

Intrauterine Fetal Demise/Stillbirth Among Decedents with Cannabinoids and Other Substances

Dr. Armiel Suriaga, Dr. Lenny Chiang-Hanisko, Acel Dana Suriaga, & Jessica Mangila

BACKGROUND

- ❑ Intrauterine Fetal Demise (IUFD) is a critical public health problem, with over 20,000 cases in 2022, or 1 in 60 births in the United States (CDC,2024).
- ❑ IUFD, 5th leading cause of death worldwide (Maslovich & Burke, 2022)
- ❑ The Centers for Disease Control and Prevention (2024) defines fetal death as the intrauterine death of a fetus before delivery by a mother, regardless of pregnancy duration.
- ❑ Intrauterine fetal demise (IUFD), or stillbirth, occurs at 20 weeks of gestation or later.
- ❑ Several factors could be attributed to IUFD, such as placental issues, increased maternal age, infection, diabetes, and smoking (Maslovich & Burke, 2022).
- ❑ 4.2% of women reported cannabis use during pregnancy (Ko et al., 2020). However, research on the association of cannabis with IUFD is limited.

PURPOSE

- 1) Report the sociodemographic characteristics of decedents with intrauterine fetal demise who were exposed to cannabinoids and other substances.
- 2) Examine the association of cannabinoid exposure to IUFD.

METHOD

Study Design: Cross-sectional

Data Source: FDLE 2020-2022
N=46,397

Population: Decedents < 1 year old, (n=112)

Setting: All Florida counties, n=67

Primary Outcome of Interest:

Intrauterine Fetal Demise (IUFD) as ascertained by medical examiners through autopsy and toxicological results (n=30)

Primary and Other Exposures:

Cannabinoids (detected in the decedent's body at the time of death).
Other variables: gender, race/ethnicity population density; other substances: Alcohol, benzodiazepines, cocaine, opioids, and stimulants.

Statistical tests: Descriptive & Regression modeling
Missing data: <5, managed through listwise deletion

RESULT/ SUPPORTING DATA

Of the 46,397 decedents with any substances detected at the time of death, 112 were under one year of age. Among these, 40 were classified as fetal deaths, and 30 (0.03%) were recorded as intrauterine fetal demise (IUFD). Of the IUFD cases, 21 (70%) were male, 23 (79%) were white, and all occurred in urban counties (see Table 1).

Table 1. Characteristics of Decedents with IUFD in Florida, 2020-2022 (n=30)

Characteristics	N (%)	P-Value
Gender: Male	21 (70%)	0.64
Female	9 (30%)	
Race/ethnicity: White	23 (76.67%)	<0.001
Black	6 (20%)	
Missing	1 (3.33%)	
Population Density:		0.44
Large Central Metro	15 (50%)	
Large Fringe Metro	4 (13.33%)	
Medium Metro	9 (30%)	
Small Metro	2 (6.67%)	
Substances: Opioids	13 (43.33%)	0.33
No opioid	17 (56.67%)	
Alcohol	5 (16.67%)	
No alcohol	25 (83.33%)	
Benzodiazepine	1 (3.33%)	
No Benzos	29 (96.67%)	
Cannabinoid	3 (10%)	
No Cannabinoid	27 (90%)	
Cocaine	9 (30%)	
No cocaine	21 (70%)	
Stimulant	14 (46.67%)	
No Stimulant	16 (53.33%)	
Single Drug exposure	11 (36.67%)	0.90
Polydrug exposures	19 (63.33%)	
Drug Toxicity	4(13.33%)	<0.001
No drug toxicity	26 (86.67%)	

Table 2. Association between cannabinoid exposure and other substances with IUFD

Intrauterine Fetal Demise	OR (95% CI)	P-value
Cannabinoid exposure	.27 (.08-.95)	0.04
Gender: Male (ref)		
Female	1.07 (.47-2.43)	0.87
Race/ethnicity:		
White (ref)		
Black	1.14 (.44-2.97)	0.79
Population Density		
Large Central Metro (ref)		
Large Fringe Metro	.40 (.13-1.22)	0.11
Medium Metro	.59 (.25-1.41)	0.23
Small Metro	.70 (.16-3.12)	0.64
Alcohol	.18 (.06-.56)	0.003
Benzodiazepines	.12 (.02-.93)	0.04
Cocaine	1.21 (.53-2.76)	0.66
Opioids	.43 (.20-.94)	0.03
Stimulants	2.40 (1.08-5.33)	0.03

IMPLICATIONS/ CONCLUSION

- ❑ Our findings indicate the presence of cannabinoids, along with other substances, among individuals who experienced intrauterine fetal demise (IUFD).
- ❑ Stillbirths were more prevalent among white male decedents, reflecting patterns observed in other forms of drug-related mortality (Suriaga et al., 2024).
- ❑ Polydrug use during pregnancy, including exposure to cannabis is associated with an increased risk of IUFD underscores the urgent need for targeted interventions to improve maternal and fetal health outcomes.
- ❑ Although cases of intrauterine fetal demise associated with cannabinoid exposure are rare, they highlight the need for further research.



Image credit: fertilityanswers.com

REFERENCES

- Centers for Disease Control and Prevention. National Center for Health Statistics. (2024, August 16). Fetal death. Retrieved from <https://www.cdc.gov/nchs/hus/sources-definitions/fetal-death.htm>
- Ko J.Y., Coy, K.C., Haight, S.C., et al. Characteristics of Marijuana Use During Pregnancy — Eight States, Pregnancy Risk Assessment Monitoring System, 2017. *MMWR Morb Mortal Wkly Rep* 2020;69:1058-1063. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a2>
- Maslovich MM, Burke LM. Intrauterine Fetal Demise. [Updated 2022 Oct 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK557533/>
- Suriaga A., Tappen R.M., McCurdy, C.R., Newman, D., Grundmann, O., Kelly, J.F. (2024) The Associations of kratom (Mitragynine), opioids, other substances, and sociodemographic variables to drug intoxication-related mortality. *J Addict Med.* doi:10.1097/ADM.0000000000001417