

Article

African and Hispanic Americans Have Higher Healthcare-Related Burden Without Higher Mortality When Admitted with Acute Diverticulitis [†]

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Abstract

Background: Health disparities between racial groups continue to exist. There is a paucity of data regarding presentation severity for acute diverticulitis (AD) and surgery need by race. This study's aim was to evaluate outcomes of AD in United States racial groups. **Methods:** A retrospective cohort study was performed using the 2016–2019 National Inpatient Sample of adult patients discharged for AD. Patients were classified into six racial and ethnic groups: Caucasian, African American (AA), Hispanic, Asian, Native American (NA), and other. Multivariate regression analysis adjusted for patient and hospital characteristics was performed for primary and secondary outcomes. **Results:** A total of 647,119 admissions with acute diverticulitis (AD) were identified. Most patients were Caucasian (about three-quarters), followed by Hispanics (11%), AA (9%), Asians (1%), Native Americans (<1%), and other (2%). Minority groups were generally younger than Caucasians and less likely to undergo colonoscopy or surgical procedures such as partial or total colectomy. In the multivariable analysis, both Hispanics and AA were less likely to present with complicated diverticulitis. Despite this, their hospitalizations were associated with higher overall charges and costs. No significant differences were found across groups in terms of inpatient mortality or the need for percutaneous abscess drainage. **Conclusions:** Hispanic and AA have higher healthcare-related charges and costs compared to Caucasians when admitted with AD. Further studies are needed to understand the healthcare-related spending variations seen in these groups despite them often having less complicated AD.

Keywords: acute diverticulitis; minorities; colectomy; mortality; healthcare costs



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1. Introduction

Diverticular disease remains one of the most common gastrointestinal disorders in the United States (US), particularly among older adults, though its incidence in younger populations has been steadily increasing in recent decades [1,2]. Approximately 60% of individuals over the age of 60 and up to 70% over 85 have diverticulosis [1]. While most

patients remain asymptomatic, about 20–25% may develop acute diverticulitis (AD) during their lifetime [2].

The majority of AD cases are uncomplicated; however, a subset of patients present with complicated diverticulitis involving abscess, obstruction, fistula, or perforation. These complicated cases are associated with prolonged hospital stays, higher rates of surgical intervention, and worse outcomes compared with uncomplicated disease [2]. Recent estimates suggest that diverticulitis accounts for nearly USD 8.9 billion annually in direct healthcare costs in the US, reflecting a substantial and growing economic burden [1,3].

Despite the overall burden, disparities in disease presentation and management across racial and ethnic groups remain insufficiently understood. Racial and socioeconomic disparities in healthcare delivery are increasingly recognized as important determinants of outcomes, prompting national efforts such as those led by the National Institute on Minority Health and Health Disparities (NIMHD) to address inequities. Recent analyses of large national databases have demonstrated differences in diverticulitis outcomes by race: for example, Black patients are significantly less likely than White patients to undergo surgery for diverticulitis, and non-White groups have been shown to incur higher mean hospital charges despite similar lengths of stay [3]. Asian patients with right-sided diverticulitis have also been reported to experience higher postoperative mortality after colectomy compared to other groups [4]. Moreover, prior studies have found that African American (AA) patients are less likely to undergo minimally invasive colectomy than Caucasians [5], and Medicare analyses have linked AA race with higher rates of emergency admission and mortality and higher total treatment charges [3].

Given the persistent gaps in the literature, further investigation is needed to clarify how racial and ethnic disparities influence the presentation, severity, healthcare utilization, and outcomes of AD. The objective of this study was to evaluate differences in mortality, severity at presentation, need for colonoscopy, surgical interventions, and healthcare expenditures across US racial and ethnic groups hospitalized with AD using a large, nationally representative dataset.

Preliminary findings from this analysis were presented at the Digestive Disease Week 2025 [6].

