

## Communication Studies

## Patient and Provider Characteristics Associated with Communication about Opioids: An Observational Study

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Highlights (no more than 85 characters including spaces per bullet)

- Chronic non-cancer pain is common with over 100 million people affected.
- There is little evidence that opioids are effective for long-term pain management.
- Opioid prescribing for chronic pain is under increased scrutiny in the U.S.
- Patient anxiety, catastrophizing, and alliance are associated with opioid talk.
- Provider views on opioids, psychosocial role, and burnout linked with opioid talk.

**Abstract (200/200 words)**

**Objective:**

Our objective is to examine the relationship of patient and provider characteristics and communication with chronic non-cancer pain and opioid management in primary care.

**Method:**

We conducted an observational study using audio-recorded primary care appointments (up to 3/patient) and self-reported assessments of primary care providers (PCPs) and patients. We coded visit transcripts for 1) opioid and pain management talk and 2) mental health and opioid safety talk.

**Results:**

Eight PCPs and 30 patients had complete data for 78 clinic visits. PCPs and patients engaged in more opioid and pain management talk when patients reported greater pain catastrophizing and PCPs reported higher psychosocial orientation. PCPs and patients engaged in talk about mental health and opioid safety when patients reported greater anxiety, higher working alliance with their PCP, and when PCPs reported higher

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burnout. PCPs' negative attitudes about opioids were associated with fewer discussions about mental health and opioid safety.

### **Conclusions:**

Our results should facilitate design of interventions that improve communication and, ultimately, pain outcomes for patients.

### **Practice Implications**

Clinicians can use our results to increase patient engagement in discussions about opioid use and pain management or mental health and safety discussions.

Key words: opioids, pain, communication, provider-patient relationship

## **1. Introduction**

Chronic pain is prevalent, affecting over 100 million Americans.[1] Use of opioid analgesics to treat chronic pain has increased substantially in recent years,[2,3] despite lack of evidence documenting the effectiveness of opioids for long-term pain management.[3,4] As public awareness of opioid-related harms has risen,[5,6] new clinical guidelines for safely prescribing opioids and for managing chronic pain have been developed.[7–9] A recent review of studies examining interventions to reduce or discontinue long-term opioid therapy found opioid reduction interventions may improve pain, quality of life, and function.[10] Moreover, a recent randomized controlled trial showed no advantage for opioids over non-opioids for patients with chronic pain over 12 months.[11]

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The harms associated with opioids, coupled with recent evidence calling into question their effectiveness for chronic pain; can introduce challenges in communicating about chronic pain and its treatment. Patients may be unaware of alternatives such as non-opioid pain relief and lifestyle approaches such as yoga that may be just as effective.[11,12] Given the importance of discussing harms versus benefits of opioids, and the need to discuss non-opioid treatment alternatives with patients, communication is a central aspect of chronic pain management and possibly addiction risk reduction.[13] Studies have sought to gain a greater understanding of communication about pain and opioids,[14–16] but a number of gaps remain. A recent review of studies on communication about pain identified the need not just to examine clinical communication, but to seek to understand contextual factors, such as patient and provider characteristics, attitudes, and beliefs, that might influence this communication.[17] We were guided by Street's ecological model of communication in medical encounters. The ecological model emphasizes the role of clinician and patient context in understanding provider-patient communication.[18,19] Thus we assessed clinician factors such as attitudes, specialty, and age and patient factors such as education, gender, personality, diagnosis, and coping strategies. Finally, given the social context of the opioid crisis, we sought to examine communication that addressed opioid medications and safety, particularly because of the current environment in which patients, providers, and the general public are experiencing heightened awareness of opioid-related harms.

Toward this end, we sought to examine primary care provider (PCP) and patient characteristics associated with discussions of pain and opioid management.

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Understanding these characteristics will inform future interventions to optimize communication about pain and opioid management, potentially leading to more effective pain management and increased patient safety. We conducted an observational study of patients in primary care who were prescribed opioids for chronic pain. We hypothesized that patients who report greater pain, distress, and anxiety would engage in more communication with their PCPs about their pain, mental health and opioid safety, and opioid prescriptions. We also hypothesized that PCPs who were psychosocially oriented would talk more about pain, mental health and opioid safety, and opioids, while PCPs who reported an unwillingness or wariness to prescribe opioids and who reported higher levels of burnout would be less likely to engage in those conversations.

## 2. Method

### 2.1. Study Design

#### 2.1.1.

We conducted a longitudinal, observational study to examine clinical communication about opioids and pain management with patients diagnosed with chronic non-cancer pain. We audio-recorded up to three appointments between patients and their PCPs. Patients and PCPs also completed questionnaires.

#### 2.1.2. Setting and Participants

We conducted the study in four of the nine primary care clinics at an academic medical center serving mostly patients of lower socioeconomic status in Indiana (US). The institutional review board approved the study and all participants signed informed

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consent; patients also signed a HIPAA (Health Insurance Portability and Accountability Act) agreement to allow access to protected health data. At the time of data collection, Indiana law required a signed opioid treatment agreement from patients. Physicians were also required to check, at least yearly, the state's prescription drug monitoring program to determine whether the patient was receiving opioids from other prescribers, and to see patients prescribed >60 opioid-containing pills per month every 4 months.[20]

### 2.1.3. Eligibility

PCPs were eligible to participate if they had patients with chronic non-cancer pain for whom they prescribed opioids. Eligible patients met the following criteria: 1)  $\geq$  18 years of age; 2) patient of enrolled PCP; 3) had chronic musculoskeletal pain (defined by ICD-9 codes: 715, 719, 721, 722, 723, 724, 726, 729.0, 729.1, 729.3, 729.5, 738.4, 738.5) persisting for  $\geq$  3 months; 4) taking a prescribed opioid for pain at the time of enrollment; and 5) speaks English with their PCP. We did not exclude patients who had other diagnoses as long as they met eligibility requirements.

