

THE RELATIONSHIP BETWEEN NURSING CHARACTERISTICS AND
PAIN CARE QUALITY

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Abstract

The purpose of this study is to examine relationships between unit-level nursing characteristics (e.g. RN education, certification, RN hours per patient day) and hospital characteristics (e.g. Magnet designated, academic institution) with the unit average of patients' self-rated perception of pain and pain care quality. The study is a correlational analysis of cross-sectional data from the National Database of Nursing Quality Indicators® (NDNQI) combined with data on pain care quality. The sample was a convenience sample that covered 170 hospitals across the U.S. with 725 reporting units. . The study found significant clinical relationships, although weak, between several variables. Strong relationships included: patient's average pain rating and nursing care hours per patient day; average pain and having pain medications available when needed. The strongest relationship was between percent pain relief and having pain medications available when needed. The study's findings that no significant differences presented across various unit types reinforce the point that pain is pervasive. Pain is also unique to each individual's subjective experience. Therefore, each patient's plan of care should be individualized, patient-centric, and unique to his or her experience.

Introduction

Almost one-half of all Americans report pain as their primary reason for seeking treatment, making pain the most common reason to see a physician in the United States (Turk & Dworkin, 2004). Pain is a subjective experience that has the potential to negatively affect a hospital patient's ability to function, quality of life, physical recovery, immune function, stress, and satisfaction with care. Pain is distinctive in that it is universal, yet unique to each individual's own experience. Additional factors to consider that may affect the patient's perceptions and reactions to pain include culture, religion, and tolerance. Besides the negative physiological and psychological effects pain has on the individual, it can also be a burden financially. The costs of treatment, missed work, and costs associated with short or longer term disability are all factors that must be considered (Turk & Dworkin, 2004).

The purpose of this study is to examine relationships between unit-level nursing characteristics (e.g. RN education, certification, RN hours per patient day) and hospital characteristics (e.g. Magnet designated, academic institution) with the unit average of patients' self-rated perception of pain and pain care quality.

Research Questions

The study addressed 4 research questions.

1. Do hospital characteristics have an effect on pain care quality?
 - a. Teaching status
 - b. Magnet designation
 - c. Number of staffed beds
2. Do staffing characteristics have an effect on pain care quality?
 - a. Total nursing hours per patient day
 - b. Percent of nursing hours supplied by RNs (skill mix)
 - c. Average RN educational attainment
 - d. Mean national specialty nursing certification
 - e. RN education
 - f. RN specialty certification
3. Does the availability of pain treatments have an effect on pain care quality?
 - a. Does having pain medications available when needed have an effect on pain care quality?
 - b. Does having alternative treatments available, in addition to pain medications, have an effect on pain care quality?
4. Does the quality of patient-nurse communication have an effect on pain care quality?
 - a. Does patient self-rating of effectiveness of pain medication for pain control have an effect on pain care quality?
 - b. Do nurses' beliefs of patient's pain reports have an effect on pain care quality?
 - c. Does patient rating of level of the healthcare team's inclusion of patient in pain control decisions have an effect on pain care quality?

Literature Review

QIs are becoming a more important way for researchers and health care organizations to assess and measure the effectiveness and satisfaction of care being provided. There is a need to develop a consensus quality measure of the quality of pain management. Interestingly, recent studies have found paradoxical results indicating that patients who report significantly high pain ratings concurrently report high satisfaction ratings. A research project conducted by Susan Beck et al. (2010) investigated possible reasons for this finding. The research project investigated whether

current QIs inadvertently measure factors such as caring behaviors, staff responsiveness to requests for pain medications, bedside manner; or patient factors such as expectations that pain cannot be relieved or will vary, not wanting to get anyone in trouble; patient satisfaction with pain management. The study found that patients do not appear to distinguish between the actual effectiveness of their pain management and the setting in which care is provided. This has serious implications for the health care practitioner, especially nursing staff, because it shows that environmental factors affect the patient's overall judgment of how effectively their pain is managed.

