

# Documentation of Pain Care and Treatment for Limited English Proficiency Minority Patients With Moderate-to-Severe Pain in Primary Care

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## ABSTRACT

**Introduction:** There are 25 million individuals in the United States with limited English proficiency (LEP). Language barriers contribute to poorer patient assessment, misdiagnosed and/or delayed treatment, and inadequate understanding of the patient condition or prescribed treatment. LEP also has been shown to result in inadequate pain control, yet there are significant gaps in our knowledge related to pain documentation and pain management in primary care settings. The objective of this study is to describe and compare pain documentation for LEP racial/ethnic minority patients – Hmong-speaking Asian and Spanish-speaking Latinx – to English-speaking White patients with moderate to severe pain at an academic primary care clinic.

**Methods:** We conducted a retrospective mixed methods electronic health record study of patients age  $\geq 18$  with a pain score of  $\geq 6$ ; preferred language of Hmong, Spanish, or English; and evaluation in a primary care clinic. Abstracted data included characteristics of the provider, patient, interpreter, and pain care process. Descriptive statistics, analysis of variance, and chi-square tests were used. Clinician subjective assessment was analyzed using directed content analysis.

**Results:** Three hundred forty-two patient visits were included. Pain score distribution differed by patient language and race/ethnic group ( $P < 0.001$ ), with an average pain score of 7.66 (SD 1.25). Interpreter type varied between the LEP groups ( $P = 0.009$ ). Pain location was documented in a higher percentage of visits overall (87%) and more frequently for English-speaking White and Spanish-speaking Latinx patient visits than Hmong-speaking Asian visits ( $P < 0.001$ ). Pain quality, onset, and duration were documented more frequently in LEP patient visits than English-speaking White patient visits (all  $P < 0.001$ ). While overall opioid prescription rates were low, opioids were prescribed 3 times more frequently to English-speaking White patients than LEP patients ( $P = 0.002$ ). Approximately 20% of patients were prescribed nonpharmacological treatment.

**Conclusion:** Pain care process and treatment documentation varied by patient language and race/ethnicity. Future studies could evaluate the impact of pain assessment and treatment documentation on pain outcomes for LEP patients.

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## INTRODUCTION

While pain is the most commonly reported symptom in primary care, undertreatment of pain continues to persist and may be due to inadequate documentation of pain assessment and treatment. Pain documentation includes electronically produced or written information about a patient's progress, condition, treatments, or care. The prevalence of patients with pain seen in the primary care setting ranges from 5% to 33%.<sup>1,2</sup> Yet, the current research on pain documentation has focused on the hospital<sup>3,4</sup> and long-term care settings.<sup>5,6</sup> Limited research has focused on clinician pain documentation in primary care settings. We found only 1 study focusing on clinician pain documentation in primary care.<sup>7</sup> Krebs and colleagues found that 83% of patient visits had a pain assessment documented, and patients with moderate to severe pain or new pain were significantly more likely to have a pain assessment documented than those who have mild pain.<sup>7</sup> The reported racial distribution of patients ( $n = 237$ ) in this study was as follows: 66.2% White, 29.1%

Black, and 4.6% other. All interviews were conducted in English. Therefore, it is unclear whether a difference exists in pain assessment documentation for racial and ethnic minority populations, especially those who have limited English proficiency (LEP).<sup>8,9</sup>

There are 25 million individuals in the United States having LEP, defined as being unable to read, write, and speak English well.<sup>10</sup> The larger body of research on medical care in LEP pop-

ulations has shown that language barriers contribute to poorer patient assessment, misdiagnosed and/or delayed treatment, and inadequate understanding of the patient condition or prescribed treatment.<sup>11-15</sup> Likewise, having LEP has been shown to result in inadequate pain control.<sup>16</sup> More research is needed to better understand the effect of language barriers on pain documentation and treatment.