### 2.2. Recruitment

Eligible patients were mailed a letter describing the study and were called within two weeks. Interested patients met with study staff in the clinic waiting room before their next PCP appointment; staff explained the study, answered questions, and obtained informed consent from those who agreed to participate.

### 2.3. Data Collection Procedures

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We collected data over 20 months (August 2015 - November 2016). Prior to appointments, research staff placed an audio recorder in the exam room and waited outside the room during the visit. Recorders were collected at the end of visits, and arrangements were made for recording the patient's next PCP visit. Recordings were transcribed, de-identified, and checked for accuracy. Questionnaires were administered to patients before or after their first recorded visit; questionnaires were mailed to PCPs and they filled them out at their convenience.

### 2.4. Measures

#### 2.4.1. Communication measures.

We developed a coding system, adapted from an existing coding scheme,[21,22] to capture clinician-patient communication about pain management that consisted of 43 initial items. We applied the coding system to our data and eliminated codes not used consistently (e.g., discussions of addiction, education, and breakthrough pain). We then conducted a factor analysis to examine the factor structure of the coding system. We found two factors: 1) opioid and pain management talk and 2) mental health and opioid safety talk (see Table 1). The opioid and pain management talk variable included items such as pain description, physical functioning, opioid refill requests, and non-opioid treatment options. The opioid safety and mental health talk variable included items such as depression/anxiety symptoms, psychiatric medication use, suicide risk/safety, opioid use frequency, and effectiveness of opioids. We measured the breadth of PCP-patient talk about these variables. We calculated scores for each patient visit with each PCP separately; thus, the individual visit was the unit of analysis, and we coded for the presence of talk about each of these topics.

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### **2.4.2. Transcript coding.**

Each time patients or PCPs brought up a topic in the coding scheme; coders noted its occurrence in an Excel file. This file contained codes in drop-down lists parallel to each line of the transcript. The transcript was divided into sentences and, if needed, independent phrases, for units of analysis. Trained coders read each transcript and assigned a code to any line of the transcript that contained one of the topics in the coding manual. One-third of transcripts were double-coded for reliability. We provided coders with a manual that described the items above for opioid and pain management and mental health and opioid safety. We also provided coders with a list of opioid medications, non-opioid medications used to treat pain (e.g., non-steroidal anti-inflammatory medications, neuropathic pain medications), and a list of prescription medications for depression and anxiety to reference during coding so that they could code medication discussions accurately. We did not code antidepressants or anti-anxiety medications as treatments for pain management, but we did code them with a depression/anxiety code under the mental health and opioid safety variable.

## **2.5. Independent Variables**

### **2.5.1. PCP characteristics.**

We assessed provider demographics including age, gender, race, and years in practice. We measured PCP burnout with the total mean score of the Maslach Burnout Inventory (MBI),<sup>[23,24]</sup> which is widely used and validated with healthcare personnel. We assessed PCPs' psychosocial orientation using the 6-item Burden subscale of the Physician Belief Scale,<sup>[25,26]</sup> with reverse-coded items so that higher scores indicated greater psychosocial orientation. We measured PCP negativity toward opioids using a



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three-item measure asking about concerns and reluctance to prescribe opioids, which was developed for a previous study.[27]

### **2.5.2. Patient characteristics.**

We collected patient demographics (gender, age, race, and education). Patients completed the Pain Catastrophizing Scale, which consists of 13 items that assessed three dimensions of catastrophizing: rumination, magnification, and helplessness, and has acceptable reliability and validity.[28,29] We assessed anxiety using the GAD-7, a brief measure of anxiety,[30] and pain intensity and interference with the three-item PEG (Pain, Enjoyment, General Activity).[31] We assessed patients' perceptions of their therapeutic alliance with their PCPs with the 12-item Working Alliance Inventory (WAI) short form.[32,33] The WAI evaluates patient-provider agreement on treatment goals, collaboration to achieve these goals, and degree of emotional bond (liking and trust) between patients and providers.

### **2.6. Data Analysis**

Each Excel coding sheet was imported into SAS 9.4 to calculate communication scores. We created scales to indicate the breadth of conversation about opioid and pain management and mental health and opioid safety talk. To calculate total scores, we limited individual item scores to three points. In scoring this way, higher scores indicated greater *breadth* of talk about opioid and pain management, rather a higher frequency of items.

We examined demographic variables and distributions of study variables. We used mixed-model linear and logistic regression to account for the nesting of patients within PCPs. We standardized independent variables when appropriate for

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interpretability. With our sample size, we were able to detect an effect size (Cohen's  $d$ ) of 0.42 with alpha set at .05 and power at 0.80. For the logistic regression, we estimated we had about 80% power to detect an odds ratio as small as 2.00. We did not adjust for multiple comparisons because such adjustments can obscure potential findings in exploratory contexts.<sup>[34]</sup> Finally, we examined the effects of multiple visits. We report the best fitting models based on Bayesian and Akaike's Information Criteria.

