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Shared Decision Making in the Selection of Outpatient Analgesics for Older Emergency Department Patients

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Abstract

OBJECTIVES—To assess the relationship between older patients' perceptions of shared decision making in the selection of an analgesic to take at home for acute musculoskeletal pain and 1) patient satisfaction with the analgesic and 2) changes in pain scores at one week.

DESIGN—Cross-sectional study.

SETTING—Single academic emergency department.

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PARTICIPANTS—Individuals age 65 or older with acute musculoskeletal pain.

MEASUREMENTS—Two components of shared decision making were assessed: 1) information provided to the patient about the medication choice; and 2) patient participation in the selection of the analgesic. Optimal satisfaction with the analgesic was defined as being “a lot” satisfied. Pain scores were assessed in the ED and at one week using a 0-to-10 scale.

RESULTS—Of 159 patients reached by phone, 111 patients met all eligibility criteria and completed the survey. Half (52%) of patients reported receiving information about pain medication options, and one third (31%) reported participating in the analgesic selection. Patients who received information were more likely to report optimal satisfaction with the pain medication than those who did not (67% vs. 34%; $p<0.001$). Patients who participated in the decision were also more likely to report optimal satisfaction with the analgesic (71% vs. 43%; $p<0.01$) and had a greater average decrease in pain score (4.1 vs. 2.9; $p=0.05$). After adjusting for measured confounders, patients who reported receiving information remained more likely to report optimal satisfaction with the analgesic (63% vs. 38%; $p=0.04$).

CONCLUSION—These results provide preliminary evidence that shared decision making in analgesic selection for older patients with acute musculoskeletal pain may improve outcomes.

Keywords

geriatrics; pain; emergency medicine; decision making

INTRODUCTION

Adults age 65 and older make approximately 7 million US emergency department(ED) visits annually for pain-related complaints, and most of these patients are sent home from the ED.¹ The selection of an analgesic for older adults to take at home following an ED visit for acute pain is a complex decision which should take into consideration several factors: the likelihood of medication effectiveness in reducing pain; the possibility of both minor side effects and serious medication-related adverse events; and patient preferences regarding relief of pain vs. avoiding side effects and adverse events. Variability in patient preferences for pain treatment has been described among older adults.^{2–6} Because there are multiple potentially acceptable options for the outpatient treatment of acute pain in older adults for which individual preferences vary, shared decision making may be useful.⁷

Shared decision making is an interactive process in which health care providers and patients exchange information and discuss treatment preferences to reach an agreed-upon decision.⁸ The Institute of Medicine encourages providers to practice shared decision making and considers it an essential component of the patient-provider partnership.⁹ In primary care settings, shared decision making has been associated with increased patient satisfaction, improved medication adherence, and better health outcomes.^{10–13} By incorporating patient experiences and preferences, shared decision making between providers and older ED patients with acute pain conditions might improve clinical outcomes.

The purpose of this study was to examine patients' perceptions of shared decision making in the selection of an analgesic to take after discharge from the ED, and to evaluate associations between patients' perceptions of shared decision making and 1) patient satisfaction with the analgesic prescribed or recommended and 2) reduction in pain scores at one week among older ED patients with acute musculoskeletal pain. We hypothesized that patients who reported receiving information about the analgesic options and who reported participating in the decision regarding the choice of analgesic would experience improved treatment-related outcomes.

METHODS

Study Design

This was a cross-sectional study with consecutive enrollment of patients age 65 or older discharged home from the ED with a diagnosis of musculoskeletal pain. Patients were identified from the ED electronic medical record and a phone interview was conducted 4 to 7 days after ED discharge. Data were collected from March 2011 to March 2012. The study was approved by the Institutional Review Board of the University of North Carolina at Chapel Hill.

Setting

The study site is a single academic ED serving a large and diverse community of older adults. In calendar year 2011, the ED had 64,480 visits with 16% of visits by patients age 65 or older. Patients received medical care from attending physicians or from nurse practitioners or residents working under the supervision of an attending physician. Providers did not receive formal training in shared decision making nor were they informed that the study was being conducted.

