Examining the relationship between patient-centred care and outcomes

By Sonia Poochikian-Sarkissian, RN, ACNP, PhD, CNN(C), Souraya Sidani, RN, PhD, Mary Ferguson-Pare, RN, PhD, and Diane Doran, RN, PhD

Abstract

**Purpose:** to examine the extent to which staff nurses provided patient-centred care (PCC), as perceived by staff nurses and patients, and to explore the relationships between implementation of PCC and patient outcomes.

**Design:** A descriptive correlational design with repeated measures was used. Descriptive statistics, correlations and t-tests were calculated.

**Methods:** Data were collected from 63 nurses and 44 patients admitted to cardiology, neurology/neurosurgery and orthopedic units. Nurses’ and patients’ perception of implementation of dimensions of PCC, and patient outcomes were measured with validated instruments.

**Findings:** Overall, nurses and patients reported implementation of PCC to a moderate extent. Provision of different aspects of PCC was associated with high levels of patient self-care.

**Conclusions:** Implementation of PCC is expected to improve patient outcome by increasing patient self-care ability and improving satisfaction with care and quality of life.

**Clinical relevance:** The findings will guide further improvement in the implementation of PCC to continuously enhance quality of nursing care, the patients’ hospital experience and readiness for discharge.

The quest for continuously improving the quality of health care for patients admitted to acute care settings led to a shift in the philosophy and model underlying care delivery (McLaughlin & Kaluzny, 2000). The shift was from a standardized, one-size-fits-all model, where the same approach to care is provided to all patients, toward a patient-centred care (PCC) model, where the approach to care is personalized to meet the patients’ needs, values, and preferences (Radwin, 2003). Despite the congruence of PCC with the holistic perspective underlying nursing care and the contribution of PCC to outcomes for patients and nurses, there is limited research on the extent to which PCC is actually implemented in acute care settings by staff nurses, and its impact on patient outcomes. This study explored the implementation of PCC in inpatient specialized care units, following staff training in the dimensions of PCC.

The main dimensions of PCC are to recognize each patient as a unique person, to respect the patient’s values and beliefs, and to respond to the patient’s individual needs and preferences (Lauver et al., 2002; Radwin, 2003; McCormack, 2003; Suhonen, Valimaki, & Leino-Kilpi, 2005; Bernstein, 2006; McCance, Slater, & McCormack, 2009). Application of PCC implies that nurses will assess the individual patient’s needs and preferences, encourage their participation in care, and select interventions that are consistent with and responsive to
the patient’s needs (Stewart et al., 2000; Lauver et al., 2002; Schout et al., 2005). The delivery of PCC is hypothesized to yield positive outcomes for patients and nurses. The positive outcomes that patients may experience include increased understanding of their condition and treatment, increased ability to manage care at home after discharge from hospital, increased sense of personal control, and increased satisfaction with care (Larrabee & Bolden, 2001; Attree, 2001; Wolf et al., 2008a; Sidani, 2008; Hibbard, Greene, & Tusler, 2009; Kowinsky, Greenhouse, Zombe, Rader, & Reidy, 2009). The positive outcomes for nurses who provide PCC, may include increased satisfaction with their job, and feeling empowered to plan and conduct their work according to the patients’ best interests (Chaaya et al., 2003; Johnson, 2005; Brown, McWilliam, & Griffin, 2006; McCance et al., 2009).

The specific objectives of this study were: 1) to examine the extent to which staff nurses on cardiology, neuroscience and orthopedic units, where nurses are trained to implement PCC, engage in PCC as perceived by nurses and patients, 2) to examine the similarities and differences in nurses’ and patients’ perceptions of dimensions of PCC, and 3) to explore the relationships between dimensions of PCC and improvements in patient outcomes.

Review of literature

The literature review focused on dimensions of PCC that could be implemented by nurses and evaluated by patients, and on examining the relationships between dimensions of PCC and patient outcomes. The literature search was done in CINAHL and MEDLINE, using the key words: “patient-centred care”, “individualized care”, “patient outcomes”; combined with nursing/nurse.

