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### Review Article

# Patient-Clinician Communication About Pain: A Conceptual Model and Narrative Review

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### Abstract

**Objective.** Productive patient-clinician communication is an important component of effective pain management, but we know little about how patients and clinicians actually talk about pain in clinical settings and how it might be improved to produce better patient outcomes. The objective of this review was to create a conceptual model of patient-clinician communication about noncancer pain, review and synthesize empirical research in this area, and identify priorities for future research.

**Methods.** A conceptual model was developed that drew on existing pain and health communication

research. CINAHL, EMBASE, and PubMed were searched to find studies reporting empirical data on patient-clinician communication about noncancer pain; results were supplemented with manual searches. Studies were categorized and analyzed to identify crosscutting themes and inform model development.

**Results.** The conceptual model comprised the following components: contextual factors, clinical interaction, attitudes and beliefs, and outcomes. Thirty-nine studies met inclusion criteria and were analyzed based on model components. Studies varied widely in quality, methodology, and sample size. Two provisional conclusions were identified: contrary to what is often reported in the literature, discussions about analgesics are most frequently characterized by patient-clinician agreement, and self-presentation during patient-clinician interactions plays an important role in communication about pain and opioids.

**Conclusions.** Published studies on patient-clinician communication about noncancer pain are few and diverse. The conceptual model presented here can help to identify knowledge gaps and guide future research on communication about pain. Investigating the links between communication and pain-related outcomes is an important priority for future research.

**Key Words.** Patient-Physician Relationship; Pain; Opioid Analgesics; Communication; Theoretical Models

### Introduction

Pain is an enormous public health problem and a major cause of suffering, disability, and health care utilization worldwide [1–4]. Productive patient-clinician communication is a necessary component of effective pain management. Nearly every aspect of pain management relies on communication: assessing pain and functional status, deciding on pain management goals, implementing treatment plans, and assessing the effectiveness of

those plans. The need for clear communication is especially important for noncancer pain. The subjective nature and frequent lack of an objective etiology for noncancer pain can engender uncertainty, doubt, and mutual mistrust, all of which negatively affect patient-clinician communication [5–7]. Recent shifts in recommended clinical practice related to the use of opioid analgesics for treating chronic pain [8] and the attendant need to alter many patients' long-standing treatment plans have further heightened the importance of effective communication about pain.

Despite the central role of communication in pain management and the well-documented challenges that both patients and clinicians sometimes face when discussing pain [5,9,10], there is scant empirical research to guide clinicians and patients when communicating about pain. Multiple experts have asserted the importance of productive patient-clinician communication for effective pain management [1,11,12], yet studies indicate that communication about pain is often challenging, pointing to a pressing need for improvement. Specifically, interview and focus group studies have found that both patients and clinicians report that discussions about pain management—particularly discussions around opioid analgesics—are often frustrating and unproductive [6,9,10,13,14]. In addition to communication's critical role in pain management, substantial health communication research indicates that effective patient-clinician communication across a wide range of topics has direct, positive consequences for patient care, including greater patient satisfaction [15–17], higher treatment adherence [18–22], and better clinical outcomes [18,23–26].

The current piecemeal approach to research on how patients and clinicians talk about pain and pain management during actual clinical interactions is an important barrier to progress in understanding and improving pain management. Interview studies exploring communication with patients and clinicians are important, but they depend on participants' recollection of events, which is inherently limited and subject to recall bias [27,28]. Thus analysis of communication during actual clinical interactions (via recordings or direct observation) is also necessary to accurately characterize communication challenges, identify communication best practices, and develop communication-based training courses and interventions to improve patients' and clinicians' experiences and pain-related outcomes.

In this article, we propose a conceptual model of patient-clinician communication about noncancer pain that draws on existing pain and health communication research. We then review published studies of communication about noncancer pain during patient-clinician interactions to identify insights and knowledge gaps on this topic. The model and literature review in this article will help researchers and clinicians to better coordinate and prioritize future research efforts, thus facilitating progress toward identifying best practices and, ultimately,

developing interventions and training programs to improve patient-clinician communication about pain.