2. Methods

We conducted a retrospective review using the Healthcare Cost and Utilization Project National Inpatient Sample (NIS) database for the years 2016 to 2019 [7]. The NIS agency is under the sponsorship of the Agency for Healthcare Research Quality (AHRQ) and represents the largest publicly accessible all-payer inpatient healthcare database in the US. At least 48 states participate in this database, which covers more than 97 percent of the national population. Each year, NIS estimates approximately 35 million hospital admission nationally [8]. Our patient population consisted of all patients with a primary discharge diagnosis of AD. These patients were identified using the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD10-CM/PCS). Prior research using NIS has evaluated AD in association with risk factors such as smoking, obesity, and inflammatory bowel disease [9–11], and recent studies (2022–2025) have likewise used NIS to compare resource utilization and outcomes in AD between medical and surgical patients across demographics [12].

2.1. Study Population and Design

We queried the ICD-10CM for all primary admission diagnoses of AD (K57.2, K57.3, K57.9). We included all patients 18 years of age and older who had a principal diagnosis of AD. In this study, AD associated with one of the following complications was defined as

complicated diverticulitis (CD): obstruction, abscess, fistula, or perforation. AD without any associated complications was defined as uncomplicated diverticulitis (UD).

2.2. Study Outcomes

Primary outcomes were (1) mortality; (2) severity of AD (uncomplicated vs. complicated); (3) need for colonoscopy; (4) need for percutaneous drainage of abscess; and (5) need for partial and total colectomy. Secondary outcomes were the impact of AD on resource utilization, including length of stay (LOS), healthcare-related charges, and costs adjusted to inflation according to the price consumer index for the year 2019.

2.3. Definitions of Variables

Using the NIS, we categorized race/ethnicity into 6 groups: Caucasian, AA, Hispanic, Asian, Native American (NA), or other. Patient demographics and hospital characteristics were collected. Patient characteristics included age (years), gender, health insurance type (Medicare, Medicaid, private, uninsured), and residence (large metropolitan areas with at least 1 million residents, small metropolitan areas with less than 1 million residents, micropolitan areas (nonurban residual), and not metropolitan or micropolitan). The hospital characteristics of interest included the hospital size based on number of beds (small, medium, and large), teaching status, and the region (Northeast, Midwest, South, and West). Principal diagnosis, inpatient complications, comorbidities, and procedures were defined by ICD10-CM/PCS codes. We also collected data on alcohol use, smoking, opioid abuse, and comorbidities including obesity and malnutrition, as these seemed most likely to influence the study outcomes of morbidity and mortality. We used Sundararajan's adaptation of Deyo's modified Charlson Comorbidity Index (CCI) to assess the burden of comorbid conditions [13]. Multivariate regression analysis adjusted for patient and hospital characteristics was performed for the primary and secondary outcomes. For our multivariable regression models, covariates were selected a priori based on clinical relevance and prior literature on outcomes in acute diverticulitis. Patient-level factors included age, sex, race/ethnicity, comorbidities, insurance status, and median household income by ZIP code, while hospital-level factors included teaching status, location, and bed size. To ensure model stability, we evaluated potential collinearity among variables, particularly between insurance type and socioeconomic status, using variance inflation factors (VIFs). All VIFs were below accepted thresholds, indicating that collinearity was not a significant concern.

2.4. Statistical Analysis

STATA, version 16 (StataCorp, College Station, TX, USA), was used to perform the statistical analysis. With this integrated statistical software package, analysis of the national representation of results, variance estimates, and *p* values is possible in an unbiased fashion. The NIS approximates a 20-percent stratified sample of discharges, and its self-weighting design reduces the margin of error for estimates of the entire population of hospitalized patients with AD in the US. We used univariable Cox regression analysis to calculate unadjusted odds ratios for the primary and secondary outcomes. Subsequently, multivariable Cox regression analysis was used to adjust the results for potential confounders. Multivariable logistic regression modeling was performed to calculate the odds ratio (OR) and 95% confidence intervals (CIs) for the association between the different races and the outcomes of interest (presentation status, LOS, charges, costs, percutaneous abscess drainage, partial or total colectomy, and in-hospital mortality). Patient characteristics, comorbidities, procedures, and inpatient complications were compared between race/ethnicity categories by using χ^2 tests and *t* tests. Two-sided *p* values were reported with a significance level of *p* = 0.05.