Dimensions of patient-centred care

Patient-centred care (PCC) is generally defined as the extent to which nurses select and deliver interventions that are respectful of and responsive to the needs and values of individual patients (Lauver et al., 2002; McGaughlin & Kaluzny, 2000), thereby increasing the likelihood of producing desired health outcomes (Naylor, 2003).

Results of four qualitative studies described patients’ perspective of what constituted patient-centred care. The findings were consistent in identifying the following as essential dimensions of PCC: individualization of care that is knowing about patient progress and being responsive to their needs; patient participation in planning care; provision of information on condition and treatment; and treating the patient with respect (Larrabee & Bolden, 2001; Lee et al., 1999; Oermann, 1999; Staniszewka & Ahmed, 1999).

Patient-centred nursing care has been found in qualitative studies to be related to trust in nurses, a sense of well-being, optimism, and fortitude (Radwin, Cabral, & Wilkes, 2009). McCance et al. (2009) reported that nurses need to be aware of patients’ perceptions of caring, and use this to influence changes in practice, where the main focus was to promote PCC. Gerteis, Edgman-Levitan, Daley, & DELBANCO (1993) identified eight dimensions that reflected PCC. These dimensions were: 1) respect for patients’ values, preferences, and expressed needs, 2) coordination of care services, 3) adequacy and relevance of educational information about the patient’s condition and care, 4) enhancement of physical comfort, 5) provision of emotional support, 6) involvement of patient’s family and friends in patient care, as appropriate, 7) maintaining continuity of care across health care settings, and 8) improved access to care.

The results of the above-mentioned studies were consistent in identifying aspects of nursing care that were considered essential for providing PCC. The specific dimensions of PCC that were addressed in this current study were: provision of individualized care by attending to patients’ needs and encouraging patient participation in care.

Patient-centred care and patient outcomes

Implementation of PCC is expected to improve patient outcome by increasing self-care ability, increasing satisfaction with care (Cahill, 1996; Dana & Wambach, 2003; Kowinsky et al., 2009), and improving quality of life (Stewart et al., 2000; Reid Ponte et al., 2003). A few studies examined the relationships between selected dimension of PCC and patient outcomes in different settings. In primary care settings, the results of three studies supported a positive relationship between delivery of PCC dimensions and patient outcomes including improvement in diabetic patients’ blood sugar levels and functional status (Kaplan et al., 1989), improved compliance with medical advice and health outcomes (Safran et al., 1998), and need for fewer diagnostic tests and referrals to specialized services (Stewart et al., 2000). In acute care settings, patients’ involvement in care-related decision-making and providing individualized patient care contributed to increased self-care ability and satisfaction with care (Sidani, 2008; Hibbard et al., 2009). A positive association between PCC and satisfaction with care was consistently in outpatient medical and psychiatric services (Wensing & Grol, 2000; Dana & Wambach, 2003; Ruggeri et al., 2003; Wolf et al., 2008a). Radwin et al. (2009) investigated the relationship between PCC for 173 hospitalized hematoma-oncology patients and health outcomes. Individualization of care was positively related to authentic self-representation, optimism and sense of well-being. Responsiveness and proficiency were positively related to patients’ trust in nurses. A clinical randomized study (post test design) was also conducted (Wolf et al., 2008a) to examine whether PCC delivered by trained nurses, as compared to usual care, impacts patient satisfaction, perception of nursing care, and quality of care. A total of 116 patients were randomized into an intervention (PCC) or control group. The PCC group rated satisfaction (p = .04) and quality of services (p = .03) higher than the control group.

Despite differences in patient populations, research methods, and how PCC was operationalized, these findings provided evidence supporting the benefits of PCC and its impact on patients’ perception of the level of satisfaction and quality of care received. Patients who received PCC showed improve-
ment in outcomes. Scholars have also suggested that PCC provided effective team performance and increased patient satisfaction with care. The extent to which staff nurses who were trained to practise PCC in specific acute care settings, i.e., cardiology, neurology/neurosurgery and orthopedic units, engage in PCC, and the effect on patient outcomes are not known. These were investigated in this study, and guided by the conceptual framework described next.

