



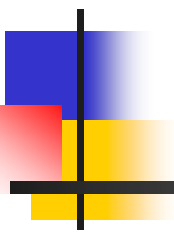
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# How Much of the Variation Across States in Mental Health Service Use and Need Among Children is Related to Market Characteristics and Health Care Legislation?

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# Background

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- Public crisis in mental health care for children (Surgeon General, 2001)
- Much concern about disparities in access across socioeconomic and racial/ethnic groups (NAMHC, 2001)
- Disparities across geographic areas have received little attention
  - Geographic patterns of use well documented for Medicare population (e.g., Dartmouth Atlas of Health Care)



# Disparities Across Geographic Regions Warrant Study

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- Understanding relative importance of geographic (or environmental) factors versus individual characteristics is fundamental
- Most reform efforts are at the state and local levels and could be informed by a studies explaining geographic differences in use.



# Contribution

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- Illustrate geographic variation in mental health use and need among children
- Determine the extent to which differences across areas are explained by the composition of the population
- Examine whether state-level policy and market characteristics explain the variation across states



# Outline

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- Introduction
- Data
- Methods
- Results
- Discussion



# Data

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- National Survey of America's Families (NSAF)
  - Nationally representative
  - 13 focus states, allowing state-specific estimates
  - Two waves (1997 and 1999)
    - Pooled to increase sample of children with mental health needs and service use



# Outcome Measures

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- Mental health service use
  - Indicator for any use
  - Number of visits
- Mental health need
  - Indicator for need based on shortened version of CBCL (6 questions)
    - Shortened set of questions is less reliable than full CBCL
    - Only parental reports



# Outcome Measures, cont'd

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- Unmet need
  - Measured only for those with identified need
  - Indicator for not accessing any mental health care
  - At state level, a measure of the gap in services
- Need among users
  - Measured only for service users (3+ visits)
  - Indicator for having identified mental health needs
  - At state level, a measure of how well services are targeted
- Problems with measurement of need should be kept in mind



# Explanatory Variables

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- Demographic and Socioeconomic
  - Age, race/ethnicity, gender, family income, and insurance status
- Health care market characteristics
  - Penetration of MBHOs in private sector, penetration of managed care in public sector, and the supply of mental health providers
- State-level policies
  - Parity legislation and generosity of public sector insurance coverage



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# Methods

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- Descriptive
  - Means and multivariate logistic regressions
- Hierarchical modeling
  - Level-1: Individual
  - Level-2: State
  - Allows us to decompose the variance in the outcome into between and within state components



# Methods, cont'd

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- General specification:

$$(1) \quad Y_{ij} = \beta_{0j} + \beta_{01}(X_{ij} - \bar{X}_{..}) + r_{ij}$$

$$(2) \quad \beta_{0j} = \gamma_{00} + \gamma_{01}W_j + u_{0j}$$

where  $r_{ij}$  is distributed  $N(0, \sigma^2)$

and  $u_{0j}$  is distributed  $N(0, \tau_{00})$



# Methods, cont'd

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- Unconditional model
  - No individual or state level predictors
  - Estimate percent of total variance that is between states
  - Proceed if intraclass correlation is 5% or greater
- Conditional models
  - (A) with just individual-level predictors
  - (B) with both individual- and state-level predictors
  - Estimate percent reduction in between-state variance from model A to model B



