



EMS Encounters for Pediatric Behavioral Conditions: Interventions and Inequities

Benjamin Lang, MD, MPH¹; Lawrence H. Brown, PhD²; Remle P. Crowe³, PhD, NREMT;
Katherine Remick⁴, M.D., FAAP, FACEP, FAEMS;

1. UT Austin/Dell Children's Pediatric Emergency Medicine Fellowship. 2. Department of Surgery, Dell Medical School at the University of Texas. 3. ESO, Inc. 4. Department of Pediatrics, Dell Medical School at the University of Texas at Austin

Introduction

- EMS encounters for pediatric patients with behavioral concerns are common.
- Racial and sex disparities in care of pediatric psychiatric patients have been demonstrated within the emergency department.
- It is unclear if these disparities exist in the prehospital setting.

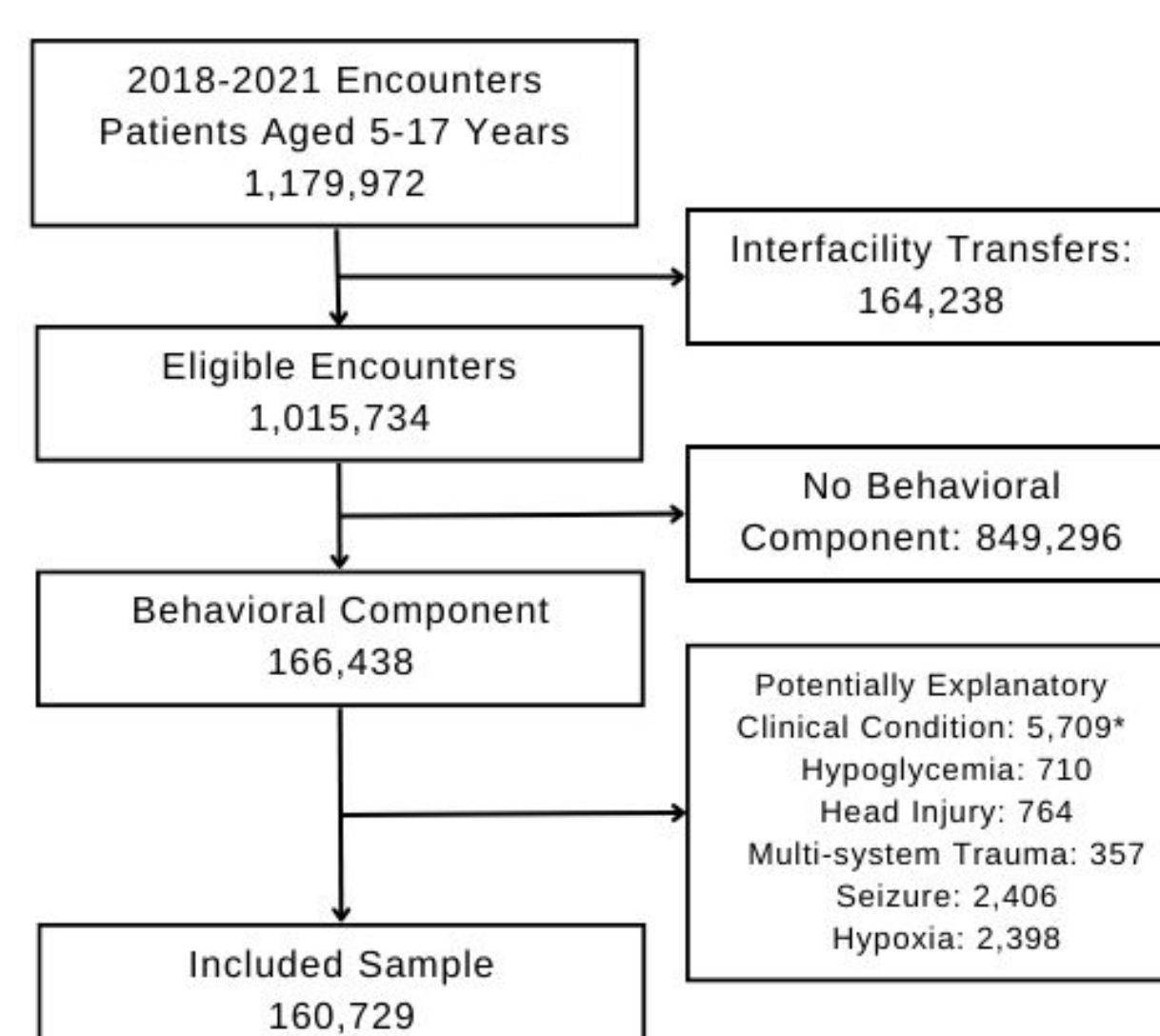
Objectives

- Describe behavioral health presentations among pediatric EMS patients
- Determine the frequency and types of restraint or sedation
- Assess for variability in interventions across patient characteristics.