2.5. Ethics Approval

Given the deidentified nature of the NIS database, the analysis was exempt from Institutional Review Board (IRB) approval.

3. Results

3.1. General Characteristics

This study included a total of 647,119 discharges with a primary diagnosis of AD from the years 2016 to 2019. A total of 491,439 (75.0%) were Caucasian, 58,315 (9.0%) AA, 72,940 (11.3%) Hispanic, 6351 (1.0%) Asian, 2728 (0.4%) NA, and 15,346 (2.4%) other races. AA, NA, and Hispanic AD patients, on average, were younger than Caucasian AD patients (57.9, 54.3 and 54.9 years, respectively, versus 62.1 years, $p < 0.01$). Asian and NA patients had higher rates of CD compared to Caucasians (43.0% and 44.2%, respectively, versus 41.9%, $p < 0.01$). Hispanic, Asian, and NA patients were more likely to have private insurance (38%, 44.6% and 39.5%, respectively), while AA and Caucasian patients were more likely to be covered by Medicare (41.6% and 45.9%, respectively). Among AA patients, half were in the lowest quartile of income. Among all the races, AA patients had the highest number of AD patients (17.9%) with a CCI score of ≥ 3 . Smoking and obesity represented the most relevant associated factors, being present in more than 10% in all racial groups but with higher numbers in AA and NA patients (smoking: 23.5% and 27.2% and obesity: 27.4% and 26.5%, respectively, $p < 0.01$). Acute kidney injury (AKI) was a significant inpatient complication. AA patients were the most affected group (11.3%). Minorities had lower rates of total and partial colectomy compared to Caucasians. Additionally, they were less likely to undergo colonoscopy during admission. Patient-level demographics are summarized in Table 1.

Table 1. General characteristics of patients with acute diverticulitis by race.

	Caucasian	African American	Hispanic	Asian	Native American	Others	<i>p</i> Value
Patient characteristics (%)							
No. of patients	491,439 (75.9)	58,315 (9.0)	72,940 (11.3)	6351 (1.0)	2728 (0.4)	15,346 (2.4)	
Female (%)	42.1	34.9	45.9	43.1	43.3	47.1	<0.01
Mean age, years	62.1	57.9	54.9	60.1	54.3	57.2	<0.01
Uncomplicated diverticulitis	58.1	63.0	61.39	57.0	55.7	59.8	<0.01
Complicated diverticulitis	41.9	37.0	38.61	43.0	44.2	40.1	<0.01
Admission characteristics (%)							
Weekend	19.9	22.9	22.0	21.5	21.3	19.7	<0.01
Charlson's Comorbidity Index score (%)							
0	54.1	44.5	58.1	51.1	52.2	57.7	<0.01
1	23.3	24.3	24.5	23.3	25.9	23.9	
2	10.7	13.2	8.7	11.2	10.1	8.5	
≥3	11.9	17.9	8.7	14.4	11.8	9.9	
Median annual income in patient's zip code, USD (%)							
0 to 25th percentile	21.2	51.6	34.6	12.8	39.1	25.8	<0.01
26 to 50th percentile	27.0	21.5	26.2	16.2	27.5	21.5	
51 to 75th percentile	26.8	16.3	22.9	25.9	20.3	24.4	
76 to 100th percentile	25.0	10.6	16.2	45.0	13.1	22.9	

Table 1. Cont.

