Co-occurring Mental Illness and Healthcare Utilization and Expenditures Among Adults with Obesity and Chronic Physical Illness

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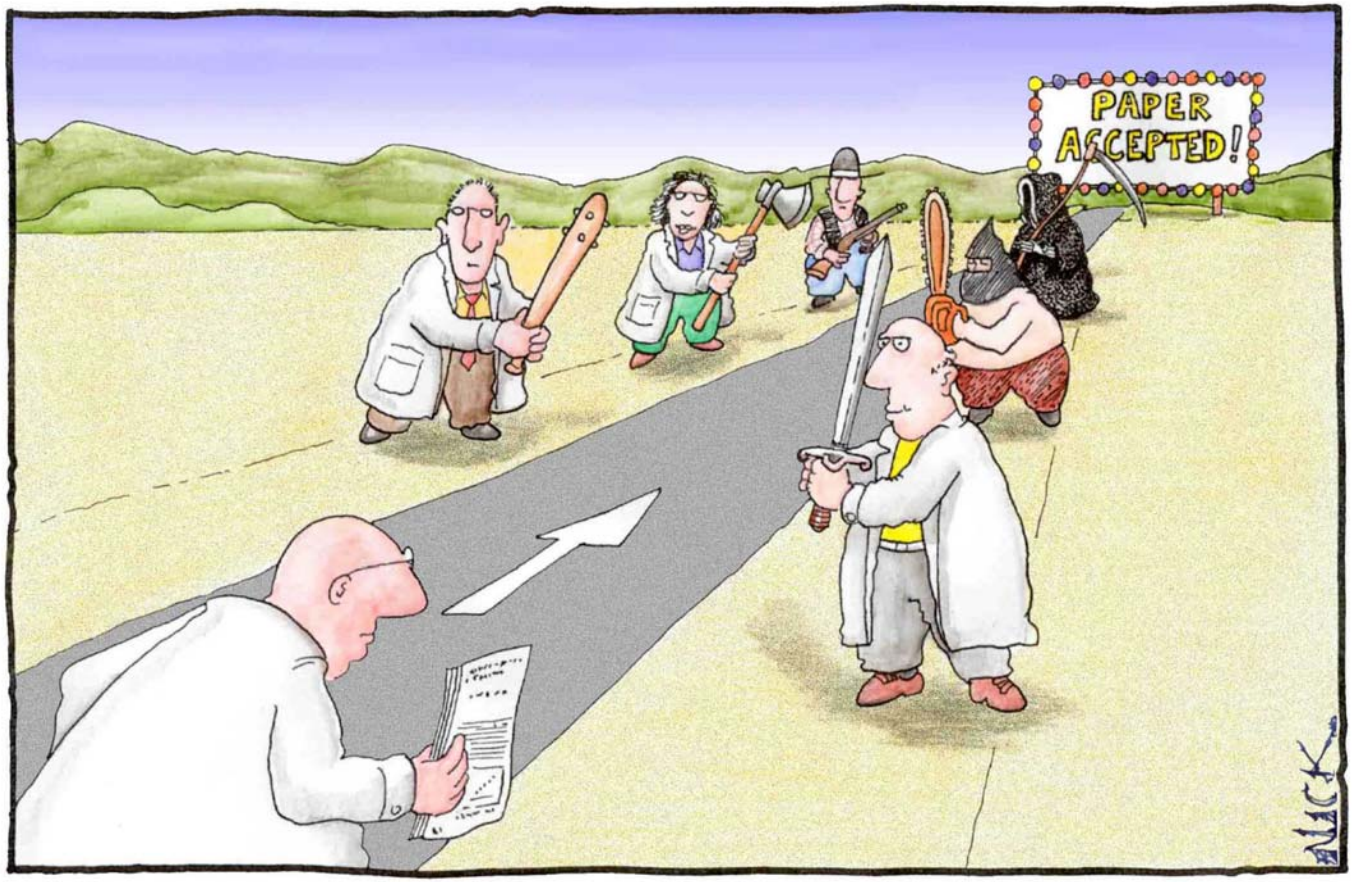


Most scientists regarded the new streamlined peer-review process as ‘quite an improvement.’

Why Study Mental Illness Among Adults with Obesity and Chronic Physical Illness?

- The association between obesity and health care expenditures becomes weaker and sometimes eliminated completely, when the analysis control for obesity-related comorbidities.
- Higher Expenditures among those with Obesity, MI, and chronic physical illness have always been documented; but analyzed separately.
- However, obesity, MI and physical illness tend to co-occur — a very challenging population with complex treatment needs.