Individuals with LEP are more likely to be from a racial and ethnic minority background. There is extensive evidence that racial and ethnic minorities experience disparities in pain care, including the delivery of pain assessment and management; however, most of the research to date has focused on a specific type of pain<sup>8,17-21</sup> or disparities in analgesic medications.<sup>22</sup> Several studies reported that Black, Asian, and Hispanic patients are less likely than White patients to be prescribed opioids.<sup>23-27</sup> It remains unclear whether other types of pain treatments, including alternative (also called complementary or integrative) medicine, are offered to racial and ethnic minority patients in primary care settings.

Compounding the disparities in health for LEP patients is the varied access and quality of different types of medical interpreters, including both professional or ad hoc (eg, bilingual health care providers, family) interpreters.<sup>28,29</sup> Specific to pain and interpreters, Jimenez et al examined whether interpreter use was associated with the quality of acute pain treatment among Latina patients with LEP.<sup>30</sup> They found that Latina patients who always received interpreters were more likely to report higher levels of pain and timely pain treatment than patients who did not always receive interpreters.<sup>30</sup>

In summary, there are significant gaps in our knowledge related to pain documentation and pain management in primary care settings overall, as well as in racial and ethnic minority populations, including those who have LEP. Therefore, the purpose of this electronic health record (EHR), mixed-methods study was to both quantitatively and qualitatively describe and compare pain care process documentation for LEP racial/ethnic minority patients – specifically, Hmong-speaking Asian and Spanish-speaking Latinx – to English-speaking White patients with moderate to severe pain at an academic primary care clinic.

## METHODS

This mixed-methods study is a secondary analysis of clinical and administrative data from a large, Midwestern US primary care clinic collected between November 2019 and September 2020. This study was approved by the University of Wisconsin – Madison’s Health Review Board with a waiver of consent.

### Sample

Inclusion criteria for patient primary care clinic visit data were as follows: (a) patient age 18 years or older at time of visit, (b) visit pain score of 6 or greater, and (c) patient preferred language and reported race/ethnicity of Hmong-speaking Asian, Spanish-

speaking Latinx, or English-speaking White. To construct the overall study sample, we identified all Hmong-speaking Asian patient visits (106 visits for 34 patients) and Spanish-speaking Latinx patient visits (126 visits for 39 patients) meeting inclusion criteria. Because the number of English-speaking White patients (n = 10,339) was much greater than the LEP patient groups, we created a comparable English-speaking White patient sample. First, patients were matched by pain characteristics, age, and sex/gender. The matching reduced the number of English-speaking White patients to 3,120 patients. From this group, we generated a random subset of 110 English-speaking White visits (102 patients) that met inclusion criteria.

### Manual EHR Chart Record Abstraction

After Hmong-speaking Asian, Spanish-speaking Latinx, and English-speaking White patients/visits were identified, we conducted a manual EHR chart abstraction to assess pain documentation for each clinic visit. Manual chart abstraction was reviewed based on patients’ medical record number and pain visit date. Two coders, a doctoral candidate (ZM) and an undergraduate nursing student (CL), abstracted data from the clinicians’ notes and orders into a Microsoft Excel Professional Plus 2019 spreadsheet. A third coder (ML) randomly reviewed the abstracted data for accuracy. Abstracted data included characteristics of the (a) patient, (b) clinician, (c) interpreter, and (d) pain care process.

### Demographic Information

Patient characteristics included (1) sex/gender, (2) age, (3) race/ethnicity, and (4) language preference. Clinician characteristics included (1) type of provider (medical doctor [MD], doctor of osteopathic medicine [DO], nurse practitioner [NP], physician assistant/associate [PA], resident) and (2) sex/gender.

Information about whether an interpreter was present and the type of interpreter (in-person, telephone, family, provider) used for each visit was abstracted. We also abstracted information about whether a family member was present and their relationship to the patient.

Pain care process characteristics included (1) pain assessment, (2) medication(s), (3) treatment ordered, (4) treatment performed, (5) follow-up treatment, and (6) follow-up timeframe (see Table 1).

All variables were coded as binary, that is “yes” or “no.” In addition, primary diagnosis, medical comorbidity, and the primary reason for visits also were abstracted from the problem list (see Table 1).