### 3. RESULTS

#### 3.1. Demographic and Descriptive Statistics

Nine PCPs and 37 patients participated in the study. Results are presented for the eight PCPs and 30 patients who had complete questionnaire data. Seventy-eight primary care visits were recorded for these 30 patients; the average number of visits per patient was 2.67 (SD = .66). See Table 2 for demographics.

The opioid and pain management talk variable mean was 19.80 (SD = 12.49). The measure was internally consistent (alpha = .72) and was coded reliably (ICC = 0.72). The mental health and opioid safety talk variable mean was 0.16 (SD = 0.41). This measure was internally consistent (alpha = 0.86) and was coded reliably (ICC = 0.69). The variables were independent of each other ( $r = 0.04$ ). Table 3 shows the correlations of opioid and pain management talk and mental health and opioid safety talk with patient and PCP variables. PCPs and patients had more opioid and pain management talk when patients reported more pain ( $r = 0.30$ ,  $p < 0.05$ ) and pain catastrophizing ( $r = 0.39$ ,  $p < 0.05$ ), when patients were female ( $r = 0.22$ ,  $p < 0.05$ ), and when their PCPs reported a more psychosocial orientation ( $r = 0.25$ ,  $p < 0.05$ ). Mental health and opioid safety talk was highly skewed; thus, we dichotomized the variable for

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analysis. Only 39% of cases had any mental health and safety talk. PCPs and patients discussed safety and mental health talk when patients reported more anxiety ( $r = 0.23$ ,  $p < 0.05$ ) and PCPs reported more burnout ( $r = .31$ ,  $p < 0.05$ ). PCPs and patients were less likely to discuss safety and mental health talk when PCPs reported more negative attitudes toward opioids ( $r = -0.24$ ,  $p < 0.05$ ).

### 3.2. Opioid and Pain Management Talk

We then conducted a mixed-model linear regression for opioid and pain management talk, controlling for nesting of patients within PCPs. We standardized all variables in the model except for years in practice. Table 4 shows that opioid and pain management talk was more extensive when patients reported more pain catastrophizing ( $\beta = 4.78$ , C.I. 1.77 – 7.78;  $p < .001$ ) and when PCPs reported a more psychosocial orientation ( $\beta = 3.49$ , C.I. 0.60 – 6.40;  $p < .05$ ). The longitudinal effect, visit occasion, was non-significant and had no effect on the other parameters in the model. Entering only the visit occasions into a model produced no significant differences between measurement times (not shown in tables).

### 3.3. Opioid Safety and Mental Health Talk

Finally, we conducted a mixed-model logistic regression (Table 5) on the opioid safety and mental health talk variable, controlling for the nesting of patients within PCPs. We found that when patients reported more anxiety there was a higher likelihood of talking about opioid safety and mental health (OR = 2.59, C.I. 1.21 – 5.53;  $p < .05$ ). When patients reported more working alliance with their PCP there was an increased likelihood of opioid safety/mental health talk (OR = 2.14, CI 1.05 – 4.34;  $p < .05$ ). More PCP-reported burnout was associated with an increased likelihood of mental health and

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opioid safety talk (OR = 2.46, C.I. 1.27 – 4.77;  $p < .001$ ). Finally, the more negativity PCPs reported toward opioids the less likely were clinician and patient to talk about opioid safety and mental health (OR = 0.32, C.I. 0.14 – 0.75;  $p < .001$ ). Again, we examined the longitudinal effect across visits and found non-significant effects and no effect on the value of the other parameters in the model (not shown in tables).

## 4. Discussion and Conclusions

### 4.1. Discussion

The current study examined the relationship between provider and patient characteristics and clinical communication about pain management, including communication about opioids, mental health, and opioid safety. In bivariate analyses, we found that greater patient pain catastrophizing and higher PCP psychosocial orientation were associated with more discussion about opioid and pain management. We also found greater patient anxiety and patient-PCP working alliance, as well as PCP-reported burnout, were associated with greater likelihood of opioid safety and mental health talk, while PCP negativity toward prescribing opioids was associated with lower likelihood of discussions about opioid safety and mental health.

Patients who reported higher levels of catastrophizing engaged in more opioid and pain management talk. Catastrophizing assesses patients' appraisals of pain and their perceived ability to manage it.[28,29] Patients who report higher levels of catastrophizing are typically ruminating, magnifying, and feeling helpless in the face of their pain. It is possible that those appraisals led patients to engage in more talk about their pain and opioid prescription concerns.

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PCPs with higher psychosocial orientation talked more with patients about opioids and pain management. Physicians frequently describe patients with chronic pain as difficult and demanding,[16] but physicians with higher psychosocial orientations rate fewer patients as difficult[35] and respond to patients with more empathy.[36] Some evidence suggests that communication training can increase psychosocial orientation and improve communication skills.[37] A study by Jenkins and Fallowfield[37] indicated that psychosocial orientation may be a modifiable factor to improve PCP-patient communication about opioids and pain management.