A second research project assessed the relative effectiveness of different quality improvement strategies. The study was undertaken because many quality improvement strategies (QIs) have fallen short (Scott, 2009). Findings from the study established that the failure of many QIs can be attributed to the lack of application of evidence-based practices. This occurs because the practices have been applied before sufficient research has been performed to validate their effectiveness. Not only is this poor practice, but it also wastes resources while risking patient harm (Scott, 2009). The study also found QIs directed from the provider or patient level had both stronger evidence of efficacy and larger effect sizes than strategies conducted from the manager or policy maker level. Effective QIs included clinician directed audit and feedback cycles, clinical decision support systems, specialty outreach programs, chronic disease management programs, continuing professional education based on interactive small-group case discussions, and patient-mediated clinician reminders. Ineffective QIs included continuous quality improvement programs, risk and safety management systems, public scorecards and performance reports, external accreditation, and clinical governance. The findings from Scott's study can be applied to this research project because they highlight specific, evidence-based procedures necessary to effectively manage pain.

Several additional studies reinforce the current failure of the medical system to adequately manage patient's pain. A study by Gordon, Pellino, and Miaskowski et al. (2002) looked at pain data collected over a 10 year period and found that pain intensity ratings remained high over the 10 year period. Not only does this mean that our healthcare system is not working to effectively manage pain, but also that our QIs and assessment standards, which were put in place to help make improvements, are ineffective (Gordon et al., 2002). This failure to effectively manage pain is happening despite quality guidelines that have been released by the Agency for Health Care Policy and Research, the American Pain Society, as well as the Joint Commission (Gordon et al., 2002).

A second pain prevalence study conducted in a large Canadian teaching hospital revealed 31.5% of the patients surveyed reported being in moderate-severe pain ($\geq 4/10$) with 11.4% of

patients reporting severe pain levels ($\geq 7/10$). Results of pain levels over the past 24 hours revealed similarly poor results with 76.3% reporting pain scale ratings of moderate to severe pain ($\geq 4/10$) and 47.3% reporting severe pain ($\geq 7/10$). The results also showed the patients' pain affected various aspects of their quality of life such as mood, walking ability, relationships, sleep, and enjoyment of life (Sawyer, Haslam, Robinson, Daines, Stilos, 2008). The results of these two studies are representative of a body of research that finds current pain management is sub-optimal. As the providers of bedside care, nurses can become leaders to improve of pain care quality by implementing evidence-based practice.

The significance of the role nursing plays in the drive to improve pain management is evident in the findings of a final study, which highlights the relationship between nursing staffing and positive patient outcomes (Seago, Williamson, & Atwood, 2006). The study explored the relationship of quality outcomes, such as failure-to-rescue from medication errors and decubitus ulcers with nursing process measures such as pain management, teaching, and physical care; and nursing structural measures such as RN staff hours, skill mix, direct care total staff hours. Results of the analysis found that as the total hours of nursing care per day and skill mix (i.e. more hours of care provided by an RN) increased, so did all patient satisfaction measures, including satisfaction with pain management (Seago et al., 2006). Thus, the results draw support the need for further research into the relationship between staffing variables and QIs. This study is based in that tradition and examines examine the relationships between nursing workforce characteristics and effective pain management.

In summary, the literature found that effective pain management was related to adequate and skilled nursing staff, effective evidence-based pain care management practices and assessment. However, the literature showed that our current system frequently fails to provide effective pain management. This was evident in the high rates of pain and lack of improvement in pain management over time. Thus, more research is needed to indentify ways to improve pain management.

Methods

The study is a correlational analysis of cross-sectional data from the National Database of Nursing Quality Indicators® (NDNQI) combined with data on pain care quality from a study by Dr. Susan Beck. Clinical significance was assessed using a linear regression in the SPSS software system.

Sample

The sample was a convenience sample that included 170 hospitals across the U.S. with 725 reporting units. NDNQI® data came from the annual RN Survey. Participating unit types included: medical, surgical, combined medical-surgical, step down, rehabilitation, and post-partum. Pain care quality from the Beck study was collected at the patient level across all participating units over the course of April 2011. The Beck study participants were screened for eligibility by three questions before consent was obtained and the survey administered. To meet the eligibility criteria, patients had to be age 19 or older, understand and respond in English, and have experienced pain or taken any medication for pain in the past 24 hours.