## **Methods**

### *Model Development*

To develop the model, we drew on research from the health communication literature, particularly research on communication that supports patient-centered care (i.e., care that respects and responds to patients' individual needs and preferences [29–31]). Health communication research contains several well-researched concepts relevant to communication about pain, such as shared decision-making [32,33], patient activation [34–36], and empathetic communication [37,38], as well as models of the pathways linking communication and patient outcomes [39,40]. We also reviewed research examining the potential of communication as a sort of placebo effect that influences pain intensity [41,42], including a recent systematic review of clinical trials in this area [43].

Although our literature review focused on empirical studies of actual patient-clinician communication, when constructing our conceptual model, we also took into account research that relied on indirect methods (e.g., interviews, focus groups, surveys) to study patient-clinician communication about pain [6,9,10,44]. We sought to build a model that incorporated both well-established health communication concepts and factors unique to communication about noncancer pain, such as the role of opioid analgesics and the subjective nature of pain. Finally, we sought to build a model that could be useful for coordinating research aimed at improving patient-clinician communication and patient outcomes.

### *Literature Review*

We used two separate approaches to identify studies. First, we searched Pubmed, CINAHL, and EMBASE for articles that included both terms related to pain and terms related to patient-clinician communication (see the online [Supplementary Data](#) for detailed search strategies). Studies indexed as of December 15, 2016, were eligible for inclusion. One author (SGH) reviewed article titles and then abstracts to exclude clearly ineligible articles. Second, we manually identified potentially eligible studies based on our knowledge of the literature. For each manually identified study, we used Web of Knowledge to identify each study's reference list and subsequent articles that cited each study, and then manually reviewed these lists to identify additional studies for possible inclusion. Both authors independently reviewed the full text of all manually identified studies as well as all articles that remained potentially eligible after abstract review to assess eligibility. Disagreements were resolved by discussion.

We included peer-reviewed, English-language articles that analyzed empirical data from communication about

noncancer pain (via audio recordings, video recordings, or direct observation) during clinical interactions between adult patients and clinicians (e.g., physicians, nurses, physical therapists). We included studies of both acute and chronic pain because many studies did not distinguish between acute and chronic pain, and all studies that included acute pain complaints also included some chronic pain complaints. Moreover, many of the communication issues about pain identified in the literature (e.g., believing a patient's pain, decisions about prescribing opioids or other analgesics) apply to both acute and chronic pain, making many of the communication issues similar, even though acute and chronic pain differ clinically in a number of ways. We excluded nonclinical interactions (e.g., interactions in laboratory settings) as well as studies that examined behaviors of a single participant in the dyad (e.g., patients' facial expressions) rather than the interaction. We also excluded studies that examined communication about cardiac chest pain or communication during painful procedures (e.g., vaccines, lumbar punctures) because communication in these situations is clinically very different from communication about diagnosing and managing pain. [Table 1](#) lists full inclusion and exclusion criteria.

The authors read and discussed qualifying studies to characterize them according to study type, setting, and topic. Due to the broad nature of our search and the resulting wide range of study designs, methodologies, and topics, no meta-analysis or quantitative pooling of results was feasible. Studies were then further discussed and analyzed to identify how each study related to the conceptual model and to identify common themes. When indicated, the model was revised to account for findings identified through the review.

### Conceptual Model

[Figure 1](#) shows our conceptual model, which draws on the results of our literature review (detailed below), as well as extant health communication and pain research. The model includes contextual factors that shape the clinical interaction and are important for fully understanding communication about pain [33,45]. Contextual factors include patient and clinician sociodemographics, clinician experience and skill, and patient health status and susceptibility to addiction. Contextual factors also include the existing patient-clinician relationship and the nature and purpose of the visit (e.g., emergency department vs primary care). The two circles in the model represent the patient and the clinician during the visit, and the overlapping portion indicates the patient-clinician interaction. The interaction includes task-oriented communication behaviors (denoted by the concepts connected by curved arrows), which are geared toward goals such as information exchange and making treatment decisions. Two other aspects of the interaction, self-presentation and the therapeutic relationship, are less directly tied to specific behaviors but are

**Table 1** Study inclusion and exclusion criteria

#### Inclusion Criteria

- Investigates patient-clinician communication about noncancer pain
- Reports empirical data derived from recordings or third-party observation of clinical interactions between adult patients and clinicians
- Peer reviewed and published in English

#### Exclusion criteria

- Studies involving standardized or analog patients, or other nonclinical interactions (e.g., research interviews)
- Studies of cognitively impaired or critically ill patients\*
- Studies of communication about painful procedures, including pain during labor<sup>†</sup>
- Studies of communication about cardiac chest pain

\*For example, patients with dementia or intubated patients.