Why study expenditures?

- What is the average expenditures among those with obesity, once they have chronic illnesses?
  - Same as those with normal BMI; some literature on no differences in expenditures between those with normal BMI and those with BMI > 30
- What are the predictors of expenditures among those with obesity?
- While we expect MI to increase expenditures, no one knows how much — it is important to know how much from the disease management programs point of view.
- It is also important to know the allocation of resources—Inpatient? Outpatient? Pharmacy?

Objective of our current paper

- To examine the relationship between mental illness and expenditures among adults with obesity and chronic physical illness, using cross-sectional data from a nationally representative survey of households, the Medical Expenditure Panel Survey (MEPS).

Data source

- 2003 Medical Expenditure Panel Survey (MEPS), a nationally representative survey of the US non-institutionalized civilian population.
  - Medical conditions and procedures are recorded by interviewers and then coded by professional coders to conform to the *International Classification of Diseases-9th edition-Clinical Modification* (ICD-9-CM) codes. However, to protect confidentiality, only 3-digit ICD-9-CM codes are available.
  - The MEPS also provides aggregated clinical classification codes based on ICD-9-CM codes.
  - We use both aggregated clinical classification codes and ICD-9-CM codes to identify chronic physical illness and mental illness.

Study Sample (N = 2,440)

- Adults over age 21 with chronic physical illnesses and obesity alive during the whole year
  - Obesity was defined based on
    - BMI : $\frac{\text{Weight in Kilograms}}{(\text{Height in Meters}) \times (\text{Height in Meters})}$
    - BMI values greater than 30
  - Chronic physical illnesses consisted of asthma (condition code 128) diabetes (condition code 49, 50); heart disease (condition code 96, 97, 100-111); hypertension (condition code 98, 99), and osteoarthritis (condition code 203)
  - Final sample consisted of 2,440 adults

Key Independent variable: Mental Illness

- We created a binary variable to indicate the presence of mental illness.
  - affective disorders (ICD-9-CM codes 296, 311, condition code 69)
  - anxiety; somatoform; dissociative; and personality disorders (condition code 72)
  - schizophrenia (ICD-9-CM: 295)

Other independent variables

- Gender
  - Male
  - Female
- Race/Ethnicity
  - White
  - African American
  - Latino
  - Other
- Age
  - 22-29 years
  - 30-45 years
  - 46-64 years
  - 65 or older
- Marital Status
  - Married
  - Widowed
  - Divorced/Separated
  - Never married
- Area of residence
  - Metro
  - Non-metro
- Region
  - Northeast
  - Midwest
  - South
  - West

