



Capstone Project: MIS581

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KRATOM USE IN US: A SURVEY-WEIGHTED ANALYSIS USING NSDUH 2019

BACKGROUND & PURPOSE

Kratom Use in the US

- Kratom use is rising in the U.S.
- Limited national-level evidence exists
- NSDUH provides large, representative dataset ($n \approx 56,000$)
- Objective: Identify demographic + behavioral predictors



RESEARCH QUESTIONS & HYPOTHESIS



Research Questions:

1. What is the national prevalence of kratom use?
2. Do demographic factors predict kratom use?
3. How strongly is kratom use associated with other substance-use behaviors?
4. Which variables are most predictive?

Hypotheses:

- H_0 : No demographic or behavioral predictors significantly relate to kratom use
- H_1 : Predictors *do* significantly relate to kratom use

DATA & METHODS



Data source: NSDUH 2019 Public Dataset

Weighted survey design applied:

- analwt_c (weights)
- vestr (strata)
- verrep (primary sampling units)

Tools used: R, survey package, ggplot2, rpart, pROC

Models:

- Descriptive weighted means
- Logistic regression
- Expanded regression
- Classification tree
- ROC/AUC evaluation

NATIONAL PREVALENCE RESULTS

Overall weighted prevalence: **1.47%**
lifetime use

By sex:

- Male: 1.85%
- Female: 1.10%

Observed gender gap aligns
with prior research



LOGISTIC REGRESSION

Predictor	Odds Ratio (OR)
Substance Use Disorder	4.55
Lifetime Heroin Use	4.21
Opioid Misuse	2.96
Female sex	0.72
Age	0.97



EXPANDED REGRESSION MODEL

Additional predictors significant in expanded model:

- Education (multiple levels significant)
- Poverty level
- Race/ethnicity categories
- Pain reliever misuse (OR \approx 3.08)



ETHICAL, PRIVACY, LIMITATIONS

NSDUH data fully anonymized

Sensitive substance-use data must be treated carefully

Key limitations:

- Cross-sectional dataset
- Self-report bias
- Cannot infer causation
- Kratom dataset limited to “ever used,” lacks dosage/context



RECOMMENDATIONS, CONCLUSION

Kratom use is strongly tied to polysubstance patterns

Public health messaging should target opioid-using populations

Clinicians should screen for kratom during opioid assessments

Future research:

- Longitudinal data
- Machine learning models
- Clinical outcomes studies



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