Racial and Ethnic Disparities in Emergency Department Analgesic Prescription

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Objectives. We examined racial and ethnic disparities in analgesic prescription among a national sample of emergency department patients.

Methods. We analyzed Black, Latino, and White patients in the 1997–1999 National Hospital Ambulatory Medical Care Surveys to compare prescription of any analgesics and opioid analgesics by race/ethnicity.

Results. For any analgesic, no association was found between race and prescription; opioids, however, were less likely to be prescribed to Blacks than to Whites with migraines and back pain, though race was not significant for patients with long bone fracture. Differences in opioid use between Latinos and Whites with the same conditions were less and nonsignificant.

Conclusions. Physicians were less likely to prescribe opioids to Blacks; this disparity appears greatest for conditions with fewer objective findings (e.g., migraine). (*Am J Public Health.* 2003;93:2067–2073)

Racial/ethnic disparities in the prescription of analgesics appear widespread[1] and are evident in fracture treatment,[2,3] cancer pain,[4] and postoperative pain.[5] In a particularly striking series of studies, Todd et al.[2,3,6] demonstrated that African Americans and Latinos were significantly less likely to receive analgesia in the emergency department (ED) for isolated long bone fractures than were Whites, despite the fact that physicians rated patients' pain as similar in severity. These studies raise concerns that patients may be receiving inadequate pain control, and this suffering may fall disproportionately on minorities.[7]

Previous studies provide support for several hypotheses to explain why racial/ethnic differences in prescription of analgesics might occur.[8–10] Minority patients tend to be less assertive and less active in the physician–patient interaction[8] and less satisfied with their ability to communicate with their respective physicians[11] than Whites. Physicians' perceptions of patients also vary by race/ethnicity.[10] Communication has been shown to be less effective when social distance exists between the physician and the patient,[9,12–15] so some of the racial/ethnic differences may reflect more frequent communication difficulties that result from the generally lower socioeconomic status (SES) of minority patients or the general underrepresentation of minorities among physicians. These communication difficulties may lead to a physician being less likely to appreciate a patient's pain and less likely to prescribe analgesics.

If some of the racial/ethnic differences in analgesic use are caused by racial/ethnic variations in physician–patient communication, then disparities in the prescription of analgesics should be greatest when the clinician must rely on the medical history to determine the cause and severity of a patient's pain. Thus, differences should be least for conditions with unequivocal objective findings, such as long bone fracture; intermediate for conditions with few objective findings, such as back pain or strain; and greatest for conditions with almost no objective findings, such as a migraine headache. Similarly, if physicians have greater social distance from minorities, then these physicians may view their patients' reports of pain with less credibility. If so, disparities in the act of prescribing should be greatest for opioid analgesics, which require some level of trust that the patient's complaint is valid and that the medication will not be misused. Opioids generally offer several advantages to the clinician: the ability to deliver medication intravenously, potency, quick action, easily reversed action, and easy titration relative to nonopioid analgesics.[16] However, opioids may also raise physician concerns that the patient may be seeking opioids in order to satisfy an addiction or to sell them. Physicians may have more negative perceptions of minority patients[10,17] and feel they are at higher risk for abuse or sale of the opioid.[18] If physicians tend to trust minority patients less than White patients, then we hypothesized the disparities would be greater for prescription of opioid analgesics than nonopioid analgesics.

Previous studies of analgesic prescription in the ED were small[2,3,19] and limited to single institutions. These studies may not be representative of care patterns across the United States. The purpose of this study was to examine racial/ethnic disparities in analgesic practice at a national level. To test the hypothesis that physician–patient communication contributes to the racial/ethnic disparity, we compared the racial/ethnic disparities among 3 conditions with increasing levels of objective findings: migraine, back pain or strain, and long bone fracture.