**Conceptual framework**

The conceptual framework was developed based on the literature review conducted for the study.

The conceptualization of PCC adopted for this study represented a synthesis of the dimensions of PCC identified by Gerteis and colleagues (1993), Radwin (2003) and Sidani (2008). PCC refers to the provision of care that is consistent with the patients' individual needs and responsive to their preferences. 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.

An important dimension of quality is what patients want from health care, which is the enhancement of their sense of well-being and relief from their suffering (Gerteis et al., 1993). Patient-centred care 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 while providing care in order to improve health care quality and increase satisfaction.

The implementation of PCC involved individualization of patient care by attending to their needs and attempting to resolve their health-related problems; participation of patients in their care and care-related decision; and coordination of patient care.

This study explored the relationships between two dimensions of PCC and patient outcomes. The PCC dimensions were patient participation in care and individualization of care. Patient outcomes were selected based on other studies that revealed these outcomes being sensitive to nursing care (Sidani & Irvine, 1999; Brooten et al., 2002), and to PCC (Wensing & Grol, 2000; Sidani, 2008; Wolf, Lehman, Quinlin, Zullo, & Hoffman, 2008).

**Patient participation in care** was defined as the extent to which nurses involved the patients in the planning of their care and engaging them in care-related activities. It is the process in which patients are involved in performing activities related to the management of their condition and in decision-making related to their care (Cahill, 1996).

**Individualization of care** was defined as the extent to which nurses attended to patients' needs and preferences; attempted to resolve the patients' problems while in hospital, and arranged for special services that they needed after discharge home (Radwin, 2003).

**Patient outcomes** included those found to be associated with PCC: functional status, self-care, and patient satisfaction.

**Functional status** referred to patients' physical, psychological, and social functioning. Physical functioning involved patients' ability to do usual physical activities, such as dressing self. Psychological functioning involved the patients' emotional state, that is, level of anxiety or depression. Social functioning involved patients' involvement in activities such as community functions or visiting friends (Ware, Snow, Kosinski, & Gandek, 1993).

**Self-care** referred to patients' perceived ability to manage their condition after discharge home. It encompassed the ability to manage symptoms, take medications as prescribed, and perform regular activities (Sidani, 2003).

**Satisfaction with care** referred to the patients' rating of quality of care received in hospital (Rubin, Ware, Nelson, & Meterko, 1991).

**Methods**

**Design**

A descriptive correlational design with repeated measures was used in this study to examine patients' perception of the extent to which the dimensions of PCC were provided by nurses, and the relationships of these dimensions to patient outcomes. Patients were asked to respond to questionnaires at two points in time: within 48 hours of their admission to the unit (time 1), and within one week following discharge from hospital (time 2). These timeframes are adequate for the outcomes to be achieved and facilitate the investigation of change in outcomes. Furthermore, patients tend to be critical of the care received while responding to the questionnaire at home rather than in the hospital environment (Hiidenhovi, Laippala, & Nojonen, 2001). It also enhances the accuracy of the patients' assessment of their own self-care ability after discharge home.

At time 1, patients were asked to complete instruments measuring patient outcomes (functional status, self-care), and socio-demographic status. At time 2, patients were asked to complete questionnaires measuring the same outcomes, dimensions of PCC (individualization of care and patient participation in care), and satisfaction with care. To examine the nurses' perception of the extent to which PCC was implemented, nurses were requested to indicate the degree to which they provided PCC to patients assigned to their care by completing questionnaires measuring the same dimensions of PCC mentioned above.