### Statistical Analysis

We used IBM SPSS Statistics Version 25 to conduct the statistical analysis and calculated descriptive statistics (ie, counts, percentages) for each variable. We compared continuous patient characteristics by patient language and race/ethnicity group using analysis of variance. We used chi-square or Fisher exact tests, as

**Table 1.** Electronic Health Record (EHR) Data Abstraction Definitions and Examples

	Definition	Binary Coding Approach to EHR Documentation	Example of Coding Approach
Pain assessment	Were pain location, cause(s), onset, severity score, duration and/or quality documented?	If there was documentation of pain information, it was coded as 1 (yes); if not, it was coded as 0 (no)	Pain severity was documented as 8 out of 10 and was coded as a 1 (yes) Pain severity was not documented and was coded as a 0 (no) Documentation of “element of stiffness in the morning” was coded as a 1 (yes) for pain quality
Medications	Were pain medications prescribed?  Was opioid medication prescribed?	If there was any medication listed for pain, it was coded as 1 (yes); if not, it was coded as 0 (no)  We used the <i>IT MATTRs Colorado Opioid</i> document to classify which medications were considered opioids. If an opioid was prescribed, it was coded as 1 (yes); if not, it was coded as 0 (no)	Documentation of Tylenol and ibuprofen in the medication list was coded as 1 (yes)  Documentation of Tylenol and ibuprofen were coded as nonopioid, 0 (no) Hydrocodone (Hysingla), morphine (Methadose), fentanyl (Onsolis), oxycodone (Oxaydo), or hydrocodone containing acetaminophen (Anexsia) were coded as opioid, 1 (yes)
Treatment orders	Was a treatment order placed (eg, steroid injection, OMT, etc)?	If any treatment order was placed, it was coded as 1 (yes); if not, it was coded as 0 (no)	A treatment order of “therapeutic prophylactic /dx injection subq/im” was coded as 1 (yes)
Treatment performed	Was there a pain treatment (eg, steroid injection, OMT, etc) performed during the clinical encounter?	If there was any pain treatment order with documentation of treatment performed in the clinic, it was coded as 1 (yes); if not, it was coded as 0 (no)	Documentation of “osteopathic manipulative treatment of 5-6 body regions” was coded as 1 (yes) Documentation of “triamcinolone acetonide 40 mg injection once in clinic” was coded as 1 (yes)
Follow-up treatment	Did the patient follow up with the pain treatment order?	If follow-up treatment was ordered and there was a scheduled and completed visit for that treatment order, it was coded as 1 (yes); if not, it was coded as 0 (no)	Documentation of “x-ray finger $\geq 2$ views left” and date of x-ray was coded as 1 (yes)
Follow-up timeframe	Did the patient follow up within the recommended timeframe?	If a follow-up timeframe was indicated, it was coded as a 1 (yes)	Documentation of “follow up 1-2 months” was coded as 1 (yes) Documentation of “1-2 months to follow-up on hand swelling and numbness” was coded as 1 (yes)

appropriate, to compare categorical patient, provider, interpreter, and pain care process characteristics by patient language and race/ethnicity group.

### Qualitative Analysis

To provide additional richness to the descriptive quantitative data, we analyzed the subjective assessment of clinicians’ documentation using directed content analysis.<sup>31</sup> First, 2 coders (ML, CL) reviewed subjective assessment documentation for 10 patients together to immerse themselves with the EHR data. Then, they came up with codes that were reflected in the narrative. For example, if a note stated, “depression and anxiety—uncontrolled,” we coded it as “mental health problem.” Together, the 2 coders created the following codes: (a) perceived antecedents, (b) perceived causes of pain, (c) pain descriptors, (d) storytelling of pain, (e) perceived consequences of pain, (f) mental health problems, and (g) social issues. After the codes were developed, each coder individually reviewed the subjective data in the EHR and entered the pain-related information that reflected each of the pain codes in the Excel spreadsheet. For example, if a note stated, “pain has burning quality,” we entered “pain is burning” for the pain descriptors column in the Excel spreadsheet. Both team members gathered weekly to consolidate their coding and entry of information. Any discrep-

ancies in coding were resolved by discussion and referencing the original subjective assessment data in the EHR. The subjective qualitative information abstracted from the EHR was used to provide context to quantitative results.

