



# Introductory Remarks on Analysis of Kessler-6

**Amy Fan, MD, PhD, Epidemiologist**

National Center for Chronic Disease Prevention and Health  
Promotion

Division of Adult and Community Health  
Behavioral Surveillance Branch

# 2007 Mental Illness and Stigma Module

- **Split samples**

- ◆ 2007 BRFSS Dual Questionnaire Version 1 Data
- Kansas, Maine, Nebraska, Ohio, Texas, Washington, and Wisconsin
- ◆ 2007 BRFSS Dual Questionnaire Version 2 Data
- Colorado, Massachusetts, Michigan, and Oregon.
- ◆ All other states use regular data set.  
[http://www.cdc.gov/brfss/technical\\_infodata/surveydata/2007.htm](http://www.cdc.gov/brfss/technical_infodata/surveydata/2007.htm)

- **Mapping state, Metropolitan and Micropolitan statistical area, and county level data**

# Comparison of ADM and MISM

	<b>2006 Anxiety and Depression Module (ADM)</b>	<b>2007 Mental Illness and Stigma Module (MISM)</b>
Diagnostic scale	PHQ-8—Established algorithm for major depression and current depression	Kessler-6—A score of 13 and over is defined as serious psychological distress. Diagnosis of serious mental illness need more imputation work
Missing one or more items in diagnostic scale	4-20% varied by state	?
Physician diagnosis of depression and anxiety	Yes	No
Medication or treatment for mental problem	No	yes
Functioning impairment	No	Yes
Stigma with mental illness	No	Yes

# Scoring of Kessler 6 Scale (K-6)

- K6 score  $\geq 13$  cut point was defined as having serious psychological distress (SPD), not serious mental illness (SMI)
- Kessler is working on multiple imputation and predictive probability methodology to compute SMI using the Kessler-6 scores.

# Analysis of Kessler-6

- Analysis similar to PHQ-8 can be done with K-6
  - ◆ Relate mental health to physical health condition, functioning status, social support, health care utilization, etc.
- Tara Strine and Pearly Dhingra will give a workshop at the 2008 BRFSS annual conference on the analysis of Kessler-6



Any questions?

# Estimate of Current Depression Prevalence Among Hawaii's Adults

## Derived from PHQ-8 BRFSS 2006

Presented by

Florentina R. Salvail, MSc.

at

SAMHSA/NASMHPD

2008 Mental Health Data Infrastructure Grant Annual Meeting

February 14, 2008

# Purpose

- Describe the current prevalence of depression as it relates to
  - demographics
  - health risk behaviors
  - chronic diseases
  - health related quality of life
  - health care access
  - emotional support and life satisfaction
  - adverse life experiences

# Sample

- > nearly 6,564 respondents
- 5,840 completed the anxiety & depression module; dropped out of 11%
- CASRO rate is 48% in 2006
- DATA RE-WEIGHTED
- PHQ-8 using Provisional Depressive Disorder (PDD) as indicator of current depression

# PHQ-8 questions

- 1 Over the last 2 weeks, how many days have you had little interest or pleasure in doing things?
- 2 Over the last 2 weeks, how many days have you felt down, depressed or hopeless?
- 3 Over the last 2 weeks, how many days have you had trouble falling asleep or staying asleep or sleeping too much?
- 4 Over the last 2 weeks, how many days have you felt tired or had little energy?
- 5 Over the last 2 weeks, how many days have you had a poor appetite or ate too much?
- 6 Over the last 2 weeks, how many days have you felt bad about yourself or that you were a failure or had let yourself or your family down?
- 7 Over the last 2 weeks, how many days have you had trouble concentrating on things, such as reading the newspaper or watching the TV?
- 8 Over the last 2 weeks, how many days have you moved or spoken so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you were moving around a lot more than usual?