**Setting and Sample**

The study was conducted at a university-affiliated hospital. The following three units were included in the study: a cardiology unit, a neurology/neurosurgery unit, and an orthopedic unit. These units were selected because the majority (83/95 = 87.4%) of the nurses had participated in a staff training health care organizational initiative instructing nurses in the elements of and strategies for delivering PCC and the relationship of PCC to patient satisfaction, health care quality and patient outcomes, as described by Gerteis, Edgman-Levitan, Daley, and Delbanco (1993) in the Picker/Commonwealth Study.
The target populations were staff nurses and patients on the same units. Nurses were selected if they met the following inclusion criteria: were registered nurses (RNs) or registered practical nurses (RPNs). Patients were eligible if they met the following inclusion criteria: a) were 18 years of age or older, b) able to read and understand English, and c) cognitively intact, as ascertained by nursing staff. Of the 72 patients providing consent and data at time 1 (i.e., within 24 to 48 hours of admission), 44 completed the questionnaire at time 2 (i.e., within one week after discharge), while 28 withdrew from the study, leading to a 39% attrition rate.

The convenience sample consisted of 63 nurses (response rate = 63/83 = 75%) and 44 patients (response rate = 61%). The patient sample size was adequate to detect a medium to large difference (Cohen, 1992) in the perception of PCC between nurses and patients (objective two) and to explore the bivariate relationships between each PCC dimension and patient outcome (objective three). To minimize the potential for Type 1 error with testing, the p-level was lowered to < .035.

Procedures
The study protocol was approved by the institution’s research ethics board (REB). The researchers introduced the study to nurses, and the recruitment of nurses and patients began at the same time over a six-month period in 2007–2008. Participating nurses were not aware of which patients on their unit enrolled in the study. The 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 the completed questionnaire, in a sealed envelope, in a box located on their units.

The RA informed the unit nursing staff of patient eligibility criteria and requested their assistance in identifying patients who met the study criteria, as required by the REB. The RA approached eligible patients who expressed interest in the study, described the study to them, obtained their written consent and administered the questionnaire within 48 hours of admission. Following the completion of the questionnaire, the RA provided to patients a copy of the questionnaire, with a return stamped envelope, to be completed at Time 2, and within one week of discharge. A few days after discharge, the RA called to remind patients to complete and return the questionnaires in a pre-stamped envelope by mail.

Variables/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). Their perception of individualization of care and patient participation in care were measured with validated instruments. All measures have been used in previous studies with nurse practitioners and patients on general surgical and medical units, and demonstrated good psychometric properties.

Individualization of care: was measured with relevant items adapted from the Patient-Centred Comprehensive Care sub-scale 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; and five items assess provision of care according to patients’ preferences. A six-point numeric scale is used for all items, anchored with ‘not at all’ and ‘very much so’. Higher scores indicated higher levels of individualization of patient care. This scale demonstrated acceptable reliability (alpha: .80; Sidani et al., 2000). Individualization of care items loaded on their respective factors, which were associated with patients’ self-care ability, performance of regular activities, and satisfaction with care (Sidani, 2008).

Patient participation in care: was measured with five items developed by Sidani et al. (2000). A six-point numeric rating scale is used to indicate the extent to which nurses encourage patients’ participation in care, with the anchors ‘not at all’ and ‘very much so’. Higher scores indicate higher levels of patient involvement in care and care-related decisions. The items were internally consistent and alpha coefficient was .88 (Sidani et al., 2000). The items loaded on one factor, which correlated with self-care ability (Sidani, 2008).

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 and type of surgery was extracted from patients’ medical records. The same measures, described above, were used to assess the patients’ perception of individualization of care and participation in care. In addition, patients completed questionnaires addressing the following outcomes:

Functional status: was measured with relevant subscales of the Medical Outcome Study-Short Form 36 (SF-36) (Ware et al., 1993). The following subscales were used in this study: physical function (α = .90), social function (α = .75), and psychological function (α > .70). It is a well-established measure with acceptable psychometric properties demonstrated in different patient populations (Ware et al., 1993).