	Caucasian	African American	Hispanic	Asian	Native American	Others	<i>p</i> Value
Insurance type, (%)							
Medicare	45.9	41.6	30.7	39.6	35.4	34.3	<0.01
Medicaid	7.4	17.4	21.3	12.4	19.1	14.9	
Private	43.2	33.7	38.0	44.6	39.5	42.9	
Self-pay	3.5	7.3	10.1	3.4	5.9	7.8	
Hospital Region (%)							
Northeast	21.9	16.7	17.2	15.2	4.3	33.1	<0.01
Midwest	25.0	21.7	8.2	9.9	17.6	11.5	
South	38.4	54.2	45.3	19.6	33.6	40.5	
West	14.7	7.5	29.3	55.2	44.5	14.8	
Hospital bed size (%)							
Small	24.3	21.7	22.5	21.1	25.5	24.5	<0.01
Medium	31.4	31.1	34.6	29.6	27.4	34.5	
Large	44.5	47.2	42.9	49.3	47.1	40.9	
Hospital location (%)							
Urban	86.9	92.9	96.1	94.4	66.9	94.1	<0.01
Teaching status (%)							
Teaching	58.6	72.1	67.6	67.1	50.1	68.2	<0.01
Patient comorbidities (%)							
Alcohol abuse	2.3	2.8	2.2	1.2	4.7	2.6	<0.01
History of smoking	18.1	23.5	13.9	11.1	27.2	15.9	<0.01
Cannabis	1.2	3.5	1.8	0.8	3.7	1.8	<0.01
Opioid abuse	0.5	0.6	0.4	<0.01	0.8	0.4	0.02
Obesity	17.3	27.4	21.1	10.5	26.5	16.9	<0.01
Malnutrition	3.9	3.8	2.5	3.8	3.6	3.5	<0.01
Inpatient complications (%)							
Mechanical ventilation	0.6	0.6	0.3	0.2	0.2	0.4	<0.01
Acute kidney injury	7.6	11.3	5.6	6.8	6.9	6.5	<0.01
Parenteral nutrition	1.6	1.6	0.9	1.9	0.9	1.5	<0.01
In-patient procedure (%)							
Colonoscopy	5.9	5.6	5.6	5.8	3.9	5.7	<0.01
Partial colectomy	9.8	5.9	7.7	7.8	9.0	9.1	<0.01
Total colectomy	17.8	11.3	13.5	12.6	10.3	15.1	<0.01
Colostomy	6.4	4.3	4.1	4.2	5.3	4.5	<0.01
Ileostomy	1.7	1.5	1.1	0.9	1.6	1.5	<0.01
Percutaneous abscess drainage	0.2	0.3	0.3	0.3	0.2	0.4	0.65
Healthcare-related usage							
Length of stay (days), mean	4.59	4.85	4.18	4.49	4.50	4.46	0.15
Charges (USD), mean	46,337.4	46,847.7	51,982.4	53,804.3	37,039.8	51,832.2	<0.01
Costs (USD), mean	11,677.8	11,085.6	11,092.1	13,597.5	12,734.3	11,853.2	<0.01

3.2. Outcomes of Hospitalization for AD

A multivariate regression analysis was constructed to adjust for the effects of patient and hospital confounders on primary outcomes. Hispanic and African American (AA)

patients were less likely to present with complicated diverticulitis, with adjusted odds ratios (aOR) of 0.79 (95% CI: 0.74–0.83) and 0.85 (95% CI: 0.81–0.91), respectively. Both groups also demonstrated a reduced likelihood of undergoing partial colectomy (Hispanics: aOR 0.76, 95% CI: 0.70–0.82; AA: aOR 0.61, 95% CI: 0.56–0.66) and total colectomy (Hispanics: aOR 0.75, 95% CI: 0.70–0.82; AA: aOR 0.58, 95% CI: 0.53–0.63). Conversely, AA patients had slightly higher odds of receiving inpatient colonoscopy (aOR 1.11, 95% CI: 1.01–1.23). No significant differences were observed across groups regarding in-hospital mortality or the need for percutaneous abscess drainage.

