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Race and gender disparities in pain treatment and opioid prescribing

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ABSTRACT

This study employs corpus-based discourse analysis to investigate racial and gender disparities in opioid prescribing practices. Analysis of 171 medical interactions in the United States from 2008 to 2020, drawn from the Verilogue corpus of doctor-patient dialogue, revealed a significant relationship between patients' race and physicians' prescribing behaviors. By systematically examining the stages in which patients were either prescribed or denied opioids, this study quantifies the challenges faced by patients as they navigate opioid-related discussions.

Statistical analyses revealed that patient race was significantly associated with whether patients were prescribed and offered opioids, while gender did not show any significant association. Logistic regression analysis revealed that racial and ethnic minorities (REMs) had significantly lower odds of being prescribed opioids for their pain. REMs were also less likely to be offered opioids, resulting in them having to initiate requests for this fraught medication.

Discourse analysis of excerpts is provided to offer deeper insights into these disparities, highlighting patterns of increased scrutiny and hesitance in prescribing opioids to REM patients, even when they reported severe pain. In contrast, interactions with White patients often demonstrated more relaxed prescribing practices and increased patient autonomy in treatment decisions.

These findings align with current research on inequities in pain treatment across communities. By illuminating these disparities, this research emphasizes the importance of understanding various culturally-dependent linguistic practices, such as the diverse ways individuals express pain.

1. Introduction

The lack of objective clinical tests for measuring chronic pain has made discourse practices a fundamental part of medical interactions (Sullivan and Ferrell, 2005). Unlike bruises and cuts, the symptoms of chronic pain are not easily discernible, leaving physicians to rely on patients' verbal manifestations of suffering when making critical medical decisions such as prescribing opioids (Heath, 2002; Turk and Okifuji, 1997; Henry and Eggly, 2013).

An increasing body of research has documented racial disparities in access to effective pain treatment. Studies have shown that patients from racial and ethnic minorities are more likely to have their pain dismissed (Cintron and Morrison, 2006; Thakur et al., 2021, see also Hoffman et al., 2016; Green et al., 2003; Jones, 2000). In fact, Robinson-Lane and Vallerand's (2018) study of pain management in African American adults identified physicians' mistrust that they would misuse opioids as a significant obstacle to effective pain management. Lawrence et al.'s (2020) analysis of 1277 post-surgical patients revealed the same findings: Black patients were significantly less likely to fill an opioid prescription. Additionally, Anderson et al.'s (2009) comprehensive review of research articles published between 1990 and early 2009 demonstrated the persistence of racial and ethnic disparities in acute, chronic, cancer, and palliative pain care across the lifespan and in various treatment settings. Their findings consistently showed minority patients receiving lower quality care compared to White patients.

Højsted and Sjøgren (2007) suggest physicians' unfamiliarity with various culturally-dependent linguistic practices to be a contributing factor to these disparities. Unfamiliarity with politeness routines and varying demonstrations of vulnerability can result in misinterpreting patients' genuine cries for help as drug-seeking behavior. Using corpus-based discourse analysis, this study examines the relationship between patients' race and gender in relation to physicians' prescribing practices across 171 medical interactions. The findings indicate a significant predictive relationship between patients' race and physicians'

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prescribing behaviors, revealing that physicians are more likely to prescribe or offer opioids to White patients.

The present study presents an alternative approach to highlighting healthcare disparities. By systematically breaking down the stages within which patients are either prescribed or denied opioids, this study is able to quantify the presence or absence of challenges faced by patients as they navigate consultations to achieve their desired outcomes.

2. Related literature

2.1. Race and ethnicity in healthcare research

The definition of race has been the subject of disagreement, encompassing a variety of perspectives from a sociopolitical construct to a matter of physical attributes (Witzig, 1996). These diverging opinions presented health researchers focusing on race issues with difficulties in presenting their findings. To remedy this issue, the National Institutes of Health (NIH) and the Journal of the American Medical Association (JAMA) proposed that researchers adhere to the six categories of "race and ethnicity" put forth by the Office of Management and Budget (OMB) when reporting their findings: American Indian or Alaska Native, Asian, African American or Black, Hispanic or Latino, Native Hawaiian or Pacific Islander, and White (Lewis et al., 2023).

The NIH also released some guidance defining "racial and ethnic minorities" (REMs) as groups within the broader population historically and continuously subject to systemic inequities, including in health care, because traditionally considered minorities may not necessarily comprise the minority population in some areas (Anderson et al., 2009; Flanagin et al., 2021). This criterion frees researchers from being constrained by definitions relying on population size, allowing them to focus on the more important issue of healthcare inequity. This guidance addresses what appears to be a socially ingrained understanding of the term "minorities," shown in the many studies that no longer define the term and instead, rely on presumed societal understanding, (Mitchell and Lassiter, 2006; Green et al., 2005). This study adheres to the NIH guidelines for reporting findings related to racial and ethnic minorities.

Considering the dynamic nature of discourses on this topic and how terminologies deemed appropriate change over time, it is important that studies like the present paper are taken for their significance and appropriateness within the specific historical and cultural context at the time of writing.

2.2. Gender in healthcare research

Just like race, gender, as a concept, is evolving, making it difficult to define in the healthcare setting. As Sharman and Johnson (2012) note, "gender and sex are interrelated," making their integration in health research "dynamic, not static" (p. 1813). Nonetheless, they stress that "gender" is often tied to socially constructed societal roles, while "sex" is primarily linked to biological attributes. This distinction is especially apparent in studies that have shown gender as a significant influence on how pain is reported and managed. Samulowitz et al.'s (2018) review of articles shows that the societal take on women as emotional results in their pain being taken less seriously than men, whose perceived toughness makes their complaints come across as even more urgent. Likewise, Hoffmann and Tarzian (2001) found that women's chronic pain complaints are dismissed as unjustified because they are perceived to be fragile and sensitive.