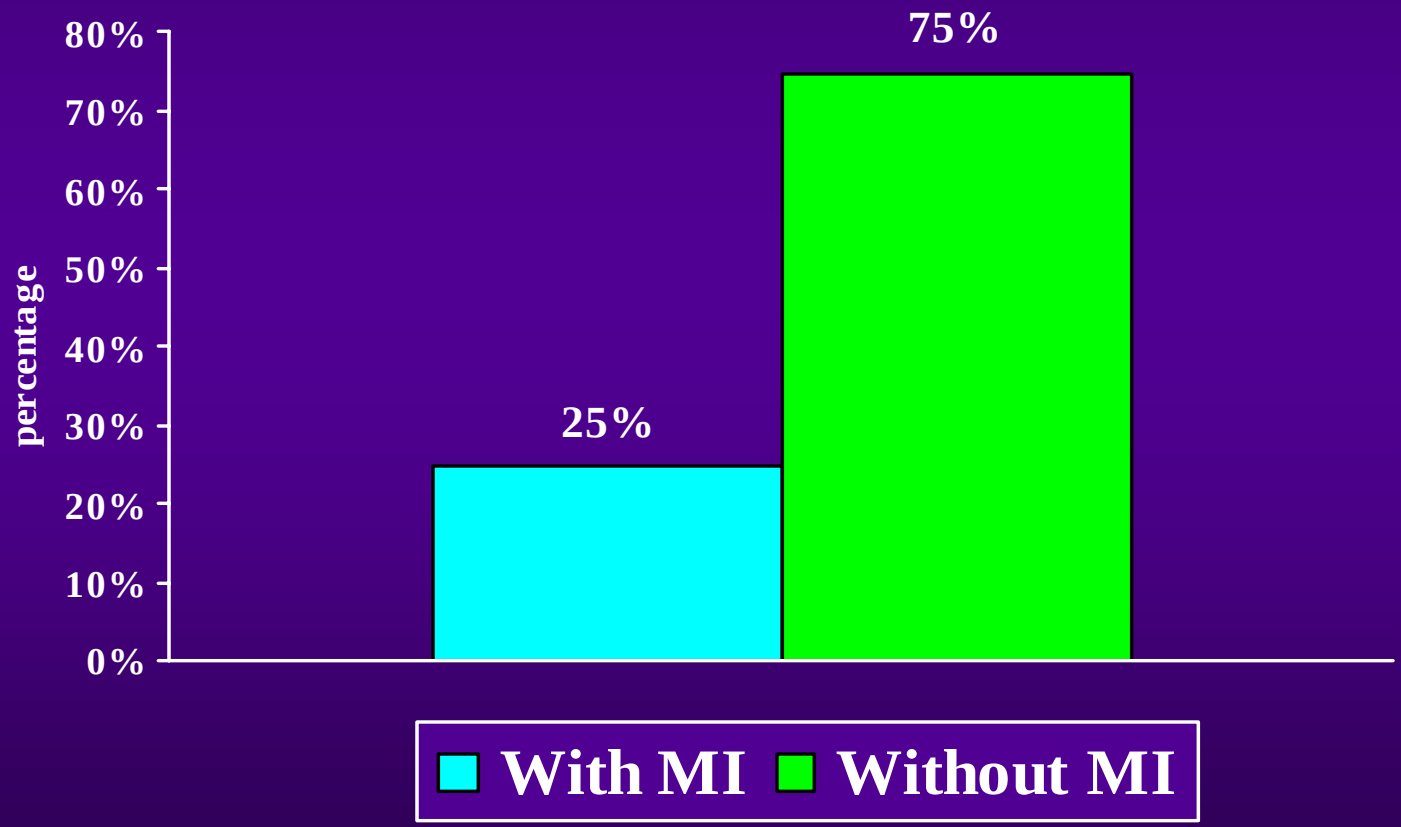
Other independent variables (cont'd)

- Education
  - Less than high school
  - High school
  - Above high school
- Employment
  - Employed
  - Not Employed
- Poverty Status
  - Poor
  - Near Poor
  - Middle Income
  - High Income
- Health insurance
  - Private
  - Public
  - Uninsured
- Usual source of care
- Perceived physical and mental health
  - Excellent/Very good
  - Good
  - Fair/Poor
- Exercise
- Smoking