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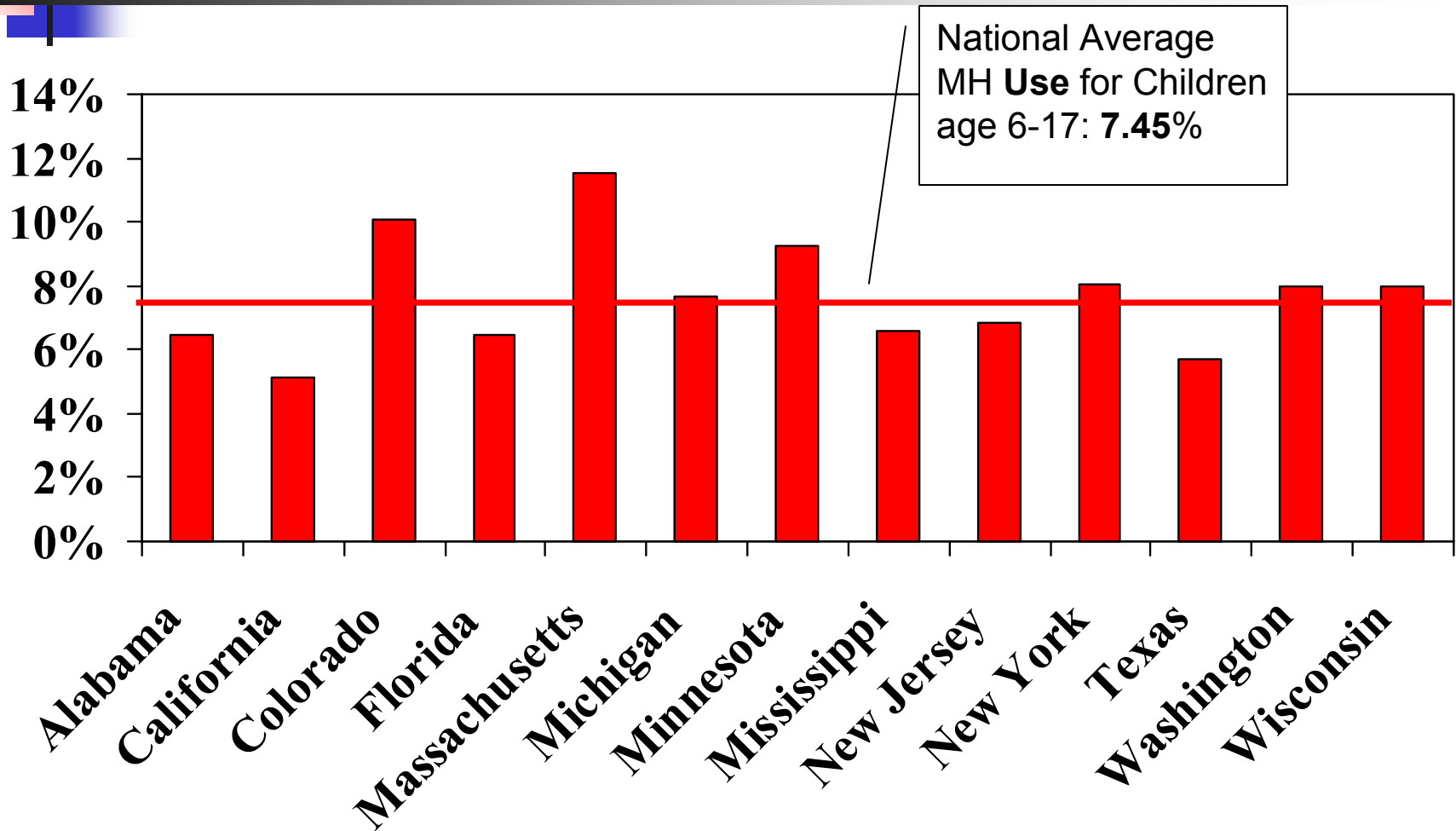