The term "gender" is used in this study as opposed to "sex" in keeping with existing studies that acknowledge the influence of socially constructed norms and expectations on pain treatment (see Lightfoot et al., 2021). This study also recognizes the limits of binary categories (male and female) in the corpus and recommends that future studies gather data with more inclusive gender classifications to better reflect today's diverse patient populations.

2.3. Anatomy of talk in medical consultations

This study leverages the structural nature of medical interactions to identify the stages in which disparities in pain management may emerge. Byrne and Long's (1976) thorough synthesis of 2500 audio recordings was a seminal study of the anatomy of medical interactions, which Heritage and Maynard (2006, p. 14) later refined to better suit interaction analysis: the opening, the fluid body (where the complaint, diagnosis, and treatment discussion occur), and the closing. Heritage and Clayman (2011) emphasize that such structure is fluid and open to potential variations that consistently occur within the same context and eventually become ritualized, allowing for systematic analysis.

Interactions involving opioids often deviate from this usual structure as its fraught nature often leads to complex and awkward conversations, particularly when patients propose their own treatment or disagree with a physician's plan of action (Torres, 2023). Aronsson and Sätterlund-Larsson (1987) aptly liken such tense medical interactions to a social choreography, where participants engage in a delicate dance around sensitive discussions. Ainsworth-Vaughn (2001) characterizes this dance as culturally shaped speech activities that emerge through various linguistic strategies that eventually become ritualized. This study investigates whether these ritualized practices differ by patient demographics, potentially indicating pain management inequities.

Though fluid, the structure of consultations involving opioids follows predictable patterns: either opioids are offered by the physician or requested by the patient. While physician offers are easily identifiable, patients' opioid requests can take various grammatical forms. Torres et al. (2020) demonstrated that explicit requests typically take interrogative or imperative forms, while implicit or suggestive requests tend to be declarative; both can be consistently identified when methodologies focus on the soliciting function of these utterances. Understanding how requests manifest linguistically is particularly crucial today, given that studies have shown opioid requests may be perceived as drug-seeking behavior (Højsted and Sjøgren, 2007). By identifying when opioids are introduced during consultations and by whom, the present study examines whether patterns exist in which patients receive offers versus those who must initiate requests.

3. Methodology

This study uses corpus-based discourse analysis, which combines the qualitative examination of speech acts of Discourse Analysis (DA) with the broader quantitative perspective provided by Corpus Analysis (CA) (Flowerdew, 2008). DA aims to understand interlocutors' meaning-making processes beyond the syntactic level (Gee, 2011) and the communicative means through which discursive agendas are realized, sometimes unknown even to the language user (Kampf, 2015, p. 3; Johnstone, 2018). As Woods (2014) explained, DA enables researchers to discern the motivations behind the language choices of healthcare providers. CA complements DA by offering quantitative textual analysis of specific features already recognized through DA. (Fairclough, 2003, p. 6). Corpus-based discourse analysis has been widely used in analyzing large data sets of health interactions through both quantitative and qualitative techniques (see Torres, 2021; Brookes and Collins, 2023).

3.1. The corpus

The data analyzed in this study were drawn from the Verilogue corpus of doctor-patient dialogue, a growing database of audio-recorded healthcare office visits in the United States. Verilogue employs a HIPAA-compliant data collection model in which both physicians and patients opt in to participate (Franke, 2009). To avoid duplicate encounters, physicians recorded only one consultation per patient. This study focuses on patient gender, physician gender, and patient race and ethnicity—information that was voluntarily provided by participants. Unfortunately, information about physician race and ethnicity is not

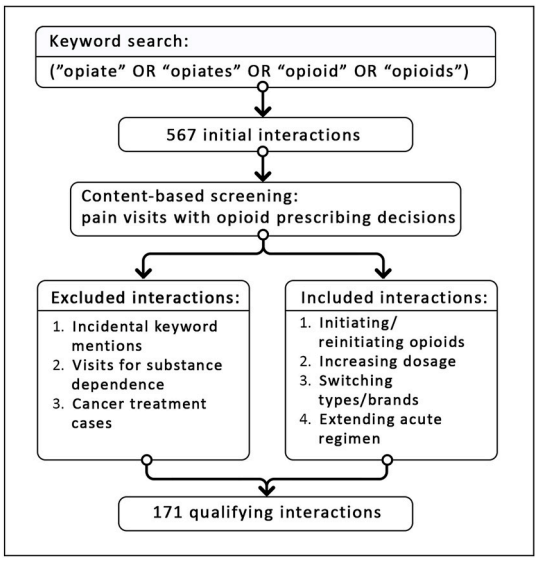

Fig. 1. Selection criteria.

Table 1
Participant information (predictor variables).

	Gender		
	Male	Female	Total
Patient Race and Gender	**73**	**98**	**171**
White	60	75	135
Racial and Ethnic Minorities (REMs)	13	23	36
African American	6	15	21
Hispanic or Latino	7	7	14
Asian	0	1	1
Physician Gender	**138**	**33**	**171**

Note. The demographic characteristics shown here serve as predictor variables in the analysis. All variables are categorical with binary outcomes, based on self-reported participant data. Physician race data was not available in the corpus.

available (see Hesson, 2014; Hasty, 2015 for other Verilogue studies that dealt with the same issue). Throughout this study, references to race and gender reflect the self-identified information provided by participants.