### RESULTS

A total of 342 patient visits were analyzed, including Hmong-speaking Asian (n = 106 visits for 34 patients), Spanish-speaking Latinx (n = 126 visits for 39 patients), and English-speaking White (n = 110 visits for 102 patients).

#### Patient Characteristics

The mean age of patients was  $52.35 \pm 13.53$  years, with Spanish-speaking Latinx having a younger mean visit age ( $47.96 \pm 12.49$ ) than Hmong-speaking Asian ( $55.04 \pm 13.53$ ) and English-speaking White ( $54.79 \pm 12.60$ ;  $P < 0.001$ ). The overall average pain score was  $7.66 \pm 1.25$ , with Hmong-speaking Asian ( $8.18 \pm 0.99$ ) having higher mean visit pain scores than Spanish-speaking Latinx ( $7.48 \pm 1.28$ ) and English-speaking White ( $7.37 \pm 1.31$ ;  $P < 0.001$ ). Approximately 70% of visits were for female patients; gender distribution did not differ by group ( $P = 0.952$ ).

#### Clinician and Interpreter Characteristics

Clinician and interpreter characteristics by patient language and

**Table 2.** Provider and Interpreter Characteristics for Visits by Patient Language and Race/Ethnicity

	English/White n (%)	Spanish/Latinx n (%)	Hmong/Asian n (%)	P value
Provider Type				<0.001
MD	66 (60.0)	56 (44.4)	35 (33.0)	
PA	27 (24.5)	41 (32.5)	24 (22.6)	
DO	9 (8.2)	23 (18.3)	21 (19.8)	
NP	8 (7.3)	6 (4.8)	26 (24.5)	
Resident				0.223
Yes	27 (24.5)	44 (34.9)	32 (30.2)	
No	83 (75.5)	82 (65.1)	74 (69.8)	
Clinician sex/gender				0.105
Male	30 (27.3)	39 (31.0)	20 (18.9)	
Female	80 (72.7)	87 (69.0)	86 (81.1)	
Interpreter present				0.062*
Yes	-	111 (88.1)	101 (95.3)	
No	-	15 (11.9)	5 (4.7)	
Interpreter Type				0.009
In-person	-	44 (34.9)	45 (42.5)	
Telephone/iPad	-	42 (33.3)	40 (37.7)	
Family	-	6 (4.8)	11 (10.4)	
Provider	-	18 (14.3)	7 (6.6)	
Declined	-	16 (12.7)	3 (2.8)	
Family present				<0.001
Yes	4 (3.6)	12 (9.5)	25 (23.8)	
No	106 (96.4)	114 (90.50)	80 (76.20)	

Abbreviations: MD, medical doctor; PA, physician assistant/associate; DO, doctor of osteopathic medicine; NP, nurse practitioner.

P values from chi-square tests, except where noted (\*) as a Fisher exact test. Visit sample size varies by characteristic.

race/ethnicity group are reported in Table 2. Clinician type differed by patient language and race/ethnicity group ( $P < 0.001$ ). While MDs and PAs were the first and second most frequently seen clinician types in all groups, English-speaking White patients had a visit with an MD (60%) more often than Spanish-speaking Latinx (44%) and Hmong-speaking Asian (33%) patients. Spanish-speaking Latinx patients were more likely to see a PA than both other groups or a DO than English-speaking White patients, and Hmong-speaking Asian patients were more likely to see a DO than English-speaking White patients or an NP than both other groups.

Interpreter type varied between the LEP groups ( $P = 0.009$ ). In-person interpreters were the most common for both groups. Hmong-speaking Asian patients more commonly had in-person and family interpreters, while for Spanish-speaking Latinx patients, the clinician served as the interpreter more frequently or patients declined an interpreter. In addition, a family member was present more frequently with Hmong-speaking Asian patients ( $P < 0.001$ ).

