

Race- and Sex-Based Differences in the Increase of Emergency Department Visits for Stimulant-Induced Psychotic Disorder in Kentucky

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Introduction

- Methamphetamine use is becoming more common in the U.S. and in Kentucky.¹⁻⁴
- Increasingly potent crystal methamphetamine is a dominant presence in drug supply markets.⁵⁻⁷
- The increasing potency of the drug, the abundance of crystal methamphetamine, and greater frequency of polysubstance use may be contributing to a higher prevalence of the positive psychotic symptoms that can be induced by the use of methamphetamine.^{6,8,9}
- Despite anecdotal reports from treatment providers and people with a history of methamphetamine use,^{10,11} we currently lack systematic documentation of the growing burden of emergency department (ED) visits for stimulant-induced psychotic disorder (StIPD).

Key Findings

- ED visits for StIPD among Kentucky residents have been steadily increasing since 2016.
- Black male residents have experienced the greatest increase in rate of StIPD ED visits and had the highest rates of visits in 2021 compared to White male residents and all female residents.

Methods

- Data source: Kentucky Outpatient Services Database Files, 2016–2021
- ICD-10 indicators of interest: F15.15, F15.25, and F15.95
 - “Other Psychostimulant Use with Drug-Induced Psychotic Disorder”
 - ICD-10 codes do not currently include codes specific to methamphetamine use
- Includes Kentucky residents presenting at any Kentucky hospital ED
 - Excludes patients of unknown sex, Hispanic ethnicity, or with a race listed other than Black or White (N=60)
- Statistical analysis method: Negative binomial regression model performed in R version 4.2.0

Results

- Table 1 displays the results of the negative binomial regression model.
- The rate of ED visits for StIPD increased across all groups during the study period, with the reference group of White female residents having a 2.1% increase in the number of ED visits per month for StIPD ($p < 0.001$).
- Compared to White female residents, Black male residents had a significantly higher rate of visits on average (IRR=2.630, $p < 0.001$) and a significantly higher increase in visits per month across the study period (IRR=1.018 per month, $p < 0.001$).
- While White male residents had a significantly higher average rate of visits (IRR=1.600, $p < 0.001$) when compared to White female residents, there was not a significant difference in the increase per month over the study period (IRR=0.966 per month, $p = 0.181$).
- Black female residents had no significant differences in the average rate of visits per month compared to White female residents (IRR=0.990, $p = 0.935$) but had a significantly higher increase in visits per month (IRR=1.015 per month, $p = 0.011$).

Conclusions

- StIPD is a growing challenge in Kentucky, with Black male residents experiencing the highest burden and the fastest growing rate of ED visits for StIPD.
- Prevention efforts can focus on training ED staff regarding resources available for patients who use stimulants and bridging the divide between treatment for substance use and severe mental health disorders.
- Future work should focus on validating the use of ICD-10 codes in the identification of StIPD-related encounters in an ED setting.

Table 1: Results of the negative binomial regression model assessing the monthly incidence rate ratio from January 2016 to December 2021, using White female residents as the reference group

Predictors	Monthly Incidence of StIPD Incidence Rate Ratios
(Intercept)	0.000 *** (0.000 – 0.000)
Month-Year Ctr	1.021 *** (1.017 – 1.025)
Race-Sex [Black-F]	0.990 (0.763 – 1.259)
Race-Sex [Black-M]	2.630 *** (2.205 – 3.118)
Race-Sex [White-M]	1.600 *** (1.435 – 1.785)
Month-Year Ctr x Race-Sex [Black-F]	1.015 * (1.004 – 1.026)
Month-Year Ctr x Race-Sex [Black-M]	1.018 *** (1.010 – 1.026)
Month-Year Ctr x Race-Sex [White-M]	0.996 (0.991 – 1.002)
Observations	288
R ² Nagelkerke	0.924
Deviance	323.678

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

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Disclaimers

Data are provisional and subject to change. Produced by the Kentucky Injury Prevention and Research Center as bona fide agent for the Kentucky Department for Public Health, March 2023. This report was supported by Cooperative Agreement Number NU17CE924971, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.