## RATIONALE for using Algorithm 3: Provisional Depressive Disorder (PDD) as indicator of Current Depression

- Gives relative importance to questions 1 & 2 of the PHQ-8 which ask specifically about anhedonia and depression.
- Algorithm 2 missed respondents who have scored 3 or greater in the first two questions.\*

	<b>Severity score <math>\geq 10</math></b>		<b>Severity Score <math>&lt; 10</math></b>	
<b>Major Depression</b>	<b>225</b>	<b>3.85</b>	<b>0</b>	<b>0</b>
<b>Other Depression</b>	<b>114</b>	<b>1.95</b>	<b>171</b>	<b>2.93</b>
<b>None</b>	<b>100</b>	<b>1.71</b>	<b>5230</b>	<b>89.55</b>

\*Kroenke, Kurt MD and . Spitzer, Robert L. MD, The PHQ-9 A New Depression Diagnostic and Severity Measure. Psychiatric Annals 32:9. September 2002.

# PDD derivation

- Major depressive disorder is indicated by a positive response of being bothered by a total of 7 or more days out of the last 14 by a symptom in response to question 1 (anhedonia) or question 2 (depression) and also a positive response of 7 or more days to at least five of the eight questions.
- Other depression is indicated by a positive response of 7 or more days in response to question 1 or question 2 and a positive response of 7 or more days to at least two but less than five of the eight questions.
- No depression is designated if there is a negative response (fewer than 7 days) to both question 1 and question 2. No depression is also designated if there is a positive response (7 or more days) to fewer than two of the eight questions.
- If any of the eight questions is missing, the Provisional Depressive Disorder diagnosis is unknown (not included).

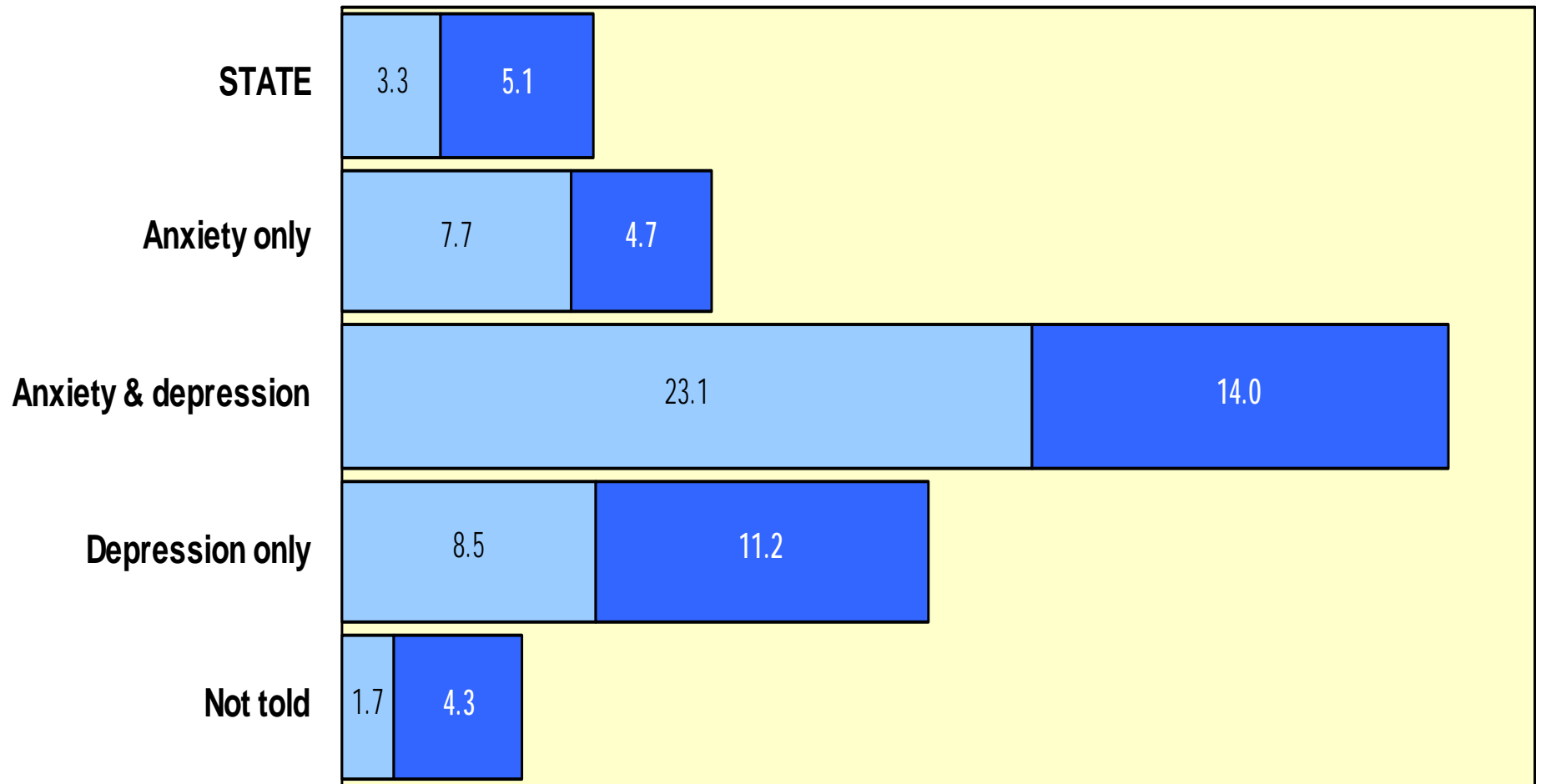
Lifetime Prevalence	Rate per 100	Lower 95% CI	Upper 95% CI
Anxiety	8.0	7.1	9.0
Depression	8.8	8.0	9.8
Both Anxiety and Depression	4.4	3.8	5.1