Measures

The Donabedian quality model was the conceptual framework for this study, in which the quality of care is influenced by the structure and processes of health care. For the purposes of this research structure of care was defined as the supply, skill mix, education, and certification of the nursing staff as well as hospital characteristics such as Magnet designation and teaching status. Structural data were obtained from the NDNQI® database. Specific indicators of nursing assessment and interventions were taken from responses to the Beck Pain Study Questionnaires, found in Appendix A. Descriptive statistics for the measures included in this study are presented in Table 1, Figures 1 and 2, and Table 2.

Analysis

To describe the sample, descriptive statistics were run on each variable for both the total of all units and unit type. Next, correlation matrixes were run using SPSS Version 17.0, by the total of all units and by unit type. The correlations were assessed for statistical significance using a p value of 0.05 or less. Finally, four regressions were run in SPSS using the general linear model. A regression was run using the structure and process measures (i.e. staffing and hospital characteristics) against two separate dependent variables: mean rate of pain and percent relief from medications.

Results

Research Question 1: Do hospital characteristics have an effect on pain care quality?

There were several significant ($p \leq .05$) correlations between the pain care quality items and hospital characteristics, although most were of small magnitude (Table 3). Among the six pain care quality items there were three significant correlations: two with Magnet status, and one with unit type. All three correlations were below .10. Table 4 presents multivariate regression results for

Average Pain During Past 24 hours. The only hospital characteristic having a significant effect on pain level was Teaching Status. While the effect size was small, the regression coefficient indicated that pain scores were lower in teaching hospitals and academic medical centers.

Research Question 2: Do staffing characteristics have an effect on pain care quality?

There were significant correlations between Average Pain Score and three nursing characteristics: total nursing hours per patient day, percentage of nursing care hours supplied by agency staff, and unit average RN age (Table 3). The regression presented in Table 4 confirmed these associations, although the effect sizes were small. Pain scores were higher on units with lower nursing care hours per patient day ($B = -0.157$), more hours from Agency staff ($B = 0.060$), and on units with lower average RN age ($B = -0.077$).

Research Question 3: Does the availability of pain treatments have an effect on pain care quality?

The strongest beta value reported in Table 5 was between Having Pain Meds Available and % Pain Relief (0.221). This indicates that a one standard deviation increase in pain medication availability was associated with a 0.221 increase in the standard deviation for pain relief. Having Pain Medications Available was also significantly associated with Average Pain in 24 hours, (beta value = -0.146) as reported in Table 4. These variables have an inverse relationship; and thus, by increasing pain medication availability by one standard deviation, average pain in the past 24 hours would decrease the average pain score by 0.146 of a standard deviation.

Other variables (Table 5) that were found to have statistically significant regression coefficients ($p < 0.05$) but were not clinically significant (B values < 0.5) included:

- % Pain Relief with alternative pain management approaches
- % Pain Relief with healthcare team involved patient in decisions controlling pain

Research Question 4: Does the quality of patient-nurse communication have an effect on pain level?

The effects of patient-nurse communication on Average Pain in the Past 24 Hours are presented in Table 4 and on Percent Pain Relief are presented in Table 5. Nursing factors related to lower Average Pain scores included:

- Healthcare team involved patient in decisions controlling pain ($B = -0.95$)
- Nurse suggested alternative pain treatment ($B = -0.42$)

The same two nursing factors associated with a higher percentage of pain relief.

Discussion

Interestingly, the data reported in Table 2 showed no significant difference between unit type and average rate of pain or percent pain relief (p values of .145 and .371 respectively). This finding is of importance to nursing practice and to the field of pain management and the healthcare system as a whole. Pain should be treated effectively across the spectrum of healthcare regardless of unit type or healthcare setting. Healthcare workers must always remember that pain is subjective. Healthcare workers must always remember that pain is subjective. Therefore, the patient's description and rating of his or her pain is always what providers should assume pain to be and treat accordingly.

Having pain medications available when needed had the strongest association with percent pain relief. Pain medication availability was also clinically significant with average rating of pain. These findings have important clinical implications for pain management. Nursing staff must make frequent pain assessments and offer pain medication(s) in a timely manner. This requires nursing knowledge of the patient's medication administration record (MAR) in order to reference available scheduled and PRN medications. Additionally, nursing staff must reassess after each pain medication administration in order to gauge effectiveness. If the nurse finds that the pain medication(s) are not adequately relieving the patient's pain level, the nurse must advocate to the physician for a dosage or medication adjustment. Proper charting of initial pain assessment, interventions, and reassessment are also necessary. In order to help remind nursing staff to frequently assess for pain, flowsheets or pop-up reminders in the electronic charts can be utilized.