Self-care: was measured with the Therapeutic Self-Care (TSC) scale (Sidani, 2003). It consists of 13 items assessing the patients’ ability to take medications as prescribed, recognize and manage symptoms, perform and adjust regular activities, and manage changes in condition. A six-point numeric rating scale was used. High subscale scores indicated high levels of self-care ability. The TSC demonstrated reliability and validity (Irvine Doran, Sidani, Keatings, & Doidge, 2002).

Satisfaction with care: was measured with the Satisfaction with Hospital subscale of the Patient Judgment of Hospital Quality Questionnaire (Rubin et al., 1991), which has acceptable psychometric properties (Hays, Nelson, Rubin, Ware, & Meterko, 1991; Irvine Doran et al., 2002). High scores indicated high levels of patient satisfaction with care.

Results
Reliability of measures
Nurses: The self-report instruments used to measure nurses’ perception of the extent to which they engaged in the different
aspects of PCC, demonstrated acceptable internal consistency reliability. The Cronbach's alpha coefficients are presented in Table 1.

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Nurses</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individualization of care:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance to patients' needs</td>
<td>.88</td>
<td>.81</td>
</tr>
<tr>
<td>Resolution of patients' health problems</td>
<td>.66</td>
<td>.69</td>
</tr>
<tr>
<td>Provision of care according to patients' preferences</td>
<td>.88</td>
<td>.82</td>
</tr>
<tr>
<td><strong>Patient participation in care</strong></td>
<td>.84</td>
<td>.91</td>
</tr>
<tr>
<td><strong>Functional status:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td></td>
<td>.94</td>
</tr>
<tr>
<td>Role limitations due to physical health</td>
<td></td>
<td>.96</td>
</tr>
<tr>
<td>Vitality</td>
<td></td>
<td>.86</td>
</tr>
<tr>
<td>Psychological distress</td>
<td></td>
<td>.83</td>
</tr>
<tr>
<td><strong>Self-care</strong></td>
<td>.87</td>
<td></td>
</tr>
<tr>
<td><strong>Satisfaction with care</strong></td>
<td>.85</td>
<td></td>
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</tbody>
</table>

Patients: Patients completed self-report instruments measuring their perception of the extent to which nurses provided PCC, as well as health-related outcomes. All measured showed acceptable internal consistency reliability, as indicated by the values of Cronbach’s alpha coefficients reported in Table 1. The low value of the Cronbach’s alpha coefficients, observed for the subscale measuring resolution of patients’ health problems in the samples of nurses and patients, is explained by the small number of items (n = 3) comprising this subscale.

Characteristics of participants

Nurses: The mean age of the 63 participating nurses was 37 (± 11.5, range: 23–67). The majority were women (81%), reporting the highest degree obtained as college diploma (44%) or university degree (46%). They described their position as registered nurse (94%) or educator (6%). Most worked on a full-time basis (78%), and mixed (day, evening, night) schedule (79%). The length of experience in nursing varied from one month to 37 years, with a mean of 10 (± 11). The participating nurses were assigned to three types of units: neurosciences (n = 21, 33.3%), orthopedics (n = 21, 33.3%), and cardiology (n = 21, 33.3%). The length of experience on their respective units ranged between two weeks and 22 years, with a mean of 6 (± 6). The nurses reported taking care of five patients (range = 0 to 7, SD = 0.9) on average, during a shift.

Patients: The sociodemographic and health/illness-related characteristics of the 44 patients who provided data on the two occasions of measurement (i.e., time 1, upon admission and time 2, within one week after discharge) are described. Patients’ age ranged between 20 and 90 years, with a mean of 59 (± 18). Slightly more women (57%) than men (43%) took part in the study. Patients’ level of education varied: 33% reported having undergraduate or graduate university degree; 29% were high school graduates; 21% had some college; 12% had attended high school; and 5% received technical training. About two-thirds (64%) of patients were married, while the rest were single (21%), divorced (9%), or widowed (5%). Most patients reported being retired (48%), working on a full-time basis (26%), or not employed (19%). Patients were admitted to three types of units: neurosciences (n = 14, 33%), orthopedics (n = 14, 33%), and cardiology (n = 14, 33%). The primary diagnosis, as documented in the patient’s chart, included: stroke, brain tumour, aneurysm, blocked shunt (neurology/neurosurgery); congestive heart failure, atrial fibrillation (cardiology); and bone fracture and osteoarthritis (orthopedics). About 56% of patients had undergone surgery, while 44% were receiving medical treatment for their illness.

