History of Incarceration and Current Mental Health Outcomes:

Findings from the 2011 Los Angeles County Health Survey

Chief Science Office
Office of Health Assessment & Epidemiology
Health Assessment Unit

Jerome Blake, MPH, CPH
Amy S. Lightstone, MPH, MA
Yan Cui, MD, PhD
Susie Baldwin, MD, MPH
Margaret Shih, MD, PhD
Background

• Mental Health as a Public Health Issue
  – Mental health disorders can affect individuals at any point
    • Interplay of biological, social and environmental factors
    • Lead to risky behaviors
    • Disruptive daily functioning
    • Impaired social relationships
    • Premature death
  
• In 2015, 18.2% (~42.5 Million adult Americans) suffer from mental illness

• In 2013, Suicide was the 10th leading cause death (~40,000 deaths) in the U.S.

• Estimated U.S. economic burden ~ $300 Billion/year

1. Mental Health America: Parity or Disparity: The State of Mental Health in America 2015.
2. Centers of Disease Control and Prevention (CDC): National Center for Injury Prevention and Control
Incarceration in the United States

- Highest rate of any country
- >50% of all prison and jail inmates have a mental health problem\(^4\)
  - 45% Federal, 56% State, 64% local inmates
- Rates have quadrupled and increased more rapidly among women
- Post-release ramifications can amplify negative social determinants of health
  - Adverse Psychiatric Health
  - Homelessness
  - Unemployment
  - Discrimination

\(^4\) Imprisonment rate of sentenced prisoners under the jurisdiction of state or federal correctional authorities per 100,000 U.S. residents, December 31, 1978-2013. Bureau of Justice Statistics
Study Objectives

• To conduct an assessment of the mental health of Los Angeles County Adults (18+ years old) exposed to incarceration

• To determine and quantify the relationship between having a history of incarceration (HOI) and risk of having any “current” mental health outcomes
Methods
Methods

• Adult 2011 Los Angeles County Health Survey (Total n= 8,036, effective n=7,679)
  – Population based random-digit-dialed(RDD) telephone survey
  – Cell phone component
  – 6 languages: English, Spanish, Mandarin, Cantonese, Vietnamese, Korean
  – Weighted to reflect the non-institutionalized LA County population

• Survey includes information on health conditions, health behaviors, healthcare access and utilization and other health related data
Methods (ctd)

• Respondents were asked questions to determine the following:

• Any Current Mental Health Outcomes (AnyMHO)
  – An inclusive measure that combines the following indicators to allow for improved statistical stability:

  • Current depression and/or current anxiety (CDASP)
  • Being at risk for major depressive episode (PHQ2)
  • Experiencing frequent mental distress (FMD)
Current Depression and/or Anxiety (CDASP)

- Assessed among those ever diagnosed with depression or anxiety, stress disorder, or phobia

Follow-up Questions:

- Are you currently **taking medicine** prescribed by a doctor or a psychiatrist for this disorder?
- Are you currently **receiving counseling** from a mental health professional, such as a psychiatrist, psychologist, psychotherapist, social worker, or counselor for this disorder?
- Are you **currently experiencing or suffering from symptoms** of this disorder?
- Are you **currently being treated** for this disorder?
Risk for Major Depressive Episode
Patient Health Questionnaire -2 (PHQ2)

• Validated initial screening test for major depressive episode
• First 2 items of the PHQ-9
• Questions:

Over the past two weeks, how often were you bothered by

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless
Frequent Mental Distress (FMD)

• Experiencing stress, depression, or emotional problems for 14 or more days in the previous 30 days

The 14-day period is used because it is often considered a marker for clinical depression and anxiety disorders
CDASP \{ PHQ2 \ \\
FMD \} \rightarrow \text{AnyMHO}
History of Incarceration (HOI)

• Respondents were asked:

As an adult, have you ever spent more than 24 hours living in a detention center, jail or prison?
Methods (ctd)