In addition to having pain medication(s) available, the model showed that nursing care hours per patient day had a clinically significant effect on average pain levels. The data showed that as nursing care hours per patient day increased, patients' average pain ratings decreased. These findings are translatable to nurse staffing ratios; namely that with increased staffing, better pain management occurs. This finding correlates with the results discussed in the literature review highlighting the relationship between nurse staffing and positive patient outcomes (Seago et al., 2006).

Within the data set the term "nursing care hours" encompassed RNs, LPNs, and unlicensed assistive personnel rather than RNs alone. Therefore, these data show that a meaningful influence on pain reduction can come from all levels of nurse staffing. A possible explanation for the effect generated by LPNs and UAPs (who cannot administer medications) is through their communication of patient needs to the RN or other licensed staff member, who then administers available pain

medication(s). All in all, as the drive for improved pain management gains momentum, hospital and unit staffing matrixes must begin to reflect improved nurse staffing

Limitations

This study had two limitations. First, while there were statistically significant relationships between various pain measures and nursing indicators, the relationships were fairly weak and had limited clinical significance. The statistical significance can be attributed to the study's large sample size. Second, data were collected from a convenience sample in which larger hospitals and teaching hospitals were over-represented, thus, limiting the generalizability to all hospitals in the United States.

Conclusion

Nearly 50 percent of Americans present to healthcare institutions with pain as their main complaint. (Turk and Dworkin, 2004). The study's findings that no significant differences presented across various unit types reinforce the point that pain is pervasive. Pain is also unique to each individual's subjective experience. Therefore, each patient's plan of care should be individualized, patient-centric, and unique to his or her experience.

Without proper pain management a patient's ability to function, quality of life, physical recovery, immune function, level of stress and satisfaction can suffer. The literature review discussed previously reported that the keys to effective pain management included an adequately staffed and skilled nursing workforce as well as effective assessment tools and pain care protocols. However, our current healthcare system is failing to meet these objectives.

This study found significant clinical relationships, although weak, between several variables. Strong relationships included: patient's average pain rating and nursing care hours per patient day; average pain and having pain medications available when needed. The strongest relationship was between percent pain relief and having pain medications available when needed.

Implications for Nursing

Several nursing implications can be drawn from these results. Timely, thorough, and appropriate pain assessments are the duty of each and every nurse staff member. Appropriate pain medication administration, documentation, and reassessment are also essential to improve pain management. A second implication is the necessity of appropriate staffing matrices for all nursing staff (RNs, LPNs, unlicensed assistive personnel) to increase care hours per patient day.

Current practices and the healthcare system as a whole are failing to effectively manage patient's pain. This failure is captured by evidence in the literature such as high rates of pain and poor improvement in pain management over time (Gordon et al, 2002), (Sawyer et al., 2009). Nurses, as the providers of bedside care, have the potential to be leaders in pain care quality improvement. Not only must nurses push for continued research into the field of pain management, but they must also be leaders at the bedside to implement best practice guidelines.

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Appendix A Beck Pain Study Questionnaire

These questions ask about how your pain has been in the past 24 hours.

1. Please rate your pain on the average during the past 24 hours from 0 no pain to 10 pain as bad as you can imagine.
2. How much of the time did you experience pain that was severe during the last 24 hours?
(Note: Only read percentages if needed to distinguish categories and confirm responses)
___ (0) not at all
___ (1) rarely (<5% of the time)
___ (2) occasionally (5 to 25% of the time)
___ (3) intermittently (26 - 50% of the time)
___ (4) frequently (more than 50% of the time)
___ (5) constantly (all the time)
___ (99) Patient Refused
3. Were you given any medication for pain in the past 24 hours?
___ (0) No (Go to question 5)
___ (1) Yes (Go to question 4)
___ (2) Don't Know (Go to question 5)
___ (99) Patient Refused (Go to question 5)
4. If yes, in general, how much relief have pain treatments or medications provided? Please answer from 0 (no relief) to 100% (complete relief).
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

The following questions ask about your perceptions of how your pain was managed **by your nurse during the past 24 hours**. Please answer honestly. Please indicate how much you agree or disagree with each statement on a scale from 1 (strongly disagree) to 6 (strongly agree) following each item.

