

K33 An Evaluation of Drug-Facilitated Sexual Assault Cases in the City of Houston, Texas, From 2014 to 2019

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Learning Overview: After attending this presentation, attendees will have learned about the prevalence, urine and blood toxicological profiles, and demographic distributions of Drug-Facilitated Sexual Assault (DFSA) cases in Houston, TX.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing a better understanding of the drug trends and demographics involved in suspected sexual assaults in Houston, TX, over a period of five years.

DFSA are an important public health and safety concern. In 2019, 18,057 sexual assault incidents were reported in Texas, with 8% reported to the Houston Police Department.¹ The true prevalence of DFSA is difficult to determine as many go unreported, there may be a delay in sample collection, or the scope of forensic toxicology laboratories may be limited. Understanding the trends in drugs involved in DFSA cases can assist agencies and laboratories in the investigation and toxicological analysis for cases of suspected DFSA.

This study examined urine and blood toxicology test results and case information associated with sexual assault cases submitted to the Houston Forensic Science Center (HFSC) with offense dates between January 1, 2014, and December 31, 2019. Total numbers of requests received, sexual assault cases analyzed, and demographics were examined. The prevalence of drugs found in confirmed positive cases and the associated demographics were also examined. Blood, if available, was analyzed for ethanol by dual column headspace gas chromatography with flame ionization detection. Drug screen analysis was performed preferably for urine samples using Enzyme-Linked Immunosorbent Assay (ELISA). Due to limited resources, after screen reports are issued, the laboratory only confirms positive screen results upon request. Drug confirmation analysis was performed using gas/liquid chromatography/mass spectrometry either in-house or by external laboratories. Demographic data, including age, sex, and race, were evaluated.

Blood and urine samples were analyzed for alcohol and drugs from 997 cases related to sexual assault, accounting for 16% of toxicology analysis requests received by HFSC. The total number of cases with blood only was 51 cases, 113 with urine only, and 840 with both (1,004 samples total).

Analysis of the demographic data showed alleged victims were 73% female, 4.9% male, and 23% unknown. Race demographics showed alleged victims were 24% White, 14% Black, 5.4% Hispanic, 0.6% Asian, 9.2% Other, and 47% Unknown. The average age was 26 ($n=1,004$; 2.7% unknown), with the range from 4 to 78 years old.

An average of 71% (712 samples) were presumptive positive for at least one drug or drug class. Ethanol was the most prevalent drug detected in 171 samples with an average blood alcohol concentration of 0.097 (range 0.011–0.336) g/100 mL, and in 148 samples ethanol was the only drug determined to be present (average 0.098, 0.011–0.336) g/100mL. A total of 129 samples (116 urine, 13 blood) were confirmed positive for drugs other than ethanol only. There were 23 samples that were confirmed for both ethanol and other drugs. The most prevalent analyte other than ethanol was 11-Nor-9-Carboxy-Delta-9-Tetrahydrocannabinol (THC-COOH) being present in 32% of confirmed samples. The next most prevalent analytes were benzoylecgonine (14%), alprazolam (11%), and amphetamine (11%). All other analytes confirmed positive in less than 10% of samples. Of all confirmed positive samples, victims were 78% female, 4.0% male and 18% unknown. Race demographics showed victims were 28% White, 12% Black, 5.3% Hispanic, 6.0% Other, 0.3% Asian, and 48% Unknown. The average age was 26 ($n=300$; 1.7% unknown), with the range from 13 to 63 years old.

From 2014 to 2019, sexual assault cases submitted to HFSC mostly increased per year, but in similar proportion to the total number of requests received. Each year, cases that were presumptive positive for at least one drug other than ethanol remained approximately half (52%–68%). The proportion of confirmed positive cases range from 23% (2016) to 42% (2017). The primary metabolite of cannabis was the most prevalent analyte other than ethanol confirmed in DFSA. It is unknown if the drugs confirmed in the cases were consumed voluntarily or not. The reported demographic data showed the majority of DFSA victims were White females in their mid-20s. The data from this study can aid in raising public awareness about DFSA and in investigations of suspected DFSA in the city of Houston.

Reference(s):

¹ Texas Department of Public Safety. *Texas Crime Report, 2019*.

Sexual Assault, Toxicology, DFSA