# Results

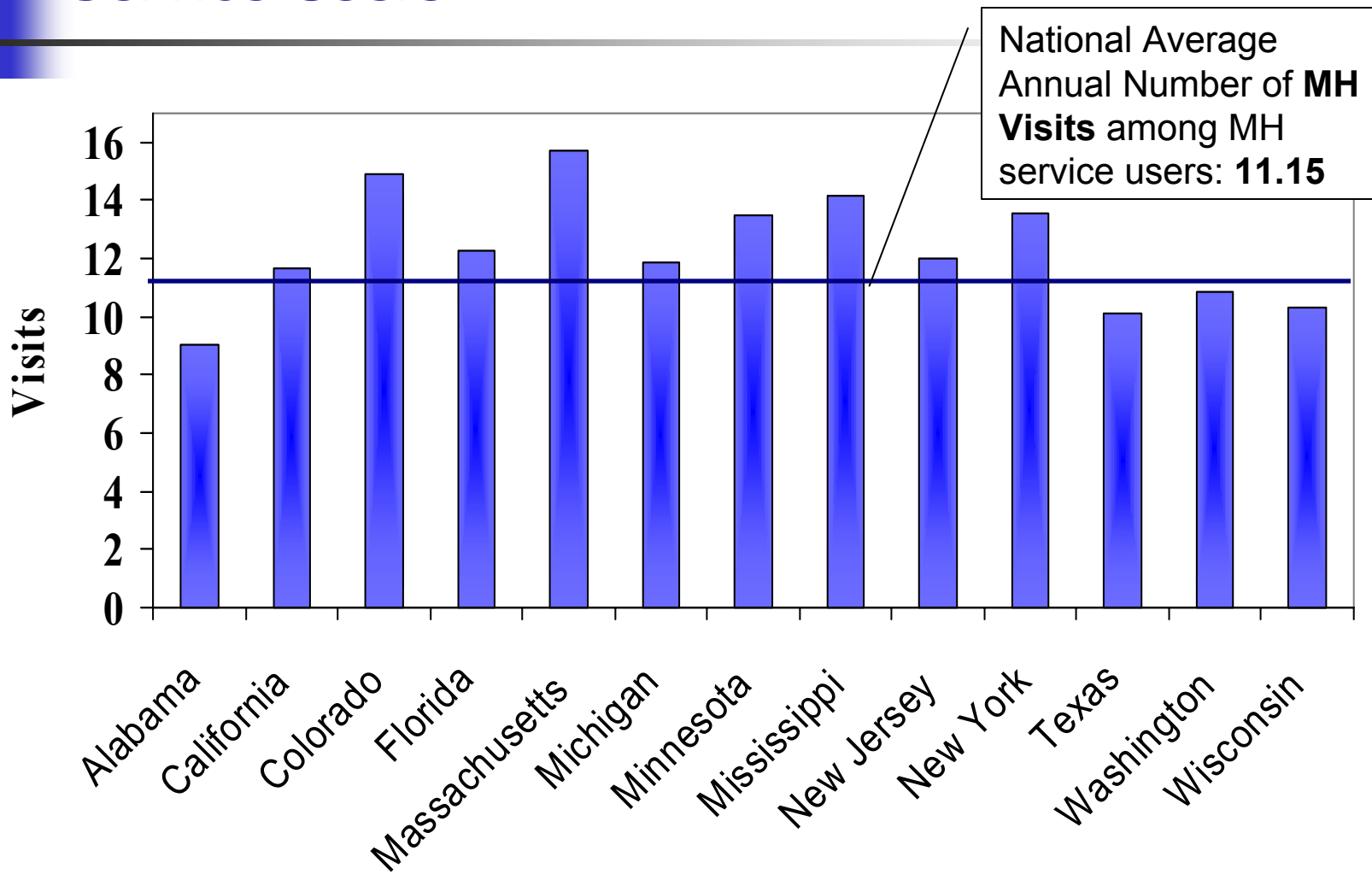
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- Large variation in use across states
  - Disparities are larger than between racial/ethnic or income groups
  - Variations remain after controlling for individual characteristics
- Less variation in mental health need, unmet need, and need among users

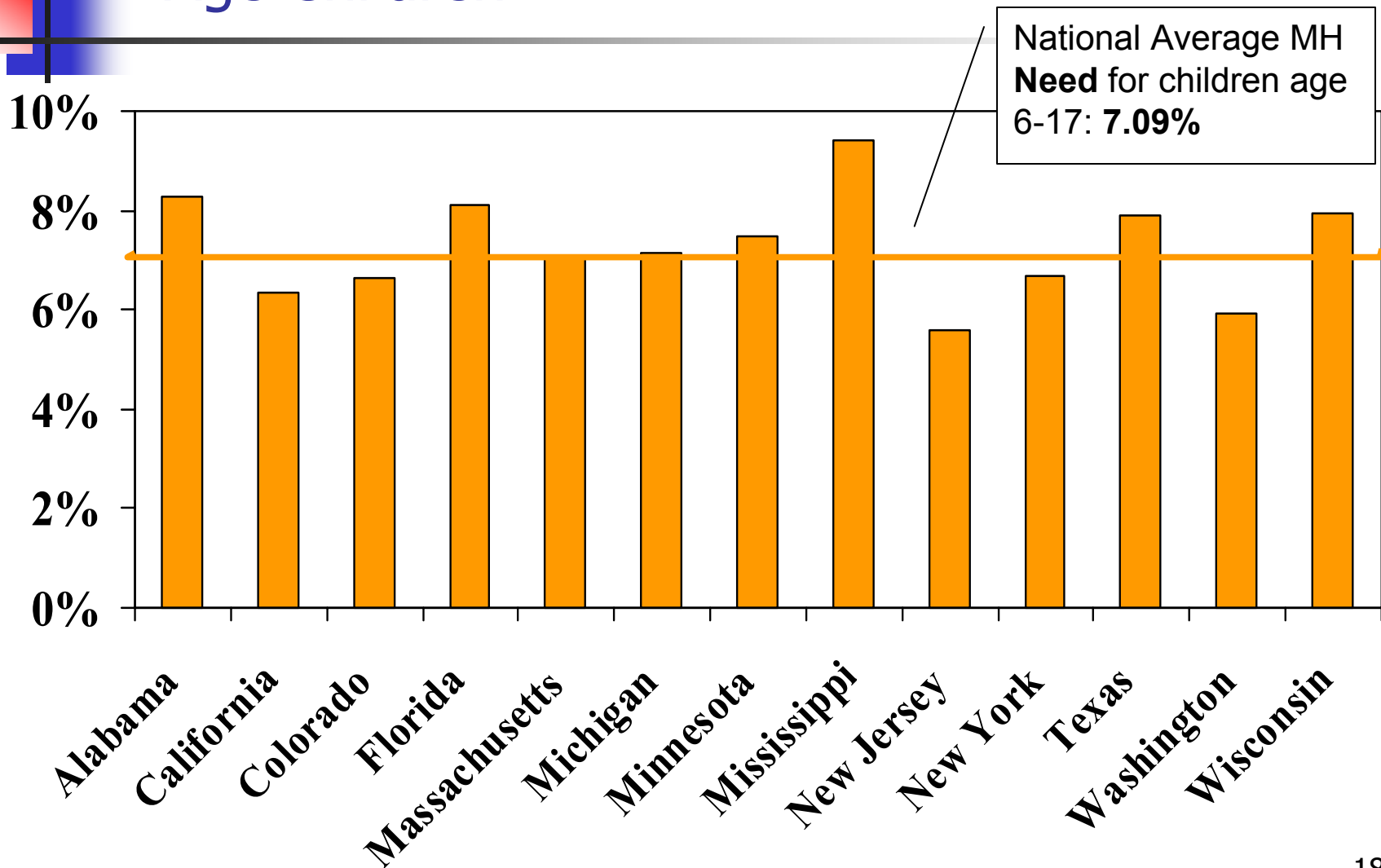
# Geographic Variation in Use of Mental Health Services For School Age Children