METHODS

Study Population

We combined data from the 1997, 1998, and 1999 National Hospital Ambulatory Medical Care Survey (NHAMCS). The NHAMCS is a nationally representative sample of visits to nonfederal, short-stay hospital EDs that was conducted by the National Center for Health Statistics (NCHS).[20–22] The NHAMCS used a 4-stage probability sampling procedure that selected counties (or equivalents), then hospitals, then emergency service areas. Finally, hospital staff trained by NCHS personnel prospectively selected a random sample of patient visits during a randomly assigned 4-week reporting period. A patient record form was completed by hospital staff and reviewed and validated by NCHS staff. The NHAMCS employed routine quality control measures. A NCHS field representative reviewed the log or other records

used for visit sampling to determine whether any cases were missing and also edited completed forms for missing data. Attempts were made to retrieve both missing cases and missing data on specific cases, either by consulting with the appropriate hospital staff or by reviewing the pertinent medical records. All medical and drug coding and keying operations were subject to quality control procedures. Quality control for the medical and drug coding operation, as well as straight-key items, involved a 2-way, 10% independent verification procedure. As an additional quality control, all patient record forms with coding variations or with illegible entries for the reason for a visit, diagnostic and therapeutic procedures, diagnosis, E-code (cause of injury), and medication items were reviewed and adjudicated at NCHS. The NHAMCS data can be used to produce national estimates through the weighting procedure that accounts for the sample design, nonresponse, and fixed totals.

We first examined analgesic use for all patients in the NHAMCS database. To further explore disparities in analgesic prescription, we examined 3 common conditions with increasing levels of objective physical findings: migraine (*International Classification of Diseases, 9th Revision* [ICD-9] 346), back pain or strain (ICD-9 724), and long bone fracture (ICD-9 812, 813, 821, and 823).

Dependent Variables

Each medication administered in the ED, prescribed at discharge, or discussed (i.e., recommended that a patient continue to take a previously prescribed medication) was abstracted from the patient record form. We identified analgesic medications using all the National Drug Code Directory codes for "analgesia" determined by NHAMCS, including medications specific for headache/migraine relief. Identification of opioid analgesic was similarly identified using the National Drug Code Directory code for "narcotic analgesia" determined by NHAMCS. From this data, we created 2 dependent variables to indicate whether the patient was prescribed, received, or instructed to continue to use (1) any analgesic and (2) any opioid analgesic.

Independent Variables

Classification of individuals into racial and ethnic groups has been a contentious issue.[23–26] For the purpose of this study, we were interested in how analgesic prescription varies according to patients' appearance, which includes physical characteristics, dress, language, and mannerisms. A classic definition of race is "any group of people who are distinguished, or consider themselves distinguished, in social relations with other peoples, by their physical characteristics."[27] A more contemporary definition of race, however, emphasizes that the importance of physical variations in the human species are socially constructed.[28] Ethnicity can be thought of as a self-perceived group of people who hold a common set of traditions, including folk and religious beliefs and practices, language, a sense of historical continuity, and common ancestry or place of origin.[29] Thus, health care providers' impressions of a patient's appearance are likely to be based on an individual's race and ethnicity, and we therefore use the term race/ethnicity throughout.

The race/ethnicity recorded in NHAMCS likely reflects the hospital staff's perception of a patient's race and ethnicity rather than the classification that a patient might choose. Because the clinician determines the prescription of analgesics, it is the clinician's perception of a patient's race/ethnicity that is most relevant for this analysis. The NHAMCS classified the patient's race as White, Black, American Indian or Alaska Native, or Asian or Pacific Islander by the hospital staff, with explicit instructions from NHAMCS not to ask the patient unless it was hospital procedure to do so. The patient's ethnicity was categorized as Hispanic or non-Hispanic. Based on this, we created 5 racial/ethnic groups that we refer to as American Indian or Alaska Native, Asian or Pacific Islander, Black, Latino, and White.[25] We considered any patient recorded as Hispanic to be Latino, regardless of other racial classifications. For this analysis, we present data only for Blacks, Whites, and Latinos.

