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**DOES PATIENT'S EXPECTATION AND PATIENT AND PROVIDER
COMMUNICATIONS EFFECT THE PAIN RELIEF OF PATIENTS WITH
ABDOMINAL PAIN TREATED IN EMERGENCY DEPARTMENTS?**

by

ALISA M. YEE

THESIS

Submitted in partial satisfaction of the requirements for the degree of

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Does Patients' Expectation and Patient and Provider Communications Effect the Pain Relief of Patients with Abdominal Pain Treated in Emergency Departments?

Alisa M. Yee

BACKGROUND: Abdominal pain is the leading cause for patient visits to the emergency department (ED). Although patients present to the ED in search for relief of pain, few experience complete pain relief. No studies have examined the specific factors that influence pain relief in patients with abdominal pain. The purpose of this study was to examine patients' expectations and patient and provider communications about pain relief in patients with abdominal pain treated in EDs. **METHODS:** Questionnaires were completed by patients who reported abdominal pain, their primary nurse and physician. Zero to 10 numeric rating scales were used to rate pain intensity, pain relief, and treatment efficacy. **FINDINGS:** Patients with abdominal pain in this study have high expectations for pain relief. Over 98% of the patients were willing to tell a provider they were in pain but only 33.3% asked for pain medication. Only 57% of the nurses reported requesting a pain medication order from the physician. The percentage of physicians that recalled the nurse ever asking them for pain medication was only 12.8%. Nurse-physician congruence regarding treatment effectiveness did not influence the patient's pain relief. **CONCLUSIONS:** Patients' high expectations for pain relief were not associated with actual pain relief, or with their tendency to ask for pain medication. Patient's pain relief did not differ whether the provider did or did not recall that the patient told them they were in pain. Communication about pain medication is lacking between providers.


Chair of Thesis Committee:  Kathleen Puntillo, RN, DNSc, FAAN

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Introduction

Improving the quality of pain management in the Emergency Department (ED) should be a goal for every health care provider and every institution. For the past 10 years, the American Pain Society has recommended an evaluation of patient satisfaction in order to evaluate the quality of pain management ("Quality improvement guidelines for the treatment of acute pain and cancer pain. American Pain Society Quality of Care Committee," 1995). However, published studies report high levels of patient satisfaction despite high pain intensity scores (Donovan, 1983; Lavies, Hart, Rounsefell, & Runciman, 1992; Miaskowski, Nichols, Brody, & Synold, 1994). Thus satisfaction ratings, used in isolation from other data, could erroneously lead one to believe that pain management practices are optimal (Ward & Gordon, 1996).

Rather than patient satisfaction, recent literature suggests that pain relief may be a better therapeutic end point for determining proper pain control (Ducharme, 2000; Fosnocht, Swanson, & Bossart, 2001). Pain relief, measured on a numeric rating scale (NRS), may be a better outcome variable because it depends on a direct assessment by the patient of his/her response to treatment, and incorporates the patient's memory of baseline pain (Stahmer, Shofer, Marino, Shepherd, & Abbuhl, 1998). However, no studies have examined the specific factors that influence pain relief, such as the patients' expectations and communications about pain relief.

Review of Literature

Expectations and Communications About Pain Relief

Research studies on patients' expectations for pain relief are limited (Blank et al., 2001; Fosnocht et al., 2001; Graber, Ely, Clarke, Kurtz, & Weir, 1999; Lee, Burelbach, & Fosnocht, 2001; Svensson, Sjostrom, & Haljamae, 2001). Findings from a study of post-operative patients suggest that total pain relief is not always sought by patients, and that relatively few patients (25%) expect complete relief of pain from analgesic medications. Furthermore, Blank and colleagues (Blank et al., 2001) found that 93% of a sample of ED patients (n = 68) expected some degree of discomfort at the time of discharge, and only 7% expected total absence of pain. In a more recent study by Lee and colleagues, both Hispanic and non-Hispanic ED patients expected high degree of pain relief. Taken together, no definitive conclusions can be drawn about patients' expectations for pain relief.

Several studies that investigated communication patterns of patients with their providers demonstrated that 17% to 57% of patients in pain communicate ineffectively with their nurses regarding pain (Choiniere, Melzack, Girard, Rondeau, & Paquin, 1990; Harrison, 1993; Zalon, 1993). Juhl and colleagues found in a sample of post-operative patients that 64% would always report if they were in pain (Juhl et al., 1993). Interestingly, 17% of the patients reported that their pain was relieved simply by talking to the staff. Thus communication between patients and providers has important role in pain management, but what component(s) of these communications influences pain relief has yet to be identified.