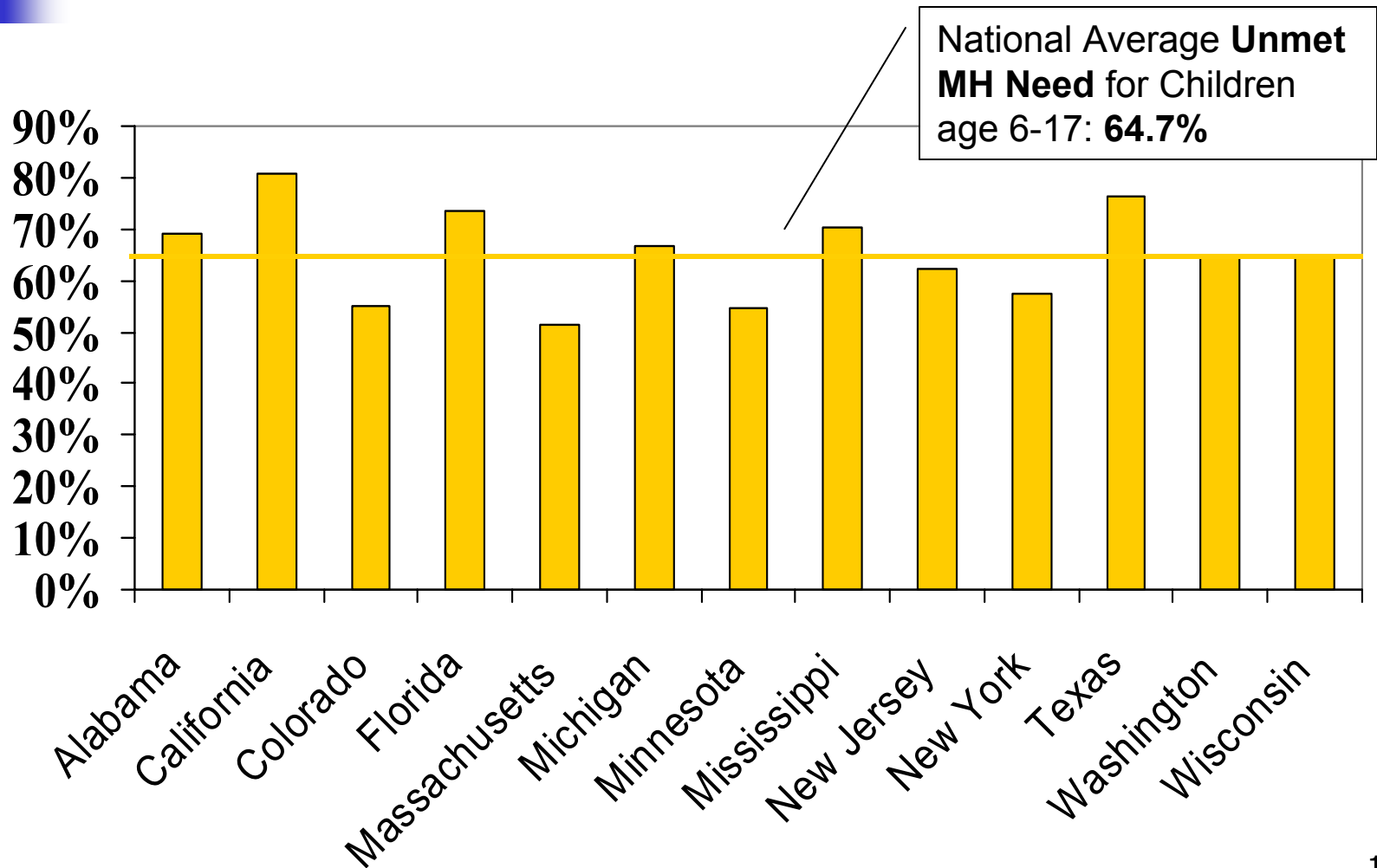
# Geographic Variation in the Average Number of Mental Health Visits among MH Service Users