Current Prevalence Provisional Depressive Disorder (PDD)	Rate per 100	Lower 95% CI	Upper 95% CI
Total PDD	8.3*	7.4	9.3
With Major depression	3.3	2.7	3.9
With Other depression	5.1	4.3	5.9

\* The overall total is 8.3% not 8.4% because of rounding.

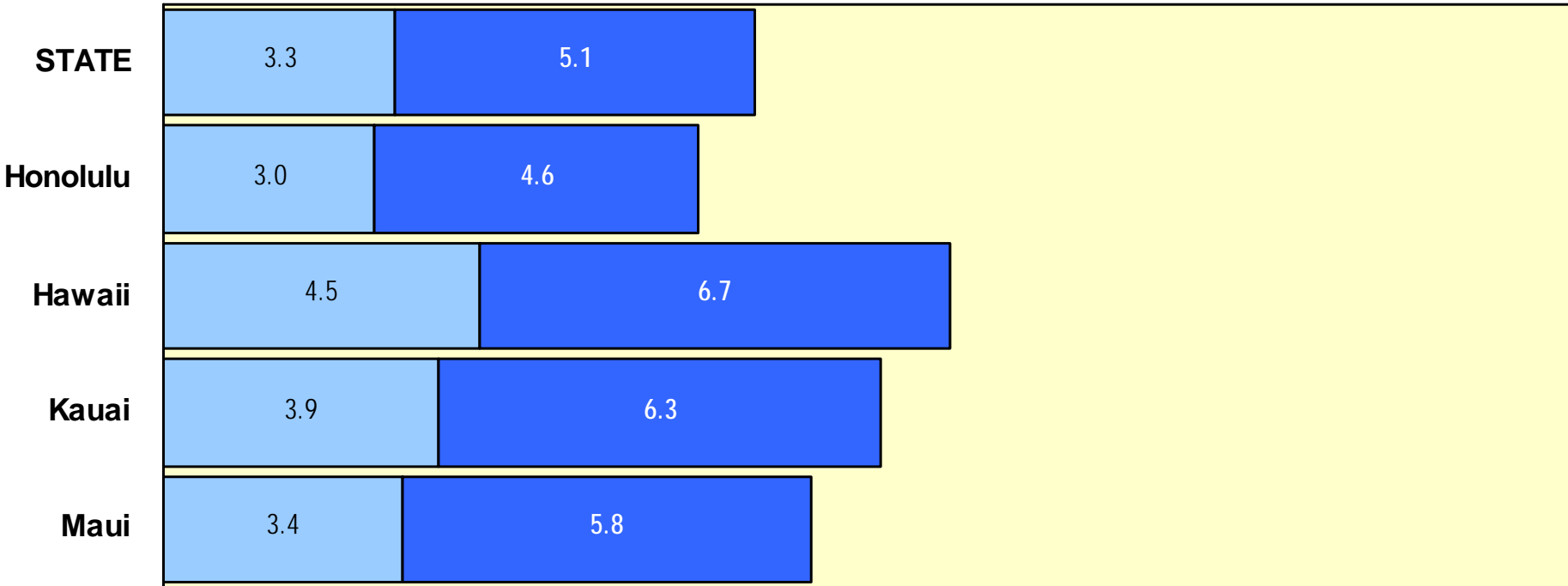
## Current Depression Prevalence Rate by Lifetime Anxiety or Depression Diagnosis