Accurate assessment of a patient's pain is a crucial component of evaluating pain relief. The consequences of inaccurate assessments are serious: underestimation of pain can lead to unnecessary suffering, while overestimation of pain can lead to overtreatment and potentially iatrogenic complications. Healthcare professionals often underestimate pain (Choiniere et al., 1990; Guru & Dubinsky, 2000; Harrison, 1993; Zalon, 1993); and this underestimation is consistent across patient diagnoses and health care settings (Solomon, 2001). Specific implications of incongruity in patients' and healthcare professionals' estimations of patients' pain relief have not been studied. Furthermore, the assessment of patients' pain relief has not included the perspectives of all persons involved in pain assessment and management; that is, the patient, the patient's nurse, and patient's physician.

Abdominal Pain in Patients Presenting to the ED

Patients with painful conditions come to the ED for two reasons: relief of pain and to determine the cause of the pain. The most recent data from the National Hospital Ambulatory Medical Care Survey substantiated that abdominal pain was the most frequent reason for an ED visit, accounting for 6.8 million visits (McCaig, 2000). In the past, pain medication was not given to patients with acute abdominal pain because it was thought to potentially mask physical signs that delay diagnosis and intervention (Silen, 1979). The presence of acute abdominal pain raises challenging diagnostic questions that may compete with the goals of achieving adequate pain relief. Recently, several studies have challenged the dogma of withholding pain medications from patients with abdominal pain and have suggested that early administration of pain medication may be safe, does not necessarily interfere with, and may actually facilitate the ability to make a

correct diagnosis (Attard, Corlett, Kidner, Leslie, & Fraser, 1992; "Clinical policy: critical issues for the initial evaluation and management of patients presenting with a chief complaint of nontraumatic acute abdominal pain," 2000; McHale & LoVecchio, 2001; Thomas & Silen, 2003; Zoltie & Cust, 1986). Despite the growing body of literature on the safety of using analgesics for abdominal pain, physicians frequently withhold analgesics even when both patients and physicians believed it was warranted (Graber et al., 1999). Thus pain relief in ED patients with abdominal pain is complex, involving the interplay of both patient and provider, and warrants research investigation.

Study Purpose

The purpose of this study was to examine factors that could influence pain relief in patients with abdominal pain presenting to the ED. These factors included patient expectation for pain relief, patient-nurse-physician communication about the patient's pain, nurse-physician communication about the patient needing pain medication, and nurse-physician congruence regarding treatment effectiveness. The following research questions were explored. (1) Is there a difference in patients' reported pain relief according to whether or not they asked for pain medication? (2) Is there a difference in patients' expectations for pain relief according to whether or not they asked for pain medication? (3) Is there a difference in patients' pain relief according to whether or not nurses reported that the patient told them they were in pain? (4) Is there a difference in patients' pain relief according to whether or not physicians reported that the patients told them they were in pain? (5) Is there a difference in patients' pain relief according to whether or not nurses asked physicians for pain medication and whether or not physicians

reported being asked by nurses? (6) Is there a relationship between nurse-physician congruence about treatment effectiveness and the patient's report of pain relief?

Methodology

Sample and Settings

This secondary analysis comes from a large, prospective, descriptive correlational study conducted in the EDs of two Level I trauma centers in Northern California. Approvals were obtained from the Institutional Review Boards at both sites. This analysis was done with a convenience sample of ED patients who presented with the chief complaint of abdominal pain. Patients were considered for inclusion if they were English-speaking male or female adults of any ethnic background who presented to the ED with the chief complaint of abdominal pain of less than 10 days duration. Patients were excluded from this analysis if: they had life-threatening or unstable conditions, altered mental status, were on an established pain management protocol, or had chronic pain. Chronic pain was defined as pain lasting more than 10 days.

If the patient met the study criteria, the patient's primary nurse and physician were approached to participate in the study. Participation in the research study was voluntary. If either the patient, nurse, or physician from a triad chose not to participate or withdrew from the study, the triad data were deemed incomplete and not used in this analysis. In addition, if the patient was discharged after the end of the research assistant's shift or if the physician or nurse's end of shift changeover occurred during the patient's study period, the data were not used in this analysis.

Measures

Patients, nurses, and physicians completed separate questionnaires that were developed by the research team who were experts in pain and/or emergency nursing and medicine. The questionnaires were pilot-tested by three ED nurses and five physicians, and revisions were done to improve the clarity of the questionnaires. Zero to 10 NRS were used to rate pain intensity, pain relief, and treatment efficacy. See Table 1 for a description of the study measures. Questions regarding communication practices prompted dichotomous (e.g., yes/no) answers.

Research Team Training

All eight research assistants were nurses who participated in training sessions conducted by the study's principal investigator. Regularly scheduled review sessions were held to ensure standardization of enrollment procedures and administration of the questionnaires.