5. My nurse believed my reports about my pain.
___ (0) strongly disagree
___ (1) moderately disagree
___ (2) slightly disagree
___ (3) slightly agree
___ (4) moderately agree
___ (5) strongly agree

- ___ (99) patient refused
6. I had pain medication available when I needed it.
- ___ (0) strongly disagree
___ (1) moderately disagree
___ (2) slightly disagree
___ (3) slightly agree
___ (4) moderately agree
___ (5) strongly agree
___ (99) patient refused
7. In addition to medications, my nurse suggested approaches to help manage my pain.
(Examples are positioning my body, thinking about other things, deep breathing exercises, relaxation, and massage, or using heat or ice).
- ___ (0) strongly disagree
___ (1) moderately disagree
___ (2) slightly disagree
___ (3) slightly agree
___ (4) moderately agree
___ (5) strongly agree
___ (99) patient refused
8. My nurse discussed side effects of the pain medications with me.
- ___ (0) strongly disagree
___ (1) moderately disagree
___ (2) slightly disagree
___ (3) slightly agree
___ (4) moderately agree
___ (5) strongly agree
___ (99) patient refused
9. The pain medications worked well to control my pain.
- ___ (0) strongly disagree
___ (1) moderately disagree
___ (2) slightly disagree
___ (3) slightly agree
___ (4) moderately agree
___ (5) strongly agree

___ (99) patient refused

The next question is about **your health care team**, the doctors, nurses and therapists who are taking care of you.

10. My healthcare team involved me in decisions about controlling my pain.

___ (0) strongly disagree

___ (1) moderately disagree

___ (2) slightly disagree

___ (3) slightly agree

___ (4) moderately agree

___ (5) strongly agree

___ (99) patient refused

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Magnet	725	0	1	0.43	0.50
TeachID	725	1	3	2.36	0.69
Percent of RNs with National Certification	725	0E-11	100	13.88	13.88
Percent of All Hours from Agency	725	0	23	0.74	2.19
Percent of RNs with BSN or Higher	725	0E-12	100	45.50	18.79
Total Nursing Care Hours per Patient Day	725	5.58	17.91	9.22	1.74
Gender	725	0	1	0.57	0.23
Age	725	27.67	87.50	61.28	9.02
Healthcare Team Involved Pt with Decisions	725	1	6	4.83	0.81
RN Offered Alternative Approaches	725	1	6	4	1.08
Pain Meds Available When Needed	725	2.67	6	5.41	0.59
RN Believed Pain Reports	725	2	6	5.57	0.49
Percent Pain Relief	723	0.20	1	0.72	0.13
Average Pain in 24 hrs	725	1	10	6.11	1.24
Unit Type Designation	725	2	61	5.32	7.02

Figure 1 Average Pain Rating in past 24 hours.