Covariates

Many factors other than race/ethnicity may influence physicians' decisions to prescribe analgesics in general and opioid analgesics in particular. We adjusted for patients' age, sex, insurance coverage (recorded as method of payment), major complaints presented (using the 3 diagnoses recorded), severity (triage assignment and pain assessment), visit characteristics (mode of arrival and discharge status), and hospital characteristics (hospital ownership, region, urban vs rural, and year of visit). Method of expected payment was categorized as private, Medicare, Medicaid, worker's compensation, self-pay/uninsured, other, unknown, or missing. The triage nurse's assessment of the time within which the patient should be examined was categorized as $<$15 minutes, 15 to 60 minutes, 1 to 2 hours, or $>$2 hours by means of a predefined scheme to convert the hospital's triage system to the above scale. Pain severity was categorized as none, mild, moderate, severe, unknown, or missing, based on chart abstraction with a predefined scheme to convert terms in the medical record into the above scale. The mode of arrival was categorized as ambulance, police or social services (public service), walk-in, unknown, or missing. Discharge status was categorized as no follow-up planned, follow-up with referring physician, return to the ED if needed, triaged out of ED before being seen, follow-up with a physician, left without being seen, admitted to the hospital, admitted to the intensive care unit or cardiac care unit, transferred to another hospital, dead on arrival, referred to social services, or other. Hospital ownership was categorized as for profit, voluntary nonprofit, or government nonprofit. Region was categorized as Northeast, Midwest, South, or West.

Statistical Analyses

Chi-square tests were used to test bivariate associations, and multiple logistic regression was used to determine the independent association between race/ethnicity and analgesic prescription after adjusting for covariates. To fully adjust for possible racial/ethnic differences in patients' presenting complaints, we conducted additional analyses using fixed-effects logistic regression,[30] with the full logistic model comparing only patients who had the same 3 diagnoses. To determine whether disparities in prescription practices differed by the objectivity of clinical findings, we conducted 3 separate stratified regressions for patients with long bone fracture, back pain and strain, and migraine, by means of the same variables from the full logistic model used with the entire sample. To ensure that the results were not affected by racial/ethnic

differences in whether the target conditions were primary versus secondary complaints, we repeated the regression model with 2 different samples: only patients with a primary diagnosis of the condition (e.g., migraine) and no secondary or tertiary diagnoses, and any patient with the diagnosis. The coefficients did not differ between the 2 models,[31] so we used the more inclusive sample to provide greater precision of the estimated association. We then approximated the relative risk from the odds ratios as described by Zhang and Yu.[32] Adjusted proportions were calculated based on the relevant model using the ADJUST command in *Stata Version 7.0* (Stata Corp, College Station, Tex), which sets all covariates in the model to their sample mean values. All bivariate and multivariate analyses that we used adjusted sample weights to account for the sampling design by a method suggested by the NCHS and used previously.[21,33] Based on findings from previous studies,[34] we examined possible interactions between race and gender, but the interaction was not significant in the whole population and the sample size was not sufficient to produce stable estimates within each of the 3 specific conditions. All analyses were performed with *Stata Version 7.0*.

RESULTS

Sample Characteristics

Of the 67 487 patients in our sample, 21% (15 108) were Black, 9% (7 523) were Latino, and 68% (42 926) were White (Table 1); 2% (1930) of patients were classified as being from other races (other than White, Black, or Latino). This sample is representative of an average of 99 million ED visits annually in the United States between 1997 and 1999. Important differences across racial/ethnic groups were noted for several patient characteristics. Mean age was highest for Whites and lowest for Latinos. Whites had more visits classified as urgent and were admitted to the hospital more often than Blacks or Latinos (Table 1). Pain severity ratings were similar for the 3 groups, although the differences were significant because of the very large sample size.

TABLE 1—Patient Characteristics of Participants in the National Hospital Ambulatory Medical Care Survey: 1997-1999

Characteristic	Total	White	Black	Latino	*P* value
Sample size[a]	67 487	42 926	15 108	7 523	
Population estimate[b]	99 361 812	67 487 644	20 373 375	9 219 558	
Female (%)	53	52	55	51	<.001
Age (mean + SD)	35 ± 24	38 ± 25	32 ± 22	27 ± 21	<.001
Urgency (%)					<.001
< 15 min	19	21	15	15	
15–60 min	31	32	29	32	
1–2 h	15	14	18	19	
2–24 h	9	9	11	11	
Unknown	25	25	27	23	
Pain (%)					<.001
None	12	12	12	14	
Mild	20	20	20	18	
Moderate	14	15	12	14	
Severe	4	5	3	4	
Unknown/blank	50	48	53	50	
Arrival (%)					.12
Ambulance	6	6	6	5	
Public service	10	11	10	8	
Walk-in	28	28	28	32	
Unknown/missing	56	55	56	55	
Urban Hospital (%)	76	71	86	93	<.001
Admitted (% yes)					<.001
General	13	14	10	10	
ICU/CCU	1.4	1.7	0.9	0.7	