### Pain Care Process Characteristics

Qualitatively, across all 3 groups, back pain, chest/abdominal pain, and shoulder pain were the most commonly shared reasons for why Hmong-speaking Asian, Spanish-speaking Latinx,

**Table 3.** Pain Characteristic Documentation for Visits by Patient Language and Race/Ethnicity

	English/White n (%)	Spanish/Latinx n (%)	Hmong/Asian n (%)	P value
Pain location				<0.001
Yes	103 (93.6)	116 (92.1)	77 (72.6)	
No	7 (6.4)	10 (7.9)	29 (27.4)	
Pain quality				<0.001
Yes	28 (25.5)	63 (50.8)	53 (50.0)	
No	82 (74.5)	61 (49.2)	53 (50.0)	
Pain onset				<0.001
Yes	17 (15.5)	48 (38.1)	44 (41.5)	
No	93 (84.5)	78 (61.9)	62 (58.5)	
Pain duration				<0.001
Yes	25 (22.7)	66 (52.4)	47 (44.3)	
No	85 (77.3)	60 (47.6)	59 (55.7)	
Pain cause				0.003
Yes	34 (30.9)	66 (52.4)	42 (39.6)	
No	76 (69.1)	60 (47.6)	64 (60.4)	
Cause of pain discussed				0.019
Yes	33 (30.0)	59 (46.8)	36 (34.0)	
No	77 (70.0)	67 (53.2)	70 (66.0)	

P values from chi-square tests. Visit sample size varies by characteristic.

and English-speaking White patients sought care. The 3 top pain location complaints observed were lower back, shoulder, and knee for English-speaking White and Spanish-speaking Latinx visits. In contrast, neck, back, and lower back were common among Hmong-speaking Asian visits.

Documentation of every pain characteristic evaluated in the study differed by patient language and race/ethnicity (Table 3). Pain location was documented in a higher percentage of visits overall (87%) than other pain characteristics, including quality (55%), onset (32%), and duration (39%). Pain location was documented more frequently for English-speaking White and Spanish-speaking Latinx patient visits than Hmong-speaking Asian visits ( $P < 0.001$ ).

In contrast, pain quality, onset, and duration were documented more frequently in LEP patient visits than English-speaking White patient visits (all  $P < 0.001$ ).

From the qualitative analysis, the Hmong-speaking Asian patient visits most commonly reported numbness, tightness, tingling, and burning, whereas the Spanish-speaking Latinx patient visits most commonly reported swollen, pressure, sharp, and numbness. The English-speaking White patient visits most commonly reported swelling and numbness and used metaphors, such as “my head is going to blow off” due to headache pain, or “feels leg is ‘giving out’” with hip pain.

Cause of pain documentation varied across each group: Spanish-speaking Latinx (52%), Hmong-speaking Asian (40%), and English-speaking White (31%;  $P = 0.003$ ). Cause of pain was more frequently discussed during Spanish-speaking Latinx patient visits than English-speaking White or Hmong-speaking Asian patient visits ( $P = 0.019$ ). The qualitative analysis revealed that the



most common cause of pain across the 3 groups was related to falls. Hmong-speaking Asian patients frequently reported causes related to movement (eg, twisted ankle, turned neck), stress, and work, whereas Spanish-speaking Latinx patients reported work- or injury-related causes for their pain. In contrast, English-speaking White patients most commonly attributed weather or seasonal changes as the cause of their pain.

Results for treatment-related pain care process variables are reported in Table 4. There was a statistically significant difference in pain medication prescription by group ( $P < 0.001$ ); specifically, pain medications were most frequently prescribed during English-speaking White patient visits (79%), followed by Spanish-speaking Latinx patient visits (63%), and Hmong-speaking Asian patient visits (54%). While overall rates of opioid prescription were low (~10% of visits), opioids were prescribed approximately 3 times more frequently during English-speaking White patient visits compared to the LEP patient visits ( $P = 0.002$ ). Prescriptions of other pain medications (ie, non-steroidal anti-inflammatory drugs, acetaminophen, and steroids) did not differ by patient language and race/ethnicity. We evaluated clinician type as a potential confounding variable for an opioid prescription because it differed by language and race/ethnicity group. We found that there was a statistically significant difference for opioid prescriptions among clinician type ( $P = 0.019$ ). PAs prescribed opioids at the highest rate ( $n = 16/92$  visits, 17.4%) followed by MDs ( $n = 14/157$  visits, 8.9%), NPs ( $n = 3/40$  visits, 7.5%), and DOs ( $n = 1/53$  visits, 1.9%;  $P = 0.019$ ).