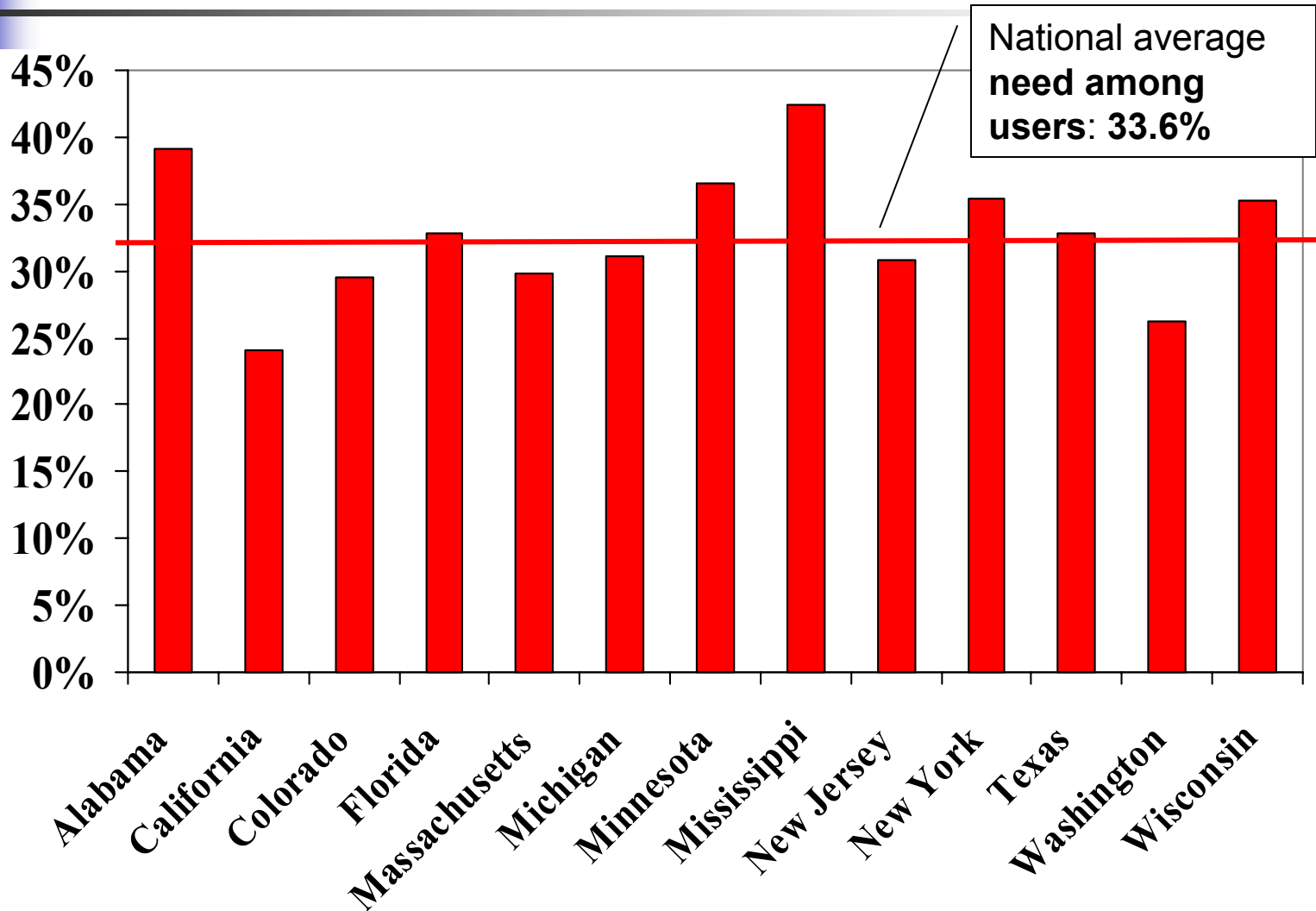
# Geographic Variation in Need for Mental Health Services For School Age Children