□ % current major depression   ■ % current other depression



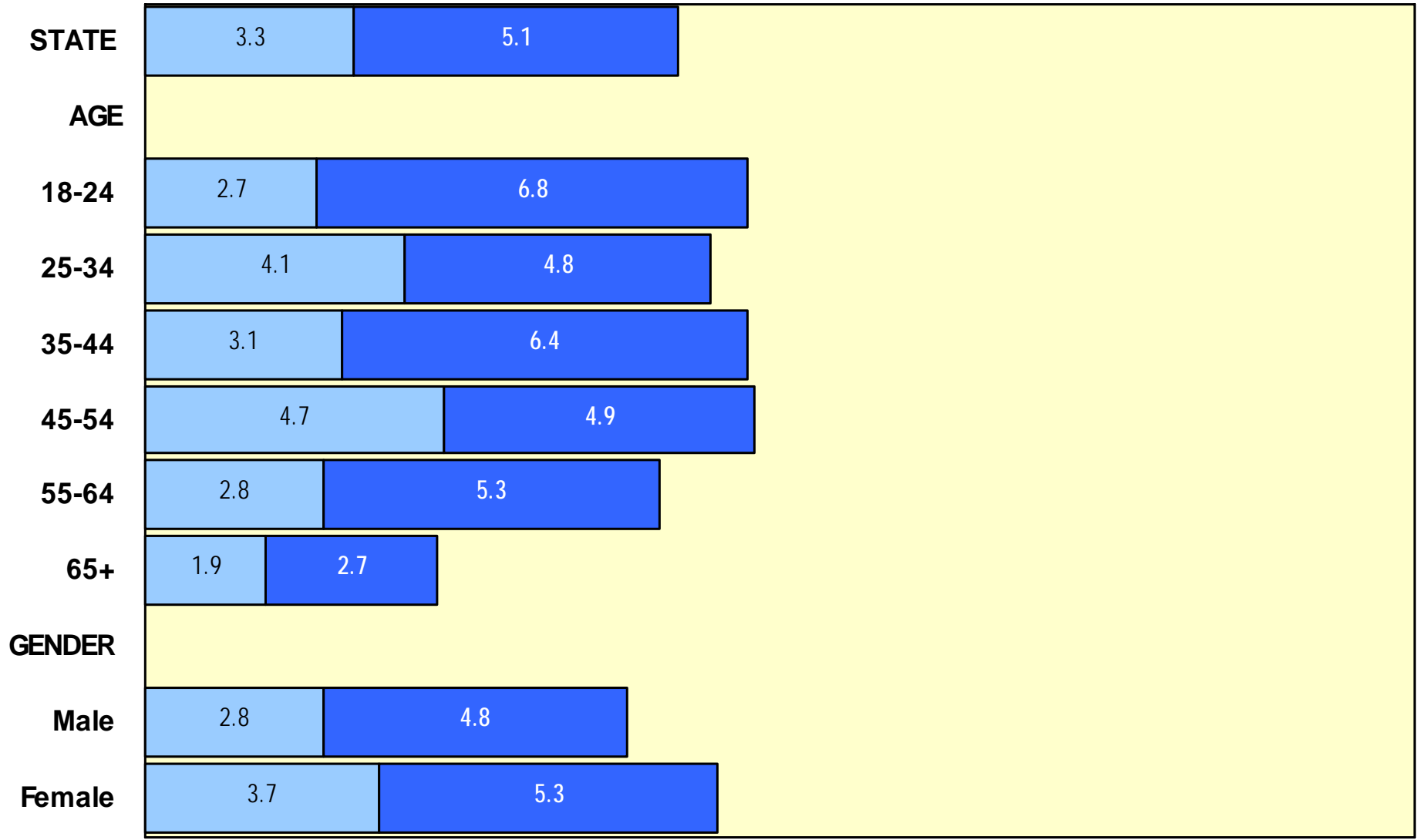
# Current Depression Prevalence Rate by County