Methods

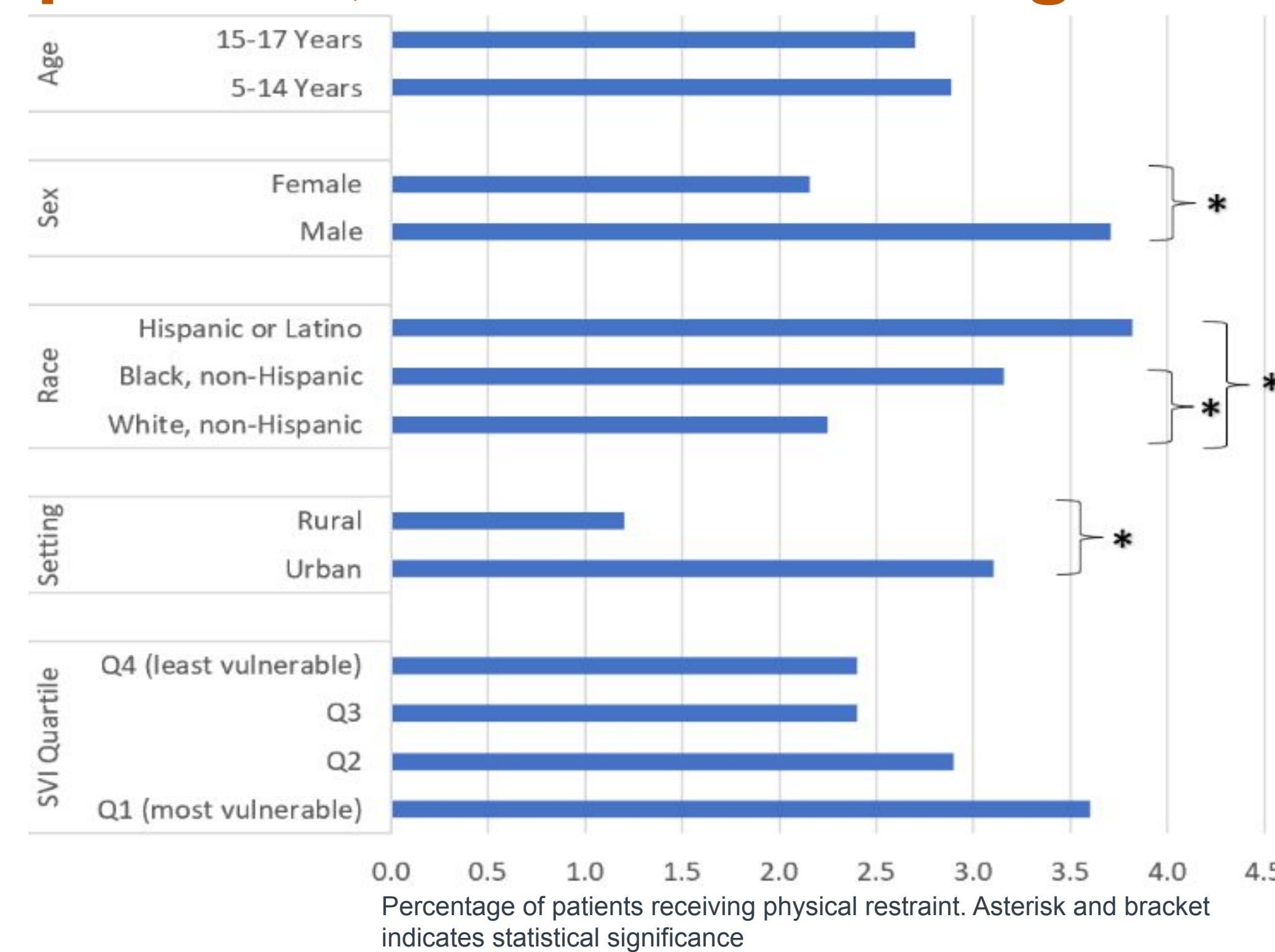
- ESO Data Collaborative, 2018-2021
- Patients ages 5 to 17 years presenting to EMS with a behavioral condition (e.g., "behavioral/psychiatric episode" or "intentional self-harm").
- Excluded patients with clinical presentations that might explain the behavioral condition (e.g., seizures, hypoglycemia).
- Physical restraint and sedation as documented by the EMS clinicians.
- Age, sex, race/ethnicity as documented by the EMS clinicians.
- SES measured by scene location Social Vulnerability Index (SVI).
- Multivariable logistic regression used to assess for associations between patient characteristics and restraint or sedation.