<sup>†</sup>For example, communication about pain during pelvic exams or nasogastric tube insertion.

co-constructed during the interaction and play key roles in communication about pain.

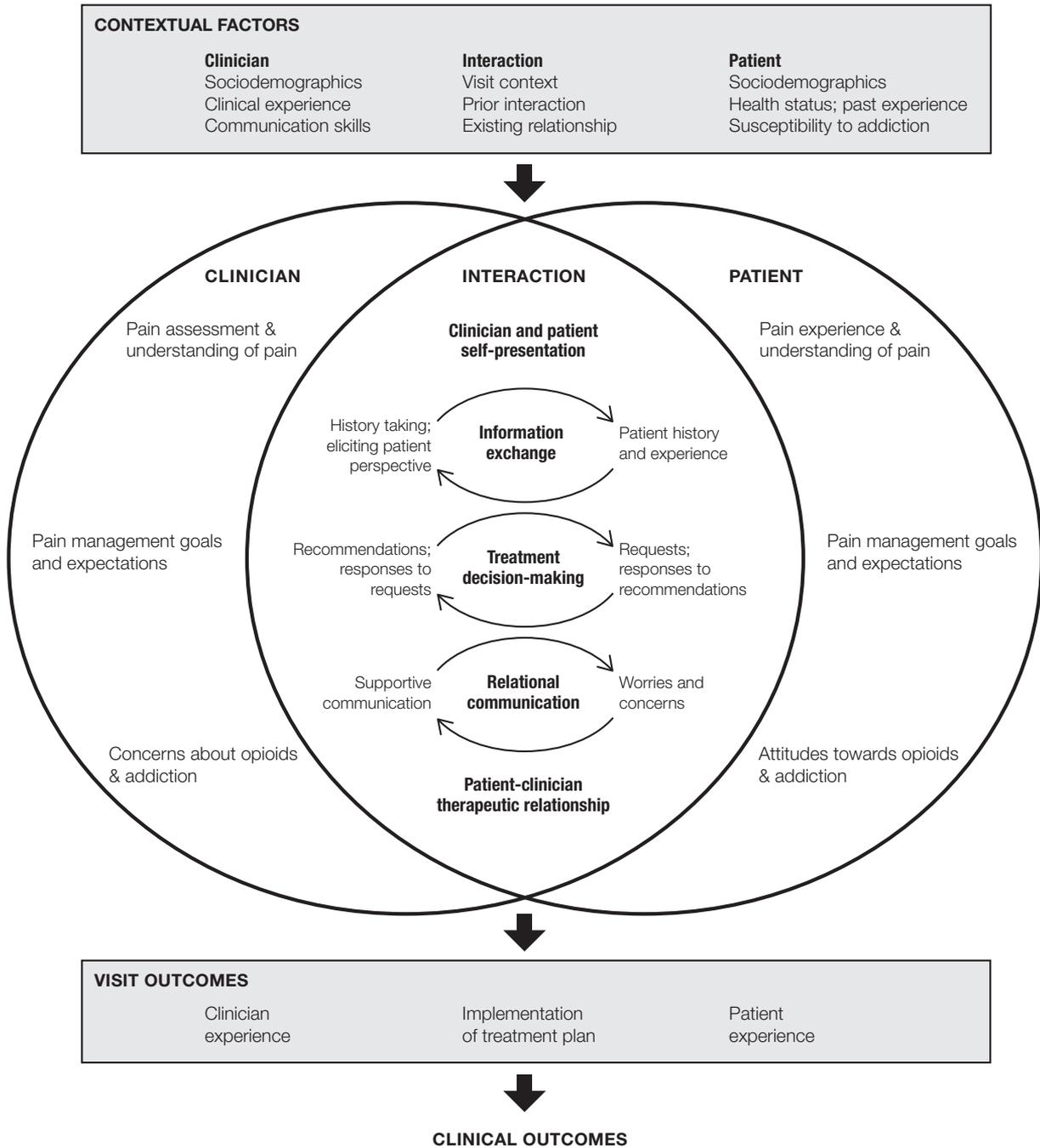
The nonoverlapping portions of the circles denote attitudes and beliefs; these include the patient's and clinician's understanding of pain, treatment goals, beliefs about the cause of the patient's pain, attitudes about opioids, and expectations for the visit. These factors shape discussions about pain but are not always explicitly discussed during the visit. Finally, the model shows visit outcomes, which include patient and clinician perceptions about the visit (e.g., patient satisfaction, clinician perceptions of visit difficulty) as well as implementation of the pain treatment plan (e.g., patient adherence). These visit outcomes mediate, at least in part, associations between communication and clinical outcomes, such as pain intensity and pain-related functional impairment. For example, patients who leave a visit feeling believed and validated by their clinician may be more likely to follow the clinician's recommendation of engaging in nonpharmacologic pain treatment strategies, leading to improved pain outcomes [40].