Providers brought up mental health and opioid safety concerns in 39% of encounters. Patient anxiety and patient-reported working alliance were both associated with PCPs and patients talking more about mental health and opioid safety. Working alliance assesses patient-provider agreement on treatment goals, collaboration to achieve goals, and emotional bond. A strong working alliance is important in treating chronic pain,[38,39] especially with the uncertainties associated with pain treatments such as opioids.[14] Given the inherent risks of opioids and the widely reported increases in opioid-related harms, it is not surprising that PCPs would be concerned about opioid safety. This may be especially true if patients are suffering from mental health concerns, such as depression, which could place them at greater risk of opioid-related harms. Having a strong working alliance may also help to facilitate these potentially difficult conversations.

Contrary to our hypothesis, PCPs with higher burnout talked more about mental health and opioid safety. While this may appear counterintuitive, other studies have found similar results. In a study evaluating internal medicine residents, Beckman and

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colleagues found that higher burnout was associated with clinical supervisors rating residents higher on communication skills.[40] In another study, residents who reported burnout were rated by patients as more empathetic and encouraging.[41] These studies' authors suggested that burnout may be associated with higher levels of professional achievement, including placing professional duties, such as communicating with patients and displaying empathy, above all other priorities. While such behaviors may be perceived positively by patients, a large body of work shows detrimental effects of burnout on both providers and patients.[42] In practicing physicians, Ratanawongsa and colleagues[43] found that higher physician burnout was associated with more negative patient rapport building statements such as direct and indirect disagreement and criticism.

We found that PCPs with negative attitudes about prescribing opioids were less likely to talk to patients about mental health or opioid safety issues. Prior research indicates that patients and providers frequently struggle with communication related to chronic pain, especially when discussions involve opioids.[39,44–46] These struggles may be especially problematic for providers who have more concerns about opioids, potentially leading them to avoid any discussions related to opioids, even if such discussions relate to safety or mental health issues.

This study has some limitations. We had a relatively small sample of PCPs and patients. One PCP was a physician's assistant, with differing training and licensing from the other PCPs. Most PCPs were female and White; patients were mostly female and of low socioeconomic status. In addition, our data collection was conducted at a single academic medical center. These factors suggest that findings might not generalize to

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other medical settings and to patients and PCPs with different demographics. The coding system used for clinical encounters, while coded with acceptable reliability, was adapted specifically for this study and thus has not been validated in other studies. Patient questionnaires were administered at different times, either before or after the first recorded visit, depending on when patients arrived for their appointment. While this introduces some variability into the data, we believe it is unlikely to have an effect on results because the patient-provider relationships were longitudinal and none of the recorded visits were first visits. Finally, although we observed up to three medical encounters per patient, we were not able to capture the full range of ongoing chronic pain management, including initial pain assessment and diagnosis, and initiation of opioids for these patients.

Despite these limitations, this study is the first we are aware of that directly analyzed patient-provider communication about pain and opioid management across multiple primary care visits. While other studies have analyzed clinical communication cross-sectionally,[14,15,47–49] a longer-term examination of clinical communication about opioids is important because chronic pain is managed over time; thus assessment of a single visit would likely miss crucial aspects of pain management. While analyzing multiple visits does not capture the entire course of a patient's pain management, as we have acknowledged in the limitations, it does allow us to capture a broader range of pain management topics discussed in primary care visits. In addition, the study sample was racially diverse, with Black patients comprising almost half of the sample. This is potentially important because racial disparities persist in healthcare, particularly in pain treatment.[50–52] Learning more about communication with a racially

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diverse sample affords the opportunity to understand a wider range of communication behaviors, especially challenges, which may inform future interventions to improve pain management communication for all patients.

### 4.2. Conclusion

Study findings revealed several patient and provider factors associated with pain and opioid management, opioid safety, and mental health conversations. Future research should seek greater understanding of the complexity of these relationships and their association with outcomes, including patient and provider experiences, implementation of the treatment plan, and, ultimately, improved clinical outcomes for patients.<sup>[17]</sup> Because communication is central to effective pain management, including assessment, formulation, and evaluation of a treatment plan, and modification of the plan as needed, studies that seek to understand and improve this communication are essential for improving clinical outcomes for patients with chronic pain.

### 4.3. Practice Implications

Providers treating patients with chronic pain are under increased scrutiny of their opioid prescribing practices.<sup>[53]</sup> Our study provides clues to patient and provider characteristics that may be related to the level of engagement of patients and providers in important discussions about the role of opioids in pain management and the mental health and safety concerns raised by opioid medications. Our results suggest that providers should be aware of how their own biases toward opioids, opioid prescribing, and addiction may influence the conversations they have with patients.