Selection of Patients

Patients were eligible if they were age 65 years or older, had an initial ED pain score >4 on a 0-to-10 scale recorded prior to receiving pain medication, were discharged home following ED evaluation, and had a discharge diagnosis consistent with musculoskeletal pain. Musculoskeletal pain was defined to include contusions, sprains, strains, lacerations, fractures, dislocations, or any other pain condition in the extremities, neck, or back for which the diagnosis was consistent with musculoskeletal pain. Patients were excluded if they did not speak English, lived in a nursing home, or had cognitive impairment as evidenced by documentation of dementia or altered mental status in the ED record or not being oriented to place and date at the time of the phone call interview.

Data Collection

The ED patient record was screened daily by a study investigator to identify potentially eligible patients. These patients were telephoned 4 to 7 days after discharge from the ED. At least three phone call attempts were made for each patient. After providing verbal informed consent, patients completed a 33-item questionnaire. The medical record was used to calculate a Charlson comorbidity score for each patient.¹⁴ All individuals conducting patient interviews completed a mock interview prior to initiating data collection.

Predictor Variables

Components of shared decision making were assessed with the following questions: 1) "How much information was given to you about different pain medications to go home with?" and 2) "Did you participate in the decision regarding pain medications to go home with?" using a 4-point Likert scale with categories of "a lot," "some," "very little," or "none"/"not at all." After evaluating the distribution of responses, these options were collapsed into two categories for analyses. The 'received information' group was defined as those patients who reported receiving "a lot" or "some" information. Similarly, the 'participated in decision' group was defined as those patients who participated "a lot" or "some" in the decision.

Outcome Variables

Patient satisfaction with the analgesic choice was assessed using the question: "How satisfied are you with the pain medication prescribed or recommended to you by the

emergency provider?" quantified with a 4-point Likert scale (i.e. "a lot," "some," "very little," or "not at all"). Responses were collapsed based on the distribution of responses into two groups with the 'optimal satisfaction' group defined as those patients who reported "a lot" of satisfaction. Consistent with the method of pain assessment used by nurses in the ED, pain was assessed at the one-week interview using a 0-to-10 scale with 0 = "no pain" and 10 = "worst pain imaginable." Change in pain was defined as the difference between the initial pain score recorded by the nurse in the ED medical record prior to treatment and the pain score reported at the one week interview.

Data Analysis

Among enrolled patients, characteristics of patients reporting optimal satisfaction were compared with those reporting less than optimal satisfaction. For these comparisons age, Charlson comorbidity score, and initial pain score were treated as continuous variables and compared using Wilcoxon rank sum tests. Other variables were treated as categorical and compared using chi-square tests. We used multivariable logistic regression to assess the association between the two components of shared decision making and patient satisfaction and multivariable linear regression to assess the association between the two components of shared decision making and change in pain score. A term to represent the interaction between information received and participation was included in the initial regression analyses of both models but then dropped because it was not significant at the $p=0.05$ level. Little is known about determinants of shared decision making in the setting of acute pain management for older adults. Thus, covariates for inclusion in the models were selected based on known or presumed associations with analgesic selection or satisfaction with treatment –gender,¹⁵ race,¹⁶ education level,⁴ and initial pain severity. The model of patient satisfaction also adjusted for pain score at one week. Statistical analyses were performed using STATA version 11.0 (College Station, TX). Logistic regression results are reported as adjusted percentages, calculated using the STATA command *predxcat*.

RESULTS

Patient Characteristics

Of the 319 patients meeting initial eligibility criteria, 111 were contacted, met final eligibility criteria, and completed the survey (Figure 1). Enrolled and non-enrolled patients were similar in regard to age (mean 73, range 65–94 vs. mean 75, range 65–98), gender (female: 64% vs. 70%), race (white: 66% vs. 63%), initial pain score (mean 7.7 vs. 7.6), and the proportion prescribed opioids (71% vs. 63%). Among the 73 patients who took an opioid, 56 (77%) of these took a medication that contained both an opioid and acetaminophen. Twelve patients took non steroidal anti-inflammatory drugs (NSAIDs) and eleven took acetaminophen. Nine patients did not receive either a prescription or a recommendation for an analgesic, and a total of fifteen patients (13%) reported not taking any analgesic during the week following their ED visit. Patients who reported optimal satisfaction were similar to those who reported less than optimal satisfaction in regard to demographics, comorbidities, injury mechanism, ED pain scores, and analgesics prescribed or recommended (Table 1). The proportions of patients who were optimally satisfied were similar ($p=0.17$) among patients taking opioids (47%), non-opioids (52%), and no analgesic (73%).