Notes. SD = standard deviation; ICU/CCU = intensive care unit/cardiac care unit.
[a]A total of 1930 patients were classified as being from other races (other than White, Black, or Latino).
[b]This figure represents the average annual number of visits for the US population between 1997 and 1999.

Bivariate Results

In bivariate analysis, Whites, Blacks, and Latinos in the entire sample appeared to be equally likely to receive some form of analgesic, but Whites were more likely to have received an opioid analgesic. Among the entire population, 62% of Whites did not receive any analgesic; the rates were similar for Blacks and Latinos (Table 2). Among those who received some type of analgesic, 34% of Whites, 23% of Blacks, and 23% of Latinos ($P<0.001$) received an opioid.

For patients with migraines, 16% of Whites, 28% of Blacks, and 20% of Latinos received no analgesic (Table 2). Whites were not only more likely than Blacks to receive an analgesic for migraines ($P<0.001$) but also were more likely to receive an opioid analgesic ($P<0.001$). Latinos were less likely to receive an analgesic or opioid analgesic than Whites, but these differences were not statistically significant. Among patients with back pain, 20% of Whites received no analgesic, compared with 30% of Blacks ($P<0.01$) and 23% of Latinos ($P=0.51$) (Table 2). More than half of Whites (54%) who received an analgesic received an opioid analgesic. In contrast, only a quarter (27%) of Blacks who received any analgesic received an opioid. Latinos received opioids at similar rates to Whites. Finally, one third of patients with long bone fractures did not receive any analgesic while approximately one third received an opioid; these proportions were similar for all 3 races/ethnicities (Table 2).

Multivariate Results

Multiple logistic regression demonstrated that race/ethnicity was not associated with whether or not a patient received any analgesic (data not shown). After adjusting for SES,

TABLE 2—Receipt of Analgesic in the Emergency Department for Patients in the National Hospital Ambulatory Medical Care Study: 1997–1999

Entire Population	White	Black	*P* vs White	Latino	*P* vs White
Sample size	42 926	15 108		7 523	
Population estimate	67 487 644	20 373 375		9 219 558	
Received analgesic (%)			<0.01		<.01
None	62	63		62	
Nonopioid	25	28		29	
Opioid	13	8		9	
Opioid/all analgesics (%)	34	23	<0.01	23	<.01
Patients with migraine					
Sample size	471	92		43	
Avg. annual visit (est.)	784 582	140 914		52 949	
Received analgesic (%)			<0.01		.51
None	16	28		20	
Nonopioid	24	39		30	
Opioid	61	33		50	
Opioid/all analgesics (%)	72	45	<0.01	63	.29
Patients with back problems					
Sample size	912	273		126	
Avg. annual visit (est.)	1 441 918	396 398		156 054	
Received analgesic (%)			<0.01		.38
None	20	30		23	
Nonopioid	37	59		42	
Opioid	43	21		35	
Opioid/all analgesics (%)	54	27	<0.01	45	.18
Patients with long bone fractures					
Sample size	602	80		71	
Avg. annual visit (est.)	969 912	90 606		94 339	
Received Analgesic (%)			0.34		.57
None	33	28		37	
Nonopioid	31	42		25	
Opioid	36	30		38	
Opioid/all analgesics (%)	54	42	0.20	61	.46