The database was searched for instances of the lemmas 'opioid(s)' and 'opiate(s)' in doctor-patient dialogue in the United States. This initial search yielded 567 interactions, which were subsequently filtered to exclude interactions in which: (1) opioids were mentioned incidentally, unrelated to the patient's visit (e.g., discussions of current events or the opioid epidemic); (2) the patient was being treated for substance dependence, as these discussions focused on addiction rather than pain management; and (3) the patient was receiving cancer treatment since the nature of pain and prescribing decisions in cancer care differs fundamentally from chronic pain management. These criteria adhere to standard methodological practices in studies examining doctor-patient communication regarding opioids and pain (see Henry and Matthias, 2018).

The remaining interactions were further filtered to only include cases in which physicians and patients engaged in discussions about opioid pain management decisions. The resulting data set consisted of interactions that discussed: (1) initiating or reinitiating an opioid regimen, (2) increasing dosage, (3) switching types or brands, or (4) extending an acute regimen. Data selection process, summarized in Fig. 1, yielded a corpus of 171 interactions spanning from 2008 to 2020. The demographic breakdown of participants is presented in Table 1 (see supplementary materials for additional information).

This study encounters the same obstacle observed in many other social science and medicine research: the need to aggregate various minority communities into a broadly defined category. While not ideal, the approach is essential for addressing the important questions about equity posed in this study, providing insights that may be of great value to physicians, patients, and policymakers from various backgrounds. In fact, recent scholarly work has resolved this persistent issue in a similar way (e.g., Sams et al., 2021; Block et al., 2022; Ryan et al., 2022; Gollust and Haselswerdt, 2023; see Wilkes and Karimi, 2023 for discussions on multi-group data versus dual-side theory). Despite the limitation, explicitly addressing the problem enables this study to underscore broader systemic issues such as racial disparities in healthcare access and barriers to research participation. The results of this study are best taken as a crucial starting point for identifying and understanding significant patterns that warrant examination with larger sample sizes.

3.2. Discourse analysis

As Baker and McEnery (2015, pp. 12-18) highlight, DA can be combined with CA in several ways. These include the commonly used general approach (e.g., Jaworska and Ryan, 2018), multimodal discourse analysis (e.g., Bednarek, 2015), and critical discourse analysis (e.g., Baker et al., 2008), among others. This study employs 'theme-oriented' discourse analysis (Roberts and Sarangi, 2005)—a variant within the general approach where recordings and transcripts were analyzed for themes, which were then combined into categories as connections between them emerged. Such an approach to coding utterances allows the data to dictate the categories rather than be forced into predetermined ones. The coding process and discourse analysis are inseparable in this approach, as categorizing utterances occurs by assessing the various functions they serve within the context of the ongoing medical exchange (Torres, 2023).

Coding was done in tandem—an increasingly popular process in healthcare studies in which coders code together to address discrepancies in real time and help keep each other accountable to the parameters specified in the coding book (Henry et al., 2020; Torres, 2021). This method steps away from blindly going with the majority decision as it allows the minority to explain their decisions and for the others to reflect on theirs. This approach is also enabled by technological advances in remote meetings. Each interaction went through three coders trained in DA. To ensure continuity, one primary coder went through the entire dataset with two additional coders from a rotating pool of DA-trained research assistants. At the beginning of each coding session, the primary coder oriented new coders with examples of previous disagreements and established precedents.

Sample excerpts are provided to demonstrate key findings. These

Table 2
Possible visit outcomes (dependent variables).

Prescription outcome	Description
1. Prescribed	**Patient received opioid prescription**
Physician-initiated	Physician initiated opioid discussion and offered prescription without patient request
Patient-initiated	Patient initiated opioid discussion and requested prescription when no prior offer was made; received immediate approval
Patient-persisted	Patient initiated opioid discussion and requested prescription, met physician resistance, but eventually received approval
2. Not prescribed	**Patient did not receive opioid prescription**

excerpts were trimmed for readability and brevity in accordance with the publication's length requirements, ensuring that the omissions—marked by ellipses (…)—do not alter the structure, character, integrity, and intent of the exchange.

3.2.1. Variations in visit experience and outcome

DA revealed that consultations followed one of two primary outcomes: opioids were either prescribed or denied. When prescribed, the consultations followed one of three distinct patterns, summarized in Table 2.

This study defines "physician resistance" as the active denial, discouraging, or delaying of opioid prescriptions. Examples include physicians suggesting non-opioid alternatives, requiring additional tests, or outright denying the prescription. It is important to differentiate resistance from standard medical practices, such as inquiring about the patient's medical history concerning the requested drug or warning about its potential side effects, which are expected responses to opioid requests and do not impede prescription.

Fig. 2 further illustrates the various pathways through which consultations progressed toward the two primary outcomes and their subcategories—the dependent variables in this study.

3.2.2. Rationale for discourse analysis

DA was chosen over alternatives such as critical discourse analysis (CDA) because DA allows for a direct analysis of how requests are made, responded to, and negotiated, facilitating the identification of the visit prescribing outcomes listed in Table 2. Although equally effective, CDA focuses on examining how ideologies and power relations emerge through language and asks the question, "Who benefits?" (Baker and Ellece, 2011, p.26), whereas DA allows researchers to first establish linguistic structures and patterns before addressing social implications. Thus, DA (1) enables patterns of disparity to emerge empirically, (2) addresses criticisms over the influence of a priori assumptions surrounding inequity, and (3) enhances the validity of statistical correlations between outcomes and demographic factors. Future research could further address who benefits from the current prescribing practices using CDA.