# Geographic Variation in Unmet Need for Mental Health Services For School Age Children



# Geographic Variation in Need Among Users For School Age Children



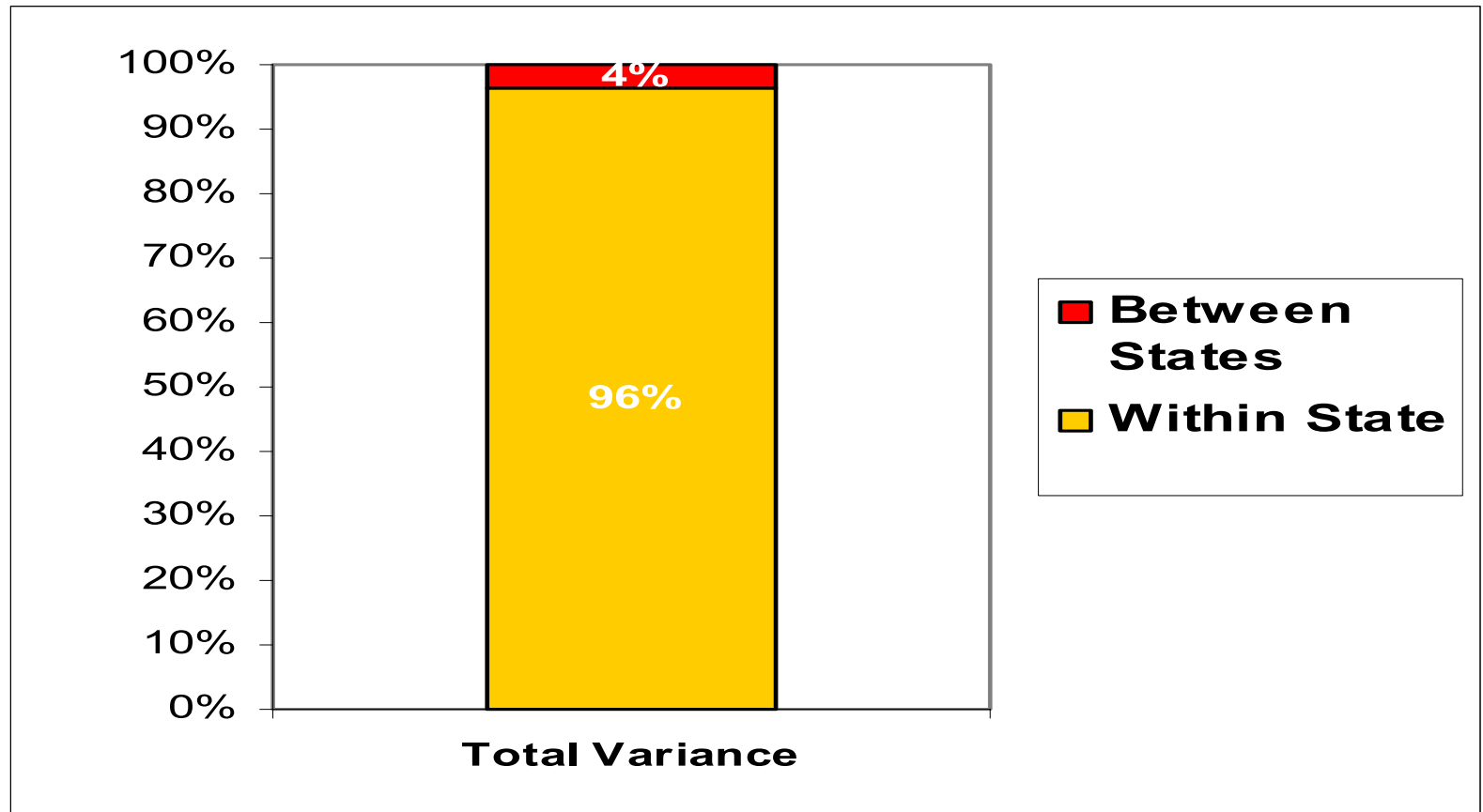


## Results, cont'd

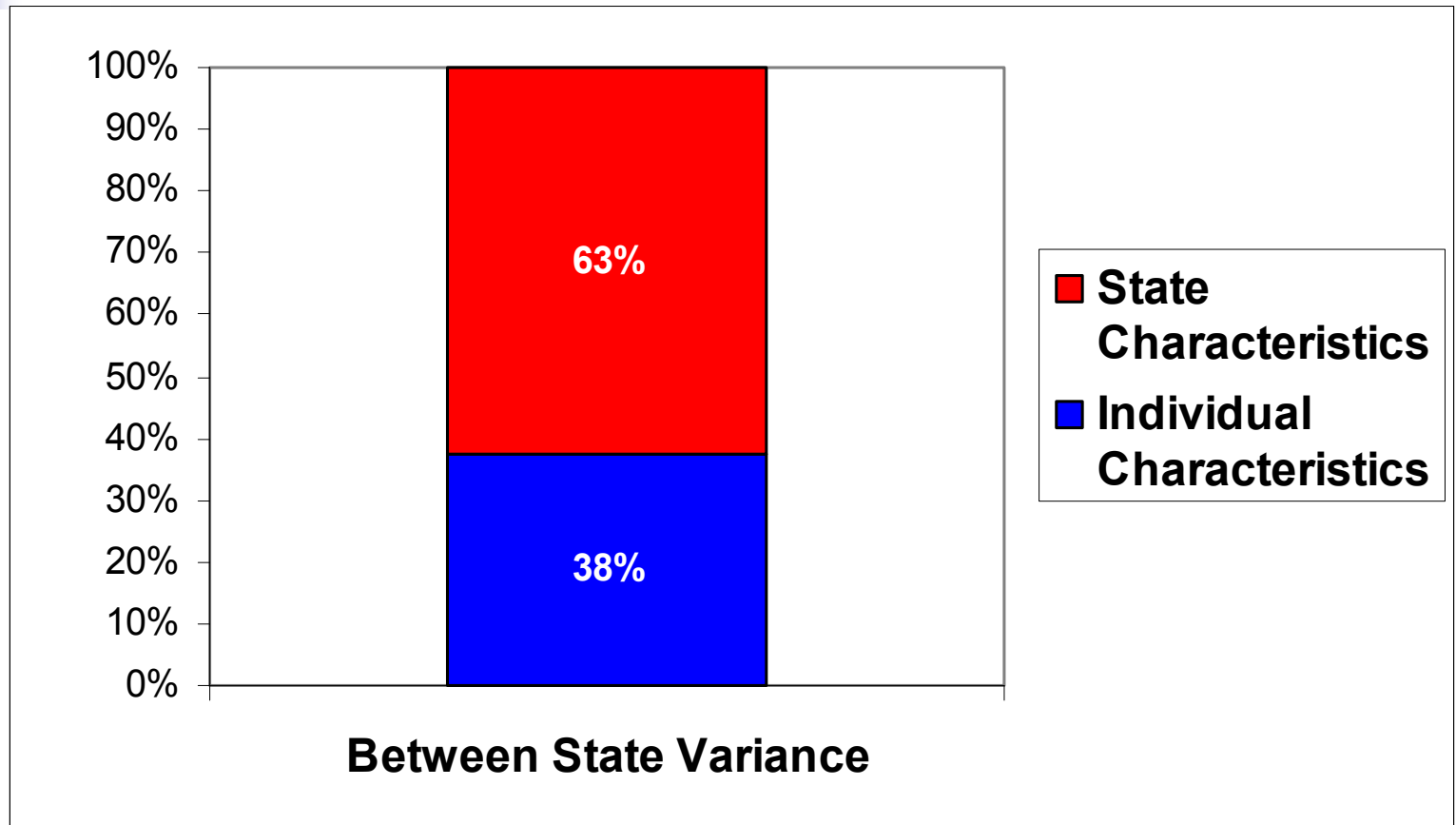
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- Most of the variation in outcomes is within states as opposed to between states – but that is expected because need is an individual factor
- Individual variables do not explain much of the within-state variation – that is also ok because we would be concerned if socioeconomics were the primary factor behind need or service use
- In contrast, state-level variables explain most of the between-state variation