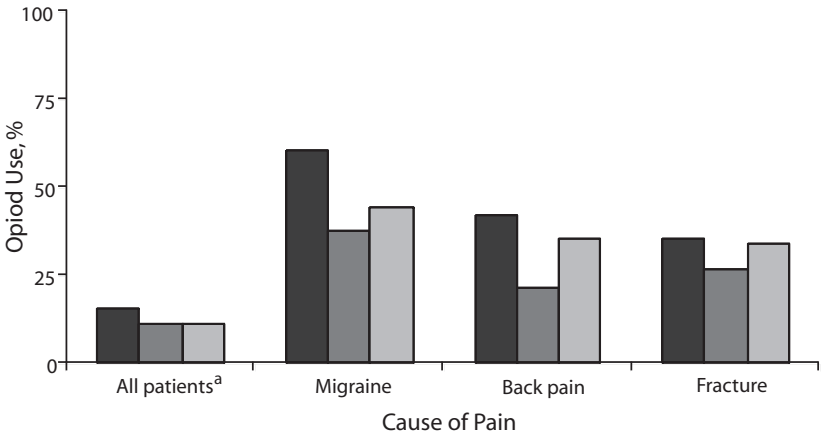
demographics, severity, visit characteristics, and hospital characteristics, the adjusted relative risk for Blacks and Latinos to receive any analgesic ranged from 0.89 to 1.03, none of which was statistically significant. The adjusted relative risk for Blacks in the whole population was 1.02 (95% confidence interval [CI], 0.98–1.05) and was 1.03 (95% CI, 0.98–1.08) for Latinos, which demonstrates that race/ethnicity was not associated with whether or not a patient was prescribed any analgesic.

Although race/ethnicity was not independently associated with receiving any analgesic, race/ethnicity was associated with receiving an opioid analgesic in multivariate analyses. Among the entire population, the conditional logistic regression, which conditioned the regression on the first 3 diagnoses listed for the visit, demonstrated that Blacks (adjusted relative risk 0.72; 95% CI, 0.66–0.79) and Latinos (adjusted relative risk 0.72; 95% CI, 0.64–0.81) were both 28% less likely than Whites to receive opioid analgesic (Table 3). The differences in opioid prescription were similar regardless of patients' insurance coverage (i.e., private, Medicaid, or self-pay). The difference in opioid use for Blacks and Whites was also seen for the subgroups of patients with migraine and back pain; however, the difference was somewhat less for patients with long bone fracture and was not statistically significant (Table 3). The differences in opioid use between Latinos and Whites were much smaller than for Blacks, and none were statistically significant (Table 3). Nevertheless, as we hypothesized, the greatest difference was seen for the condition with the least objective findings (migraine) and the least difference was seen for the condition with the most objective findings (long bone fracture; Figure 1). The results were similar when we analyzed the likelihood of receiving an opioid among only those patients who received any form of analgesic.

DISCUSSION

Blacks, Latinos, and Whites were equally likely to receive some form of analgesic for the entire population of patients using the ED as well as the subgroups with migraine, back pain, or long bone fracture. Previously, Todd et al. found that Latinos and Blacks were less likely to receive any analgesic for long bone fracture,[2,3] while Karpman[19] found no disparity between Latinos and Whites. It is possible that the single-institution studies were not nationally representative, or that the seminal report by Todd et al. in 1993 focused the attention of ED physicians on this issue, so that any national discrepancies that existed at the time of the publication of their study had been minimized by the period 1997–1999, when the data were collected for this study.

The differences between our results and those of earlier reports could also result from differences in study methodology. We identified long bone fractures using the same ICD-9 codes. However, Todd recorded only analgesics administered in the ED. Additionally, we were unable to exclude patients being treated for complications of previously treated fractures and cases where the radiology report did not confirm a fracture. Despite these methodological differences, the rate of analgesic use among White patients with long bone fracture was similar in our study and the reports from Todd et al. In contrast, the rates of analgesic use for Blacks and Latinos were substantially higher than in previous studies.[2] Nationally, 67% of Whites, 72% of Blacks, and 63% of Latinos received some type of analgesic, in contrast to Todd et al.'s



Note. Whites = black bar; Blacks = dark gray bar; Latinos = light gray bar. All logistic regressions adjust for the covariates of socioeconomic status (SES)/demographics (assessed by sex, age, and method of payment), severity (assessed by triage assignment and pain assessment), visit characteristics (assessed by mode of arrival and discharge status), and hospital characteristics (assessed by hospital ownership, region, urban vs rural, and year of visit).
[a]A conditional logistic or fixed effects logistic regression was done for the entire population; therefore, the estimates are based on comparisons being made only among patients with the same 3 diagnoses by ICD-9 codes.

