

# Comparing Incidence of Opioid Prescription in Response to Similar Pain Scales Based on Differences in Race

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## Introduction

The opioid epidemic is one of medicine's most widely discussed topics. An important aspect is the idea that this has come to America's attention because it is primarily a problem of "White America". Many studies suggest that the incidence of opioid prescription is higher in white patient populations when compared to black or African American patient populations<sup>1-6</sup>. Specifically, a study published in 2016 looked at the trend using pain scales from the National Hospital Ambulatory Medical Care Survey (NHAMCS) database from 2007-2011, but to the authors' knowledge, no study has followed up on this trend<sup>1</sup>. This research project hopes to provide an assessment of how this trend has progressed during the years after the aforementioned study (specifically 2011-2015) where discussion of the opioid crisis has been most prevalent, and explore if private insurance serves as a normalizing factor in decreasing the difference in opioid prescription between the two relevant patient populations.

The authors hypothesized that there would be a significant difference in the incidence of opioid prescription amongst non-Hispanic blacks and non-Hispanic whites, with non-Hispanic blacks being less likely to receive opioids. Furthermore, we expected private insurance to be a normalizing factor, decreasing the difference in incidence of opioid prescription between the two groups.

## Aims and Objectives

**Aim I:** Identify if there is a persisting difference in opioid prescription between non-Hispanic white and non-Hispanic black/African American patients from 2011-2015 in the ER.

**Aim II:** Identify if private insurance serves as a normalizing factor to minimize any difference in opioid prescription between the two patient populations

## Methods

This research project was a retrospective study that analyzed data from the 2011-2015 NHAMCS database, which records data taken from its survey of a sampling of patient records from EDs across the United States. The two groups being studied were non-Hispanic white patients and non-Hispanic black/African American patients. The variables utilized from this database were pain scale, patient complaint, drugs prescribed, and insurance. The three most common diagnoses for the highest incidence of opioid prescription for all patients was determined, and non-Hispanic white patients and non-Hispanic black patients with these chief complaints were organized into pain scales of 1-4, 5-7, and 8-10 and compared accordingly by whether or not they were treated with or received a prescription for an opioid. Insurance status was collected as a secondary factor of comparison for both the white and black patient populations. Specifically, private insurance was analyzed to see if it reduced any existing difference in opioid prescription between the two populations. These data were collected from the database and subjected to Rao-Scott Chi Square Test to determine statistical significance with logistical regression to compare odds ratio of opioid prescription between the two populations across the different pain scales.