Additionally, approximately 20% of patient visits included prescription of a nonpharmacological treatment during the clinic visit. There was a statistically significant difference for nonpharmacological treatment during the clinic visit by patient race/ethnicity ( $P = 0.005$ ). Of these nonpharmacological treatments, osteopathic manipulation (OMT) was featured in 18% of patient visits. Although rates were not statistically different by patient language and race/ethnicity, the Hmong-speaking Asian patient visits received OMT more than the Spanish-speaking Latinx and English-speaking White patient visits. In contrast, the Spanish-speaking Latinx (13.5%) and English-speaking White (10.9%) patient visits received more referrals for physical and occupational therapy than Hmong-speaking Asian patient visits (7.5%).

From the qualitative analysis, we observed more Hmong-speaking Asian and English-speaking White patients requesting OMT during their in-clinic visit. In contrast, Spanish-speaking Latinx patients requested steroid treatment during their in-clinic visits. Compared to the Spanish-speaking Latinx and English-speaking White patient visits, the Hmong-speaking Asian patient visits most frequently reported using cultural or herbal medicine to treat their pain before seeking care.

Finally, follow-up – patient followed-up with prescribed treatment, provider prescribed timeframe for follow-up visit, and patient completed follow-up visit within the prescribed timeframe

**Table 4.** Pain Treatment by Patient Language and Race/Ethnicity

	English/White n (%)	Spanish/Latinx n (%)	Hmong/Asian n (%)	P value
Medication prescribed				<0.001
Yes	87 (79.1)	79 (62.7)	57 (53.8)	
No	23 (20.9)	47 (37.3)	49 (46.2)	
Opioids				0.002
Yes	20 (18.2)	7 (5.6)	7 (6.6)	
No	90 (81.8)	119 (94.4)	99 (93.4)	
Non-steroidal anti-inflammatory drugs				0.126
Yes	6 (5.5)	15 (11.9)	14 (13.2)	
No	104 (94.5)	111 (88.1)	92 (86.8)	
Acetaminophen				0.652
Yes	6 (5.5)	6 (4.8)	8 (7.5)	
No	104 (94.5)	120 (95.2)	98 (92.5)	
Steroids – oral				0.425
Yes	10 (9.1)	11 (8.7)	5 (4.7)	
No	100 (90.9)	115 (91.3)	101 (95.3)	
Type of in-clinic treatments: steroids – injection				0.679
Yes	2 (1.8)	4 (3.2)	1 (0.9)	
No	79 (71.8)	92 (73.0)	83 (78.3)	
N/A	29 (26.4)	30 (23.8)	22 (20.8)	
Type of in-clinic treatments: OMT <sup>a</sup>				0.128
Yes	6 (5.5)	4 (3.2)	10 (9.4)	
No	104 (94.5)	122 (96.8)	96 (90.6)	
Patient prescribed nonpharmacological treatment during visit				0.683
Yes	6 (5.5)	7 (5.6)	9 (8.5)	
No	76 (69.1)	87 (69.0)	65 (61.3)	
N/A	28 (25.5)	32 (25.4)	32 (30.2)	
In-clinic treatment performed (ie, OMT, steroid injections, acupuncture <sup>b</sup> )				0.005
Yes	17 (15.5)	16 (12.7)	18 (17.0)	
No	90 (81.8)	106 (84.1)	74 (83.7)	
N/A	3 (2.7)	4 (3.2)	14 (13.2)	
Patient followed up with prescribed treatment				0.121 <sup>a</sup>
Yes	69 (62.7)	78 (61.9)	66 (62.3)	
No	14 (12.7)	13 (10.3)	15 (14.2)	
Refused	0 (0.0)	1 (0.8)	0 (0.0)	
No Show	0 (0.0)	2 (1.6)	2 (1.9)	
As needed	0 (0.0)	1 (0.8)	0 (0.0)	
N/A	27 (24.5)	31 (24.6)	23 (21.7)	
Prescribed physical or occupational therapy referral				0.360
Yes	12 (10.9)	17 (13.5)	8 (7.5)	
No	98 (89.1)	109 (86.5)	98 (92.5)	
Provider prescribed timeframe for follow-up visit				0.122
Yes	72 (65.5)	72 (57.1)	74 (69.8)	
No	38 (34.5)	54 (42.9)	32 (30.2)	
Patient completed follow-up visit within the prescribed timeframe				0.121
Yes	40 (36.4)	40 (31.7)	41 (38.7)	
No	33 (30.0)	28 (22.2)	33 (31.1)	
N/A	37 (33.6)	58 (46.0)	32 (30.2)	