In terms of secondary outcomes, both Hispanic and AA patients incurred significantly higher hospital-related charges (Hispanics: USD 7816, 95% CI: 6210–9422; AA: USD 3865, 95% CI: 2232–5498) and costs (Hispanics: USD 661, 95% CI: 380–943; AA: USD 1183, 95% CI: 861–1506) compared with other groups. Length of stay did not differ significantly among racial groups. The results are summarized in Tables 2 and 3.

Table 2. Crude odds ratio and adjusted differences for primary and secondary outcomes in patients with diverticulitis across races—Part 1.

Race	Mortality	LOS *	Charges USD	Costs USD	Uncomplicated Diverticulitis
Crude Odds Ratio (95% Confidence Interval)					
White	Reference				
African American	0.86 (0.63–1.18)	0.25 (0.16–0.35)	510 (−999–2020)	−592 (−971–213)	1.22 (1.17–1.28)
Hispanic	0.39 (0.27–0.59)	−0.40 (−0.48–0.33)	5645 (4251–7038)	−585 (−903–268)	1.14 (1.09–1.19)
Asian	1.06 (0.47–2.38)	−0.09 (0.40–0.20)	7466 (3221–11,712)	1919 (744–3094)	0.95 (0.84–1.08)
Native American	0.40 (0.05–2.92)	−0.08 (−0.46–0.29)	−9297 (−13,614–4980)	1056 (−964–3077)	0.90 (0.76–1.07)
Others	0.73 (0.39–1.36)	−0.13 (−0.31–0.04)	5494 (2255–8734)	175 (−601–952)	1.07 (0.99–1.16)
Adjusted Odds Ratio (95% Confidence Interval)					
White	Reference				
African American	0.91 (0.59–1.40)	0.25 (0.15–0.35)	3865 (2232–5498)	1183 (861–1506)	1.16 (1.10–1.23)
Hispanic	0.70 (0.43–1.14)	−0.02 (−0.10–0.05)	7816 (6210–9422)	661 (380–943)	1.26 (1.19–1.33)
Asian	1.60 (0.60–4.3)	0.26 (−0.03–0.56)	4493 (17–8969)	1328 (467–2190)	0.97 (0.83–1.14)
Native American	1.28 (0.21–7.56)	0.49 (0.01–0.96)	−4959 (−10,174–256)	868 (−960–2698)	0.97 (0.76–1.22)
Others	0.82 (0.32–2.11)	0.07 (−0.12–0.27)	8370 (4778–11,962)	1042 (459–1625)	1.16 (1.05–1.28)

* LOS = length of stay.

Table 3. Crude odds ratio and adjusted differences for primary and secondary outcomes in patients with diverticulitis across races—Part 2.

Race	Complicated Diverticulitis	Partial Colectomy	Total Colectomy	Colonoscopy	Percutaneous Abscess Drainage
Crude Odds Ratio (95% Confidence Interval)					
White	Reference				
African American	0.81 (0.77–0.84)	0.57 (0.53–0.62)	0.58 (0.55–0.62)	1.01 (0.93–1.09)	1.19 (0.83–1.70)
Hispanic	0.87 (0.83–0.90)	0.75 (0.70–0.81)	0.72 (0.67–0.76)	0.90 (0.83–0.99)	1.14 (0.82–1.58)
Asian	1.04 (0.92–1.18)	0.76 (0.61–0.95)	0.66 (0.56–0.79)	1.13 (0.92–1.40)	1.22 (0.46–3.28)
Native American	1.10 (0.92–1.30)	0.90 (0.65–1.24)	0.53 (0.39–0.71)	0.63 (0.41–0.97)	0.70 (0.10–4.95)
Others	0.92 (0.86–1.01)	0.91 (0.79–1.04)	0.82 (0.73–0.92)	1.01 (0.85–1.21)	1.51 (0.85–2.71)
Adjusted Odds Ratio (95% Confidence Interval)					
White	Reference				
African American	0.85 (0.81–0.91)	0.61 (0.56–0.66)	0.58 (0.53–0.63)	1.11 (1.01–1.23)	0.92 (0.55–1.52)
Hispanic	0.79 (0.74–0.83)	0.76 (0.70–0.82)	0.75 (0.70–0.82)	1.05 (0.94–1.17)	1.11 (0.73–1.69)
Asian	1.02 (0.87–1.19)	0.78 (0.62–0.97)	0.67 (0.53–0.86)	1.05 (0.81–1.36)	1.08 (0.26–4.38)
Native American	1.02 (0.81–1.30)	1.05 (0.74–1.48)	0.64 (0.45–0.93)	0.86 (0.50–1.48)	1.29 (0.18–8.91)
Others	0.85 (0.77–0.94)	0.91 (0.79–1.05)	0.75 (0.65–0.86)	1.15 (0.92–1.44)	0.77 (0.28–2.13)