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ACCEPTED MANUSCRIPT

## References

- [1] Institute of Medicine, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research* - Institute of Medicine, National Academies Press, Washington, DC, 2011.
- [2] R.G. Wilkerson, H.K. Kim, T.A. Windsor, D.P. Mareiniss, The Opioid Epidemic in the United States, *Emerg. Med. Clin.* 34 (2016) e1–e23. doi:10.1016/j.emc.2015.11.002.
- [3] M.A. Caudill-Slosberg, L.M. Schwartz, S. Woloshin, Office visits and analgesic prescriptions for musculoskeletal pain in US: 1980 vs. 2000, *Pain.* 109 (2004) 514–519. doi:10.1016/j.pain.2004.03.006.
- [4] B. Levy, L. Paulozzi, K.A. Mack, C.M. Jones, Trends in Opioid Analgesic–Prescribing Rates by Specialty, U.S., 2007–2012, *Am. J. Prev. Med.* 49 (2015) 409–413. doi:10.1016/j.amepre.2015.02.020.
- [5] R.J. Bonnie, M.A. Ford, J.K. Phillips, *Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use*, National Academies of Sciences, Engineering, and Medicine, National Academies Press, Washington, DC, 2017.
- [6] C.L. Hart, Opinion | The Real Opioid Emergency, *N. Y. Times.* (2017). <https://www.nytimes.com/2017/08/18/opinion/sunday/opioids-drugs-race-treatment.html> (accessed October 1, 2017).
- [7] J.W. Busse, S. Craigie, D.N. Juurlink, D.N. Buckley, L. Wang, R.J. Couban, T. Agoritsas, E.A. Akl, A. Carrasco-Labra, L. Cooper, C. Cull, B.R. da Costa, J.W. Frank, G. Grant, A. Iorio, N. Persaud, S. Stern, P. Tugwell, P.O. Vandvik, G.H. Guyatt, Guideline for opioid therapy and chronic noncancer pain, *Can. Med. Assoc. J.* 189 (2017) E659–E666. doi:10.1503/cmaj.170363.
- [8] D. Dowell, T.M. Haegerich, R. Chou, CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016, *JAMA.* 315 (2016) 1624–1645. doi:10.1001/jama.2016.1464.
- [9] J.M. Rosenberg, B.M. Bilka, S.M. Wilson, C. Spevak, Opioid Therapy for Chronic Pain: Overview of the 2017 US Department of Veterans Affairs and US Department of Defense Clinical Practice Guideline, *Pain Med.* (2017). doi:10.1093/pm/pnx203.
- [10] J.W. Frank, T.I. Lovejoy, W.C. Becker, B.J. Morasco, C.J. Koenig, L. Hoffecker, H.R. Dischinger, S.K. Dobscha, E.E. Krebs, Patient Outcomes in Dose Reduction or Discontinuation of Long-Term Opioid Therapy: A Systematic Review, *Ann. Intern. Med.* 167 (2017) 181. doi:10.7326/M17-0598.
- [11] E.E. Krebs, A. Gravely, S. Nugent, A.C. Jensen, B. DeRonne, E.S. Goldsmith, K. Kroenke, M.J. Bair, S. Noorbaloochi, Effect of Opioid vs Nonopioid Medications on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis Pain: The SPACE Randomized Clinical Trial, *JAMA.* 319 (2018) 872–882. doi:10.1001/jama.2018.0899.
- [12] M.S. Matthias, M.T. Donaldson, A.C. Jensen, E.E. Krebs, “I Was a Little Surprised”: Qualitative Insights From Patients Enrolled in a 12-Month Trial Comparing Opioids With Nonopioid Medications for Chronic Musculoskeletal Pain, *J. Pain.* 19 (2018) 1082–1090. doi:10.1016/j.jpain.2018.04.008.
- [13] J.O. Hero, C. McMurtry, J. Benson, R. Blendon, Discussing Opioid Risks With Patients to Reduce Misuse and Abuse: Evidence From 2 Surveys, *Ann. Fam. Med.* 14 (2016) 575–577. doi:10.1370/afm.1994.
- [14] M.S. Matthias, E.E. Krebs, L.A. Collins, A.A. Bergman, J. Coffing, M.J. Bair, “I’m Not Abusing or Anything”: Patient–physician communication about opioid treatment in chronic pain, *Patient Educ. Couns.* 93 (2013) 197–202. doi:10.1016/j.pec.2013.06.021.
- [15] M.S. Matthias, S. Fukui, M. Kukla, J. Eliacin, K.A. Bonfils, R.L. Firmin, S.K. Oles, E.L. Adams, L.A. Collins, M.P. Salyers, Consumer and Relationship Factors Associated With Shared Decision Making in Mental Health Consultations, *Psychiatr. Serv.* 65 (2014) 1488–1491. doi:10.1176/appi.ps.201300563.
- [16] A.Y. Esquibel, J. Borkan, Doctors and patients in pain: Conflict and collaboration in opioid prescription in primary care, *PAIN®.* 155 (2014) 2575–2582. doi:10.1016/j.pain.2014.09.018.
- [17] S.G. Henry, M.S. Matthias, Patient-Clinician Communication About Pain: A Conceptual Model and Narrative Review, *Pain Med.* (2018). doi:10.1093/pm/pny003.
- [18] R.L. Street Jr, Communication in medical encounters: An ecological perspective, in: T.L. Thompson, A. Dorsey, R. Parrott, K. Miller (Eds.), *Routledge Handb. Health Commun.*, Routledge, 2003.