3.3. Statistical analysis

The study employed two types of statistical analyses to examine whether patient race and participant gender (predictor variables) were associated with physicians' opioid prescribing decisions (dependent variable): (1) univariate analysis, which assessed each factor separately, and (2) multivariable analysis, which evaluated these factors collectively. These approaches are widely used in interdisciplinary studies across social sciences and medicine (e.g., Tait and Chibnall, 1997; Katz, 2003). While the raw data demonstrates clear patterns, conservative statistical analyses were employed to account for sample size discrepancies and ensure rigorous interpretation of the observed phenomena. As emphasized by Fialho and Zyngier (2023, p. 338), correlation does not imply causation; the significant findings presented here indicate potential relationships, acknowledging that other unmeasured variables could influence these outcomes. All statistical analyses were performed using SPSS v. 29.0.2.0.

4. Results

Table 3 presents the distribution of cases across dependent variables (prescribing decisions) and predictor variables (patient race and participant gender) in the data.

4.1. Univariate analysis

Table 4 presents the univariate logistic regression analyses examining the individual associations between each predictor variable and the odds of receiving opioid prescriptions. In addition to the logistic regression, the Likelihood Ratio Test and Pearson's Chi-Square (χ^2) Test were conducted, with Yates and Fisher continuity correction used where appropriate.

The univariate analysis in Table 4 revealed the following results:

1. A statistically significant association between patient race and both the likelihood of receiving opioid prescriptions ($p = 0.027$) and the likelihood of being offered opioids ($p = 0.016$).
2. Minorities are 0.280 times as likely (or 72% less likely) to receive opioids compared to White patients (OR = 0.28; 95% CI: 0.10–0.77).
3. Minorities are 0.374 times as likely (or 62.6% less likely) to be offered opioids and, therefore, must request them more often than White patients (OR = 0.374, 95% CI: 0.18–0.80).
4. Minorities are 1.650 as likely (65% more likely) to not be offered and therefore must request opioids than White patients (OR = 1.650, 95% CI: 1.17–2.32) (see supplementary material for calculations).
5. If a physician were to refuse to prescribe opioids, the patient is 3.00 times as likely (or 200% more likely) to be a minority (OR = 3.00; 95% CI: 1.28–7.05) (see supplementary material for calculations).
6. No significant predictive relationship was found between gender and opioid prescribing.

4.2. Multivariable analysis

A multivariable logistic regression analysis was conducted to assess the independent associations of all predictor variables with the odds of opioid prescription when considered simultaneously (Table 5). Additionally, model fit statistics were computed to evaluate the overall performance of the logistic regression model (Table 6).

The multivariable logistic regression with model fit and evaluation

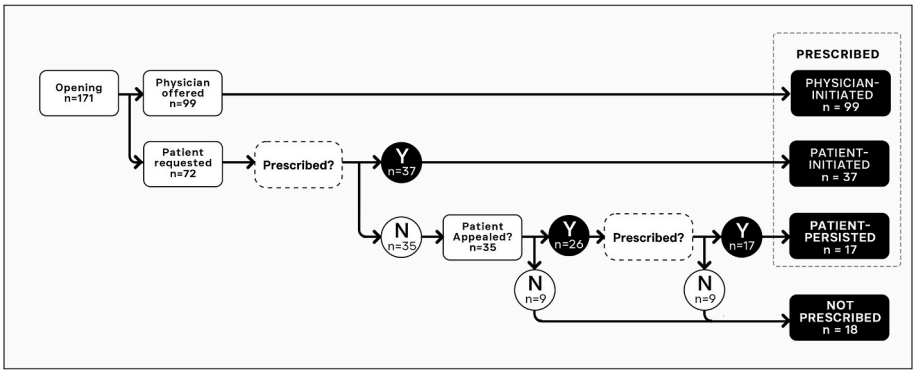

Fig. 2. Structure of a standard doctor's appointment about opioids.

Table 3
Distribution of prescribing decisions by predictor variables (n = 171).

		Patient Race n(%)		Physician Gender n(%)		Patient Gender n(%)	
Outcome	Total	REM	White	Male	Female	Male	Female
Prescribed	**153**	**28(78%)**	**125(93%)**	**122(88%)**	**31(94%)**	**66(90%)**	**87(89%)**
Physician-initiated	99	14(39%)	85(63%)	83(60%)	16(49%)	44(60%)	55(56%)
Patient-initiated	37	11(31%)	26(19%)	26(19%)	11(33%)	13(18%)	24(24%)
Patient-persisted	17	3(8%)	14(10%)	13(9%)	4(12%)	9(12%)	8(8%)
Not Prescribed	**18**	**8(22%)**	**10(7%)**	**16(12%)**	**2(6%)**	**7(10%)**	**11(11%)**
Total	**171**	**36**	**135**	**138**	**33**	**73**	**98**

Note. Percentages reflect within-group distributions, with 'prescribed' and 'not prescribed' constituting 100%.

Table 4
Univariate logistic regression.

Dependent Variable	Predictor Variable	df	p-value	OR	95% CI[c]
Prescribed	Patient race	1	0.027**[b]	0.28	0.10 – 0.77**
	Physician gender	1	0.531[b]	0.49	0.11 – 2.25
	Patient gender	1	0.926[a]	1.19	0.44 – 3.24
Physician-initiated	Patient race	1	0.016**[a]	0.37	0.18 – 0.80**
	Physician gender	1	0.307[a]	1.60	0.75 – 3.44
	Patient gender	1	0.699[a]	1.19	0.64 – 2.20
Patient-initiated	Patient race	1	1.00[a]	1.08	0.40 – 2.95
	Physician gender	1	0.327[a]	2.05	0.67 – 6.31
	Patient gender	1	0.500[a]	1.55	0.60 – 4.01
Patient-persisted	Patient race	1	0.078[b]	0.17	0.03 – 1.05
	Physician gender	1	0.628[b]	0.41	0.04 – 4.31
	Patient gender	1	0.429[b]	2.25	0.41 – 12.1