Data Collection Procedure

Eligible patients and staff were approached by a research assistant who obtained written informed consent. Both patient and patient's nurse and physician who initially assessed the patient after triage were asked to complete the questionnaire as close to patient discharge as possible, irrespective of analgesic administration. The questionnaires were administered only once, and patients were given the option to complete it themselves or have the research assistant read the questions. Completion of the questionnaire did not take more than a few minutes. The order in which the concepts appeared in the patient questionnaire were: pain intensity, patient-nurse/physician communication about pain, actual pain relief, expected pain relief. A chart review was

conducted after the patient was discharged to collect data with respect to age, gender, ethnicity, disposition from the ED, and type of pain medication administered.

Data Analysis

The primary outcome variable for this report was patient's pain relief as a factor of (1) whether or not the patient asked for pain medication, (2) whether or not the nurse reported that the patient told them they were in pain, (3) whether or not physician reported that the patient told them they were in pain, (4) whether or not the nurse reported asking the physician for pain medication and the physician reported that the nurse had asked for pain medication, and (5) nurse-physician congruence about treatment effectiveness. Congruence was defined as the difference between nurse and physician treatment effectiveness score less than or equal to two. Other outcome measures included the patient's expectation for pain relief and whether they received an analgesic or not. Data were analyzed using Statistical Program for the Social Sciences (SPSS) 11.0 for Windows. Descriptive statistics were used to describe the pain intensity and pain relief scores. Student t-tests, one-way analysis of variance (ANOVA), and correlation statistics were used for analyses. An alpha level of $p < .05$ was considered statistically significant for all analyses.

Results

Patient, Nurse, and Physician Demographics

Forty-eight patient-nurse-physician triads consented to participate and were enrolled in the study. The demographics of the characteristics of the patients, nurses, and physicians are listed in Table 2.

Pain Intensity

Patients' average pain intensity score on arrival to the ED was 7.73 (SD \pm 1.95). Patients' average pain intensity score decreased significantly ($t = 9.385$) at the time of discharge or transfer from the ED to 4.20 (SD \pm 3.10). Additional information on pain scores is listed in Table 3.

Pain Medication Administered

Thirty-four (71%) patients received a pain medication at some time during their ED visit. Actual pain relief scores for these patients was 5.76 (SD \pm 3.69). In patients that did not receive an analgesic, actual pain relief score was 5.71 (SD \pm 2.52). These scores were not significantly different. Pain medication was administered to all patients that asked their nurse or physician for an analgesic medication. More than 50% of the patients who did not ask for a medication ($n = 32$), were given an analgesic. Table 4 lists the types of analgesics administered as well as their frequency of administration.

Communication, Pain Relief, Expectation for Pain Relief: Patient's Perspective

In this sample, 47 out of 48 patients (98%) reported telling a physician or nurse that they were having pain. Of the 16 patients (33.3%) who reported asking for pain medication, their average pain relief score was 5.81 (SD \pm 3.27). Of the 32 (67.7%) patients who did not ask for pain medicine, their average pain relief score was 5.72

(SD \pm 3.47). No significant difference in pain relief scores between patients who did or did not ask for pain medicine.

Twenty-one patients (43.8%) expected complete relief. Only 7 (14.6%) of the patients reported actually receiving complete relief. Eight patients (16.7%) expected a 5/10 pain relief as compared to the six patients (12.5%) who reported actually receiving 5/10 pain relief. No correlation was found between patients' expected and actual pain relief scores ($r = 0.04, p = 0.15$).

Patients' expectations for pain relief did not vary between those patients who did and did not ask for pain medicine as evidenced by the expected pain relief scores of 7.50 (SD \pm 2.73) and 7.02 (SD \pm 3.33), respectively (see Table 6).

Communication: Nurse and Physician Perspectives

Table 7 summarizes providers' recall of their communications with patients about pain and pain relief. Forty-two (87.5%) of the nurses surveyed reported that the patients told them they were in pain. These patients reported pain relief scores of 5.67 (SD \pm 3.38). No differences were found in pain relief scores between patients who were cared for by nurses who were and were not told by patients about their pain. When patients were cared for by nurses who reported not having been told of their pain, the patient's average pain relief score was 6.33 (SD \pm 3.56). No significant difference was found between these two groups ($p = 0.66$).

Thirty-seven (77.1%) of the physicians reported that the patients told them they were in pain. No differences were found in patients reports of pain relief between patients who were cared for by physicians who were and were not told by patients about their pain.

Communication between providers showed that nurses sought a pain medication order from a physician after their initial pain assessment in 27 of the 47 triads (see Table 8). Only six (12.8%) physicians recalled that nurses asked them for an order for an analgesic. No differences were found in patients' pain relief scores based on nurse-physician communications about pain medication orders ($F = .20, p = 0.82$).