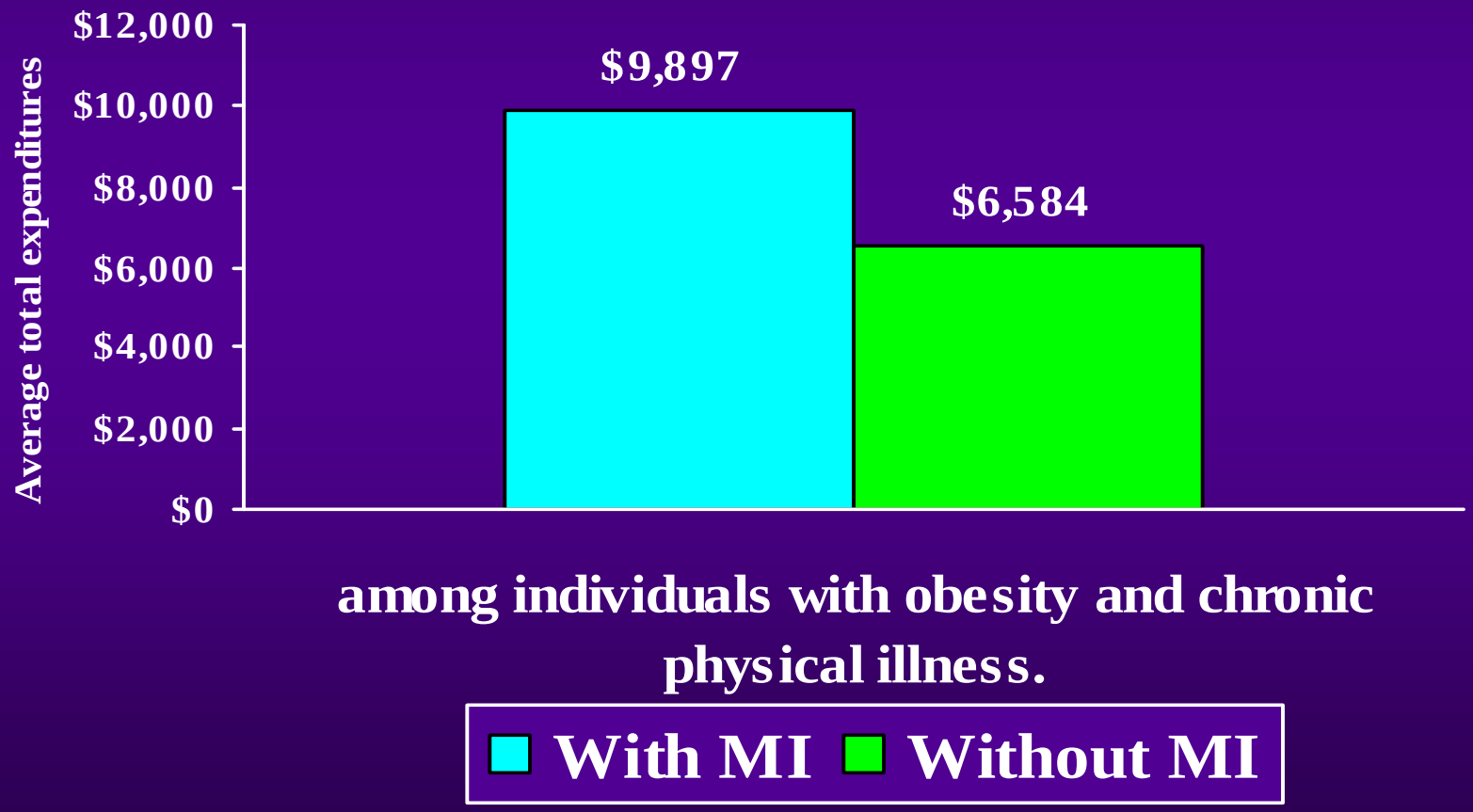
Statistical techniques

- Subgroup differences were examined using
  - chi-square tests for categorical variables
  - t-tests for continuous variables
- two-part model for expenditures
  1. The probability of nonzero health expenditures is estimated.
  2. The amount of health expenditures is estimated for all individuals with positive expenditures.
     - Because expenditure data are highly skewed, we transformed the expenditure variables into logarithmic terms.