## Communication Studies

- [19] R.M. Epstein, R.L. Street Jr, Patient-centered communication in cancer care: promoting healing and reducing suffering, *Natl. Cancer Inst. NIH Publ.* (2007).
- [20] Indiana State Medical Association, Comparison of CDC Guidelines to Indiana Prescribing Rule, (n.d.). • <http://www.ismanet.org/pdf/legal/OpioidGuidelines.pdf> (accessed November 12, 2018).
- [21] S.G. Henry, M. Chen, M.S. Matthias, R.A. Bell, R.L. Kravitz, Development of the Chronic Pain Coding System (CPCS) for Characterizing Patient-Clinician Discussions About Chronic Pain and Opioids, *Pain Med.* 17 (2016) 1892–1905. doi:10.1093/pm/pnw005.
- [22] S.G. Henry, R.A. Bell, J.J. Fenton, R.L. Kravitz, Communication about chronic pain and opioids in primary care: impact on patient and physician visit experience, *Pain.* (2017). doi:10.1097/j.pain.0000000000001098.
- [23] M.P. Leiter, C. Maslach, Latent burnout profiles: A new approach to understanding the burnout experience, *Burn. Res.* 3 (2016) 89–100. doi:10.1016/j.burn.2016.09.001.
- [24] C. Maslach, S.E. Jackson, The measurement of experienced burnout, *J. Organ. Behav.* 2 (1981) 99–113. doi:10.1002/job.4030020205.
- [25] C.D. Ashworth, P. Williamson, D. Montano, A scale to measure physician beliefs about psychosocial aspects of patient care, *Soc. Sci. Med.* 19 (1984) 1235–1238.
- [26] J.D. McLennan, L. Jansen-McWilliams, D.M. Comer, W.P. Gardner, K.J. Kelleher, The Physician Belief Scale and psychosocial problems in children: a report from the Pediatric Research in Office Settings and the Ambulatory Sentinel Practice Network, *J. Dev. Behav. Pediatr.* 20 (1999) 24.
- [27] C.M. Elias, C.G. Shields, J.J. Griggs, K. Fiscella, S.L. Christ, J. Colbert, S.G. Henry, B.G. Hoh, H.E.R. Hunte, M. Marshall, S.G. Mohile, S. Plumb, M.A. Tejani, A. Venuti, R.M. Epstein, The social and behavioral influences (SBI) study: study design and rationale for studying the effects of race and activation on cancer pain management, *BMC Cancer.* 17 (2017) 1–11. doi:10.1186/s12885-017-3564-2.
- [28] A. Osman, F.X. Barrios, B.A. Kopper, W. Hauptmann, J. Jones, E. O'Neill, Factor Structure, Reliability, and Validity of the Pain Catastrophizing Scale, *J. Behav. Med.* 20 (1997) 589–605. doi:10.1023/A:1025570508954.
- [29] M.J.L. Sullivan, S.R. Bishop, J. Pivik, The Pain Catastrophizing Scale: Development and validation, *Psychol. Assess.* 7 (1995) 524–532. doi:10.1037/1040-3590.7.4.524.
- [30] R.L. Spitzer, K. Kroenke, J.B.W. Williams, B. Löwe, A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7, *Arch. Intern. Med.* 166 (2006) 1092–1097. doi:10.1001/archinte.166.10.1092.
- [31] E.E. Krebs, K.A. Lorenz, M.J. Bair, T.M. Damush, J. Wu, J.M. Sutherland, S.M. Asch, K. Kroenke, Development and Initial Validation of the PEG, a Three-item Scale Assessing Pain Intensity and Interference, *J. Gen. Intern. Med.* 24 (2009) 733–738. doi:10.1007/s11606-009-0981-1.
- [32] A.O. Horvath, L.S. Greenberg, Development and validation of the Working Alliance Inventory, *J. Couns. Psychol.* 36 (1989) 223–233. doi:10.1037/0022-0167.36.2.223.
- [33] T. Munder, F. Wilmers, R. Leonhart, H.W. Linster, J. Barth, Working Alliance Inventory-Short Revised (WAI-SR): psychometric properties in outpatients and inpatients, *Clin. Psychol. Psychother.* 17 (2010) 231–239. doi:10.1002/cpp.658.
- [34] K.J. Rothman, No Adjustments Are Needed for Multiple Comparisons, *Epidemiology.* 1 (1990) 43–46.
- [35] J.L. Jackson, K. Kroenke, Difficult Patient Encounters in the Ambulatory Clinic: Clinical Predictors and Outcomes, *Arch. Intern. Med.* 159 (1999) 1069–1075. doi:10.1001/archinte.159.10.1069.
- [36] K.I. Pollak, R.M. Arnold, A.S. Jeffreys, S.C. Alexander, M.K. Olsen, A.P. Abernethy, C. Sugg Skinner, K.L. Rodriguez, J.A. Tulsky, Oncologist communication about emotion during visits with patients with advanced cancer, *J. Clin. Oncol.* 25 (2007) 5748.
- [37] V. Jenkins, L. Fallowfield, Can Communication Skills Training Alter Physicians' Beliefs and Behavior in Clinics?, *J. Clin. Oncol.* 20 (2002) 765.
- [38] U.E. Makris, R.C. Abrams, B. Gurland, M.C. Reid, Management of Persistent Pain in the Older Patient: A Clinical Review, *JAMA.* 312 (2014) 825–837. doi:10.1001/jama.2014.9405.