Treatment Effectiveness: Nurse-Physician Congruence

As shown in Table 9, no differences were found in pain relief scores when physicians and nurses were congruent in their evaluation of treatment effectiveness, when physicians overestimated treatment effectiveness compared to nurses or when physicians underestimated treatment effectiveness compared to nurses.

Discussion

Patient Expectation for Pain Relief

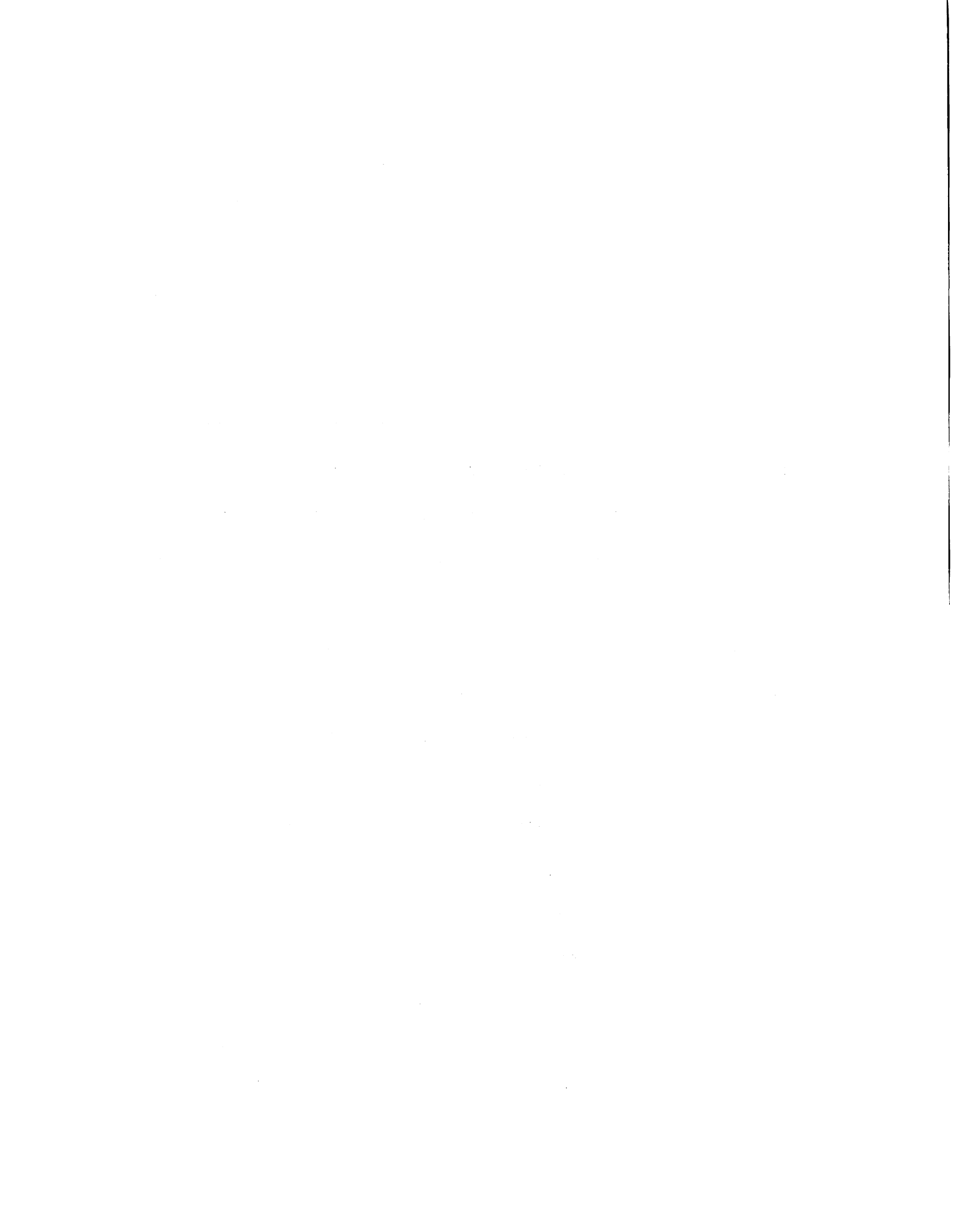
Patients with abdominal pain in this study have high expectations for pain relief. In fact, almost half expected complete relief. However, their high expectations were not associated with actual pain relief, or with their tendency to ask for pain medication.

Our finding that patients with abdominal pain have high expectations for pain relief is consistent with other studies that investigated pain relief in ED patients with other sources of pain (Beel, Mitchiner, Frederiksen, & McCormick, 2000; Lee et al., 2001). Lee and colleagues found that both Hispanic and non-Hispanic white ED patients expected a high degree of pain relief (Lee et al., 2001). Although the researchers were primarily interested in determining if Hispanic ethnicity influences a patient's expectations for pain relief, their sample was diverse and included patients whose chief complaint was abdominal pain (11%), back pain (13%), isolated extremity injury (35%),

and other painful injuries and illness (41%). Moreover, findings by Beel and colleagues demonstrated that 70% of patients with acute long-bone fractures in the ED wanted sufficient medication to alleviate pain, and 25% wanted complete relief (Beel et al., 2000).