Provision of PCC
The mean scores on the variable reflecting aspects of PCC, for the samples of nurses and patients, are presented in Table 2.

<table>
<thead>
<tr>
<th>Dimensions of PCC</th>
<th>Nurses</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individualization of Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance to patients’ needs</td>
<td>3.4 (0.9)</td>
<td>3.5 (1.2)</td>
</tr>
<tr>
<td>Resolution of patients’ health problems</td>
<td>3.2 (0.9)</td>
<td>3.2 (1.4)</td>
</tr>
<tr>
<td>Provision of care according to patients’ preferences</td>
<td>4.5 (0.5)</td>
<td>3.3 (1.2)</td>
</tr>
<tr>
<td><strong>Patient participation in care</strong> *</td>
<td>4.4 (0.5)</td>
<td>3.0 (1.4)</td>
</tr>
</tbody>
</table>

* p ≤ .05

On average, nurses reported that they attended to patients’ needs, resolved health problems, provided care according to patients’ preferences, and encouraged patient participation in care to a moderate to high extent. The extent to which they resolved patients’ health problems was low to moderate. Patients indicated that nurses 1) attended to their needs, resolved their health problems, and provided care according to their preferences to a moderate extent, and 2) encouraged their participation in care to a limited extent. There were statistically significant (p ≤ .05) differences between the nurses’ and the patients’ groups on the following PCC variables: provision of care according to patients’ preferences [t (105) = 6.66], and patient participation in care [t (105) = 16.06]. In all comparisons, the mean scores for patients were consistently lower than the mean scores for nurses.

Patient outcomes
Table 3 summarizes the mean scores on the patient outcome subscales measuring functional status, self-care ability, and satisfaction with care at time 1 and time 2. On average,
patients showed improvement in their level of physical, psychological, and social functioning over time. Patients reported high levels of perceived functional status, and self-care ability in performing regular activities. The results of paired t-tests revealed no statistically significant changes in these outcomes between time 1 and time 2. Patients reported that they were somewhat satisfied with the care they received during hospitalization.

<table>
<thead>
<tr>
<th>Patient outcome</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional status:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>1.7 (0.6)</td>
<td>1.7 (0.6)</td>
</tr>
<tr>
<td>Social function</td>
<td>3.9 (1.1)</td>
<td>4.1 (1.2)</td>
</tr>
<tr>
<td>Psychological function</td>
<td>4.3 (1.1)</td>
<td>4.6 (1.0)</td>
</tr>
<tr>
<td>Self-care</td>
<td>4.1 (0.7)</td>
<td>4.1 (0.7)</td>
</tr>
<tr>
<td>Satisfaction with care</td>
<td>1.8 (0.7)</td>
<td></td>
</tr>
</tbody>
</table>

Relationship between dimensions of PCC and patient outcomes

The relationship between dimensions of PCC and patient outcomes following discharge from hospital (Time 2) was examined using Pearson’s correlation coefficient. Attendance to patients’ needs was correlated with self-care (r = .36, p = .001), and satisfaction with care (r = -.38, p = .013). Resolution of patients’ health problems was associated with self-care (r = .32, p = .034), and satisfaction with care (r = .33, p = .032). Provision of care according to patients’ needs correlated with satisfaction with care (r = .33, p = .032), and encouraging patient participation in care was also correlated with satisfaction with care (r = .39, p = .011). All correlations were of a moderate magnitude, and imply that provision of different dimensions of PCC is associated with high levels of self-care and satisfaction with care.