Shared Decision Making, Satisfaction, and Changes in Pain Scores

Of the 111 patients in the study, 58 (52%) reported receiving information about medication options, 34 (31%) reported participating in the decision, and 30 (27%) reported both receiving information and participating in the decision. Approximately half of patients (57, 51%) reported optimal satisfaction with the analgesic prescribed or recommended by the

emergency provider. The mean decrease in pain score from the ED visit to the one week interview was 3.3 (95% confidence interval 2.7 to 3.9). Seventy (63%) patients reported moderate or severe pain (score >4) at one week.¹⁷

Patients who reported receiving information (i.e. “some” or “a lot”) were more likely to be optimally satisfied than those not receiving information (67% vs. 34%, Table 2). Similarly, patients who reported participating (i.e. “some” or “a lot”) in the selection of the analgesic were also more likely to be optimally satisfied with the analgesic (71% vs. 43%). After adjusting for participation, sex, race, education, initial pain score, and one week pain score, patients who reported receiving information about the analgesic were more likely to be optimally satisfied (63% vs. 38%, $p=0.04$). Patients who participated in the selection of the analgesic also experienced a greater average decrease in pain than patients who did not participate (4.1 vs. 2.9 point decrease, $p=0.05$). In a multivariable linear regression model, there was a trend towards a greater decrease in pain scores among patients who reported receiving information ($p=0.08$).

DISCUSSION

Among older adults discharged from the ED with a diagnosis of musculoskeletal pain, only half of patients reported receiving information about analgesics, and less than one third reported participating in the selection of an analgesic. Patients who reported receiving information about analgesic options or participating in the selection of an analgesic were more likely to be optimally satisfied with the medication prescribed or recommended. In regression models adjusting for sociodemographic characteristics and pain symptoms, the association between information received and satisfaction with the pain treatment persisted, and there was a trend towards greater decreases in pain scores among patients who received information.

Effective management of acute pain in older adults is important both for the relief of suffering and because acute pain may predispose individuals to persistent pain and a decline in physical function.¹⁸ Our results indicate that continued pain at one week is common among older individuals seen in the ED with acute musculoskeletal pain, but suggest that the provision of components of shared decision making may improve outcomes for these patients. Further study of shared decision making for analgesic selection in older adults is needed to better understand the relationship between shared decision making and outcomes and to determine if interventions to increase the use of shared decision making can provide a patient-oriented solution to the challenge of optimizing the pharmacologic management of pain in older adults.^{19–21}

The low levels of information sharing and participation reported by patients in the current study suggest that there are barriers to shared decision making regarding analgesic selection for older ED patients. These barriers might include a lack of familiarity with shared decision making or failure to prioritize the effective outpatient treatment of pain in older adults given the limited time available for patient care in the ED.^{22, 23} Despite these barriers, we believe shared decision making has potential value in the selection of outpatient analgesics for older ED patients. First, components of shared decision making can be applied to a treatment decision occurring at a single visit.^{24, 25} Second, the provision of information and elicitation of preferences about analgesics may be achieved during the time typically available for patient-provider interactions in the ED. Third, training internists in shared decision making regarding chronic pain has been shown to be feasible;²⁶ and we believe that similar training would be acceptable to emergency providers.

This study has several limitations with implications for both its internal and external validity. Four patients refused to participate because they were experiencing severe pain, were feeling too sick, or wanted to call a doctor. These refusals result in a slightly biased sample. Components of shared decision making were assessed one week after the ED visit and at the same time as outcome measures. Thus, patient reporting of the information provided and participation in the decision may have been influenced by their pain relief. Shared decision making is a complex and interactional process and more detailed assessment methods including whether information was provided verbally or in writing and what information was exchanged between providers and patients might allow for a more complete characterization of the decision making process. The relationship between components of shared decision making in the ED and one week outcomes might be confounded by factors not incorporated into the analysis for this study (e.g., effectiveness of pain management in the ED, physical activity during the intervening period). Although enrolled and eligible but non-enrolled patients were similar in regard to demographic characteristics, pain scores, and pain medications received, in other ways (e.g., social support, education level) enrolled patients might not be a representative sample of older ED patients with acute musculoskeletal pain. The study was conducted at a single academic ED in the Southeastern United States, and most patients received care from resident physicians. Physician communication behaviors, analgesic prescribing practices, and patient preferences may be different in private EDs and in other geographic locations and may vary with physician training. Lastly, we only studied discharged patients. The role of shared decision making during the inpatient and early outpatient treatment of pain among older patients with pain so severe as to require hospital admission also deserves attention.