Note. Asterisks (**) indicate significant values ($p < 0.05$ and 95% CI $\neq 1$). Odds Ratio (OR), 95% Confidence interval (95% CI)
[a] Yates continuity correction was used to account for wide sample size discrepancies (Yates, 1934).
[b] Fisher continuity correction was used when more than 20% of the cells of a contingency table had expected values less than 5, which deems the Pearson's test no longer credible (Fisher, 1935).
[c] Likelihood ratio test uses REMs to White reference for race variables and male to female reference for gender variables.

statistics (Tables 5 and 6) showed that:

1. Patient race is the sole significant factor associated with receiving opioids ($p = 0.015$) and being offered opioids ($p = 0.011$).
2. Physician-initiated is the only significant model ($\chi = 8.274, p = 0.041$) and patient race is the variable with the strongest association with the model. ($\varphi = 0.199$).
3. Patient race improved the model's ability to predict physician-initiated prescriptions.
4. The predictors only account for a modest portion of the variance ($R^2\_N = 4.6\%–23.7\%$). φ values in the lower half of the 0-to-1 range indicate variables are mostly independent of each other.

The multivariable logistic regression analyses indicate that the combined set of predictor variables does not provide a strong overall fit for the model. However, when controlling for other variables, patient race consistently emerges as a statistically significant predictor of opioid prescribing practices.

Table 5
Multivariable logistic regression containing all predictor variables (full model).

		β	S.E.	Wald	df	p-value	OR	95% C.I.
Prescribed	Patient race	−1.272	0.524	5.893	1	0.015**	0.280	0.100–0.783
	Physician gender	0.738	0.787	0.880	1	0.348	2.092	0.447–9.784
	Patient gender	−0.098	0.524	0.035	1	0.852	0.907	0.325–2.534
	Constant	2.469	0.449	30.268	1	<0.001	11.815	
Physician-initiated	Patient race	−0.984	0.388	6.420	1	0.011**	0.374	0.175–0.800
	Physician gender	−0.479	0.399	1.444	1	0.229	0.619	0.283–1.353
	Patient gender	−0.083	0.324	0.066	1	0.797	0.920	0.488–1.736
	Constant	0.674	0.263	6.541	1	0.011	1.961	
Patient-initiated	Patient race	0.071	0.533	0.018	1	0.894	0.931	0.328–2.646
	Physician gender	−0.719	0.585	1.509	1	0.219	0.487	0.155–1.534
	Patient gender	−0.470	0.498	0.891	1	0.345	0.625	0.235–1.658
	Constant	0.440	0.681	0.594	1	0.441	1.552	
Patient-persisted	Patient race	−1.669	0.951	3.080	1	0.079	0.189	0.029–1.215
	Physician gender	0.741	1.251	0.351	1	0.554	2.098	0.181–24.382
	Patient gender	−0.732	0.927	0.624	1	0.430	0.481	0.078–2.958
	Constant	1.500	0.815	3.389	1	0.066	4.482	

Note. Asterisks (**) indicate significant values. Patient race, physician gender, patient gender as predictor variables incorporated within a single step. Coefficients (β), Standard Error (S.E), Wald Chi-Square Test (Wald), Odds Ratio (OR), 95% Confidence interval (95% CI).

Table 6
Model fit and evaluation statistics.

	Omnibus Test of Model Coefficients		Model Summary			Phi Coefficient (φ)		
	χ^2	p-value	–2LL	R^2_C	R^2_N	Patient Race	Patient Gender	Physician Gender
Prescribed	6.703	0.082	108.38[a]	0.038	0.078	0.197	0.260	0.071
Physician-initiated	8.274	0.041**	224.50[b]	0.047	0.064	0.199	0.042	0.093
Patient-initiated	2.579	0.461	97.257[b]	0.034	0.046	0.028	0.121	0.141
Patient-persisted	1.569	0.666	28.64[c]	0.172	0.237	0.391	0.187	0.150

Note. Asterisks (**) indicate significant values. Omnibus Test of Model Coefficients assesses the overall significance of the model. All predictor variables were incorporated within a single step. Estimation terminated at iteration [a] number 5, [b] number 3, [c] number 4 (parameter estimates changed by < 0.001).
Phi coefficients were calculated using crosstabulation analyses between each dependent-independent variable pair.–2Log Likelihood (–2LL), Cox & Snell R^2 (R^2_C), Nagelkerke R^2 (R^2_N).

4.3. Discourse analysis

This section provides a close analysis of select excerpts to provide deeper insight into the statistical findings.

4.3.1. Prescribed - physician-initiated

4.3.1.1. Excerpt A: physician initiates opioid regimen for a White patient

A1	**DR:**	How are you doing?
A2	**PT:**	Um, my right side kind of hurts.
A3	**DR:**	… All right, so let me give you a prescription … these pain killers are opioids … These are very strong. Just try to take your regular over the counter pain killers when you have mild to moderate pain …

Verilogue,139 (2012)

Excerpt A, which includes three of the 11 speaking turns in the entire consultation, exemplifies the ease with which a patient was given access to opioids. The patient, who uttered merely 16 content words, provided a tentative description of pain using the qualifying phrase "kind of" (A2), a downtoner known to lessen the intensity of messages in discussions about opioids (Torres et al., 2020). In fact, "my right side hurts" carries a different semantic weight as "my right side 'kind of' hurts". Nonetheless, the physician proceeded to prescribe opioids without further assessment, underscoring the immediate acceptance of self--reported symptoms.