□ % current major depression   ■ % current other depression



# Current Depression Prevalence Rate by Age Group and Gender

□ % current major depression   ■ % current other depression

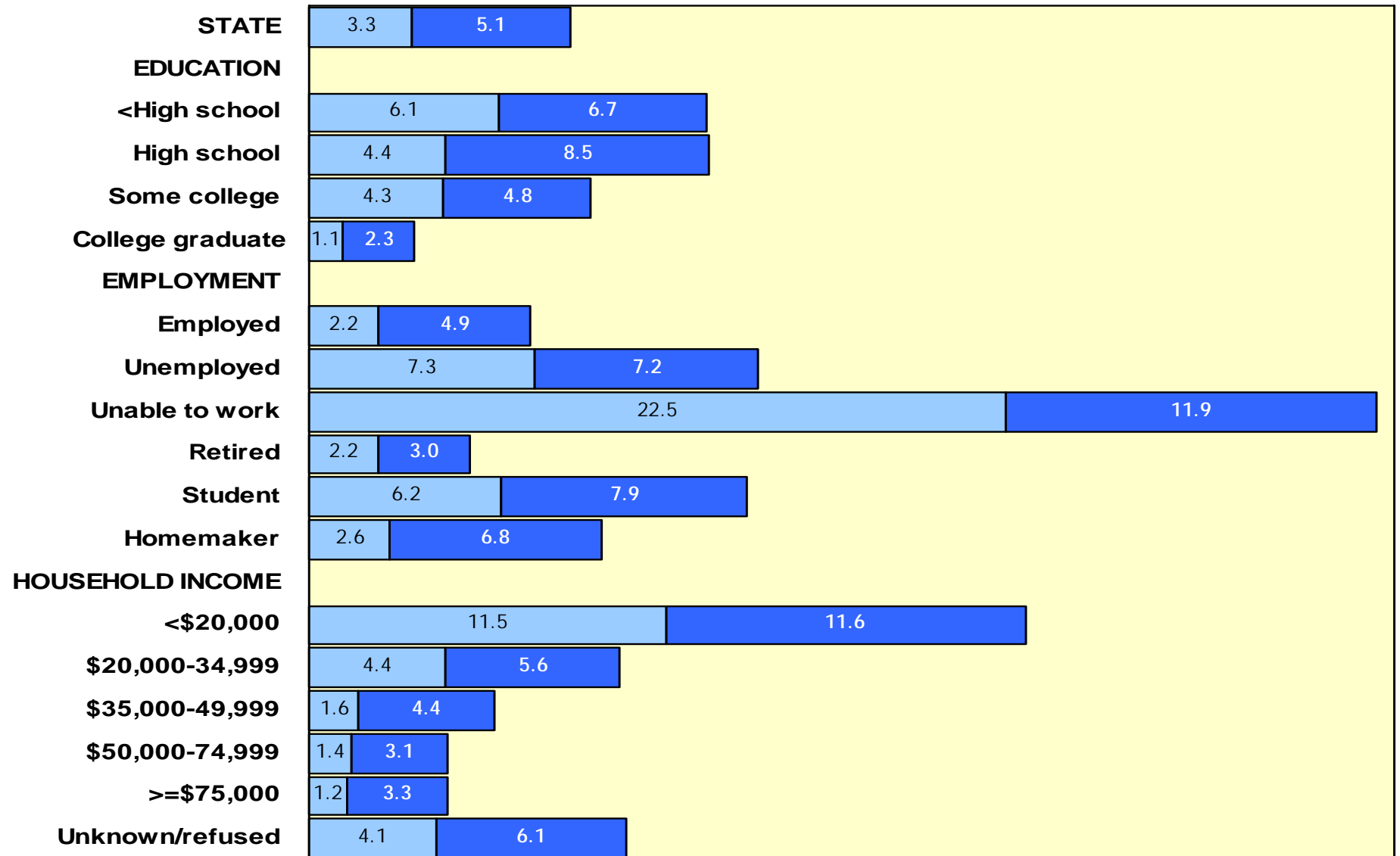


# Ethnic Disparity

See Poster

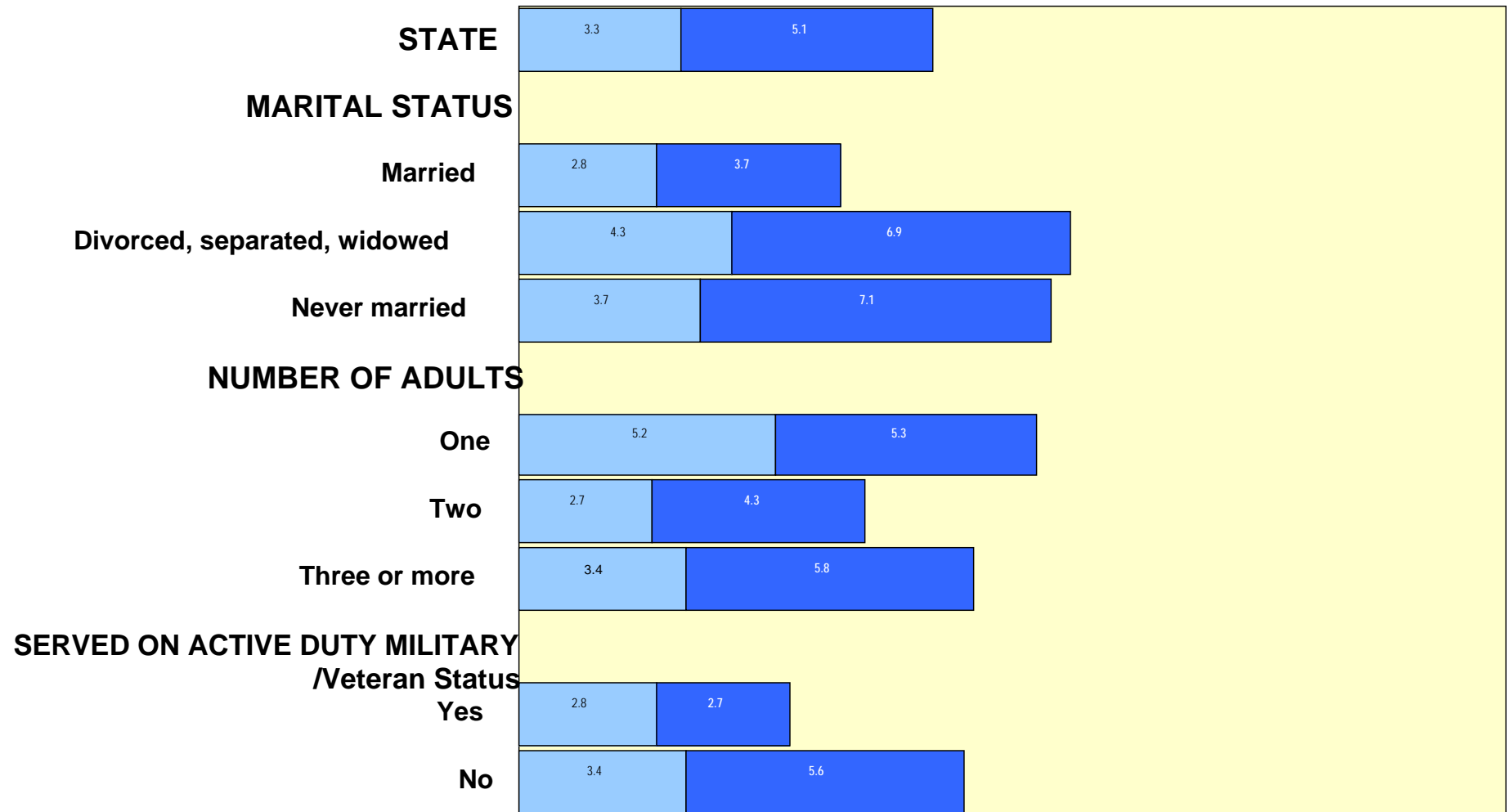
## Current Depression Prevalence Rate by Education Completed, Employment Status, and Annual Household Income

