A POLLUTED MIND

EFFECTS OF CARBON DIOXIDE EMISSIONS ON PANIC ATTACK PREVALENCE

Kylie Jones
University of North Texas
KylieJones@my.unt.edu
RESEARCH QUESTION

- Can pollution contribute to panic attacks?
- Specifier: Carbon Dioxide Emissions
CO₂: 81% of pollutants (EIA, 2019)

Panic Attacks:
- Affect 10% of U.S. residents (Hemmings, 2018)
- Five-fold prevalence over panic disorder (Hemmings, 2018)
- May be caused by CO₂
CARBON DIOXIDE AND PANIC ATTACKS


Relationship: Neurology


Relationship: Neurology


Relationship: Neurology
CARBON DIOXIDE AND PANIC ATTACKS, CONT.


*Relationship: Environment*


*Relationship: Environment*


*Relationship: Respiration*
INFERENCES FOR POLLUTION

- Physical Symptoms & CO$_2$:
  - Lopes et al. (2010)
  - Roberson-Nay et al. (2017)
- Chemical Cause Potential:
  - Lehman et al. (2002)
METHODOLOGY

- CO₂/Panic Attack Association Check
  - Across all 50 states
  - 2014-2017
  - Includes linear regression, significance, \( r^2 \), and Cohen’s \( d \)
  - Excel: Containing Data; R: Association & Graphs
DATA

- Significant Correlations, Both Directions
  - 37 states with significant relationships
  - $r_{overall} = -0.16; p = 0.216$
  - $r^2 = 0.02$
  - Cohen’s $d = 0.24$
- Likely third variable at play
DISCUSSION

- Ideas of third variables:
  - Industrial v. Agricultural Economy
  - Democratic v. Republican States
  - Weather by State
  - State-Level Population Density
CONCLUSIONS

- CO₂ and Panic Attacks – Related
  - Possible third variable
  - Future Association Checks


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