FIGURE 1—Adjusted proportions of patients who received an opioid analgesic, for all patients in National Hospital Ambulatory Medical Care Survey combined and for those presenting with migraine, back pain, and long bone fracture.

TABLE 3—Adjusted Relative Risk[a] (95% CI) of Being Prescribed an Opioid Analgesic for African Americans and Latinos Compared With Whites in the National Hospital Ambulatory Medical Care Study: 1997–1999

	African Americans	Latinos
All patients[b]	0.72 (0.66–0.79)	0.72 (0.64–0.81)
Migraine	0.63 (0.40–0.89)	0.74 (0.41–1.11)
Back pain	0.50 (0.36–0.69)	0.85 (0.56–1.18)
Long bone fracture	0.74 (0.43–1.18)	0.97 (0.56–1.49)

Note. CI = confidence interval.
[a]Analyses are presented for all patients combined and for patients presenting with migraine, back pain, and long bone fracture. All logistic regressions adjust for the covariates of socioeconomic status or demographics (assessed by sex, age, and method of payment), severity (assessed by triage assignment and pain assessment), visit characteristics (assessed by mode of arrival and discharge status), and hospital characteristics (assessed by hospital ownership, region, urban vs rural, and year of visit).
[b]A conditional logistic or fixed effects logistic regression was done for the entire population; therefore, the estimates are based on comparisons being made only among patients with the same 3 diagnoses by ICD-9 codes.

finding that 74% of Whites,[2,3] 57% of Blacks,[2] and 45% of Latinos[3] received any type of analgesic.

Although we found no difference in overall analgesic prescription, Blacks and Latinos in the entire sample were less likely than Whites to receive an opioid analgesic. This finding is consistent with our hypothesis that disparities would be greater for opioid prescriptions than nonopioids, because prescribing an opioid requires more trust of the patient by the physician. Among the subgroups, Blacks were far less likely to receive an opioid analgesic than Whites for both migraine and back pain, but there was no difference for all patients with a long bone fracture. This finding is consistent with our a priori hypothesis that racial/ethnic differences in analgesic prescription would be least for conditions with clear, objective findings (long bone fracture) and greatest for conditions with less objective findings (migraine, back pain) that require more provider–patient communication to arrive at a diagnosis and a treatment plan. There were no differences in opioid use between Whites and Latinos for these 3 conditions, although the power to detect differences was limited by the small number of Latinos with these diagnoses and the need to inflate standard errors to account for the clustering of patients within hospitals.[33]

Although we found no racial/ethnic differences in overall analgesic use, our finding that between a sixth and a third of patients diagnosed with 1 of 3 painful conditions did not have the prescription, administration, or recommendation of an analgesic recorded during an ED visit should raise concern. The low rate of analgesic use is consistent with a recent study that found only 44% of ED patients rated their pain control as "very good."[35] The NHAMCS attempted to identify all "medications that were ordered, supplied, administered, or continued during this visit," including "drugs and medications that the physician ordered or provided *before this visit and instructs or expects* the patient to continue taking regardless of whether a 'refill' is provided at the time of visit." This apparently high proportion of patients not prescribed an analgesic could partly be due to lack of documentation when physicians tell patients to take over-the-counter analgesics or to continue with medications they have at home.[2] Restricting the measure to only medications administered in the ED may have reduced this misclassification bias, but the separate data were not collected by NHAMCS.