■ % current major depression   
 ■ % current other depression



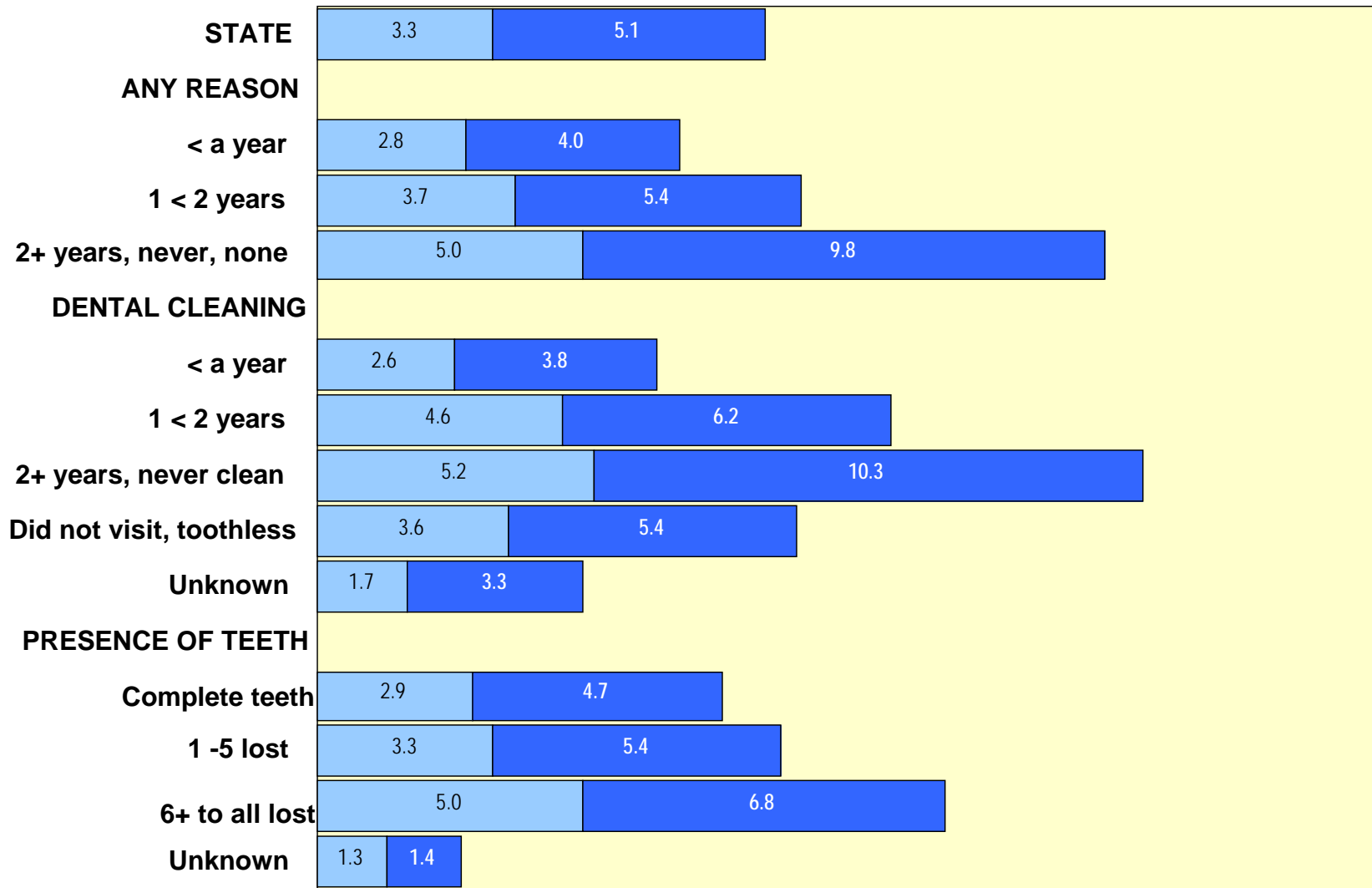
## Current Depression Prevalence Rate by Marital Status, Number of Adults in Household and Veteran Status