### Results

#### Study Characteristics

Of 2,113 citations identified through our search, 39 remained potentially eligible after abstract and title review. Our manual search yielded an additional 35 citations. After these 74 articles underwent full text review, 39 met inclusion criteria. [Figure 2](#) details the study selection process. A complete list of the studies subject to full text review is available from the corresponding author.

A complete list and description of included studies can be found online in the [Supplementary Data](#). Sixty-two

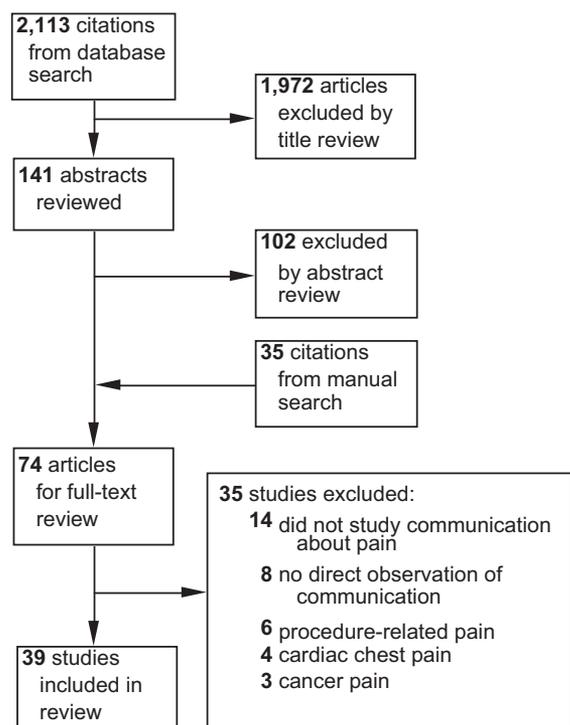


**Figure 1** Conceptual model of patient-clinician communication about pain.

percent of included studies were conducted in the United States, and 44% were conducted in the primary care setting. Other commonly studied settings were rehabilitation or occupational medicine clinics focused on back pain [46–50], hospital wards [51–55], and the emergency department [56–58]. Most studies examined physicians or nurse practitioners, though a few focused on patient-nurse interactions [52–55,59] or physical therapy visits [60–63]. Studies were evenly divided between

qualitative and quantitative approaches (18 qualitative studies, 19 quantitative studies, two mixed-methods studies). Studies varied widely in design and focus. Nearly all studies were observational; one study was a randomized clinical trial [64], and four studies were secondary analyses of randomized clinical trials [65–68].

Studies varied widely in design, methodology, quality, and focus. The primary purpose of this review was to



**Figure 2** Study selection process.

inform the conceptual model and to identify gaps in the literature. Therefore, discussion of included studies is organized around the components of our conceptual model: contextual factors, the patient-clinician interaction, attitudes and beliefs, and visit and clinical outcomes. For the sake of clarity and brevity, studies that relate to more than one part of the model are typically discussed in the category that best describes each study's findings.

### Contextual Factors

Several studies in our review examined the relationship between pain severity and communication during visits [47,49,67–72]. Taken together, these studies suggest that the presence, severity, and chronicity of pain are associated with differences in the quality and content of patient-clinician communication. Two studies of patient affect [67,72] suggest that discussions about pain and pain severity may be associated with greater overall patient emotional arousal. Otherwise, apart from the unsurprising finding that patients who reported greater pain were more likely to discuss pain during clinic visits, direct comparisons and generalizations from these studies are difficult because they examine different patient populations with widely varying baseline characteristics and investigate different aspects of pain and communication.