Sample accrual

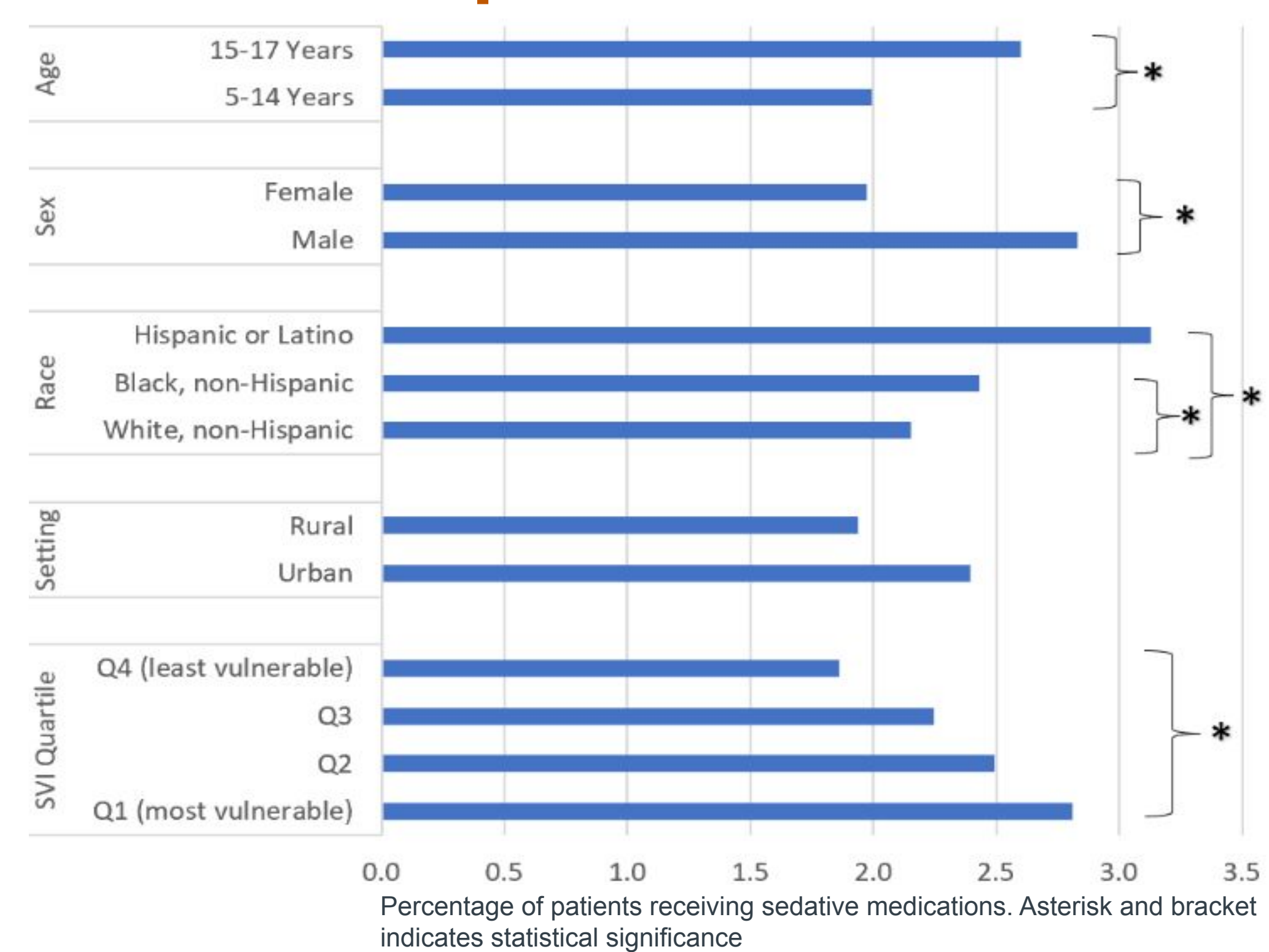


There are differences in the frequency of sedation and physical restraint use by age, sex, and race/ethnicity in prehospital care of pediatric patients with psychiatric and behavioral complaints.