## Communication Studies

- [39] M.S. Matthias, A.L. Parpart, K.A. Nyland, M.A. Huffman, D.L. Stubbs, C. Sargent, M.J. Bair, The Patient-Provider Relationship in Chronic Pain Care: Providers' Perspectives, *Pain Med.* 11 (2010) 1688–1697. doi:10.1111/j.1526-4637.2010.00980.x.
- [40] T.J. Beckman, D.A. Reed, T.D. Shanafelt, C.P. West, Resident Physician Well-Being and Assessments of Their Knowledge and Clinical Performance, *J. Gen. Intern. Med.* 27 (2012) 325–330. doi:10.1007/s11606-011-1891-6.
- [41] J.P. Lafreniere, R. Rios, H. Packer, S. Ghazarian, S.M. Wright, R.B. Levine, Burned Out at the Bedside: Patient Perceptions of Physician Burnout in an Internal Medicine Resident Continuity Clinic, *J. Gen. Intern. Med.* 31 (2016) 203–208. doi:10.1007/s11606-015-3503-3.
- [42] C.S. Dewa, D. Loong, S. Bonato, N.X. Thanh, P. Jacobs, How does burnout affect physician productivity? A systematic literature review, *BMC Health Serv. Res.* 14 (2014) 325. doi:10.1186/1472-6963-14-325.
- [43] N. Ratanawongsa, D. Roter, M.C. Beach, S.L. Laird, S.M. Larson, K.A. Carson, L.A. Cooper, Physician burnout and patient-physician communication during primary care encounters, *J. Gen. Intern. Med.* 23 (2008) 1581–1588.
- [44] D. Kenny, Constructions of chronic pain in doctor-patient relationships: Bridging the communication chasm, *Patient Educ. Couns.* 52 (2004) 297–305.
- [45] A.T. Susan Eggly, Relational Control in Difficult Physician-Patient Encounters: Negotiating Treatment for Pain, *J. Health Commun.* 6 (2001) 323–333. doi:10.1080/108107301317140814.
- [46] C.C. Upshur, G. Bacigalupe, R. Luckmann, "They Don't Want Anything to Do with You": Patient Views of Primary Care Management of Chronic Pain, *Pain Med.* 11 (2010) 1791–1798. doi:10.1111/j.1526-4637.2010.00960.x.
- [47] S.G. Henry, S. Eggly, How Much Time Do Low-Income Patients and Primary Care Physicians Actually Spend Discussing Pain? A Direct Observation Study, *J. Gen. Intern. Med.* 27 (2012) 787–793. doi:10.1007/s11606-011-1960-x.
- [48] S.G. Henry, S. Eggly, The Effect of Discussing Pain on Patient-Physician Communication in a Low-Income, Black, Primary Care Patient Population, *J. Pain.* 14 (2013) 759–766. doi:10.1016/j.jpain.2013.02.004.
- [49] M. Buchbinder, R. Wilbur, S. McLean, B. Sleath, "Is there any way I can get something for my pain?" Patient strategies for requesting analgesics, *Patient Educ. Couns.* 98 (2015) 137–143. doi:10.1016/j.pec.2014.10.021.
- [50] D.J. Burgess, M. Crowley-Matoka, S. Phelan, J.F. Dovidio, R. Kerns, C. Roth, S. Saha, M. Van Ryn, Patient race and physicians' decisions to prescribe opioids for chronic low back pain, *Soc. Sci. Med.* 67 (2008) 1852–1860.
- [51] L.R. Hausmann, S. Gao, E.S. Lee, C.K. Kwok, Racial disparities in the monitoring of patients on chronic opioid therapy, *Pain.* 154 (2013) 46–52.
- [52] AHRQ, 2014 National Healthcare Quality & Disparities Report, Rockville, MD, 2015. /research/findings/nhqdr/nhqdr14/index.html (accessed May 18, 2018).
- [53] S.G. Weiner, O. Baker, S.J. Poon, A.F. Rodgers, C. Garner, L.S. Nelson, J.D. Schuur, The Effect of Opioid Prescribing Guidelines on Prescriptions by Emergency Physicians in Ohio, *Ann. Emerg. Med.* 70 (2017) 799–808.e1. doi:10.1016/j.annemergmed.2017.03.057.

## Communication Studies

Table 1

## Provider and Patient Codes

Variable	Factor Loading	M	SD	Min	Max
<b>Opioid &amp; Pain Management Talk</b>					
<b>Provider</b>					
Pain = patients' pain is discussed	0.73	3.83	4.95	0	31
Other treatment = other pain treatment options discussed e.g. physical therapy, exercise, massage	0.58	4.13	5.26	0	33
Function = discusses what makes pain better or worse	0.45	0.65	1.25	0	8
Referrals = are made to pain specialists or clinics	0.23	0.13	0.43	0	4
Refill = refills opioid without changing dosage	0.23	0.42	0.69	0	4
<b>Patient</b>					
Pain = patient discusses their pain	0.74	5.83	6.16	0	49
Function = discusses what makes pain better or worse	0.51	1.73	2.51	0	17
Other treatment = other treatment options discussed	0.45	2.5	3.31	0	18
Opioid requests = requests for refill of current opioid or for a new opioid	0.22	0.24	0.63	0	5
<b>Opioid Safety &amp; Mental Health Talk</b>					
<b>Provider</b>					
Depression/anxiety = asks about/discusses patient's depression or anxiety symptoms	0.71	0.57	1.58	0	15
Suicide Safety = asks about suicidal ideation, intentions, and safety plans (in which patients and providers discuss action plans if patient feels suicidal)	0.65	0.12	0.71	0	7
Opioid frequency = Asks about frequency of opioid use	0.55	2.28	2.96	0	16
Efficacy = asks if opioid is working to relieve pain	0.46	0.60	0.94	0	5
Goals = discusses how much pain control can be obtained and goals of use of opioids	0.45	0.55	1.86	0	12
Decrease = decides to decrease opioid dosage	0.27	0.31	1.05	0	7
Psych Meds = asks about or discusses psychiatric medications	0.27	0.87	2.03	0	14
<b>Patient</b>					