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Rates of emergency department visits for a stimulant-induced psychotic disorder (StIPD) among Kentucky residents, by sex and race, 2016–2021

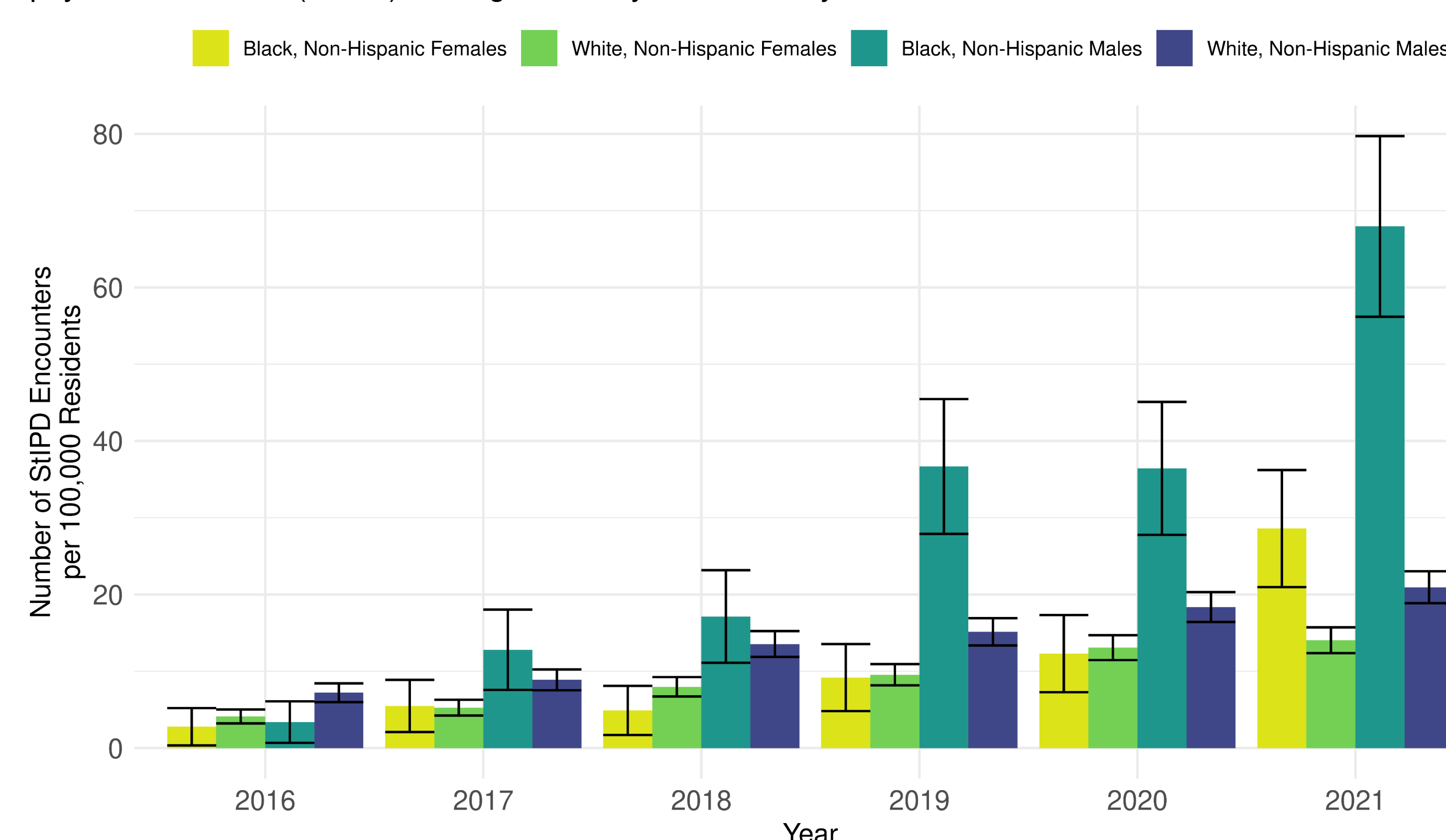


Figure 1: Black male Kentucky residents had the highest rate of ED visits for StIPD in 2021, with 68 visits per 100,000 residents. This was also the first year that the rate of ED visits for StIPD among Black female residents surpassed the rates for White residents, male and female (26 visits per 100,000 residents compared to 21 and 14 visits per 100,000 residents, respectively).