4.3.1.2. Excerpt B: physician initiates opioid regimen at the dosage dictated by a White patient

B1	**DR:**	I can give you the pain pills if you said that's where I want to leave it today. I can push harder and further. Um, I didn't see that we had given you tramadol before.
B2	**PT:**	Because what I read about them is they're not … they're not like opioids.
B3	**DR:**	They are, it is a mild opiate … These have a little street value, but not like the Norcos or the Hydrocodones.
B4	**PT:**	… See, I'm not -
B5	**DR:**	Okay, I'm not suggesting you are. But I'm just telling you, they do for the average addict, … But, um, how many you want at a time? 120?
B6	**PT:**	… That's the two a day?
B7	**DR:**	Yeah. Well, about 8 h as needed. I can give you 240.
B8	**PT:**	I'll try it, yeah.
B9	**DR:**	With a refill. Um, that would be six a day. Actually, if we went every 6 h, that would get you 240 with a refill because I'm assuming you're going to take that many. I can give you some back up hydrocodone if you want… I'll give you 90 of hydrocodone.

Verilogue, 87 (2017)

The physician demonstrates considerable flexibility, by expressing their willingness to "push harder and further" (B1), increase the quantity of the opioid, tramadol, from 120 to 240 pills (B5, B7), and volunteer even more opioids (hydrocodone) as a "backup" (B9). Both hint that they have some shared knowledge of the epidemic, as the physician points out the opioid's street value (B3) and the patient interpreting the physician's words as accusatory (B4).

Excerpts A and B showed benefits frequently not extended to REM patients in this study, illustrating variations in treatment with some receiving opioid prescriptions with minimal scrutiny despite ambiguous self-reporting of pain. Take, for example, Excerpt C.

4.3.1.3. Excerpt C: physician offers to increase dosage for White patient

C1	**DR:**	And, uh, now the question here is, do you want to go up higher on the Duragesic? Uh, we could take it up another notch and make it 200, um, mcg -

Verilogue, 166 (2009)

Excerpt C illustrates a physician offering a White patient an increased dose of Duragesic (a controlled substance containing fentanyl in patch form). The offer is presented as a suggestion using the inclusive "we" to frame the decision as collaborative (Brown and Levinson, 1987; Torres, 2023) and the broadening modal "could" to introduce optionality and widen the scope of possible outcomes (Torres, 2022). This approach grants the patient a sense of autonomy over their treatment by making the outcome contingent upon the patient's response.

4.3.2. Prescribed - patient-initiated

4.3.2.1. Excerpt D: physician approves White patient's request to switch opioid brands

D1	**PT:**	I didn't sleep at all last night just because, like, of the pain … so I don't know what you would think of, like, maybe doing the Dilaudid this month or no? …
D2	**DR:**	We can do a little bit of Dilaudid …. We could probably swing that.

Verilogue, 99 (2016)

Excerpt D depicts a physician granting the patient's direct request to switch from Ultram ER to Dilaudid. Despite the explicit nature of the request, the patient hedges using the broadening modal "would" and the tentative downtoner "maybe" (Torres, 2023). Notably, had the patient only provided a negative assessment of Ultram ER's efficacy, it would have functioned as an implicit request, likely leading to similar discussions about medication changes.

Requests to switch between narcotic brands or types are common in chronic pain management as patients assess potential side effects. However, frequent complaints of drug intolerance as a means to request a switch to another kind of opioid can be viewed as aberrant behavior suggestive of misuse, complicating the process for patients genuinely seeking optimal treatment (Cone and Caplan, 2009). Nonetheless, the physician in Excerpt D shows no reservations. In fact, the physician's response mirrors the collaborative framing in Excerpt A, employing inclusive "we" and modals "can" and "could" to frame the decision collaboratively.

4.3.2.2. Excerpt E: physician approves White patient's request to extend acute opioid regimen

E1	**DR:**	Is the Oxycodone taking care of it [pain] enough?
E2	**PT:**	Yes … I do not want to do fentanyl again
E3	**DR:**	… Okay, so we'll refill the oxycodone

Verilogue, 131 (2014)

The excerpt is of a physician granting a patient's implicit request to extend the acute Oxycodone regimen to a longer-term treatment. Notice that the patient did not need to explicitly ask for the opiate. By providing a positive review of a recently initiated regimen and a negative review of an alternative or less preferred opiate, the patient is able to express their preferred course of treatment. Rather than facing pushback, the physician responded to the request by refilling the Oxycodone.

4.3.3. Prescribed – patient-persisted

4.3.3.1. Excerpt F: physician approves African American patient's request after extended negotiation

F1	**PT:**	And what I was trying to get is to cure the pain. Because sometimes the pain is just so crucial, um, this group discussion about the, um, what's that called tramadol?
F2	**DR:**	Okay.
F3	**PT:**	I understand that is a, uh, opioid. But I don't know what you think about that because they were showing a lot of positive out, uh, outcome on taking that medication, uh, with the fifty mg.
F4	**DR:**	So, we don't generally do tramadol for that type of pain, you don't want to address it with a drug that's not safe to take chronically
F5	**PT:**	Okay.
F6	**DR:**	So, Lyrica is one of those drugs um, I know that it did help you a little bit. what I'll do is I'll just increase that dose
F7	**PT:**	Right. […] [further in the visit]
F8	**DR:**	So, let's see how you do with the Lyrica and if, uh, the pain is still a problem I don't have a problem giving you some tramadol on an as needed basis, okay?
F9	**PT:**	I, that's what I prefer, doctor. Because I got a lot of positive output from the group. It was like amazing. …
F10	**DR:**	Okay. If you, if you feel comfortable, um, taking it as needed I can give you some of that.
F11	**PT:**	I'm sure that I would, I, I would do that. I know that's the big problem [INAUDIBLE] there.