Only one study demonstrated that not all ED patients have high expectations for pain relief. Blank and colleagues investigated ED patients with nonurgent and urgent diagnoses that included lacerations, contusions, sprain, strains and other minor injuries from falls (Blank et al., 2001). These patients had low expectations for pain relief. More than 90% of their patients expected a certain amount of discomfort at the time of discharge. Whether patients have high or low expectation, the specific implications of expectations on pain management practices have not been well studied. Most recently Turner and colleagues investigated the implication of having high expectation for pain relief on actual improvement (Turner, Jensen, Warms, & Cardenas, 2002). The study was a double-blind randomized trial of chronic pain and spinal cord injury outpatients. The findings suggested that those patients who had higher expectations received greater improvement in their pain when they received a pain medication. More research needs to be done to investigate how patient *expectation* for pain relief influences *actual* improvement as well as provider pain management practices.

Although patients come to the ED for pain relief, our study demonstrates that their expectation for pain relief does not influence their actual pain relief. A possible explanation for this is that patients come to the ED in search for an explanation for their abdominal pain. Their actual pain relief may be influenced by the mere process of identifying the source of their abdominal pain, such as having their blood sent to the



laboratory or undergoing an abdominal imaging scan. In a recent survey of ED patients by Bartley and Cameron (2000) over 50% of their patients expected to undergo an investigation (such as x-ray or blood work), receive an explanation, and be reassured. Less than 17% expected to be cured completely. If actual pain relief is to be used as an indicator of pain management, further examination of other identifying factors such as duration of pain or pain medication administration may contribute to pain relief is warranted.

Pain medication administered

Historically, pain medication was often withheld from patients with acute abdominal pain,(Silen, 1979) but recent studies have demonstrated that administration of pain medication does not interfere with a making an accurate diagnosis (Attard et al., 1992; "Clinical policy: critical issues for the initial evaluation and management of patients presenting with a chief complaint of nontraumatic acute abdominal pain," 2000; McHale & LoVecchio, 2001; Zoltie & Cust, 1986). Findings from this study showed that that 80.4% of the patients received an analgesic medication whether they asked for the medication or not. This finding is encouraging since it suggests a greater emphasis on analgesic treatment. However, the simple act of administering a pain relieving medication is not enough to guarantee pain relief. More research needs to be done on the post-medication administration phase to determine factors that influence actual pain relief.

Communication

Over 98% of the patients in this study were willing to tell a provider they were in pain but only 33.3% asked for pain medication. This finding supports prior studies that have shown that patients in pain may be reluctant to ask for medication (Donovan, Dillon, &

McGuire, 1987; Ward & Gordon, 1994). In 2002, Dawson et al., examined Ward and Gordon's idea that patients expect a "peak and trough" pattern of pain severity. A "peak and trough" pattern of pain severity refers to the phenomenon that patients will ask for medication only after the pain has surpassed their expectation of moderate to severe breakthrough pain. Findings by Dawson et al.,(2002) confirmed the "peak and trough" phenomenon. On average their patients expected adequate pain relief after medication [mean (SD) = 1.42 (1.65) on a 0-10 pain intensity scale], but expected moderate to severe pain before receiving their next dose [mean (SD) = 6.25 (2.69)]. The mean scores were calculated by subtracting expected level of pain from the level of experienced pain. Although our study did not specifically ask patients the amount of pain they expected before administration of pain medication, the "peak and trough" patterns of pain severity may provide insight into why the patients in this study did not ask for pain medication.

Communication about pain between patients and providers was relatively high compared to previously reported data in which 17 to 57% of patients in pain lack did not communicate with their nurses about pain (Choiniere et al., 1990; Harrison, 1993; Zalon, 1993). Despite the high level of communication about pain in this study, pain relief remained poor. Patients' pain relief did not differ whether the provider did or did not recall that the patient told them they were in pain. A possible explanation for this finding could be that a patient's pain relief is not solely determined by the report of pain and subsequent confirmation by the providers. Several studies have suggested that it is the quality of communication that impacts a patient's pain management, regardless of its efficacy (Juhl et al., 1993; "Practice guidelines for acute pain management in the perioperative setting. A report by the American Society of Anesthesiologists Task Force

on Pain Management, Acute Pain Section," 1995). For example, in a study by Juhl, 17% of the patients experienced relief by talking with a nurse (Juhl et al., 1993). Since pain is a personal experience that involves sensations, feelings, images and thoughts that influence each other, negative emotional features of the pain experience may be alleviated by talking with a clinician. Clearly there is no simple causal relationship between a single factor and the ability to achieve pain relief.