4. Discussion

This nationwide analysis shows that Hispanic and AA patients hospitalized with AD undergo fewer surgical procedures and colectomies compared to Caucasians, consistent with recent reports that minorities are less likely to receive minimally invasive surgery and more likely to undergo open procedures [5,14]. Similar disparities have been documented in emergency colectomy settings, where non-White patients experience longer operations, more postoperative complications, and prolonged hospital stays [15].

Colostomy and ostomy creations have historically been reported as unaffected by race [16,17], yet more recent data suggest that racial disparities persist, particularly in minimally invasive vs. open approaches [14]. Our finding of lower colectomy rates in minority groups parallels statewide database analyses where minorities were less likely to undergo surgery or ostomy creation [18]. Several factors may account for this discrepancy. First, differences in study periods and coding systems (earlier studies using ICD-9 vs. our study using ICD-10) may influence case capture and classification. Second, our cohort is larger and more contemporary, potentially reflecting evolving practice patterns, particularly the increased use of minimally invasive surgery and selective nonoperative management. Finally, disparities in outpatient access to preventive care and elective surgery among minorities may lead to different inpatient surgical utilization patterns. Taken together, these differences underscore that while prior NIS analyses provided important insights, updated data continue to reveal evolving trends in surgical management and highlight ongoing disparities. Limited access to primary care and timely outpatient management among minorities may contribute to higher hospitalization rates for conditions that could otherwise be managed conservatively [19,20].

The American College of Physicians recommends outpatient colonoscopy in CD cases in a minimum of six to eight weeks after improvement of symptoms to avoid the potential risk of perforation, particularly for patients without recent colonoscopy [21]. However, in certain cases, early colonoscopy has been implemented when there is no clinical improvement during hospitalization [22]. In our analysis, AA and Hispanic patients were associated with a lower number of CD cases and a lower number of colonoscopies while hospitalized. We believe the same hypothesis that supports lower surgical utilization (poor outpatient medical access) applies to inpatient colonoscopy use, as these minority groups are more frequently admitted with UD.

Fortunately, mortality did not differ across racial groups in our study, which aligns with some prior national analyses [16,18], though other studies report higher postoperative mortality in AAs [23] and Asians undergoing colectomy for right-sided AD [4]. This suggests that insurance and access to high-quality surgical care may be more predictive of mortality than race itself [15].

In this study, the comorbidity burden was highest among AAs and Asians ($\text{CCI} \geq 3$), highlighting a need for targeted preventive interventions. The presentation of obesity, a well-established risk factor for CD, in younger patients and recurrence [24–27] were disproportionately prevalent in the AA, Hispanic, and NA groups. This not only worsens outcomes but also contributes to higher hospital charges [9]. A recent 10-year follow-up study confirmed obesity's role in recurrent diverticulitis and elective colectomy rates [28]. Interestingly, minorities tend to be younger when presenting with AD. This raises the question of whether factors other than diverticular disease might play a role in the development of inflammation.