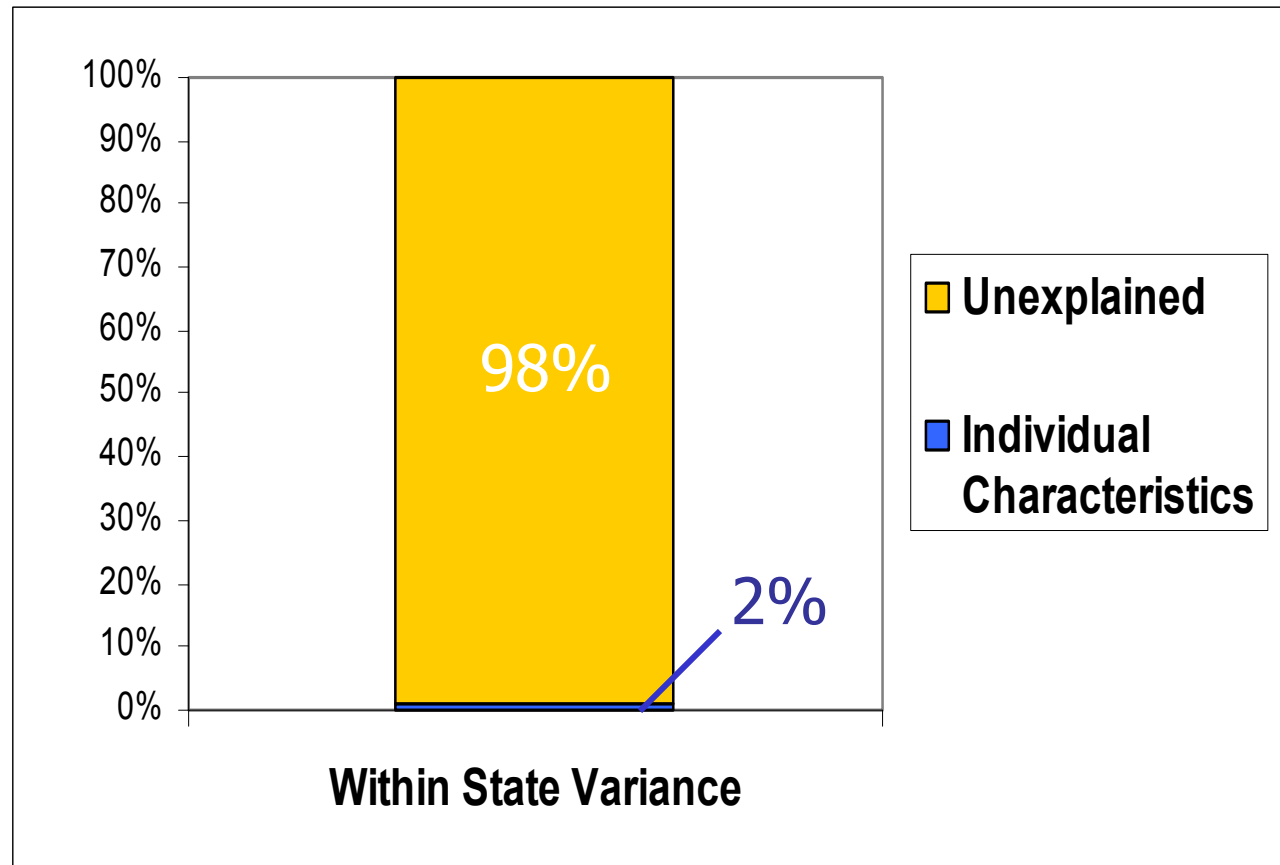
# Between-state variation is relatively small fraction of the total



# However, we can explain much of that variance



# This is not true for the within state variance





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# Discussion

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- Substantial geographic variation in use
- Range of variation exceeds the known effects of socioeconomic and demographic characteristics
  - For example, use rates decline
    - By 30% between Whites & Hispanics
    - By 60% between California and Massachusetts



## Discussion, cont'd

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- Geographic differences remain after controlling for individual characteristics
- Policy and market characteristics explain most of the between-state variance in use
- Suggests that efforts to reduce disparities in access should target market characteristics and legislative environment



# Policy Simulation

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- Want to reduce disparities in use between Alabama (5.5%) and Massachusetts (10.1%)
- Two options:
  - Equalize the state-level variables
  - Equalize the individual-level variables



# Policy Simulation, cont'd

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- Equalizing state-level variables
  - Increases predicted rate of use from 5.5% to 8.8% in Alabama
    - Largest increase due to increasing MH provider density
- Equalizing sociodemographic characteristics
  - Increases predicted rate of use from 5.5% to 6.3%