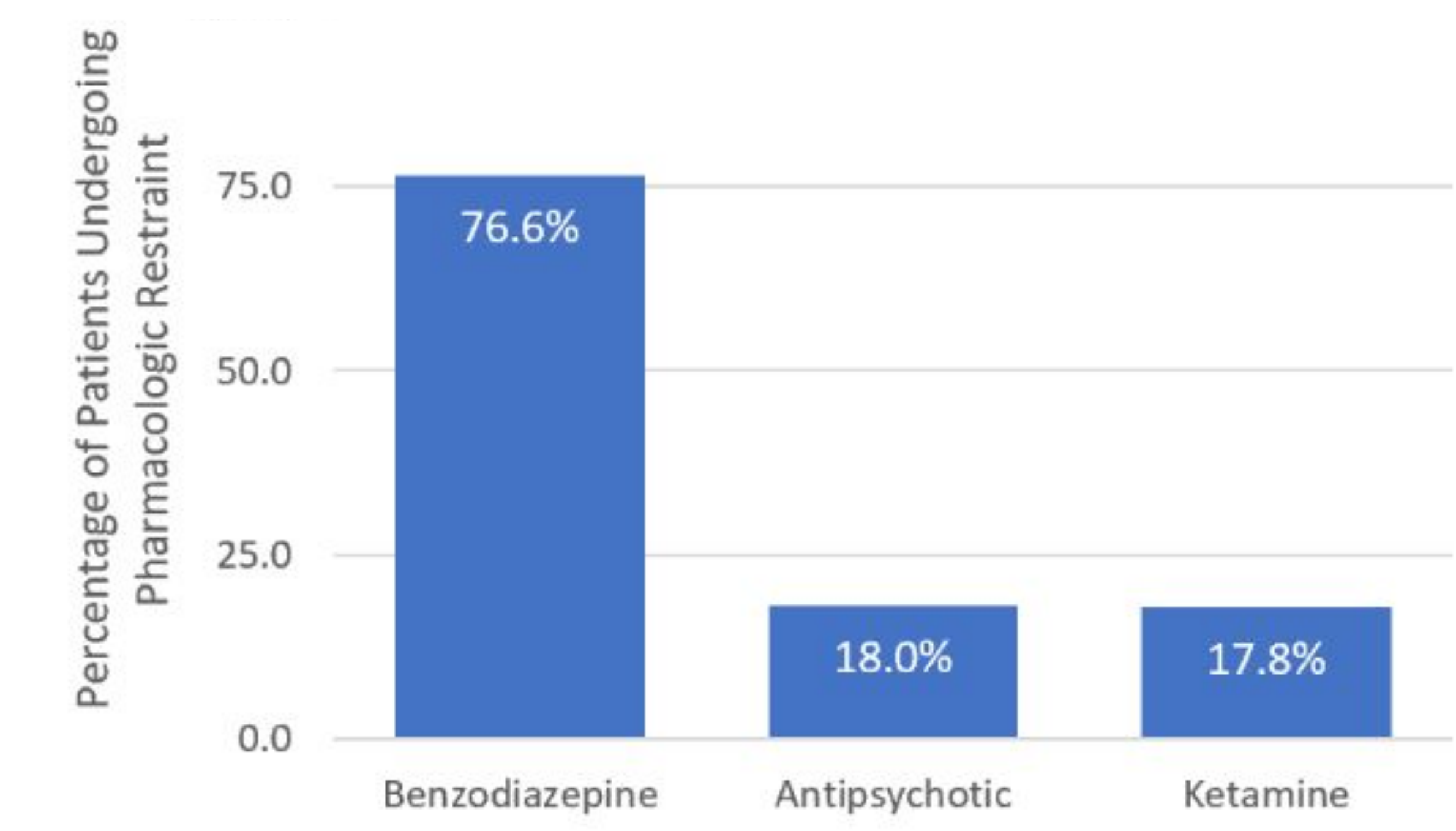
There is increased physical restraint use in males, nonwhite patients, and urban settings.



There is increased sedation use in older, male, nonwhite, and lower SES patients.



Of patients receiving sedation, benzodiazepines were the most commonly used.



Results

- 160,729 included pediatric patients presenting with a behavioral condition.
- 6,967 patients (4.3%) underwent either physical or pharmacologic restraint.
 - 4,474 (2.8%) physical restraint
 - 3,724 (2.3%) sedation
- Characteristics associated with physical restraint (see Figure 1):
 - Male Sex
 - Black or Hispanic race/ethnicity
 - Urban Setting
- Characteristics associated with sedation (see Figure 2):
 - Older Age (15-17 vs < 15)
 - Male Sex
 - Black or Hispanic race/ethnicity
 - Most vulnerable (vs. least vulnerable) SES
- Benzodiazepines (76.6%) were more commonly used than ketamine (17.8%) or antipsychotic medications (18.0%) (see Figure 3).

Conclusion

- While EMS encounters for pediatric patients behavioral-related conditions are common, physical restraint and sedation are infrequent.
- Older, male, and nonwhite patients were more likely to be administered sedation.
- Sedation use varied by age, sex, and race/ethnicity, warranting further exploration to improve health equity.
- Limitations include the retrospective observational design, and potential confounding by unmeasured factors.

Next Steps

- Further studies will be completed to explore underlying correlation and causes for these disparities as well as how they can be improved for each prehospital agency.