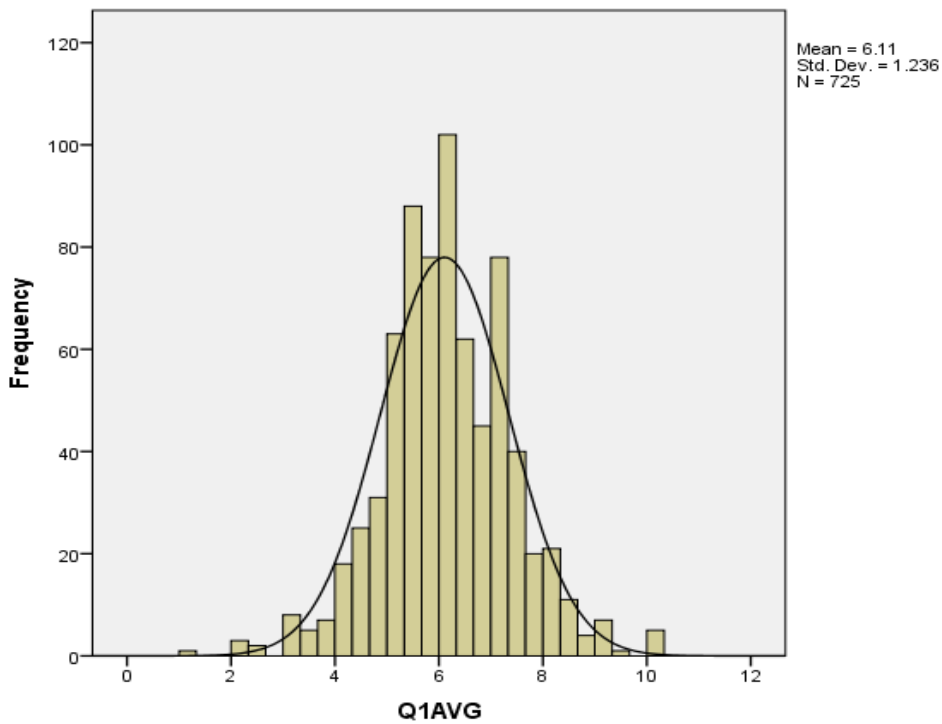


Figure 2 Percent Pain Relief.