## Results

### Pain Scale 1-4:

% of **white** patients prescribed opioids = **18.95%\***

% of **black** patients prescribes opioids = **13.00%\***

### Pain Scale 5-7:

% of **white** patients prescribed opioids = **37.19%\***

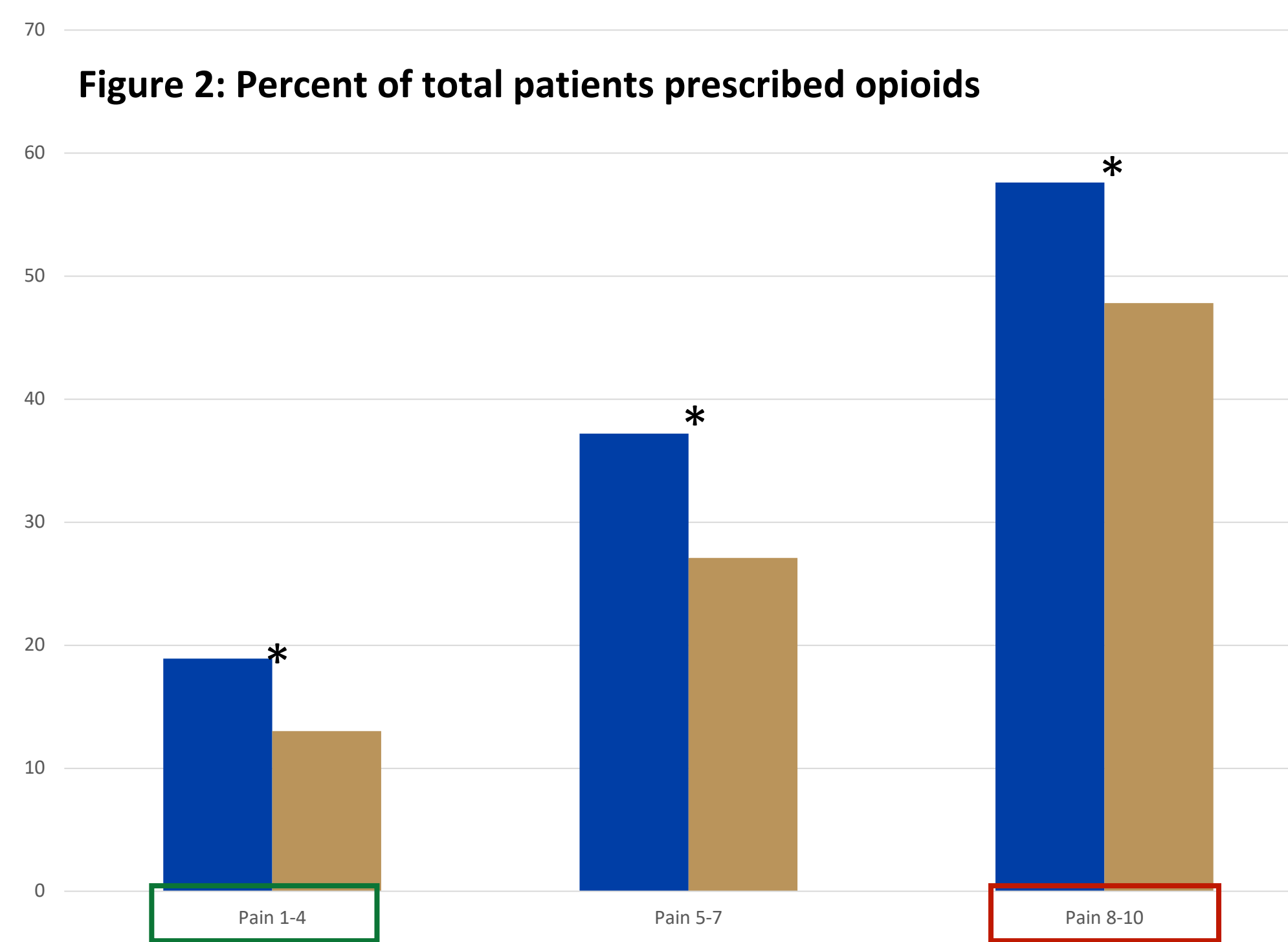
% of **black** patients prescribes opioids = **27.10%\***