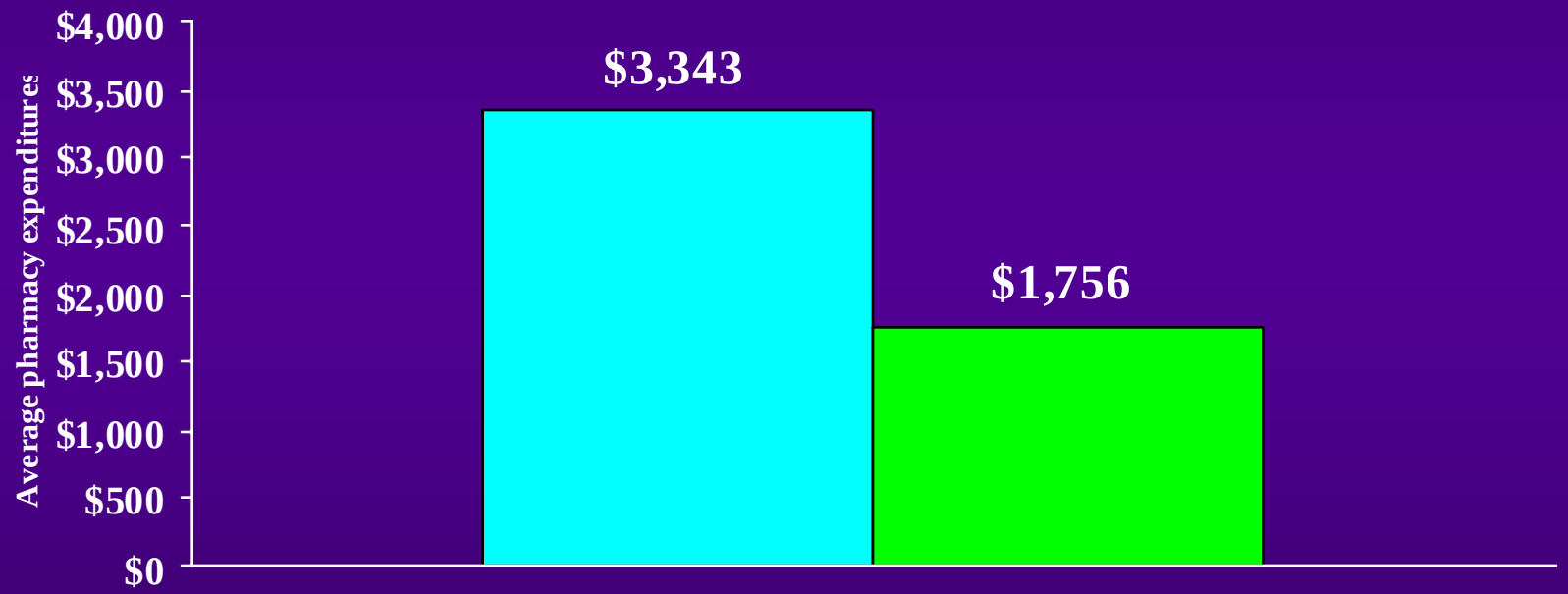
Prevalence of Mental Illness



Mental Illness and Total Expenditures



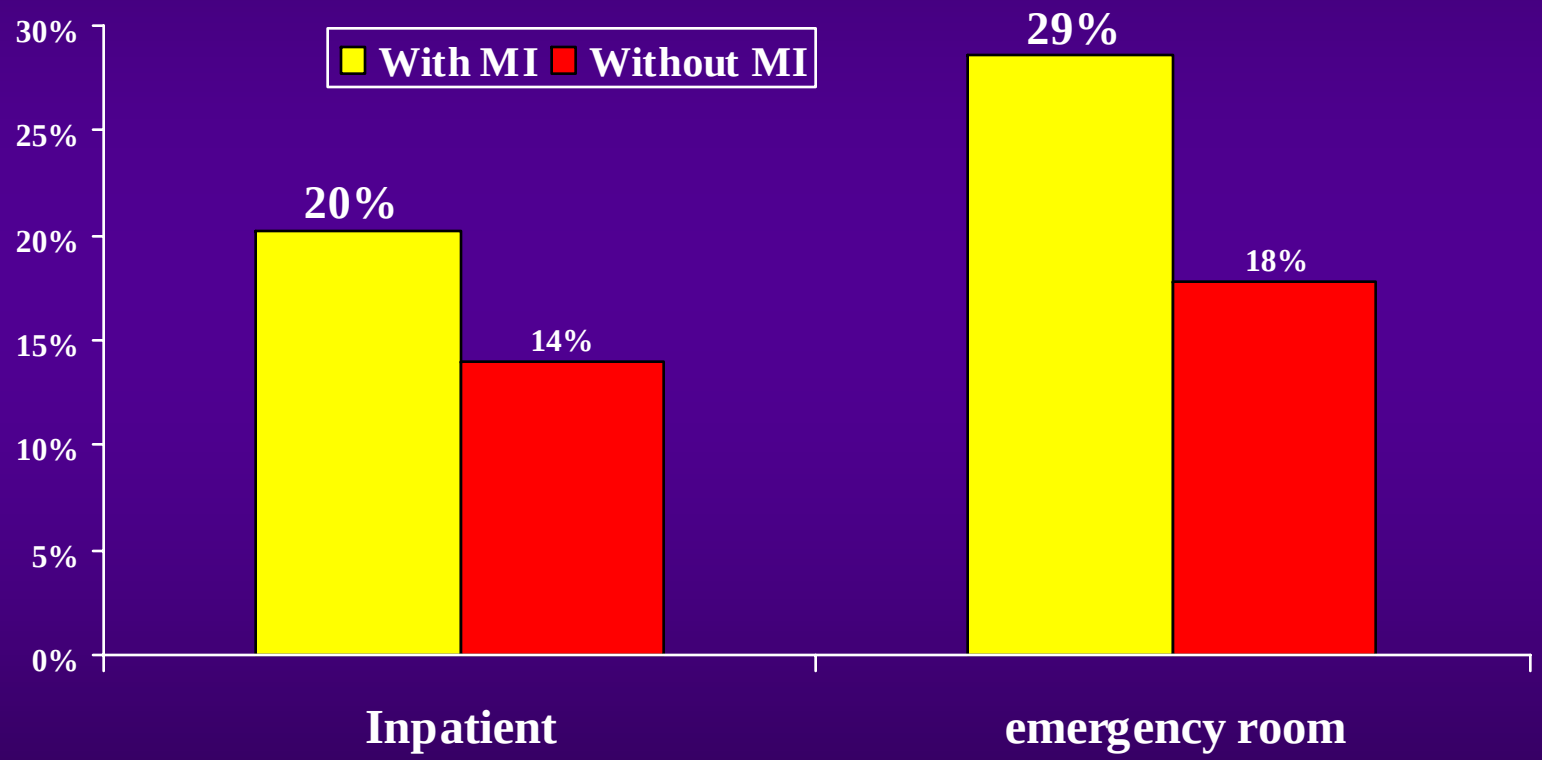
Mental Illness and Pharmacy Expenditures



among individuals with obesity and chronic physical illness.