• Descriptive Analyses
  – To assess the variation in prevalence estimates for current mental health outcomes among different socio-demographic groups

• Multivariate Logistic Regression Modeling
  – To determine if HOI is associated with current mental health (AnyMHO) while controlling for multiple covariates:

    Age, Gender, Race/ethnicity, Income, and Housing Instability

All analyses conducted using SURVEYMEANS and SURVEYLOGISTIC PROCEDURES in SAS 9.3, Cary, NC.
Results
Percent of Adults with Mental Health Outcomes by History of Incarceration (HOI)

Percent %

LA County Overall  | HOI  | No HOI

Any MHO          | 22   | 36   | 21   |
Current DASP     | 11   | 18   | 10   |
PHQ2             | 10   | 10   | 10   |
FMD              | 10   | 23   | 9    |
Percent of Adults with AnyMHO by HOI and Gender

LA County | HOI | No HOI
---|---|---
Male | 19 | 33 | 18
Female | 24 | 54 | 24
Percent of Adults with AnyMHO by HOI and Age Group

LA County | HOI | No HOI

18-34
- LA County: 19%
- HOI: 26%
- No HOI: 19%

35-64
- LA County: 24%
- HOI: 39%
- No HOI: 23%

65+
- LA County: 21%
- HOI: 61%
- No HOI: 20%
Percent of Adults with AnyMHO by HOI and Race/Ethnicity***

*** Native Hawaiian and Other Pacific Islanders were excluded due to small sample size and data instability
* Statistically unstable (relative standard error > 23%)
-- Results with cell size <5 are not reported for confidentiality reasons.
Percent of Adults with AnyMHO by HOI and Federal Poverty Level (FPL)

* Statistically unstable (relative standard error ≥ 23%)
Percent of Adults with AnyMHO by HOI and Housing Stability Status

- LA County
- HOI
- No HOI

Housing Unstable:
- LA County: 52%
- HOI: 55%
- No HOI: 52%

No Housing Instability:
- LA County: 24%
- HOI: 35%
- No HOI: 23%
Multiple Logistic Model

• To determine if \( \text{HOI} \) is associated with current mental health (AnyMHO) while controlling for multiple covariates

\[
\log\left( \frac{y}{1-y} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon
\]

\[
\log(\text{AnyMHO}/1-\text{AnyMHO}) = \beta_0 + \beta_1(\text{HOI}) + \beta_2(\text{Age}) + \beta_3(\text{Gender}) + \beta_4(\text{Race}) + \beta_5(\text{Income}) + \beta_6(\text{Housing Instability}) + \epsilon
\]
Adjusted Odds Ratios for AnyMHO

- HOI: yes vs no
- AGE: Adults 35-64yrs vs Seniors 65+yrs
- AGE: Young Adults 18-34yrs vs Seniors 65+yrs
- GENDER: Females vs Males
- RACE: African American vs White
- RACE: Asian vs White
- RACE: Latino vs White
- INCOME: <100% FPL vs 300+ % FPL
- INCOME: 100-199% FPL vs 300+ % FPL
- INCOME: 200-299% FPL vs 300+ % FPL
- HOUSING INSTABILITY: yes vs no

Odds Ratios:
- Adjusted Odds Ratio
  - 1.7
  - 1.1
  - 0.8
  - 1.4
  - 0.8
  - 0.5
  - 0.5
  - 2.7
  - 2.4
  - 1.5
  - 2.8
Adjusted Odds Ratios for AnyMHO

HOI: yes vs no

Adjusted Odds Ratio: 1.7
Adjusted Odds Ratios for AnyMHO

- **AGE:** Adults 35-64yrs vs Seniors 65+yrs
- **AGE:** Young Adults 18-34yrs vs Seniors 65+yrs

