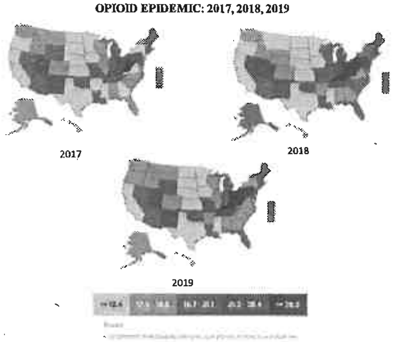
The Predictability of U.S Drug Deaths Through State Level Income Inequality and Neuroticism

Literature Review

OPIOID EPIDEMIC: 2017, 2018, 2019



What Factors Predict Drug Use?

SITUATIONAL FACTORS

- Low SES tends to foster poor health outcomes (Spooner and Hetherington, 2004)
- Overdose deaths more likely in neighborhoods with greater income maldistribution (Galea, 2003)
- Income Inequality→ moderator in relationship between income level and life satisfaction (Cheung, 2016)
  Participants more impacted by neighbor's income when income inequality was high
- **Income Inequality and Social Comparison**
  "STTUC": Sensitivity About Being the Target of a Threatening Upward Comparison (Exline&Lobel, 1999)

DISPOSITIONAL FACTORS

- High levels of Neuroticism consistently related to high levels of drug use (Costa & McCrae 1987), (Coates&Peterson 1982)
  Neuroticism: negative affectivity/ differing reactions to stress
- Personality profile of drug users (Terraciano, 2018)
  Cigarette smokers: high N
  Cocaine/heroin users: high N
  Marijuana users: avg N
- **Neuroticism and Social Comparison** (Vanderzee et. al, 1996)
  The need to make a social comparison is strongest during times of stress

Hypotheses

1. Income Inequality and Neuroticism are related to drug deaths separately and independently
2. The relationship between income inequality and drug deaths is **moderated** by neuroticism. Individuals who live in states with high income inequality and have high levels of Neuroticism are at a greater risk for drug death than individuals with low neuroticism.

Materials and Methods

Data Source
- Drug deaths
  Recorded by the CDC per state and by gender, race, age, etc.
- Income Inequality
  2018 Gini coefficients: U.S. Census Bureau
- Neuroticism
  Rentfrow et. al's study *Divided We Stand: Three Psychological Regions of the U.S. and their Political, Economic, Social, and Health Correlates*
  National personality data collected across various samples, years, and studies between 1999-2010

Statistical Analyses
- Unit of Analysis: state level
- Predictor Variables: Income inequality and Neuroticism
- Criterion Variable: Drug Deaths
- Two tailed Pearson correlations ® and linear regressions through SPSS
- Significance: p value < .05
- Each analysis completed 8 times using data for
  - Entire sample (2018 drug deaths)
  - Male drug deaths
  - Female drug deaths
  - White drug deaths
  - African American drug deaths
  - Asian American/Pacific Islander drug deaths
  - American Indian/Alaska Native drug deaths
  - Hispanic drug deaths

Results

PEARSON CORRELATIONS

Table 1
Neuroticism and Drug Death

Group	Pearson Correlation (r)	Sig (p)
2018 Drug Deaths	.48	.00*
Male	.62	.00*
Female	.44	.00*
White	.44	.00*
Asian/Pacific Islander	-.55	.17
American Indian/Alaska Native	-.38	.14
Hispanic	.35	.04*
African American	.27	.06

Note. *p<.05.

Table 2
Income Inequality and Drug Deaths

Group	Pearson Correlation (r)	Sig (p)
2018 Drug Deaths	.19	.19
Male	.28	.04*
Female	-.02	.86
White	.13	.36
Asian/Pacific Islander	-.48	.02*
American Indian/Alaska Native	-.38	.02*
Hispanic	.01	.94
African American	.01	.94

Note. *p<.05.