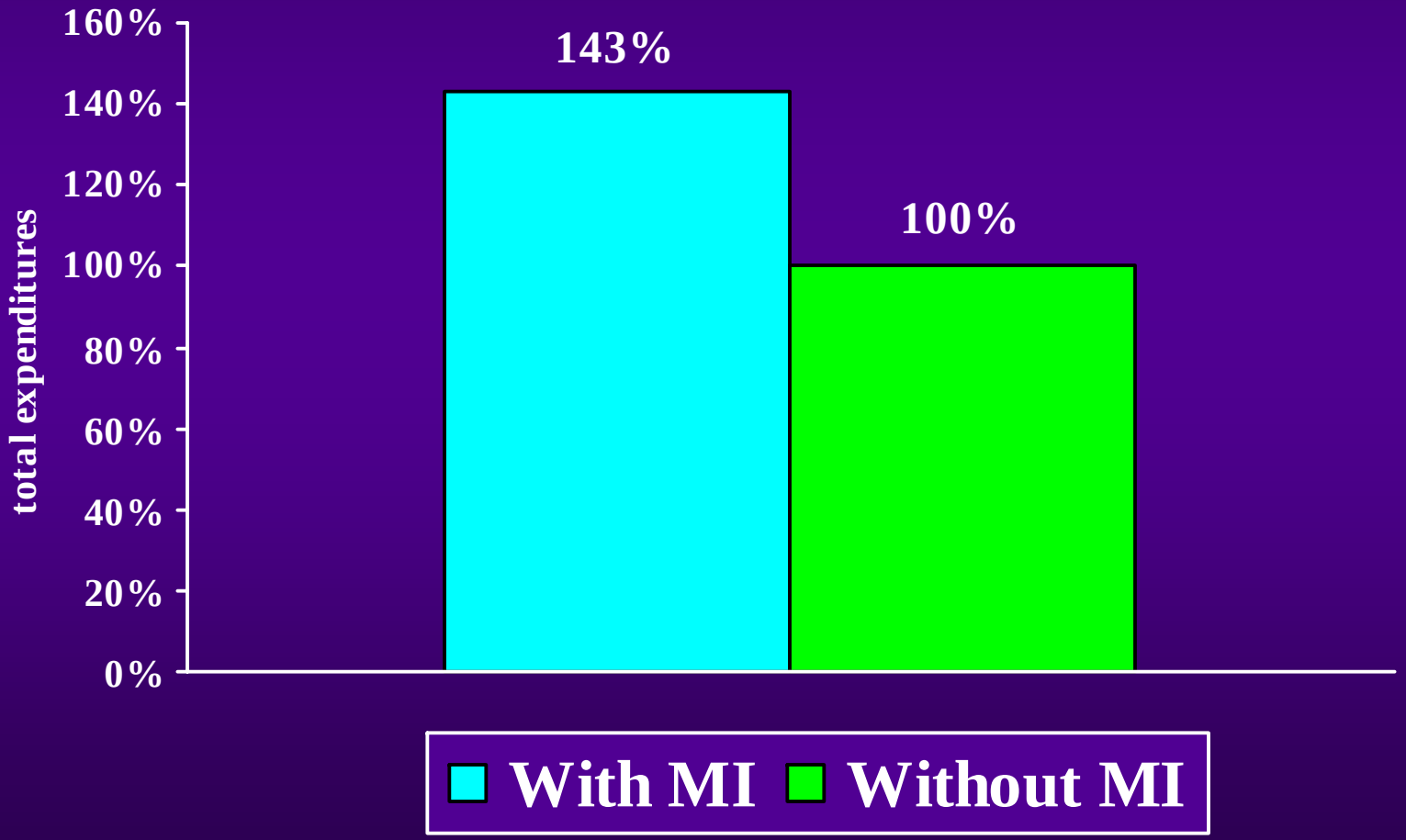
With MI **Without MI**

Use of Healthcare



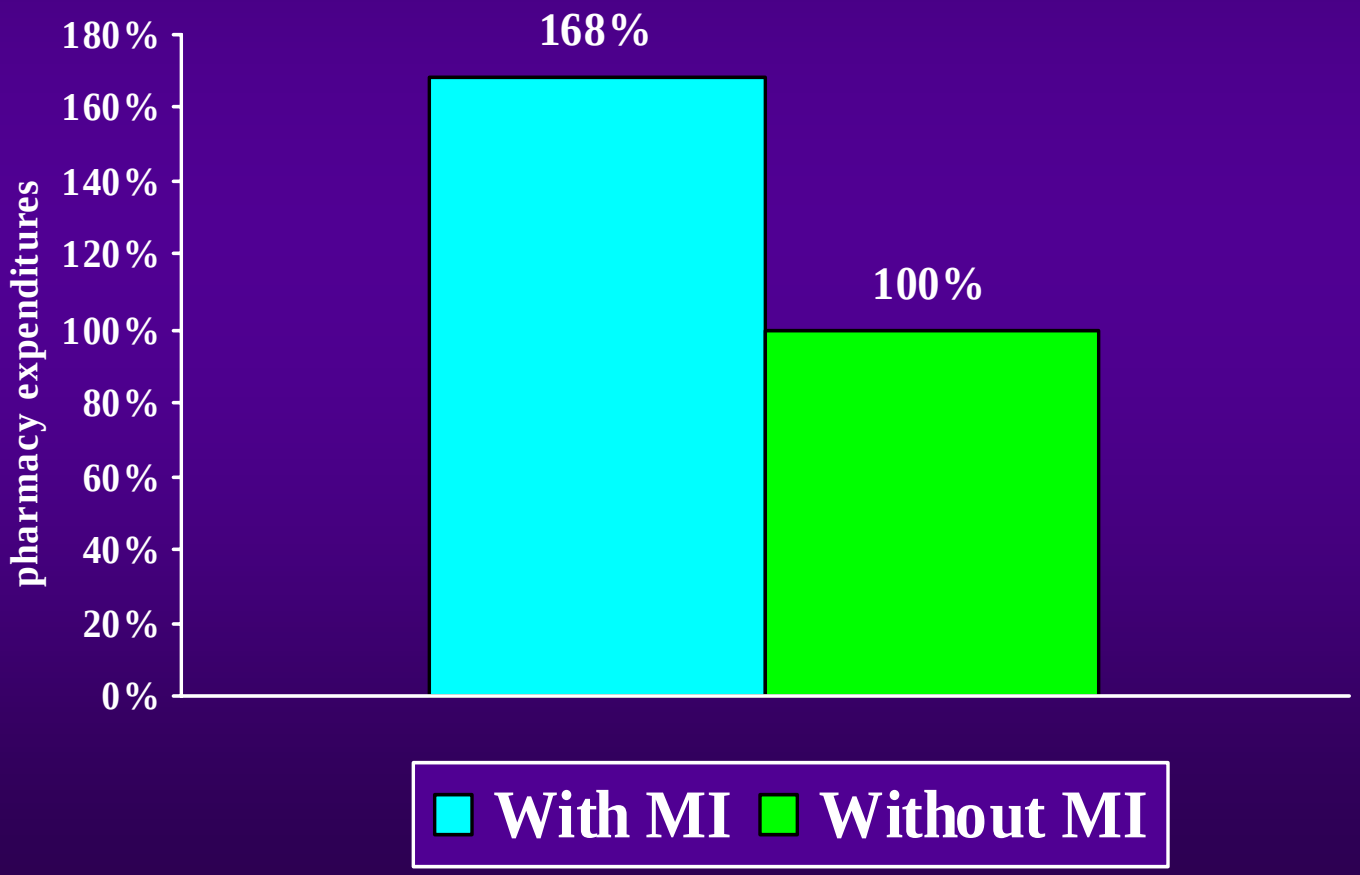
Mental Illness and Total Expenditures

after controlling for other characteristics



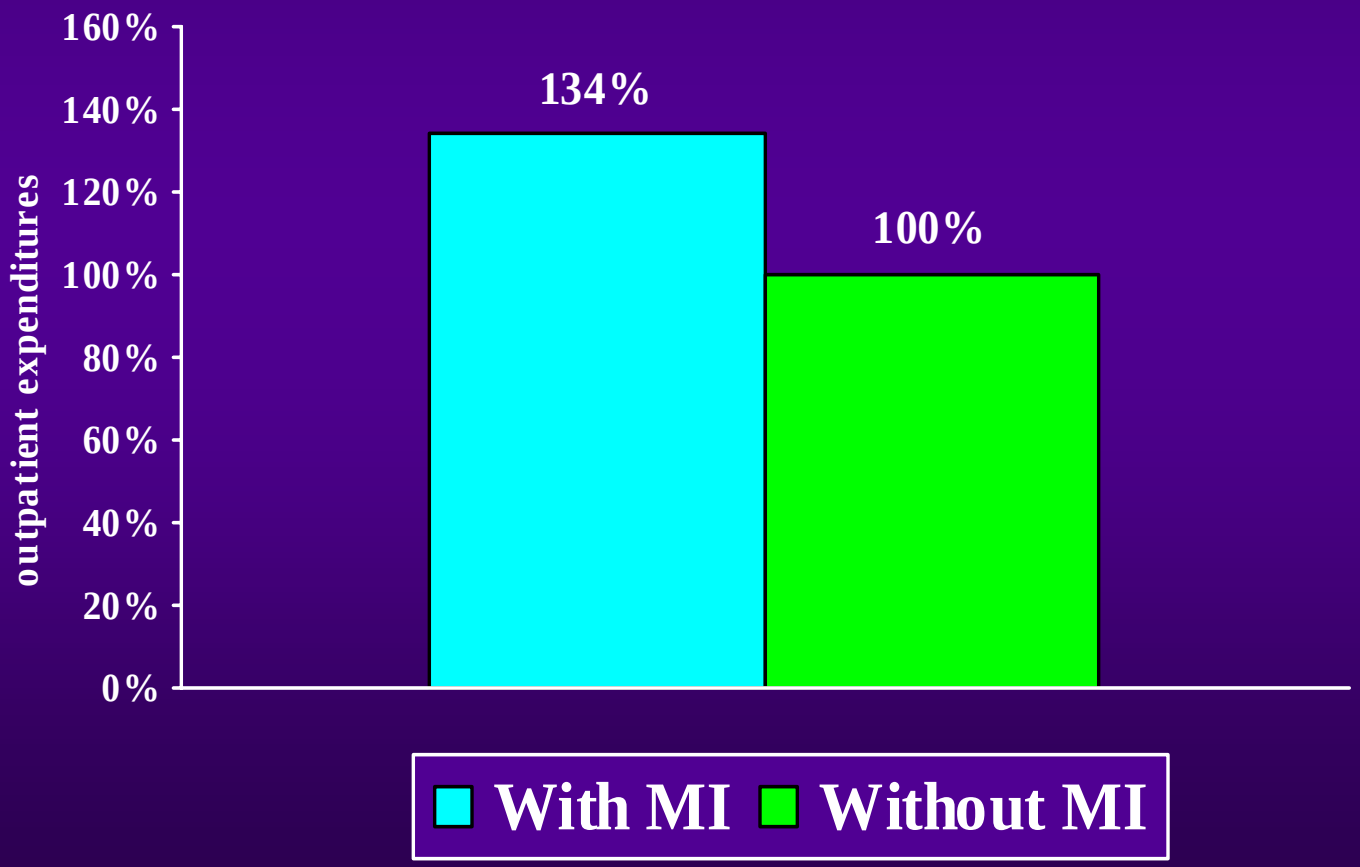
Mental Illness and Pharmacy Expenditures

after controlling for other characteristics



Mental Illness and Outpatient Expenditures

after controlling for other characteristics



Findings

- Mental illness comorbidities are common among those with obesity and chronic illnesses.
- People with mental illnesses are more likely to have emergency room visits.
- The average expenditures for prescription drugs were higher among those with a mental illness.
- Outpatient expenditures were higher in adults with a mental illness.

Limitations

- Data on the height and weight of individuals are self-reported and therefore could be biased.
- Mental illness is a broad category and all categories of mental illness may not act in a similar direction.
- Substance abuse disorders are excluded and therefore the effect of mental illness on healthcare utilization and expenditures could be underestimated.
- Individuals with a severe mental illness who are in institutional setting may not be have been captured because of the scope of the survey.

Policy implications & Future research

- Generalized and multi-dimensional interventions are needed to treat the patient as whole.
  - Mental illness comorbidities are common among those with obesity and chronic illnesses.
  - The impact of mental illness on costs and utilization are so intertwined with these other conditions.
- Further research is needed to identify the optimal mix of the team consisting of behavioral/medical care and nursing case managers to reduce the expenditures and high utilizations of these high-risk patients.

Q & A