Few studies examined how patients' and clinicians' past experiences influence communication about pain;

however, one study found that for hospitalized patients with a history of illegal drug use, physicians' and patients' prior unpleasant experiences fostered mutual mistrust that influenced discussions about pain management [51]. In another inpatient study, Manias et al. [54] found that nurses' lack of knowledge about pain management in chronic kidney disease affected their communication and treatment decision-making with patients on inpatient renal units. The same investigators also found that hospital nurses often prioritized other activities over discussing pain with patients, causing nurses to miss patient pain cues [55]. Finally, one study suggested that physical therapists with more experience engaged in more relational communication than those with less experience [60].

### Patient-Clinician Interaction

#### Information Exchange

One study analyzed how information exchange affected diagnostic accuracy. Lipton et al. [73] examined clinician history taking during visits for migraine management and compared patients' and clinicians' assessments of migraine frequency. They concluded that clinicians using open-ended questions and asking about number of days with migraine symptoms (rather than number of migraine attacks) were more likely to accurately assess patients' migraine severity.

#### Treatment Decision-Making

Several studies examined decision-making around pain management. Most of these studies focused on aspects of communication about analgesics [33,51,56–58,74–76]. Patients requesting analgesics demonstrated deference to clinician authority [56], made an effort to present themselves as responsible analgesic users [56,75], and tended to agree more than disagree with clinicians about opioids [56,58], especially when discussing uncertainties related to opioids [77]. One of these studies found that most instances of disagreement in the emergency department involved patients resisting clinician recommendations for opioids, rather than patients requesting opioids from reluctant clinicians [58]. Finally, one study of patient-nurse interactions found that a more passive (i.e., nurse-driven) approach to pain management decisions resulted in patients being less likely to receive analgesics than patients who experienced a more active (i.e., patient-centered) or collaborative approach to such decisions [53].

Many of these studies call into question the conventional wisdom, as well as findings from interview studies [6,9,10,13,14], that suggest discussions about pain management are fraught with conflict. Even in a study of high-risk HIV patients (28% of study patients reported illicit drug use, and 10% were taking methadone for substance use disorders), Hughes et al. [74] found that

only 25% of substantive discussions about opioids involved disagreement. Two studies explicitly sought to find and study conflict about analgesics [51,76]. Thus, while they provide insight into the nature of conflict, they do not provide information about the prevalence of disagreements about analgesics.

Disagreements and contentious communication may occur less frequently under specific circumstances, such as when patients and clinicians agree about opioid treatment decisions [58,74] or when patients believe clinicians are exhibiting genuine concern for their health [77]. Patients' presentation of themselves as moral and responsible analgesic users [56,75] may also have a positive effect on communication about analgesics. Clearly these findings should be interpreted cautiously, since they are based on a handful of studies, some of which have very small samples.

### **Relational Communication**

Relational communication refers to communication that recognizes the centrality of the patient-clinician relationship in providing care. This includes acknowledging the role of these relationships on health and includes communication aimed at fostering autonomy, respect, collaboration, honesty, support, and commitment [78]. Some studies relevant to this component of our model focused on patient displays of emotions. Henry and Eggly [72] found that, when discussing pain, patients display more emotions—both positive and negative—than when discussing other topics. Emotions can be communicated either explicitly or implicitly, and, based on Eide et al.'s [79,80] findings, this difference is associated with different communication patterns. These investigators found that fibromyalgia patients' implicit references to negative emotions were associated with worse patient-reported health and fewer empathic clinician responses. In contrast, explicit mentions of negative emotions were associated with greater patient-reported negative affect and more empathetic clinician responses.

Two small studies examined physician reassurance. One found that patients with low back pain valued reassurance and discussion of psychosocial issues [46]; another found that physical therapists rarely provided reassurance [63]. Two studies compared “biomedical” vs “psychosocial” questions during visits involving patients with low back pain. Shaw et al. [49] found that clinicians asked four or five biomedical questions for every psychosocial question; Butalid and colleagues [81] found that Dutch physicians' biomedical focus persisted even after national guidelines advocating discussion of psychosocial questions for low back pain were published.

