subscales capture physical functioning and mental health. Higher scores indicated higher levels of functioning. It is an established measure with excellent psychometric properties (Ware et al.).

Self-care: was measured with the Therapeutic Self-Care Scale (Sidani, 2003). It consists of 13 items assessing the patients' ability to take medications as prescribed, recognize and manage symptoms, adjust regular activities, and manage changes in condition. A five-point numeric rating scale was used, with higher scores indicating higher levels of self-care. This scale demonstrated reliability (alpha > .85) and validity (correlated with receipt of education; Sidani et al., 2000).

Sense of personal control: was measured by the Control Rating Scale (Devins et al., 1983). It entails a 13-item self-report instrument asking patients “how much control” they have over important life domains. A seven-point rating scale was used, ranging from 1 = 'little control' to 7 = 'a lot of control', with higher scores indicating higher levels of control. Total scores were calculated by summing across the ratings for individual life domains.

Respect and caring: was measured with seven items developed by the investigators to assess the indicators of the nurses’ caring behaviours listed earlier. A four-point Likert scale ranging from 'strongly disagree' to 'strongly agree' was used, with higher scores reflecting higher levels of caring behaviour.

Satisfaction with care: was measured with five items taken from the Patient Judgment of Hospital Quality Questionnaire (Rubin et al., 1991). The items relate to overall quality of care, interpersonal aspect of nurses’ care, and promptness of services. Higher scores indicated higher levels of satisfaction. It is an established measure with excellent psychometric properties (Hays et al., 1991).

Results

Characteristics of participants

Nurses: The age of the 21 participating nurses ranged between 23 and 67 years, with a mean of 40 (± 14). The majority were women (86%), reporting the highest degree obtained as either college diploma (48%) or BS degree (29%). They described their position as registered nurse (91%) or educator (9%). Most worked on a full-time basis (67%), and mixed (day, evening, night) schedule (90.5%). The length of experience in nursing varied from one month to 37 years, with a mean of 12 (± 13). The length of experience on the neuroscience unit ranged between one month and 22 years, with a mean of 6.5 (± 7). The nurses reported taking care of five patients (range = 4 to 6, SD = 0.6), on average, during a shift.

Patients: The sociodemographic and health/illness-related characteristics of the 14 patients who provided data on the two occasions of measurement (i.e., time one, upon admission, and time two, within one week after discharge), were as follows. Age ranged between 24 and 73 years, with a mean of 42 (± 6). Slightly more men (60%) than women (40%) took part in the study. Patients’ level of education varied: 29% did not complete high school and 71% were at least high school graduates. About two-thirds (60%) of patients were married, while the rest were single (30%), or separated (10%). Most patients reported working on a full-time basis (60%), others were either not employed (20%) or retired (20%). The primary diagnosis, as documented in the patients’ charts, included: brain tumour, intracranial hypertension, chorea disease, close head injury, neuropathy, and seizure. About 30% of patients had undergone surgery, while 70% were receiving medical treatment for their illness. Most (56%) patients had co-morbid conditions, such as obesity, stroke, and multiple myeloma. About two-thirds (60%) of patients had one and 40% had two co-morbid conditions.

Perception of PCC

The mean scores of the different variables reflecting aspects of PCC, for the samples of nurses and patients, are presented in Table 1. On average, nurses reported that they attend to patients’ needs, provide care according to patients’ preferences, encourage patient participation in care, provide education and counselling to patients, and coordinate care to a moderate-high extent. The extent to which they resolved patients’ health problems was low-moderate. Patients perceived moderate-high level of care coordination. However, they indicated that nurses 1) attended to their needs, resolved their health problems, provided care according to their preferences, and encouraged their participation in care to a moderate extent, and 2) provided education and counselling to a limited extent.

Patient outcomes

Table 2 summarizes the mean scores on all patient outcomes assessed at time 1 (i.e., upon admission) and time two (i.e., within one week following discharge). Patients perceived a rather low level of overall symptom distress. The specific symptoms experienced with low-moderate severity level were: pain, fatigue, difficulty walking, nausea and insomnia. On average, patients indicated their physical function is somewhat limited; their physical health constrained role performance; they had an experience of vitality some of the time; and they felt psychologically distressed most of the time. Patients reported moderate level of self-care ability
and moderate sense of personal control. The results of paired t-tests revealed no statistically significant changes in these outcomes between time one and time two. At time two, patients viewed the nurses’ behaviours as respectful and caring. They were somewhat satisfied with the care they received during hospitalization.