Verilogue, 6 (2018)

In (F1), the patient requests for the opioid tramadol, suggesting the inadequacy of their current treatment. The physician's rejection in (F4) employs some common face-saving strategies that have previously been found to be used by physicians when declining patient opioid requests. Firstly, the use of negative imagery by describing the opioid as "not safe" influences how the patient makes meanings out of images—additionally, referring to those who do not prescribe opioids for "that pain" as the collective "we" distances the physician from assuming sole responsibility for the decision (Torres, 2021, p. 133). Toward the end of the visit, the physician summarized the treatment plan, recommending that the patient continue to assess the effectiveness of Lyrica before considering opioids as an option (F8). Despite this, the patient continued to plead (F9), leading to the physician finally agreeing (F10). Though the patient ultimately received prescription for opioids, their path differ considerably from earlier examples in which patients faced little to no pushback from their physicians. This led to the decision to classify these interactions separately.

4.3.4. Prescription declined

4.3.4.1. Excerpt G: physician rejects African American patient's request for Percocet

G1	**PT:**	But doctor, I want to, please, please, sir, if you please do this for me, I wrote the thing down, the medicine down -
G2	**DR:**	This is a strong Narcotic … It's called Percocet. I can only give you a few of them, and this would only last you a few days …
G3	**PT:**	Please, sir. Oh, lord. It hurts bad, too. I'm not kidding
G4		[Physical exam - patient pointing out what hurts]
G5	**PT:**	Uh, well doctor, uh, for what reason I couldn't get it? …
G6	**DR:**	It's called Florida state law. It's called an, a narcotics -
G7	**PT:**	I, I Know -
G8	**DR:**	The laws in Florida are that you can only get a three-day supply when I first order it.
G9	**PT:**	So if, if I need some more, I could come back?
G10	**DR:**	It's limited how much I can keep giving you. I cannot just give it to you indefinitely.
G11	**PT:**	Is there any, any, any, any, any more medicine, could ease my pain like that, besides that brand -
G12	**DR:**	They're all going to be the same

Verilogue, 3 (2019)

In Excerpt G, the patient begins with what appears to be a straightforward and impassioned plea (G1), characterized by repetitive language: the first two phrases are "please" statements and the next two refer to having written down the medication's name. This prepared approach suggests premeditation, indicating the patient's forethought about the request. Researching a therapy before seeing a doctor is nothing new. What stood out, however, is the combination of direct requests and impassioned pleas—a communication pattern rarely observed among White patients, who are typically offered opiates preemptively, making such requests unnecessary.

The patient's persistent inquiries about obtaining the opioid Percocet in (G5, G9, G11) are consistently met with what Torres (2023, p. 133) refers to as "redirection"—a tool physicians use to distance themselves from potentially disagreeable opioid policies. When the patient challenges the state's policy in (G8) by asking if they could return when the three-day supply is gone, the physician once again redirects to an unspecified policy: a vague non-response to what could be answered with a definitive "yes" or "no." As the interaction progresses, the physician's responses become increasingly vague. When the patient asks for a similarly potent pain medication in (G12), the physician's response, "they're all the same," is a dismissal implying no other medication can adequately address the patient's pain.

This interaction exemplifies the heightened scrutiny and reluctance in prescribing opioids, even when patients express severe pain and actively seek medication. The statistical significance of such disparity further underscores potential patterns of racial biases in pain management and opioid prescribing practices.

Excerpt H: physician rejects African American patient's opiate request

H1	**PT:**	I just got to update my prescriptions.
H2	**DR:**	I can give you Naprosyn.
H3	**PT:**	I usually take tramadol.
H4	**DR:**	Okay.
H5	**PT:**	And the last time you gave me Norco but that kind of makes me feel a little nauseous, but tramadol worked because I didn't want to keep taking the ibuprofen eight hundred cause I have to take, like, a lot a day.
H6	**DR:**	Well, you can take up to three a day, but -
H7	**PT:**	I have to take more. That's how bad it is.
H8	**DR:**	I've never given tramadol before. I can give you, I mean -
H9	**PT:**	I know that's lower Than Norco
H10	**DR:**	This is frustrating.
H11	**PT:**	That's the only thing that I, that they had gave me that was different than Norco that was for pain. I don't know what else that's in that category that you can think of.

(*continued on next page*)

(*continued*)

H12	**DR:**	There's not - Okay. So you, you've taken a lot of tramadol and the Norco as well. **I'm not denying that you're in pain, but** in the past, you know, six months even.
H13	**PT:**	Yeah, I just, I literally just take it as needed.
H14	**DR:**	Oh, I, I, I**, I hear you**, **but** you know, it, it, no one plans on overdosing, of course, um.
H15	**PT:**	I just don't want to get sick off of those ibuprofens -
H16	**DR:**	**I understand. Uh, but,** by the same thing, I also don't want you to get sick off your narcotics. [further in the visit]
H17	**PT:**	I do have a question, though, that is bothering me. Like, for ibuprofen eight hundred is not that good for you and, like, if you take too many, you can mess up your kidneys, but then if you get something like tramadol or Norco that actually helps and you're only taking it once a day, why are they making it that big of a deal?
H18	**DR:**	I'll tell you exactly why … [recording stops and resumes] result in addiction. So, when, you know, you were saying you, you'll take one a day. All of a sudden in six months, one a day isn't cutting it. … Not that you'll willingly do this but your body develops an addiction to it. … and then you go into withdrawal. Um, and that is where the opioid addiction problem in this country has come from. So, it's, it's not, it's the FDA and the government has come down very, very hard …
H19	**PT:**	This is, um, this is, I, I don't know. It just bothered me. Cause I'm like, when I take it for my pain, it helped.