### **Patient and Clinician Self-Presentation and Therapeutic Relationship**

The salience of patient and clinician self-presentation during clinical interactions was a prominent crosscutting

theme that emerged from this review and prompted the addition of self-presentation to the conceptual model (Figure 1). Erving Goffman advanced this concept in his classic work, *The Presentation of Self in Everyday Life* [82], in which he described interpersonal communication as a performance where individuals each play a role and seek to present themselves in a manner consistent with that role. Among the studies in our review, the analysis by Spiers [59] of video-recorded interactions between home care nurses and patients explored presentation of self most directly. The authors found that “expressing and acknowledging pain and suffering” was a central goal of patient-nurse interactions. During these interactions, patients presented themselves as stoic individuals able to tolerate substantial pain and suffering. A key nurse task was to evaluate patients' stoicism and to foster productive stoicism (e.g., healthy pain coping strategies, maintenance of patient dignity) while discouraging stoicism that impeded pain management (e.g., not reporting severe pain in order to appear “strong”).

Studies on communication about opioid analgesics also highlighted the importance of self-presentation. For example, Roberts and Kramer described how patients presented themselves to physicians as responsible analgesic users who are just barely managing their pain, thereby showing that they are trustworthy but nevertheless require additional medication [75]. Similarly, Buchbinder et al. [56] used the lens of politeness theory to show how patients worked to present themselves as responsible and deferential medication users worthy of an analgesic prescription.

Some studies touched on clinicians' self-presentation during discussions about pain. For example, Matthias et al. [77] found that primary care physicians who demonstrated genuine concern for their patients' well-being were generally more highly regarded by patients, who in turn were more likely to accept a reduction or denial of opioid medications by their physicians. Two studies of patients with back pain found that patients were attentive to and valued clinicians who took them and their pain seriously [46,48]. These studies suggest that patients' perceptions of clinicians (and conversely, how clinicians present themselves to patients) can influence communication by, for example, mitigating potential disagreements about opioid prescribing.

### **Attitudes and Beliefs**

Few studies have focused primarily on patient and clinician attitudes and beliefs around pain, likely because attitudes and beliefs are typically assessed through interviews or questionnaires rather than observation of patient-clinician communication. Nevertheless, two studies examined how patients' and clinicians' attitudes and beliefs about opioid analgesics shaped communication during clinic visits. Matthias et al. [77] found that physicians' and patients' shared concerns about opioid addiction and overdose, leading to a mutual desire to avoid or minimize opioid prescribing. A study in the

emergency department found that physicians spent more time counseling patients on the side effects and duration of use when prescribing opioids compared with other analgesics [57], suggesting that physicians consider opioids to be more harmful or dangerous than other analgesics.

## Outcomes

### Visit Outcomes

Two studies examining links between communication and outcomes focused on clinicians' visit experiences. Hughes et al. [74] found no evidence that discussions about pain were associated with greater physician frustration. In Henry et al.'s [70] exploratory study of 45 primary care visits involving patients on long-term opioids, greater frequency of patient resistance to treatment recommendations and longer discussions of opioid risks and side effects were both associated with greater physician-reported visit difficulty, though effect sizes were small. Studies of patient experience (e.g., satisfaction with visits) are common in health communication research, but no studies in our review focused on patient experience. Similarly, we found no studies that examined links between communication and implementation of pain treatment plans (e.g., adherence).

### Clinical Outcomes

Two observational studies investigated relationships between patient-clinician communication and outcomes but found no clear associations. Shaw et al. [50] found that during occupational health clinic visits for back pain, greater patient provision of biomedical information and patient "negative rapport-building," as well as more clinician biomedical questions and clinician "positive rapport-building," were associated with worse pain and disability one and three months after the visit. The clinical significance of these findings is unclear, especially because the authors also found that many of these same communication behaviors were more prevalent in patients at high risk for disability [49]. Therefore, these associations between communication and outcomes likely reflect differences in patient characteristics rather than causal connections. Turner and colleagues [83] also studied communication during primary care visits for new acute low back pain and found that neither discussion of functional limitations nor discussion of treatment recommendations was associated with patient improvement one month later.