Relationship between PCC and patient outcomes
The relationship between aspects of PCC and outcomes observed at time two were examined using Pearson’s correlation coefficient.

Attendance to patients’ needs was correlated with sense of personal control \((r = .65, p = .013)\), and perception of nurses as respectful and caring \((r = .74, p = .002)\). Resolution of patients’ health problems was associated with satisfaction with care \((r = -.70, p = .005)\). Provision of care according to patients’ preferences correlated with perception of nurses as respectful and caring \((r = .70, p = .005)\), and satisfaction with care \((r = -.66, p = .010)\). Coordination of care was related to perception of nurses as respectful and caring \((r = .73, p = .003)\), and satisfaction with care \((r = -.70, p = .005)\).

Conclusion and clinical implications
The importance of this study stems from its potential to address critical questions related to the appropriateness of PCC in enhancing the quality of care that neuroscience nurses provide, and the achievement of desirable patient outcomes. An important dimension of quality is what is desired by patients from health care, which is the enhancement of their sense of well-being and relief from their suffering (Gerteis et al., 1993). PCC provides a common ground for patients, nurses and other health care providers. Therefore, it is important for all health care providers to incorporate the patient’s perspective when providing care in order to improve health care quality and increase patient satisfaction in the neuroscience population.

The results indicated that, overall, neuroscience nurses provide PCC to a moderate extent, as perceived by nurses and their patients. Neuroscience patients reported lower mean scores than nurses on three aspects of PCC: patient participation in care, provision of patient education, and provision of patient counselling. Further research is needed to explore the reasons for these differences.

The relationship between PCC and patient outcomes indicated that attendance to patient needs, provision of care according to patient preferences and coordination of care were significantly correlated with patients’ perceptions of nurses as respectful and caring. Furthermore, resolution of patients’ health problems, provision of care according to patient preferences and coordination of care were significantly correlated with satisfaction with care provided. Therefore, it is important for health care providers in neurosciences to consider the impact of these factors that influence the provision of PCC and, thereby, improve satisfaction of hospitalized individuals with neurological and neurosurgical conditions. It would also be important to consider expanding discussions with neuroscience nurses regarding the development of strategies to improve patient participation in care, and to improve patient perceptions of the nurse’s role in patient education and counselling.

Due to the comparatively small sample of nurses and patients, the present findings must be interpreted with caution until a study with larger sample size can support these findings. The analyses undertaken in this pilot study were based on self-report questionnaires. In this regard, it is notable that all of the instruments employed boast strong psychometric properties and have been used in previous research. Despite its limitations, this study indicated which of the implemented aspects of PCC might contribute to improved patient outcomes. This knowledge may provide further information to aid the application of the PCC initiative in neuroscience centres.

There is need for further study of PCC using a larger sample and including various clinical areas in the hospital environment. These results will inform us as to which aspects of PCC require modification or improvement to enhance the quality of care provided, and improve the patient’s hospital experience, health condition, and readiness for discharge and self-care at home.

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<thead>
<tr>
<th>Patient outcome</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom distress</td>
<td>1.5 (1.0)</td>
<td>1.3 (0.8)</td>
</tr>
<tr>
<td>Functional status:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>1.9 (0.6)</td>
<td>2.1 (0.7)</td>
</tr>
<tr>
<td>Role limitations due to physical health</td>
<td>1.2 (0.4)</td>
<td>1.3 (0.4)</td>
</tr>
<tr>
<td>Vitality</td>
<td>4.0 (1.3)</td>
<td>3.9 (1.2)</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>3.6 (1.0)</td>
<td>4.2 (1.0)</td>
</tr>
<tr>
<td>Self-care</td>
<td>4.0 (0.9)</td>
<td>4.0 (0.7)</td>
</tr>
<tr>
<td>Sense of personal control</td>
<td>4.4 (1.8)</td>
<td>4.8 (1.6)</td>
</tr>
<tr>
<td>Respect and caring behaviours of nurses</td>
<td>3.6 (0.5)</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with care</td>
<td>1.6 (0.7)</td>
<td></td>
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