Verilogue, 4 (2019)

Excerpt H shows an example of a suggestive request where the patient counters the physician's prescription of Naprosyn by suggesting Norco, a drug prescribed to them before. By saying, "I usually take tramadol" in (H3), the patient frames a particular opioid as familiar and manageable, indicating that the physician's suggestion of a non-opioid treatment is a relegation to a less potent pain reliever. In (H5), the patient's criticism of a non-opioid, ibuprofen, and a less-preferred opioid, Norco, carries the same soliciting intent as a suggestive request, as it narrows down the treatment options and puts the focus on the preferred, tramadol (Torres et al., 2020). The physician's next set of responses acknowledges the patient's pain but also follows them up with statements that begin with the contradictory conjunction "but," indicative of a reluctance to prescribe and sustained argumentation: "I'm not denying that you're in pain, but" in (H12); "I hear you, but" in (H14); and "I understand, but" in (H16). Such pushback is an ordeal common in interactions involving REM patients.

Excerpt H illustrates the often more challenging path African American patients face when seeking pain relief, even when demonstrating knowledge and articulating clear preferences. The physician's caution, while potentially rooted in general concerns about opioid risks, relies heavily on the notion that anything unusual is suspicious. Thus, physicians could easily consider communicative practices unfamiliar to the them as red flags.

5. Discussion

Discourse analysis helped narrow down the potential outcomes of opioid-related medical interactions and the paths involved in achieving them. Meanwhile, statistical corpus approaches, including univariate and multivariable analyses, identified which paths were significantly associated with or predictive of the physician's prescribing practices.

Firstly, there are two possible outcomes, the patient were either prescribed or denied opioids. Secondly, there are three possible paths toward a patient receiving an opioid prescription: (1) offered by the physician, (2) requested by the patient and met no physician pushback, or (3) requested by the patient, initially met with pushback, but later approved after extended negotiations.

The first five excerpts show White patients who often find themselves in the position to choose from a set of options. In contrast, excerpts F, G and H show African American patients who demonstrated extensive knowledge about opioids and arrived at the consultation already knowing the specific medication to request: Patient F consulted discussion groups, Patient G wrote down the name of the opioid, and Patient H already had success with the particular opioid they were requesting. Statements perceived as self-prescribing acts challenge the traditional power dynamic between physicians and patients, and, as a result, may have raised red flags, especially to healthcare professionals who are not familiar with communities where patients make requests or communicate pain in this manner (see Højsted and Sjøgren, 2007 for review of tests diagnosing addiction). All three requests were met with rejections. Among the examples, only Patient F was able to change the physician's mind after enduring an extended negotiation. While rejections and extended negotiations are not exclusive to REM patients, the findings revealed a statistically significant association between patient race and the likelihood of being offered opioids, with White patients having higher odds of receiving such offers. Consequently, patients who were not proactively offered opioids had no choice but to initiate request. No significant associations were found between gender and physicians' prescribing practices.

The findings underscore the urgent need for more equitable approaches to pain assessment and treatment. Furthermore, the prevalent narrative framing the opioid crisis as predominantly affecting White populations, while suggesting that minorities have largely escaped the problem, is deeply problematic. This perspective not only implies that pain experienced by minorities often goes untreated but also suggests that these communities may be deprived of crucial diversion and rehabilitation resources. Consequently, individuals in pain may resort to more dangerous forms of relief found outside the healthcare system. James and Jordan (2018) argue that dismissing the suffering experienced by racial and ethnic minorities can exacerbate addiction problems and perpetuate the cycle of inadequate support and treatment in these communities.

6. Conclusion

By combining discourse and corpus analyses, this study provides a thorough investigation into the potential impact of race and gender on physicians' prescribing patterns. After coding interactions according to their outcomes (prescribed, not prescribed) and paths to prescription (physician-initiated, patient-initiated, patient-persisted), patients' race emerged as a significant predictive factor for being prescribed and offered opioids. The findings suggest that White patients are less likely to encounter obstacles in receiving opioids as pain treatment. These findings align with the growing body of research highlighting patterns of inequities in pain perception and treatment across different communities.

Understanding the dynamics of interactions in which opioids are prescribed has the potential to:

1. Inform physicians about their attitudes, biases, and reactions toward certain expressions of pain.
2. Improve pain treatment for patients of diverse backgrounds.
3. Influence future healthcare policies from the bottom-up.

This paper's intent is to reveal the statistically significant patterns emerging from the given variables, which happens to point to biases in treatment. This study is limited by the lack of adjustment for confounding factors such as power dynamics resulting from age and education level. The study also suffers from the corpus not having any information on the physician's race. Additionally, this study acknowledges the impossibility of determining whether the statistically significant bias in the findings came from discriminatory intentions. As noted in the methodology, the persistent underrepresentation of minority patient data reflects broader systemic barriers, including historical trauma-induced distrust of medical research and disparate healthcare access—a limitation that continues to impact healthcare communication studies.

The results would be well complemented by future research that assess the efficacy of exposing medical providers to varying means by

which minority patients from different sociolinguistic backgrounds express pain and request medical assistance. By recognizing and addressing these disparities, we can work towards a more equitable healthcare system that provides effective pain management for all patients, regardless of their racial or ethnic background.

Data statement

The data used in this study were provided by Verilogue through their Research for the Public Good Award. Verilogue did not influence this study's design, and analysis. For information about the repository, interested researchers may visit https://www.verilogue.com.

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Appendix A. Supplementary data

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Data availability

The data that has been used is confidential.

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