Despite the high level of communication between patient and provider, communication between providers occurred less frequently. Only 57.5% of the nurses reported requesting a pain medication order from the physician. The percentage of physicians that recalled the nurse ever asking them for pain medication was only 12.8%. Communication about pain medication is lacking between providers. This lack of communication may indicate that pain management is a low priority for the providers. If pain management is not a priority for ED providers, it may send a message to the patients that experiencing pain is expected, reinforcing the patient's prior behavior of not asking for pain medication. Efforts to prevent lack of communication have been recognized by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) (Commission, 2003). Their standards state that health care professionals are to educate patients and their families about effective pain management. Nurse-physician congruence regarding treatment effectiveness did not influence the patient's pain relief. Fifty-six percent of our providers were not able to determine their effectiveness score for reasons not investigated in this study. However, when the physicians did estimate treatment effectiveness, it was an overestimate as compared to the nurse's, and patient's had less pain relief. A possible explanation could be that, if the physician determines his/her

treatment to be effective, further evaluation of the patient's pain may be omitted, and the patient will remain in pain.

Study Limitations

This study has a number of limitations. The primary limitation is that the provider's perception of the patient's pain relief was not investigated. Rather, the providers were asked about treatment effectiveness, a slightly different concept than pain relief. Thus a direct comparison of perception of pain relief between patient's and providers can not be made. Another limitation is that the questionnaires were administered to the providers irrespective of the timing of analgesic medication administration. This may explain why so few providers were able to score their treatment effectiveness. The third limitation is that while the larger study was adequately powered, our subsample size of 48 triads might not have had enough power to achieve statistical significance for most of the analyses. Nevertheless, differences in pain relief scores were so small that clinical significance is even questionable. A final limitation is that, because we studied only English-speaking adult patients who complained of abdominal pain, these findings cannot be generalized to pediatric or adult patients with other sources of pain.

Conclusions

Patients will tell their RN/MD they are in pain, but few patients will ask for pain relieving medication. Actual pain relief remained unaffected despite analgesic administration. Patients' high expectation for pain relief were not associated with actual pain relief, or with their tendency to ask for a medication. Patient's pain relief did not

differ whether the provider did or did not recall that the patient told them they were in pain. Many RNs did not seek a pain medication order after their initial assessment. When RNs did seek a pain medication order, few MDs recalled the RN asking them for a pain order, however, 71% of the patients received an analgesic. At the time of completing the questionnaire, many MD and RNs did not know the efficacy of their treatment.

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TABLE 1

Concepts, Measures, and Questions Asked of Patients, Nurses, and Physicians

Participants	Concepts/Variables	Measures	Questions
Patient	Pain intensity	0-10 NRS* (0 = no pain, 10 = worst possible pain)	What was your pain level when you arrived at the ED?
	<i>Expectation</i> for pain relief	0-10 NRS* (0 = expected no relief, 10 = expected complete relief)	What is your pain now ? (At discharge) How much did you <i>expect</i> your pain to be relieved today?
	<i>Actual</i> pain relief	0-10 NRS* (0 = no relief, 10 = complete relief)	How much pain relief did you receive today?
Nurse	Patient-Nurse-Physician communication	Yes/No	Did you ask for pain medicine? If yes, who?
	Patient-Nurse communication	Yes/No	Did the patient tell you he/she was in pain?
	Nurse-Physician communication	Yes/No	After your initial assessment of the patient, did you approach the patient's MD for a pain medication order?
Physician	Treatment efficacy	0-10 NRS* (0 = not effective at all, 10 = completely effective)	How effective was your treatment of this patient's pain?
	Patient-Physician communication	Yes/No	Did the patient tell you he/she was in pain at any time during his/her stay in the ED?
	Nurse-Physician communication	Yes/No	Did the nursing staff ask you for pain medication for this patient?
	Treatment efficacy	0-10 NRS* (0 = not effective at all, 10 = completely effective)	How effective was your treatment of the patient's pain?