In addition, two randomized clinical trials examined associations between communication and clinical outcomes. One small clinical trial ( $n=23$ ) randomized elderly patients with osteoarthritis to practice with a "virtual pain coach" prior to their visit. This intervention was not associated with differences in overall pain communication or pain-related outcomes at one month [64]. One secondary analysis of a clinical trial compared

traditional vs sham acupuncture as well as clinician communication of positive vs neutral expectations among patients with knee arthritis [65,84]. The authors found no difference in traditional vs sham acupuncture, but patients who saw clinicians trained to communicate a high expectation of benefit reported significantly more satisfaction with treatment and more subsequent pain improvement than patients who saw clinicians trained to convey neutral expectation of benefit. These findings provide support for the notion (reflected in our model) that the relationship between patient-clinician communication and clinical outcomes is mediated in part by patient perceptions of visit experience.

## Discussion

Overall, the studies in this review varied widely in focus, methodology, and quality. Despite the heterogeneity of studies in our review, our results suggest two notable, if tentative, conclusions. First, contrary to conventional wisdom and findings from interview studies, studies of actual patient-clinician interactions suggest that discussions about opioid analgesics are more commonly characterized by patient-clinician agreement, rather than conflict. Second, the manner in which patients and clinicians present themselves during interactions seems to play a prominent role in discussions about pain—especially for opioid prescribing. These preliminary conclusions have been explored only minimally in the literature and suggest important avenues for future research.

Likewise, the small number of studies identified for this review underscores the need for more coordinated research aimed at improving patient-clinician communication about noncancer pain. Our conceptual model of communication about pain provides a framework for coordinating future research on this topic. Organizing review findings around this model helps to identify gaps in existing research and priorities for future studies. Additional studies can, in turn, help to refine the conceptual model and further sharpen the focus of research aimed at understanding and improving communication about noncancer pain.

In terms of contextual factors, one notable gap revealed by our review was the absence of studies examining relationships between patients' gender, race, and ethnicity and patient-clinician communication about pain. This research is particularly important in light of existing research documenting racial (and to a lesser extent, gender) disparities in pain management and analgesic prescribing [85–89]. Studies examining actual patient-clinician interactions are necessary for understanding the extent to which communication practices during visits might mediate or explain documented disparities in pain management and analgesic prescribing.

Regarding attitudes and beliefs, we found no studies that examined links between patients' and clinicians' pain management goals and communication during clinic visits, despite the long-standing emphasis on collaborative goal setting in clinical guidelines [8,90] and

evidence that patients and clinicians often prioritize different pain management goals [91]. While research that incorporates observation of patient-clinician communication is critical for improving communication, it must be complemented by research on pain-related beliefs, attitudes, and treatment goals, which are often better measured by other methods, such as questionnaires or interviews.

Finally, our review identified few studies about communication and outcomes, highlighting the need for additional research to elucidate possible pathways through which communication is related to treatment decisions, patients' and clinicians' visit experiences, and patient outcomes. As shown by Shaw et al. [49,50], communication is often associated with both patient characteristics and clinical outcomes. Thus, in many cases identifying independent causal associations between communication and outcomes will require experimental designs that can account for the influence of contextual factors (e.g., patient characteristics). Such research is necessary to identify communication "best practices," to understand what patient-centered care looks like for discussions about chronic pain and opioids, and to identify common communication problems or challenges encountered by patients and clinicians. Although our review identified few studies that examined communication and outcomes, communication studies in many contexts outside of pain have shown that effective communication can have direct, positive consequences for patient care [18,20,22,24,92]. By extension, such work also suggests that poor communication can lead to suboptimal patient outcomes.

Achieving a better understanding of patient-clinician communication about noncancer pain will not only help to advance our knowledge of how communication shapes patients' experiences and affects outcomes in pain management, but it will also generate a body of research that can be used to formulate specific, targeted communication interventions that are empirically based and designed to improve identified communication deficiencies and promote best practices, ultimately leading to improved patient-clinician relationships and better outcomes for patients with pain.

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### **Supplementary Data**

[Supplementary Data](http://pain-medicine.oxfordjournals.org) may be found online at <http://pain-medicine.oxfordjournals.org>.

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## Henry and Matthias

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***Patient-Clinician Communication About Pain***

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