Abbreviations: OMT, osteopathic manipulation.

P values from chi-square tests.

<sup>a</sup>Treatment orders prescribed by providers.

<sup>b</sup>Acupuncture only performed during 3 visits.

– did not differ by group. Of the patients who were prescribed a follow-up visit, 54.8% to 58.8%, depending on group, completed a visit within the prescribed timeframe.

## DISCUSSION

This study provides a context to better understand primary care clinician pain care process documentation for LEP patients who

reported moderate to severe pain. We found that documentation of the pain care process—both assessment and management/treatment—varied by patient language and race/ethnicity. Most notably, while pain location was more frequently documented for English-speaking White patient visits, documentation of all other pain characteristics (ie, pain quality, onset, and duration) was more complete for LEP minority patient visits. This finding is contrary to existing research that documentation of pain characteristics is less frequent for racial and ethnic minorities.<sup>7,32</sup>

The discrepancy in pain characteristic documentation between LEP and English-speaking language patients could be due to multiple factors. One factor could be related to the different type of pain episode the patient experienced, ie, acute, chronic, or acute on chronic (also known as a flareup). While diagnosis codes do not drive pain assessment and planning, they may affect clinician documentation and/or our abstraction of type of pain. Currently, in the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10) system codes, there is a limited range of options for pain-related codes and no existing code for acute on chronic pain (eg, chronic knee pain flareups). Consequently, it was difficult to differentiate between acute, chronic, and flareup pain diagnoses for some visits, limiting our abstraction to acute versus chronic. Chronic condition “flareup” language does exist within the ICD-10 for other diagnoses, for example, acute on chronic anemia or acute on chronic congestive heart failure. In the setting of chronic pain, flareup is an important differentiation to document from acute as it may affect treatment and prognosis. Without such a diagnosis code option, pain diagnosis documentation is left to clinicians’ discretion in the subjective notes, contributing to the existing pain care process documentation challenge. Future research could study ways to classify visits by acute, chronic, and acute on chronic pain in the EHR system.

The limitation of structured pain documentation related to flareups may explain why documentation is less complete for English-speaking patients, who we observed to have more chronic pain. Alternatively, there may be no new information to add. In contrast, the LEP patients were more likely to report acute pain that requires clinicians to document new pain characteristics. Another possible explanation could also be attributed to cultural differences or language discordance between LEP patients and clinicians in discussing pain. A qualitative study of primary care providers found that they have greater difficulty communicating with Hmong patients about pain compared to other LEP patient groups because Hmong patients used few or no qualifiers to describe their pain.<sup>13</sup> This phenomenon also may be reflected in the pain documentation observed in this study.

Consistent with the literature on pain disparities, pain treatment differed by patient language and race/ethnicity.<sup>8,21</sup> Hmong-speaking Asian patient visits had the lowest rates of medication prescriptions overall. Many Hmong patients are fearful of medi-

cations being destructive to the body and intolerable side effects; thus, they often do not accept or take medications as prescribed<sup>41</sup> and are more receptive to nonpharmacological treatments, such as OMT. Opioids, while infrequently prescribed overall, were more frequently prescribed for English-speaking White and Spanish-speaking Latinx patients. These findings are as expected. A possible reason for the low rate of opioid prescriptions could be due to clinicians’ concerns about opioid misuse, abuse, and addiction.<sup>34</sup> Documentation for visits where an opioid is prescribed, however, may be more complete due to additional education on pain assessment and treatment motivated by the opioid epidemic.