* NRS = **Numeric Rating Scale**

TABLE 2

Demographic Characteristics of Patients, Nurses, and Physicians

Participant	Sex		Ethnicity	Age (years)		Admitted to hospital		Education	Years in ED	
	Female	Male		range	mean	Yes	No			
Patients (N = 48)	Female	26 (54%)	White	18 (38%)	range	19-71				
	Male	22 (46%)	African American	15 (31%)	mean	39	Yes	10 (21%)		
			Hispanic	10 (21%)	SD	12.2	No	37 (77%)		
			Native American	none						
			Asian Pacific	4 (8%)						
			Other	1 (2%)						
Nurses (N = 35)	Female	27 (77%)	White	25 (71%)	range	25-46	AD	8 (23%)	0-5	13 (41%)
	Male	8 (23%)	African American	2 (6%)	mean	36	Diploma	5 (14%)	6-10	8 (25%)
			Hispanic	2 (6%)	SD	6.5	BS	17 (49%)	11-15	4 (13%)
			Native American	1 (3%)			MS	5 (14%)	16-20	3 (9%)
			Asian Pacific	5 (14%)					20+	4 (13%)
			Other	none						
Physicians (N = 47)	Female	23 (49%)	White	32 (68%)	range	25-55	Medicine	23 (49%)	Attending	9 (19%)
	Male	24 (51%)	African American	2 (4%)	mean	31	Emergency	14 (30%)	Resident 1	17 (36%)
			Hispanic	1 (2%)	SD	6.4	Other	8 (17%)	Resident 2	10 (21%)
			Native American	none			Family Practice	2 (4%)	Resident 3	10 (21%)
			Asian Pacific	8 (17%)						
			Other	3 (6%)						

TABLE 3

Patients' Ratings of Pain Intensity

Time	N	Patient pain intensity score (\pmSD)	t	P value
On arrival to ED	48	7.73 (\pm1.95)	t = 9.385	p < 0.001
On discharge/transfer from ED	48	4.20 (\pm3.10)		

Pain Intensity on arrival to ED (0-10 NRS)	Number of Patients (%)	Pain Intensity on discharge/transfer from ED (0-10 NRS)	Number of Patients (%)
0	0 (0%)	0	7 (14.6%)
1	0 (0%)	1	4 (8.3%)
2	1 (2.1%)	2	5 (10.4%)
3	0 (0%)	3	6 (12.5%)
4	1 (2.1%)	4	5 (10.4%)
5	4 (8.3%)	5	5 (10.4%)
6	9 (18.8%)	6	5 (10.4%)
7	4 (8.3%)	7	4 (8.3%)
8	10 (20.8%)	8	1 (2.1%)
9	7 (14.6%)	9	1 (2.1%)
10	12 (25.0%)	10	5 (10.4%)

TABLE 4

Pain Medications Administered in ED

Medication (route)	Frequency of medication administered (%)
None	9 (19.6%)
Morphine (IV)	23 (50.0%)
Acetaminophen (PO)	5 (10.9%)
Hydromorphone (IV)	2 (4.3%)
Ketorolac (IV)	2 (4.3%)
Acetaminophen/Codeine (PO)	1 (2.2%)
Meperidine (IM/IV)	1 (2.2%)
Acetaminophen/Hydrocodone (PO)	1 (2.2%)
Other medications	1 (2.2%)

TABLE 5

Pain Medication Administered and Patient Pain Relief Scores

Did the Patient Receive an Analgesic?	N = 48	Patient's Pain Relief Score (\pmSD)	t	P value
Yes	34	5.76 (\pm3.69)	t = -.047	p = 0.96
No	14	5.71 (\pm2.52)		

TABLE 6**Patient Request for Medication and Their Reported Pain Relief Scores**

Did Patient Ask For Pain Medication?	N = 48	Patient's Pain Relief Score (\pmSD)	t	P value
Yes	16 (33.3%)	5.81 (\pm 3.27)	t = 0.09	p = 0.93
No	32 (67.7%)	5.72 (\pm 3.47)		

TABLE 7

Patient Request for Medication and Their Expected Pain Relief Scores

Did Patient Ask For Pain Medication?	N = 48	Patient's <i>Expectation</i> for Pain Relief Score (\pmSD)	t	P value
Yes	16 (14.3%)	7.50 (\pm 2.73)	t = 0.50	p = 0.62
No	32 (65.3%)	7.02 (\pm 3.33)		

TABLE 8**Providers' Recall of Patients' Reporting Pain and Patient Reported Pain Relief Scores**

	Did Provider Recall Patient Reporting Pain?	N = 48	Patient Reported Average (\pmSD) Pain Relief Score	t	P value
Nurse (n=48)	Yes	42 (87.5%)	5.67 (\pm3.38)	t = -0.45	p = 0.66
	No	6 (12.2%)	6.33 (\pm3.56)		
Physician (n=47)	Yes	37 (77.1%)	5.64 (\pm3.25)	t = -0.04	p = 0.97
	No	10 (20%)	5.70 (\pm3.86)		

Note. One physician missing

TABLE 9**Provider Communication and Patient Reported Relief Score**

Did nurse seek pain medication order and did physician recall nurse asking for pain medication order?	N = 47	Patient Reported Pain Relief Score (±SD)	F statistic	P value
Nurse (no) & Physician (no)	20 (42.6%)	5.95 (±2.58)	F = .20	p = 0.82
Nurse (yes) & Physician (no)	21 (44.7%)	5.33 (±3.68)		
Nurse (yes) & Physician (yes)	6 (12.8%)	6.0 (±4.78)		