Discussion

This study examined the extent to which staff nurses engage in PCC, as perceived by nurses and patients, and the relationship between dimensions of PCC and patient outcomes. Results indicated that, overall, nurses provide PCC to a moderate extent as perceived by nurses and patients assigned to their care. They also indicated that provision of different dimensions of PCC are moderately associated with patient outcomes (i.e., self-care and satisfaction with care).

Individualization of care is an important attribute of quality care provided and dimension of PCC, as perceived by patients (Attree, 2001; Larrabee & Bolden, 2001; Mead & Bower, 2000; Radwin, 2003). In this study, patients indicated that nurses provided individualized care to a moderate extent. This finding was anticipated based on relevant literature (Sidani, 2008). However, it was inconsistent with that reported by Radwin (2003), who mentioned that cancer patients perceived that the nurses personalized care accord-

In this study, patients perceived that nurses encouraged them to participate in their care or care-related decisions to a limited extent. Previous studies indicated that patients usually prefer to be involved in their care-related decision-making process, which is considered an important dimension of PCC (Schoot et al., 2005; Suonen et al., 2005). However, the extent to which nurses encourage patient participation in care may not meet patients’ expectations at all times. Stewart, Albery, Shnake, Irvine, and Grace (2004) indicated that 63% of patients admitted to coronary care units preferred to have active involvement in decision-making, and that 85% of these patients reported that their health care professionals did not consider patients’ opinion during the decision-making process related to their treatment. Thus, the difference between patients’ expectations and the extent of their involvement in care may account for the patients’ perception in this study that nurses encourage the patients to participate in their care to a limited extent.

The relationships between PCC and patient outcomes indicated that provision of different dimensions of PCC was associated with high levels of self-care. This finding is similar to previous findings, which indicated that patients’ involvement in decision-making, and self-care were positively associated with improved functional status (Kaplan et al., 1989) and health outcomes (Safran et al., 1998). However, other studies indicated that outpatient interactions with health care professionals did not affect patients’ self-care and functional outcomes (Stewart et al., 2000; Mark, Byers, & Myers, 2001). It is important to note that differences in patient populations or other factors, such as, length of stay, severity of condition, operationalization of PCC and functional outcomes, may account for the variability in the results. The results of this study also indicated that attendance to patients’ needs, resolution of patients’ health problems, provision of care according to patient preferences, and encouraging patient participation in care in acute care settings of neuroscience, cardiology and orthopedic patients were significantly correlated with satisfaction with care provided. Similar findings pertaining to patients admitted to the neuroscience clinical program were reported (Sarkissian-Poochikian et al., 2008).

Implications for practice and limitations

In this study the investigators found that nurses in acute care settings provide PCC to patients to a moderate extent. Patient-centred care, operationalized as providing individualized patient care and involving patients in care-related decision-making, contributed to increased self-care ability and satisfaction with care. Specifically, attendance to patients’
needs, resolution of patient's health problems, provision of care according to patient preferences, and encouraging patient participation in care were significantly correlated with satisfaction with care. However, patients perceived that nurses encouraged patients to participate in their care to a limited extent. Therefore, there is a need to consider discussions with nurses regarding the development and evaluation of strategies to improve patients' perception of their participation in the care received.

Due to the comparatively small sample of nurses and patients in the three units, the results could not be compared between nurses and different groups of patient populations, and the present findings must be interpreted with caution. It is notable that all of the instruments employed boast strong psychometric properties and have been used in previous research studies. Despite its limitation, this study identified the dimensions of PCC that are related to improved patient outcomes or satisfaction with care. This knowledge may provide further information to aid in the application of the PCC initiative at various organizations. However it is important to consider that good functional outcomes after discharge from hospital may also lead the patient to reflect that the patient-centred care received must have been satisfactory. There is the need for further study on the dimensions of PCC using a larger sample, comparing outcomes of different units and patient populations, and including various clinical areas in an acute care setting in order to increase the generalizability of the findings. The results obtained will inform us as to which dimension of PCC requires modification or improvement to enhance the quality of care provided, and improve patients' hospital experience and readiness for discharge.

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