LINEAR REGRESSIONS

Table 3 Regression analysis

	B	Std. Error	t	p
2018 Drug Deaths				
Neuroticism	.43	.09	4.83	.00*
Income inequality	88.12	.86	.38	.71
Neu x Inc ineq	-3.40	.03	-.39	.39
Male Drug Deaths				
Neuroticism	.61	.12	5.10	.00*
Income inequality	73.86	98.58	1.28	.24
Neu x Inc ineq	-4.33	3.33	-.78	.44
Female Drug Deaths				
Neuroticism	.21	.08	2.75	.00*
Income inequality	-12.85	60.50	-1.05	.86
Neu x Inc ineq	1.03	2.98	.34	.73
White Drug Deaths				
Neuroticism	.48	.09	5.34	.00*
Income inequality	-9.80	43.48	-.23	.82
Neu x Inc ineq	3.87	4.33	.88	.37
African American Drug Deaths				
Neuroticism	.21	.56	1.3	.88
Income inequality	-21.11	82.32	-.26	.80
Neu x Inc ineq	-21.11	9.5	-2.25	.02*
Asian Pacific Islander Drug Deaths				
Neuroticism	.70	.82	-.08	.93
Income inequality	-28.29	12.33	-3.40	.01*
Neu x Inc ineq	.79	.83	.87	.35
American Indian Alaska Native Drug Deaths				
Neuroticism	.42	.36	1.18	.39
Income inequality	-318.14	133.81	-2.88	.02*
Neu x Inc ineq	-1.67	9.62	-.17	.87
Hispanic Drug Deaths				
Neuroticism	.56	.22	2.34	.03*
Income inequality	-33.82	53.10	-.68	.53
Neu x Inc ineq	6.34	4.86	1.32	.30

Note. *p<.05

PREDICTED AFRICAN AMERICAN DRUG DEATHS

Predicted drug death values for 4 subgroups

1. low income inequality and low neuroticism
2. low income inequality and high neuroticism
3. high income inequality and low neuroticism
4. high income inequality and high neuroticism.

16.46 + .28(neuroticism) + -21.109 (Gini) + -11+21.33(neuroticism x Gini)

Table 4
Demographics

State	N	Gini	DD	M	F	W	AA	API	AIAN	H
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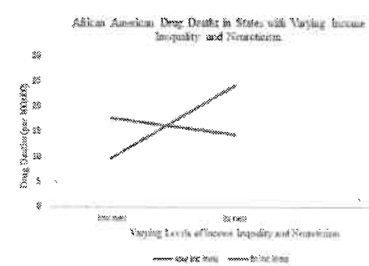


CORRELATIONS
- Neuroticism and Drug Deaths
  - Positive correlations: 2018 Drug Deaths (p=.00), Males(p=.00), Females(p=.00), Whites(p=.00), Hispanics (p=.04)
- Income Inequality and Drug Deaths
  - Positive correlations: Males (p=.02)
  - Negative correlations: Asians/ Pacific Islanders (p=-.02), American Indian/Alaska Native (p=-.02)
- Neuroticism and Income Inequality
  - No significant correlations

REGRESSIONS
- Neuroticism and Income Inequality
  - Significance for African American Drug Deaths (p=.02)

Discussion

HYPOTHESIS 1
- Neuroticism and Drug Deaths
  - Positive correlations are consistent with past studies
- Income Inequality and Drug Deaths
  - Negative relationship for Asians They were consistently the highest income earning group in the U.S. between 1999 and 2015 (Fontenot et. al, 2018) (p value=.03)
- **HYPOTHESIS 2**
- Neuroticism and Income Inequality
  - Significance for African Americans: the lowest income earning group from 1999 to 2015 (Fontenot et. al, 2018) (p value=.02)

Limitations

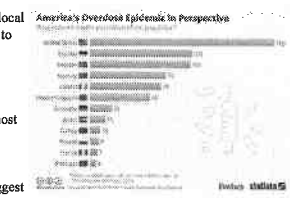
- Collection of data was at different times
  - Personality data compiled between 1999-2010
  - Gini coefficients/Drug death data from 2018
  - Elleman, Condon, Russin, and Revelle's study (2018) indicates the stability of three of the Big 5 personality traits (Neuroticism, Openness, Conscientiousness) over geographic area
- Inability to assess all confounding variables
  - Age, Drug type, Education level, Neighborhood
- Assumption that Social Comparison occurs--- theoretical model

Future Research

- Unit of Analysis→ Individual, County, Country
- Comparison of U.S. and other country's drug use rates, healthcare programs, and disparity between wealthy and poor
- The relationships between multiple situational and dispositional factors
- Assess social comparison within the study
- Account for confounding variables

Implications

- Multi faced approach to treating addiction
- Analysis of results on local and international level to understand trends
- Targeting specific populations and understanding which geographic areas are most afflicted
- Understanding which combination of circumstances may suggest vulnerability to drug use



Bibliography

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