## Communication Studies

Opioid frequency = discusses the frequency of opioid use	0.62	2.44	2.81	0	15
Depression/anxiety = asks about/discusses depression or anxiety symptoms	0.59	0.68	1.88	0	16
OTC = discusses the use of any over-the-counter medication for pain control	0.51	1.42	2.34	0	14
Psych Meds = asks about/discusses psychiatric medications	0.34	0.98	2.13	0	12
Opioid Information Seeking = asking informative questions about opioids (that are not seeking an opioid increase/decrease/refill)	0.31	1.67	2.1	0	16

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## Communication Studies

Table 2

*Study Variables and Patient and Physician Demographics*

	Mean/%	Std. Dev.
<i>Coded Communication from Transcripts (N=78)</i>		
Opioid and Pain Management	19.80	12.49
Mental Health and Safety (1 = discussed, 0 = not discussed)	0.16 / 39%	0.41
<i>Patient Demographics (N=30)</i>		
Age	58.80	11.07
Female	67%	
High School or less	67%	
Black	43%	
Employed Full Time	17%	
<i>Patient Characteristics</i>		
Pain Catastrophizing	24.37	14.80
Anxiety	6.9	5.50
Alliance with Physician	74.67	13.52
PEG	20.5	7.14
<i>Physician Demographics (N=8)</i>		
Female	88%	
White	75%	
Age	42.88	8.89
Years in Practice	15.86	10.16
Clinicians: Internal Medicine = 5, Family Medicine = 2, Physician Assistant = 1	Total =	8
<i>Physician Characteristics</i>		
Psychosocial Orientation	1.46	0.43
Burnout	2.06	0.76
Negative toward Opioids	4.50	0.62

## Communication Studies

Table 3

*Correlations of Opioid and Pain Management Talk (OPMT) and Opioid Safety and Mental Health (OSMT) with Patient and Physician Characteristics (N=78)*

	OPMT	2	3	4	5	6	7	8	9	10	11	12	13
2 OSMT	-0.01												
<i><u>Patient Variables</u></i>													
3 PEG	<b>0.30</b>	0.00											
4 Catastrophizing	<b>0.39</b>	0.00	<b>0.58</b>										
5 Anxiety	0.18	<b>0.23</b>	<b>0.48</b>	<b>0.71</b>									
6 Depression	0.21	0.10	<b>0.66</b>	<b>0.68</b>	<b>0.79</b>								
7 Alliance	-0.03	-0.05	-0.21	-0.19	<b>-0.29</b>	<b>-0.31</b>							
8 Black	0.15	-0.06	<b>0.43</b>	<b>0.32</b>	<b>0.23</b>	<b>0.26</b>	<b>0.29</b>						
9 Female	<b>0.22</b>	0.04	<b>0.36</b>	<b>0.32</b>	<b>0.44</b>	<b>0.42</b>	-0.10	<b>0.29</b>					
10 Age	-0.13	0.01	<b>-0.43</b>	<b>-0.45</b>	<b>-0.49</b>	<b>-0.57</b>	0.16	<b>-0.29</b>	<b>-0.22</b>				
<i><u>Physician Variables</u></i>													
11 Negative toward Opioids	0.19	<b>-0.24</b>	0.20	0.10	-0.02	0.07	<b>0.38</b>	0.10	-0.15	-0.10			
12 Years of Practice	-0.05	-0.03	0.02	-0.10	-0.10	-0.11	-0.12	-0.04	0.11	<b>0.27</b>	<b>-0.41</b>		
13 Psychosocial Orientation	<b>0.25</b>	-0.11	-0.09	-0.14	<b>-0.28</b>	<b>-0.27</b>	<b>-0.31</b>	-0.11	-0.14	<b>-0.36</b>	<b>-0.50</b>	0.04	
14 Burnout	-0.03	<b>0.31</b>	0.11	0.04	<b>0.25</b>	<b>0.26</b>	<b>-0.34</b>	0.07	0.03	0.00	<b>-0.31</b>	-0.04	<b>-0.43</b>

**Bolded** correlations are significant at  $p < .05$ . (N=78)



## Communication Studies

Table 4

*Mixed Model Regression on Opioid and Pain Management Talk (N=78)*

	B		95% C.I.	
<i>Patient Variables</i>				
Catastrophizing	4.78	**	1.77	7.78
PEG	1.12		-1.86	4.12
<i>Physician Variables</i>				
Burnout	0.46		-2.26	3.18
Years of Practice	0.00		-0.24	0.25
Psychosocial Orientation	3.49	*	0.60	6.40

\*  $p < 0.05$ , \*\*  $p < 0.001$

## Communication Studies

Table 5

*Mixed Model Logistic Regression on Mental Health and Safety Talk (N=78)*

	OR		95% C.I.	
<i>Patient Variables</i>				
Anxiety	2.59	*	1.21	5.53
Alliance with Physician	2.14	*	1.05	4.34
<i>Physician Variables</i>				
Burnout	2.46	**	1.27	4.77
Psychosocial Orientation	1.91		0.88	4.18
Negative toward Opioids	0.32	**	0.14	0.75

\*  $p < 0.05$ , \*\*  $p < 0.001$