Alternative Explanations for Findings

We hypothesized that racial/ethnic differences in patient assertiveness,[8] physician perception of the patient,[10] and social distance[12] may contribute to differences in physician–patient communication[11] and trust that are responsible in part for the racial/ethnic disparities in analgesic prescription. The results of this study provide support for the role of patient communication and trust in the creation of these disparities, but the dimensions were not directly measured in the current study and the data support several alternative explanations. The 3 conditions studied vary substantially in their natural history, ranging from

acute with defined duration (fracture), to acute but slowly resolving with an uncertain prognosis (back pain), to recurrent over many years (migraine). The variation in the racial/ethnic differences in opioid prescription found across these 3 conditions could result from this variation in natural history and course of disease rather than the presence of objective findings on physical examination. Perhaps physicians were reluctant to prescribe opioids for a lengthy condition if a patient lacked a regular source of care. Additionally, some physicians may have prescribed nonopioid analgesics to Blacks and Latinos instead of an opioid because of the difficulties faced by some minorities in acquiring opioid analgesics from local pharmacies.[36] The NHAMCS did not distinguish between medications administered in the ED and those prescribed at discharge. Therefore, we could not determine whether the racial/ethnic differences in opioid prescription resulted from variations in opioid administration or discharge medications. Possibly Whites were more likely to have already attempted pain control with nonopioid, over-the-counter pain relievers. When a patient presented to the ED, the physician may have been more likely to prescribe an opioid because the patient reported using a nonopioid without success. Additionally, medications that the physician offered a patient but were declined were not identified. Possibly the disparities in treatment were a result of differing patient preferences. However, previous research has demonstrated no racial/ethnic differences in ratings of pain severity[7,37–39] or preference for analgesia.[7]

Limitations

Although our study found an association between race/ethnicity and the rate of opioid prescription, it is not possible to say whether these differences are related to race/ethnicity per se or to some unmeasured variable that is highly associated with race/ethnicity, such as SES.[10] Although the NHAMCS does not contain information on patients' SES, neither Medicaid nor self-pay status was significant in any of our models. Additionally, Blacks and Latinos are equally likely to be poor,[40] and Latinos tend to have lower educational attainment than Blacks.[41] Although this study did not have adequate power, the trend for opioid prescription to be lower among Blacks than Latinos suggests that race may be a more important correlate than SES.

Additionally, despite rigorous efforts by NHAMCS to achieve consistent data collection across sites, there may have been significant variation in the coding of some covariates (i.e., assessment of pain and urgency) or systematic bias in these measurements by race/ethnicity (e.g., triage nurses giving Whites higher urgency ratings for similar problems). However, if race/ethnicity were related to any of the severity variables, such that a White was assigned a higher severity despite being clinically identical to a Black or Latino, then our multivariate analysis would *underestimate* the true association between race/ethnicity and analgesic use. This would lead to an underestimate of the differences in prescription of both opioids and any analgesics and contribute to our finding of no difference in prescription of any analgesic. The large number of missing pain scores could have introduced bias if one group was more likely to have their pain assessed; however, missing pain assessment did not differ by race/ethnicity within the 3 conditions and removal of the pain variable from the multiple regression did not significantly change the coefficients for race.[31]

Future Directions

The Joint Commission on Accreditation of Hospital Organizations has recommended routine use of a pain-rating scale at the time that vital signs are taken.[42] Although this recommendation may be helpful for addressing the widespread problem of inadequate pain control, it is unclear whether it will achieve greater equity of analgesic prescription across all racial/ethnic groups. Earlier studies found differences in analgesic use for Whites and Latinos, even though physicians' average ratings of pain severity for these groups were nearly identical.[3,6] It may be helpful for EDs to routinely monitor the relationship between analgesic prescription and patients' pain severity ratings for Whites, Blacks, and Latinos to detect inadequate pain control and to attempt to address it. In addition, more studies are needed to understand the fundamental causes of disparities in analgesic prescription. Our findings and previous research suggest that a better understanding of provider–patient communication and trust may be a fruitful focus for future research and interventions. ■

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Contributors

J.H. Tamayo-Sarver conceived the study, performed the analysis, interpreted the results, and led the writing. D.W. Baker assisted in the analysis, interpretation, and manuscript revision. S.W. Hinze and R.K. Cydulka assisted in the interpretation of the data and revision of the article. All authors helped to conceptualize ideas, interpret findings, and review drafts of the article.

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Human Participant Protection

Local institutional review board approval was not sought because this study was a secondary analysis of a publicly available dataset that contained no individual or institutional identifying information.

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