Adjusted Odds Ratios:
- 1.1
- 0.8
Adjusted Odds Ratios for AnyMHO

GENDER: Females vs Males

Adjusted Odds Ratio: 1.4
Adjusted Odds Ratios for AnyMHO

- Adjusted Odds Ratio:
  - HOI: yes vs no
  - AGE: Adults 35–64 yrs vs Seniors 65+yrs
  - GENDER: Females vs Males
  - RACE: African American vs White
  - RACE: Asian vs White
  - RACE: Latino vs White
  - INCOME: <100% FPL vs 300+% FPL
  - INCOME: 100–199% FPL vs 300+% FPL
  - INCOME: 200–299% FPL vs 300+% FPL
  - HOUSING INSTABILITY: yes vs no

Adjusted Odds Ratios:
- 0.8
- 0.5
- 0.5
Adjusted Odds Ratios for AnyMHO

- Adjusted Odds Ratio

- HOI: yes vs no

- AGE: Adults 35--64yrs vs Seniors 65+yrs

- Young Adults 18-34yrs vs Seniors 65+yrs

- GENDER: Females vs Males

- RACE: African American vs White

- Asian vs White

- Latino vs White

- INCOME: <100% FPL vs 300+% FPL

- 100-199% FPL vs 300+% FPL

- 200-299% FPL vs 300+% FPL

- HOUSING INSTABILITY: yes vs no
Adjusted Odds Ratios for AnyMHO

Housing Instability: yes vs no

Adjusted Odds Ratio

0.0
1.0
2.0
3.0
4.0
5.0

2.8
Adjusted Odds Ratios for AnyMHO

- **HOI:** yes vs no
- **AGE:** Adults 35–64yrs vs Seniors 65+yrs
- **AGE:** Young Adults 18–34yrs vs Seniors 65+yrs
- **GENDER:** Females vs Males
- **RACE:** African American vs White
- **RACE:** Latino vs White
- **INCOME:** <100% FPL vs 300% FPL
- **INCOME:** 100–199% FPL vs 300% FPL
- **INCOME:** 200–299% FPL vs 300% FPL
- **HOUSING INSTABILITY:** yes vs no
Conclusions
Conclusions

Descriptive Statistics

• Adults with HOI had significantly high prevalence of mental health outcomes

• Descriptive analysis show disparities among those with HOI stratified on socio-demographic variables

Regression Modeling

• There is a significant association between HOI and AnyMHO. Adults with HOI had almost twice the odds of having AnyMHO [Adj OR = 1.7 (1.2-2.5)]

• **Females**, though incarcerated in smaller numbers than men are at higher odds of having AnyMHO [Adj OR = 1.4 (1.2-1.6)]

• Income level was a significant factor in explaining AnyMHO since the model shows a significant and consistent reduction in odds with increased income

• Adults who experience housing instability in the past 5 years had the highest odds of AnyMHO [Adj OR 2.8 (2.0-4.0)]
Public Health Recommendations

• Expand jail in-reach programs to identify and provide services to those at risk for mental health issues while incarcerated

• Reintegration policies should incorporate mental health screening and services to those formerly incarcerated and are at risk of experiencing housing instability

• More research including longitudinal studies are needed to determine if mental health issues contributes to incarceration, or are the result of incarceration

• More targeted research is also needed to independently assess mental health issues among Asian and Latino sub-populations is Los Angeles County.
Limitations

• **Self reported data**
  – Possible underreporting of mental health and incarceration history due to cultural sensitivities and stigma

• **Temporal ambiguity** due to nature of cross-sectional data

• LACHS data is primarily from non-institutionalized population therefore is **not representative of person living in jails or prisons** at the time of the survey
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Chief Science Office

Office of Health Assessment & Epidemiology

Health Assessment Unit

Jerome Blake MPH, CPH

313 N. Figueroa Street, Room 127
Los Angeles CA 90012

jblake@ph.lacounty.gov
(213) 989-7085

www.publichealth.laounty.gov/ha