Treatment also may be related to the location of pain and underlying etiology. Steroids and opioids may be considered a more appropriate treatment for shoulder and knee pain, as seen in the English-speaking White and Spanish-speaking Latinx patients in this study. In contrast, back and neck pain were most commonly treated in Hmong-speaking Asian patients. OMT is commonly used to treat back and neck pain. While not statistically different, it was not surprising that OMT was prescribed more frequently for Hmong-speaking Asian patients compared to other patients. We also found that more Hmong-speaking Asian patients saw DOs, who are trained in OMT and could offer this treatment during their visits. This finding highlights the fact that clinicians at the study clinic are familiar with the Hmong-speaking Asian patients’ culture and are sensitive to this population’s preferences. Furthermore, referrals to PT and OT were seen across the patient language and race/ethnicity groups. This finding illuminates that fact that this clinic is prescribing nonpharmacological treatments to all patients and does not prescribe only medications.

We found that 54.8% to 58.8% of the 3 patient groups completed a follow-up visit within the prescribed timeframe. Our finding of adherence to follow-up visits is similar to existing research on follow-up clinic visits for diabetes (51%).<sup>35</sup> There are many possible explanations for low rates of follow-up visits, from successful pain management and pain resolution to poor access, financial challenges, physician mistrust, and culture.<sup>17,36-41</sup> Reasons for lack of follow-up should be further explored.

For clinician characteristics, we found that English-speaking White patient visits were more frequently with an MD compared to LEP minority patients. This finding is similar to a study by Dill et al, which found that compared to Asian, Black, and Latinx groups, White patients were less likely to report seeing a PA or NP for their most recent medical care.<sup>42</sup> Also consistent with existing research, family members were present more frequently for Hmong-speaking Asian patient visits than Spanish-speaking Latinx and English-speaking White patient visits.<sup>43</sup> One explanation is that Hmong-speaking patients often experience poor quality medical interpretation.<sup>44,45</sup> As a result, they prefer to use

their adolescent or adult family members as interpreters.<sup>44</sup> More research is needed to study the effect of family versus professional interpreters on pain communication and documentation.

There are some limitations to this study. Because it used only 1 primary care clinic, focused only on LEP Hmong and Spanish languages, and was retrospective, the generalizability of the results should be made with caution. This study also was limited by what was documented in the EHR; it is possible that some pain assessment information may have occurred verbally. Because of the nature of EHRs, we do not have access to patients' socioeconomic and health insurance status. Thus, we were unable to determine the relationship between insurance and prescribed medication. Additionally, we did not examine whether patients' medication was a refill or a new medication. Future research could examine the impact of type of medication and insurance on patient pain outcomes.

## CONCLUSION

To our knowledge, this is the first study to both quantitatively and qualitatively describe pain care process and treatment documentation among patients of various language and race/ethnic groups: Hmong-speaking Asian, Spanish-speaking Latinx, and English-speaking White. We found that documentation varied by patient language and race/ethnicity. While pain location was more frequently documented for English-speaking White patient visits, documentation of all other pain characteristics (ie, pain quality, onset, and duration) was more complete for LEP minority patient visits. Likewise, pain treatment differed by language and race/ethnic group, with pain medications most frequently prescribed during English-speaking White patient visits. Nonpharmacological treatments were prescribed in approximately 20% of visits, with OMT performed most frequently during Hmong-speaking Asian visits. While these differences are at least partially related to pain acuity/chronicity and type, they also point to consideration for cultural preferences. Future studies should compare the data of this study clinic to other clinics and evaluate whether there is a difference in the effect of pain care process and treatment documentation on pain outcomes for LEP racial/ethnic minority patients.

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