Note. One triad nurse (no) and physician (yes) was excluded

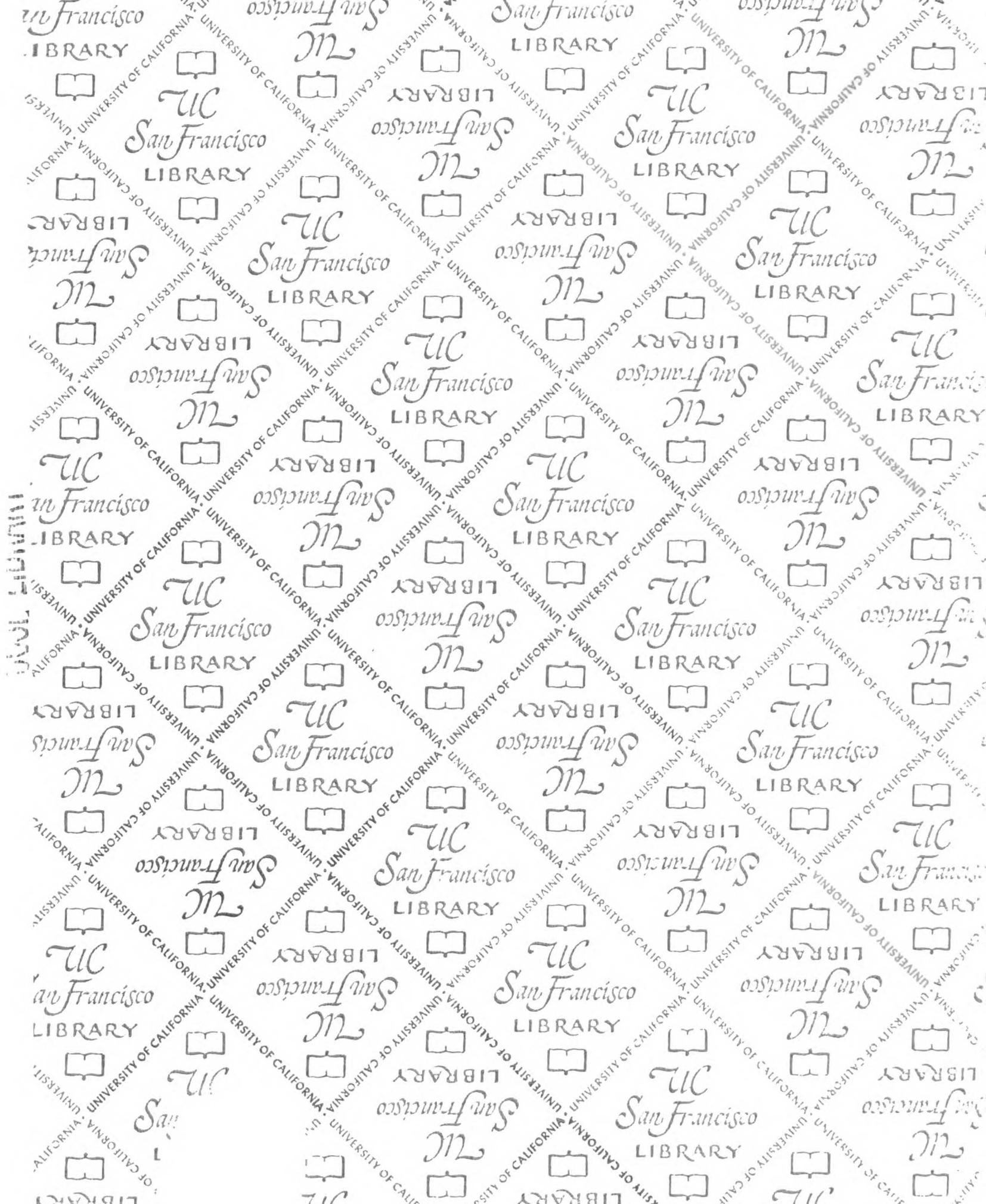
TABLE 10

Effect of Treatment Effectiveness Congruence on Patient Reported Pain Relief Scores

Provider Treatment Effectiveness Scores¹	N = 26	Patient Reported Pain Relief Score (±SD)	F statistic	P value
Physician > Nurse	10 (38.5%)	4.7 (±2.58)	F = .73	p = 0.50
Physician = Nurse	8 (30.8%)	6.25 (±4.00)		
Nurse > Physician	8 (30.8%)	6.38 (±3.42)		

Note. Congruence is defined as nurse and physician treatment effectiveness scores within ±2 of each other (e.g., physician > nurse if physician treatment effectiveness scores were > 2 of nurse's treatment effectiveness score)

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For reference

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