In summary, we observe associations between components of shared decision making and satisfaction with analgesic choice and decreased pain scores one week after the ED visit. Further research is needed to determine the potential of shared decision making to improve outcomes for older adults with acute musculoskeletal pain.

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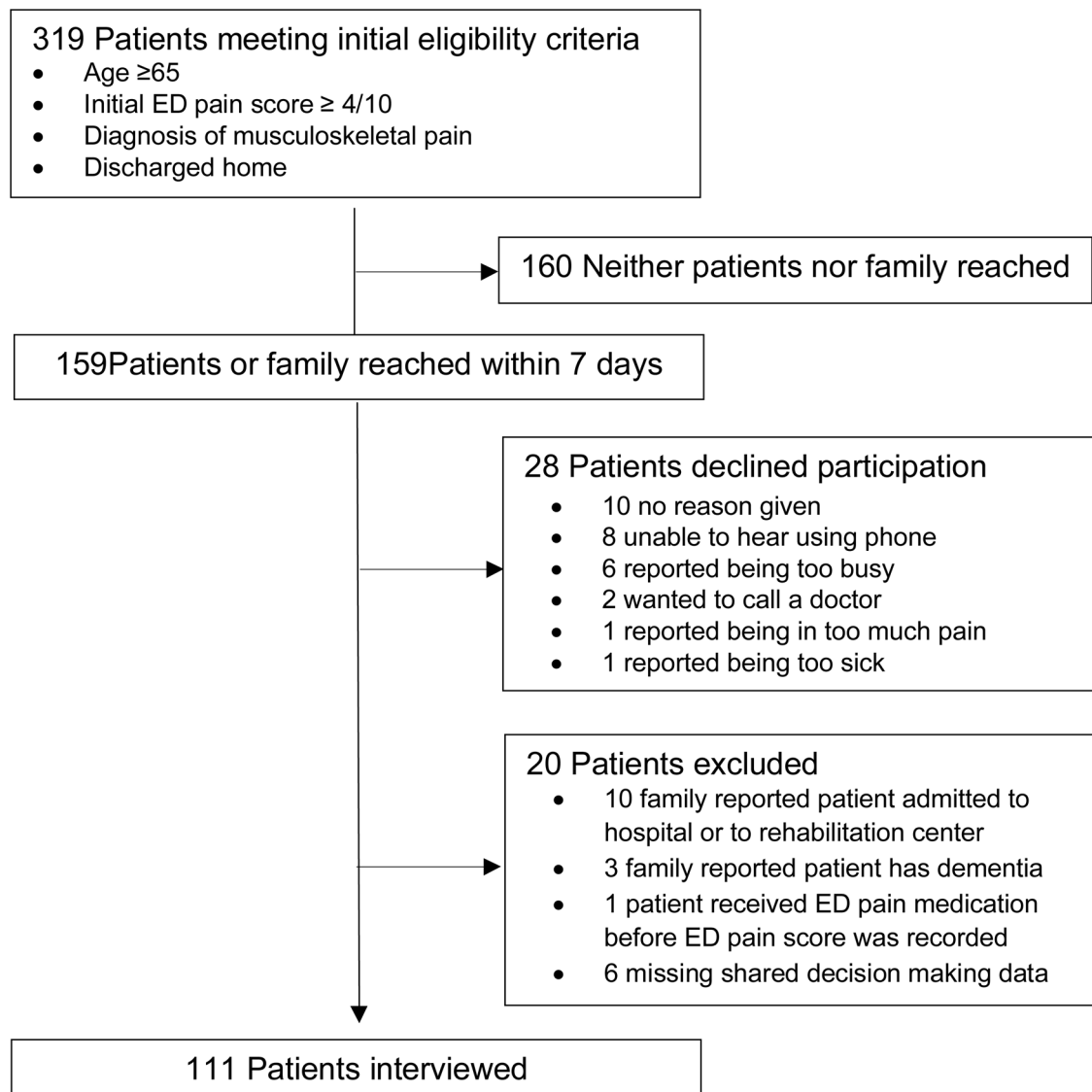


Figure 1.
Patient Enrollment Flow Chart

Table 1

Characteristics of the study sample by satisfaction with the prescribed analgesic.