Finally, the economic burden of AD remains significant, with minorities incurring disproportionately higher hospital charges despite having similar LOS, consistent with recent national studies [3,12]. Our findings add evidence that racial disparities extend beyond clinical outcomes to financial inequities in healthcare delivery. The healthcare-

related charges and costs were adjusted to inflation according to the price consumer index of the year 2019. Due to the representative nature of this database, our results are likely indicative of the current burden of AD among minorities in the US.

4.1. Limitations

Our analysis has several limitations. First, the NIS is a cross-sectional, encounter-level database, so it does not allow for patient-level longitudinal tracking. As a result, we were unable to capture events that occurred before the index admission or outcomes after discharge. This also introduces the possibility that patients admitted with recurrent AD episodes may have been counted more than once. While such duplication could slightly overestimate the absolute number of hospitalizations, it is unlikely to meaningfully affect comparisons of outcomes between groups. Importantly, the large sample size and nationally representative design of the NIS still provide robust and generalizable estimates of the inpatient burden of AD across diverse populations.

Second, as the NIS dataset was obtained from hospitalized patients, uncomplicated mild cases managed in outpatient settings were not included, limiting the extrapolation of this study to all patients with AD.

The third limitation was reliance on ICD-10 diagnosis codes to identify and classify cases of AD. Administrative coding may be prone to misclassification, particularly when distinguishing between complicated and uncomplicated AD. Prior validation studies, however, provide reassurance regarding the reliability of these codes. A Danish registry study reported high positive predictive value ($\approx 98\%$) for diverticular disease overall, though somewhat lower accuracy for specific complications (67–92%) [29]. Similarly, a U.S. study using electronic health record algorithms showed that combining ICD codes with clinical data yielded high sensitivity and predictive value across inpatient and outpatient encounters [30]. These findings suggest that while some degree of misclassification is possible, it is unlikely to materially impact our outcome comparisons.

Fourth, this national dataset is susceptible to administrative data limitations with data entry bias. The NIS dataset eliminates personal identifiers, making it impossible to link patient medical records for the purpose of validating ICD-10 codes for AD. The dependence on ICD-10CM/PCS coding could be inaccurate and lead to underrepresented diagnoses and comorbidities in the database. Nevertheless, the NIS is often used for this type of research because its dataset includes weights for producing national and regional estimates.

Finally, confounding and the sample size distribution across groups represent limitations. Although our regression models adjusted for a wide range of patient- and hospital-level characteristics, residual confounding cannot be completely excluded. The racial and ethnic groups in our study were not evenly distributed, with Caucasians comprising the vast majority of admissions and Native Americans representing $< 1\%$ of the cohort. This imbalance reflects the demographic composition of the U.S. population as well as the structure of the NIS and may also be influenced by differences in healthcare access and hospitalization rates among groups. As a result, subgroup analyses in smaller racial groups (e.g., Native Americans, Asians) should be interpreted with caution. Lastly, the retrospective, administrative nature of the NIS dataset limits causal inference, and although the large sample size provides robust estimates for major comparisons, our findings should be validated in prospective, patient-level studies.

4.2. Strengths

The strengths of our study are the distinctive nature of our database and the large nationally representative population, as our large cohort includes patients representing all socioeconomic statuses, demographic groups, geographic regions, urban and rural

settings, and teaching and community hospitals. To our knowledge, this is the largest study evaluating outcomes of AD in minorities using ICD-10CM/PCS coding.

5. Conclusions

Hispanic and AA patients represent over 20% of patients hospitalized with AD. These two US racial groups do not have higher mortality or a greater need for partial or total colectomy when compared to Caucasians. However, they have higher healthcare-related charges and costs compared to Caucasians. Further studies are needed to understand the healthcare-related spending variations seen in these groups despite them often having less complicated AD.

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