### Pain Scale 8-10:

% of **white** patients prescribed opioids = **57.64%\***

% of **black** patients prescribes opioids = **47.82%\***

**\* Indicates statistical significance with p-value < 0.017**



### PATIENTS WITH PRIVATE INSURANCE

#### Pain Scale 1-4:

% of **white** patients prescribed opioids = **20.87%**

% of **black** patients prescribes opioids = **14.40%**

#### Pain Scale 5-7:

% of **white** patients prescribed opioids = **36.57%**

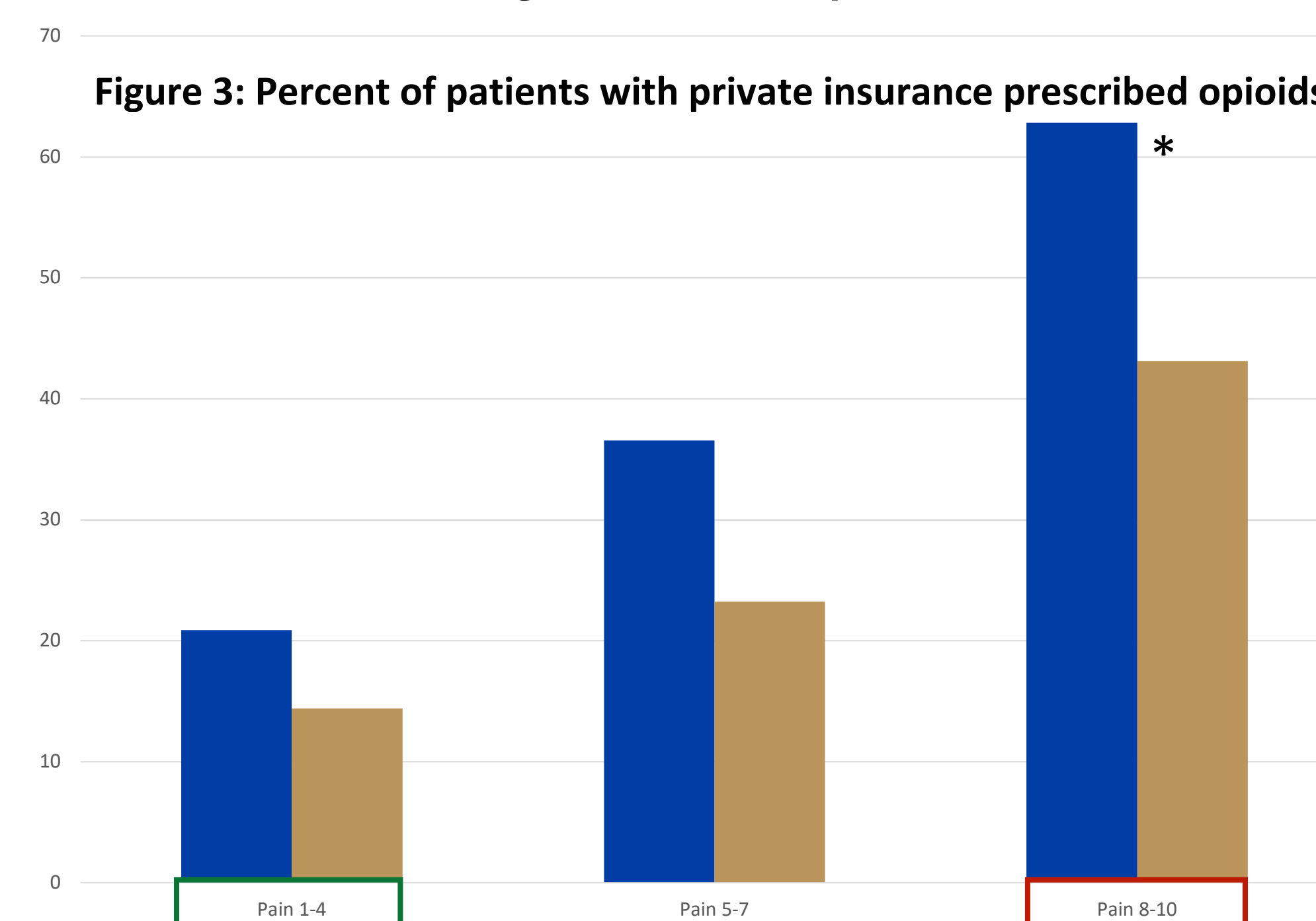
% of **black** patients prescribes opioids = **23.22%**

#### Pain Scale 8-10:

% of **white** patients prescribed opioids = **62.83%\***

% of **black** patients prescribes opioids = **43.10%\***

**\* Indicates statistical significance with p-value < 0.0083**



## Conclusions

The statistical analysis supported the authors' original hypothesis in regards to there being a persisting difference in opioid prescription from 2011 to 2015 between non-Hispanic white and non-Hispanic black patients while also suggesting that private insurance did not necessarily serve as a normalizing factor during this period. In each pain scale sub-group, there was a statistically significant difference in prescription between our patient populations. This difference did not exist consistently across comparisons between patients with private insurance.