	All patients (N=111)	Optimally satisfied ^a (N=57)	Less than optimally satisfied (N=54)	p-value ^b
Age, median (±SD)	73 (7)	73 (7)	74 (8)	0.66
Gender, N (%)				0.83
Female	71 (64)	37 (65)	34 (63)	
Male	40 (36)	20 (35)	20 (37)	
Race, N (%) (N=110)				0.12
White	73 (66)	41 (73)	32 (59)	
African American	37 (34)	15 (26)	22 (41)	
Education, N (%)				0.42
8–11 Years	26 (23)	14 (25)	12 (22)	
High School	24 (22)	10 (18)	14 (26)	
Post-High School ^c	23 (21)	11 (19)	12 (22)	
College Graduate	20 (18)	11 (19)	9 (17)	
Post Graduate	18 (16)	11 (19)	7 (13)	
Charlson comorbidity score, median (±SD)	1.3 (1.6)	1.4 (1.7)	1.2 (1.5)	0.76
Initial pain score, median (±SD)	7.7 (2.1)	7.5 (2.2)	7.9 (2.0)	0.39
Provider, N(%)				0.41
Nurse practitioner	26 (23)	15 (26)	11 (20)	
Resident ^d	67 (60)	31 (54)	36 (67)	
Attending	18 (16)	11 (19)	7 (13)	
ED diagnosis, N(%)				0.47
Injury				
Fracture/dislocation	17 (15)	7 (12)	10 (19)	
Contusion	12 (11)	6 (11)	6 (11)	
Laceration	8 (7)	6 (11)	2 (4)	
Sprain/strain	11 (10)	5 (9)	6 (11)	
Other	8 (7)	6 (11)	2 (4)	
Non-injury	55 (50)	27 (49)	28 (51)	
Analgesic prescribed, N (%)				0.43
Opioid-containing ^e	78 (70)	36 (63)	42 (78)	
Non-opioid ^{e,f}	23 (21)	14 (25)	9 (16)	
None	10 (9)	7 (12)	3 (6)	
Analgesic taken, N (%) ^g				0.17
Opioid-containing ^e	73 (66)	34 (60)	39 (72)	
Non-opioid ^{e,f}	23 (21)	12 (21)	11 (20)	
None	15 (13)	11 (19)	4 (7)	

^a Defined as a patient response of “a lot” versus “some,” “very little,” or “not at all” to the question “How satisfied were you with the pain medication you were sent home with?”

^bP-values compare those reporting optimal vs. less than optimal satisfaction using Wilcoxon rank sum tests for age, Charlson comorbidity score, and initial pain score, and chi-square tests for all other variables.

^cEither technical school or some college.

^dAll patients seen by residents were also seen in a supervisory role by an attending.

^eCategories are mutually exclusive. Patients who took both opioids and non-opioids are categorized here as taking opioid-containing analgesics.

^fIncludes acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs).

^gRefers to analgesic taken by the patient as reported at the time of the interview one week after the ED visit.

Table 2

Satisfaction and mean change in pain among patients who did and did not receive information about or participate in the selection of an analgesic (N=111).

Component of Shared Decision Making	N	Raw			Adjusted ^e		
		Optimal Satisfaction ^a % (95% CI)	Pain Reduction ^b Mean (95% CI)	Optimal Satisfaction ^b % (95% CI)	Pain Reduction ^c Mean (95% CI)		
Received information ^d							
Yes	58	67 (54–78)	3.7 (2.8–4.6)	63 (47–76)	3.8 (3.0–4.6)		
No	53	34 (23–48)	2.9 (2.0–3.7)	38 (24–54)	2.7 (1.9–3.6)		
Participated in decision ^e							
Yes	34	71 (53–83)	4.1 (2.9–5.2)	69 (50–83)	4.4 (3.4–5.5)		
No	77	43 (32–54)	2.9 (2.2–3.7)	43 (32–55)	2.8 (2.2–3.5)		

^aSatisfaction adjusted for age, sex, race, education level, initial pain score, and one week pain score. Pain reduction adjusted for age, sex, race, education level, and initial pain score.

^bDefined as patient who reported being “a lot” satisfied with the pain medication.

^cDefined by the change in pain from the ED visit to the one week follow-up interview, each scored using a 0–10 numeric rating scale.

^d“Yes” defined by patients who reported receiving “a lot” or “some” information.

^e“Yes” defined by patients who reported participating “a lot” or “some” in the analgesic decision.