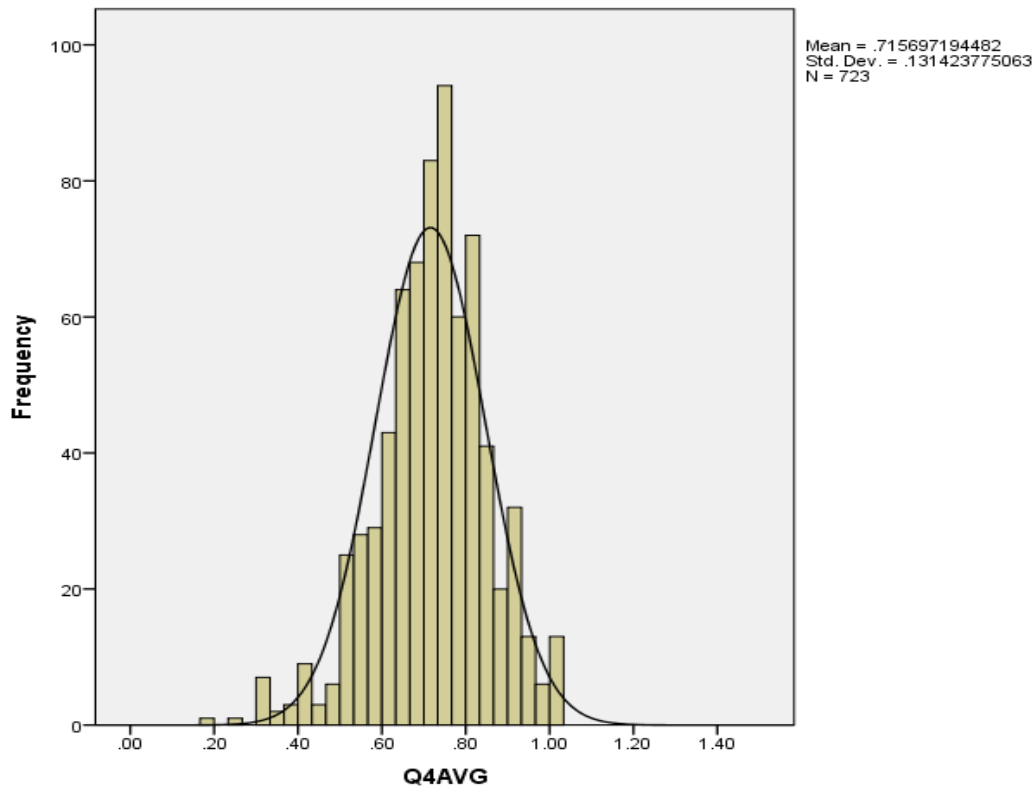


Table 2 Descriptive Statistics, by Unit Type

*Unit Type Designation	N	Minimum	Maximum	Mean	Std. Deviation
Step Down % Pain Relief	128	0.20	1.00	0.70	0.16
	Avg Pain 24 Hrs	128	3	10	6.08
Medical % Pain Relief	170	0.30	1.00	0.72	0.13
	Avg Pain 24 Hrs	170	2	10	6.13
Surgical 5 Pain Relief	150	0.35	1.00	0.73	0.11
	Avg Pain 24 Hrs	150	3	10	5.92
Med/Surg Pain Relief	237	0.30	1.00	0.71	0.13
	Avg Pain 24 Hrs	238	3	10	6.31
Rehab Pain Relief	35	0.37	1.00	0.73	0.14
	Avg Pain 24 Hrs	36	1	8	5.61
Critical Pain Relief	3	0.65	0.90	0.78	0.13
Access Avg Pain 24 Hrs	3	4	7	5.72	1.30

Table 3 Correlations

		Avg Pain in 24 Hrs	% Pain Relief	RN Believes Pain Reports	Pain Meds Available	RN-Suggested Alternatives	Involved Pt with	Age	Sex	% RNs with National	% RNs with BSN or Higher	% All Hours from Agency	Total Nursing Care Hours	Teach ID	Magnet	Unit Type Designation
Avg Pain in 24 Hrs	Pearson Correlation	1	-.250**	-.143**	-.220**	-.142**	-.203**	-.095*	.051	-.084	-.016	.091	-.187**	-.071	-.071	-.080*
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.010	.169	.024	.672	.014	.000	.055	.055	.031
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
% Pain Relief From Treatments	Pearson Correlation	-.250**	1	.208**	.297**	.192**	.234**	-.075*	.057	-.016	-.022	.004	.023	.007	.005	.046
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.044	.127	.672	.549	.906	.538	.844	.900	.219
	N	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723
RN Believes Pain Reports	Pearson Correlation	-.143**	-.208**	1	.569**	.262**	.411**	-.100**	-.030	.048	-.102**	-.135**	-.004	.009	.077*	.025
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.007	.421	.194	.006	.000	.919	.815	.039	.506
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Pain Meds Available When Needed	Pearson Correlation	-.220**	-.297**	.569**	1	.275**	.437**	-.016	.028	.026	-.057	-.110**	.070	-.017	.045	.062
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.671	.447	.481	.127	.003	.059	.644	.229	.094
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
RN Suggested Alternative Approaches	Pearson Correlation	-.142**	-.192**	.262**	.275**	1	.406**	-.027	.026	.021	-.079*	-.100**	.087*	.021	.018	.057
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.466	.479	.567	.033	.007	.019	.581	.637	.122
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Healthcare Team Involved Pt in Decisions	Pearson Correlation	-.203**	-.234**	.411**	.437**	.406**	1	-.070	-.024	.053	.006	-.088*	.100**	.002	.084*	.022
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.060	.512	.154	.874	.017	.007	.952	.023	.562
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Age	Pearson Correlation	-.095*	-.075*	-.100**	-.016	-.027	-.070	1	.016	-.007	-.093*	-.042	.070	.183**	.001	.103**
	Sig. (2-tailed)	.010	.044	.007	.671	.466	.060		.675	.845	.012	.264	.058	.000	.976	.006
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Sex	Pearson Correlation	.051	.057	-.030	.028	.026	-.024	.016	1	-.007	-.015	-.038	-.054	.091*	.032	-.003
	Sig. (2-tailed)	.169	.127	.421	.447	.479	.512	.675		.844	.690	.307	.146	.015	.391	.944
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725

Table 3 Correlations (Cont'd)