The results of this study suggest there is a disparity in pain medication prescription in the ER and should prompt awareness about general healthcare inequity in America. Furthermore, it should raise questions regarding if and how the process of prescribing pain medications could be standardized to eliminate biases.

## References

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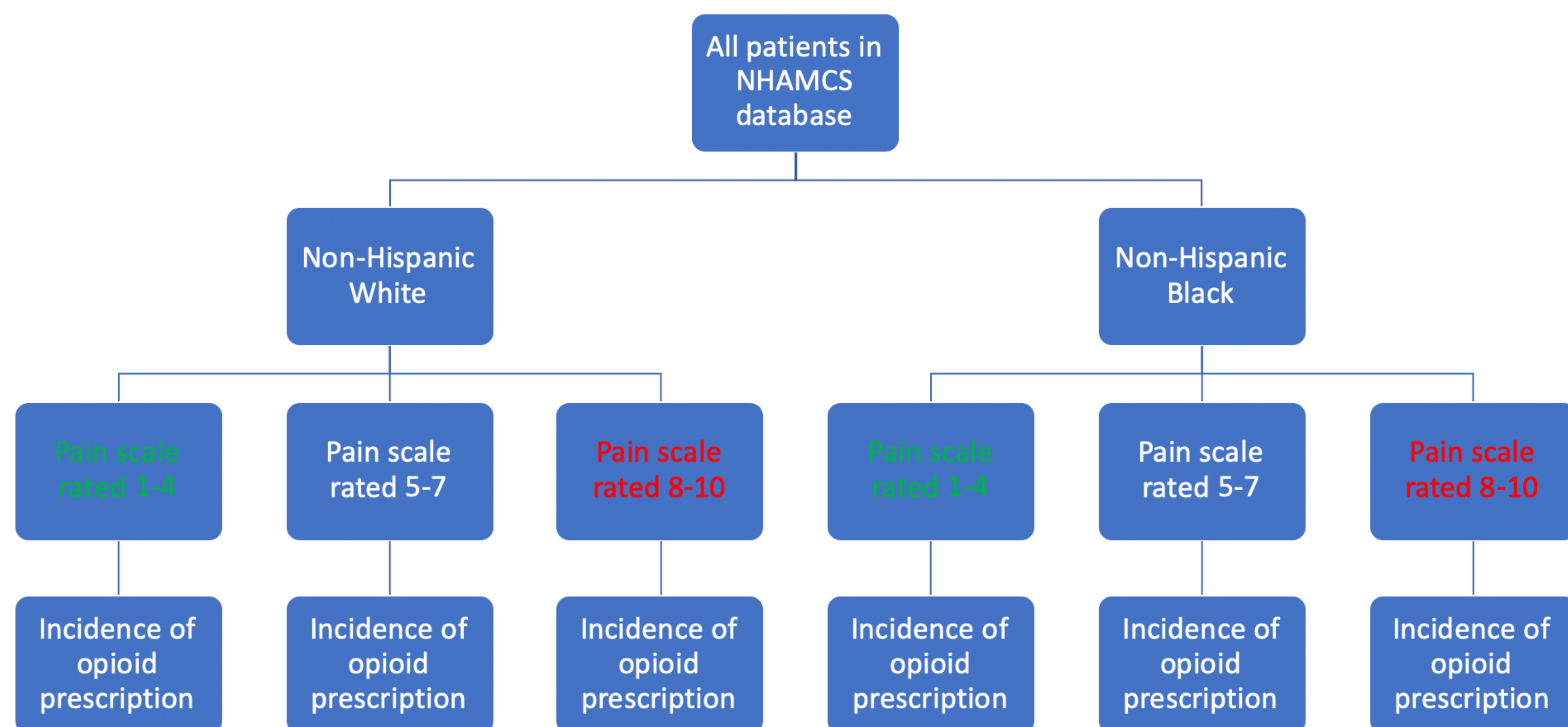


Figure 1: Method of comparing patients from NHAMCS database prescribed opioids based on difference in race but similarities in pain scale