		Avg Pain in 24 Hrs	% Pain Relief	RN Believes Pain Reports	Pain Meds Available	RN Suggested Alternatives	Involved Pt with	Age	Sex	% RNs with National	% RNs with BSN or Higher	% All Hours from Agency	Total Nursing Care Hours	Teach ID	Magnet	Unit Type Designation
Percent of RNs with National Certification	Pearson Correlation	-.084*	-.016	.048	.026	.021	.053	-.007	-.007	1	.094*	-.076*	.035	.041	.140**	.172**
	Sig. (2-tailed)	.024	.672	.194	.481	.567	.154	.845	.844		.012	.040	.352	.269	.000	.000
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Percent of RNs with BSN or Higher	Pearson Correlation	-.016	-.022	-.102**	-.057	-.079*	.006	-.093*	-.015	.094*	1	.000	.103**	-.297**	.188**	-.079*
	Sig. (2-tailed)	.672	.549	.006	.127	.033	.874	.012	.690	.012		.994	.006	.000	.000	.033
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Percent of All Hours from Agency	Pearson Correlation	.091*	.004	-.135**	-.110**	-.100**	-.088*	-.042	-.038	-.076*	.000	1	.079*	-.002	-.167**	-.050
	Sig. (2-tailed)	.014	.906	.000	.003	.007	.017	.264	.307	.040	.994		.034	.958	.000	.177
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Total Nursing Care Hours per Patient Day	Pearson Correlation	.187**	-.023	-.004	.070	.087*	.100**	.070	-.054	.035	.103**	.079*	1	-.019	.017	-.015
	Sig. (2-tailed)	.000	.538	.919	.059	.019	.007	.058	.146	.352	.006	.034		.613	.638	.695
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
TeachID	Pearson Correlation	-.071	.007	.009	-.017	.021	.002	.183**	.091*	.041	-.297**	-.002	-.019	1	-.082*	.032
	Sig. (2-tailed)	.055	.844	.815	.644	.581	.952	.000	.015	.269	.000	.958	.613		.028	.387
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Magnet	Pearson Correlation	-.071	.005	.077*	.045	.018	.084*	.001	.032	.140**	.188**	-.167**	.017	-.082*	1	-.062
	Sig. (2-tailed)	.055	.900	.039	.229	.637	.023	.976	.391	.000	.000	.000	.638	.028		.094
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725
Unit Type Designation	Pearson Correlation	-.080*	.046	.025	.062	.057	.022	.103**	-.003	.172**	-.079*	-.050	-.015	.032	-.062	1
	Sig. (2-tailed)	.031	.219	.506	.094	.122	.562	.006	.944	.000	.033	.177	.695	.387	.094	
	N	725	723	725	725	725	725	725	725	725	725	725	725	725	725	725

Notes: **. Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 4 Dependent Variable: (Q1 Avg) Average Pain during past 24 Hrs

Independent Variables	Unstandardized	Standardized	Significance
	Coefficients	Coefficients	
	B	Beta	
Q5 AVG Believed Pain Reports	-0.012	-0.005	0.916
Q6 AVG Pain Meds Available	-0.307	-0.146	0.001
Q7 AVG Alternative Approaches	-0.049	-0.042	0.281
Q10 AVG Involved with Decisions	-0.145	-0.095	0.025
Q11 AVG Age	-0.011	-0.077	0.035
Q12 AVG Gender	0.298	0.056	0.115
Total Nursing Care Hrs Per Pt Day	-0.111	-0.157	0.000
Magnet	-0.105	-0.042	0.255
Teaching Hospital	-0.137	-0.076	0.044
% of All Hrs from Agency	0.034	0.060	0.101
% RNs with BSN or Higher	-0.002	-0.032	0.397
% RNs with National Certification	-0.004	-0.043	0.242
Unit Type Designation	-0.009	-0.053	0.145

Notes: R Square=0.120 Adjusted R Square=0.104

Table 5 Dependent Variable: (Q4 Avg) % Pain Relief

Independent Variables	Unstandardized	Standardized	Significance
	Coefficients	Coefficients	
	B	Beta	
Q5 AVG Believed Pain Reports	0.007	0.026	0.565
Q6 AVG Pain Meds Available	0.050	0.221	0.000
Q7 AVG Alternative Approaches	0.011	0.091	0.021
Q10 AVG Involved with Decisions	0.015	0.091	0.033
Q11 AVG Age	-0.001	-0.067	0.066
Q12 AVG Gender	0.033	0.058	0.101
Total Nursing Care Hrs Per Pt Day	0.000	-0.003	0.935
Magnet	0.000	-0.001	0.980
Teaching Hospital	0.003	0.015	0.691
% of All Hrs from Agency	0.003	0.050	0.175
% RNs with BSN or Higher	3.728E -005	0.005	0.890
% RNs with National Certification	0.000	-0.032	0.385
Unit Type Designation	0.001	0.033	0.371

Notes: R Square=0.012 Adjusted R Square=0.104