■ % current major depression   
 ■ % current other depression



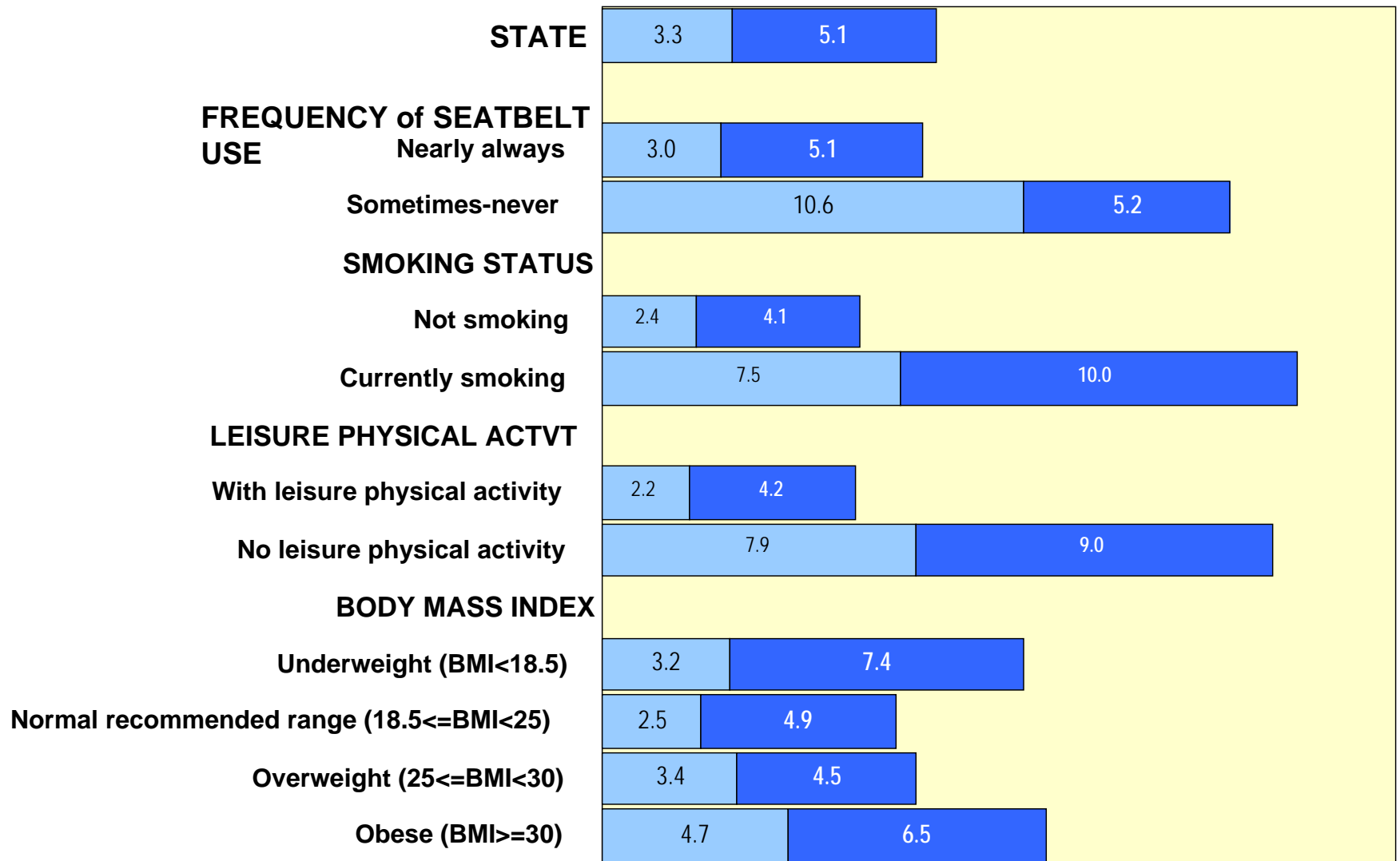
# Current Depression Prevalence Rate by Last Dental Visit for Any Reason, Last Visit for Dental Cleaning, and Presence of Teeth

■ % current major depression   
 ■ % current other depression



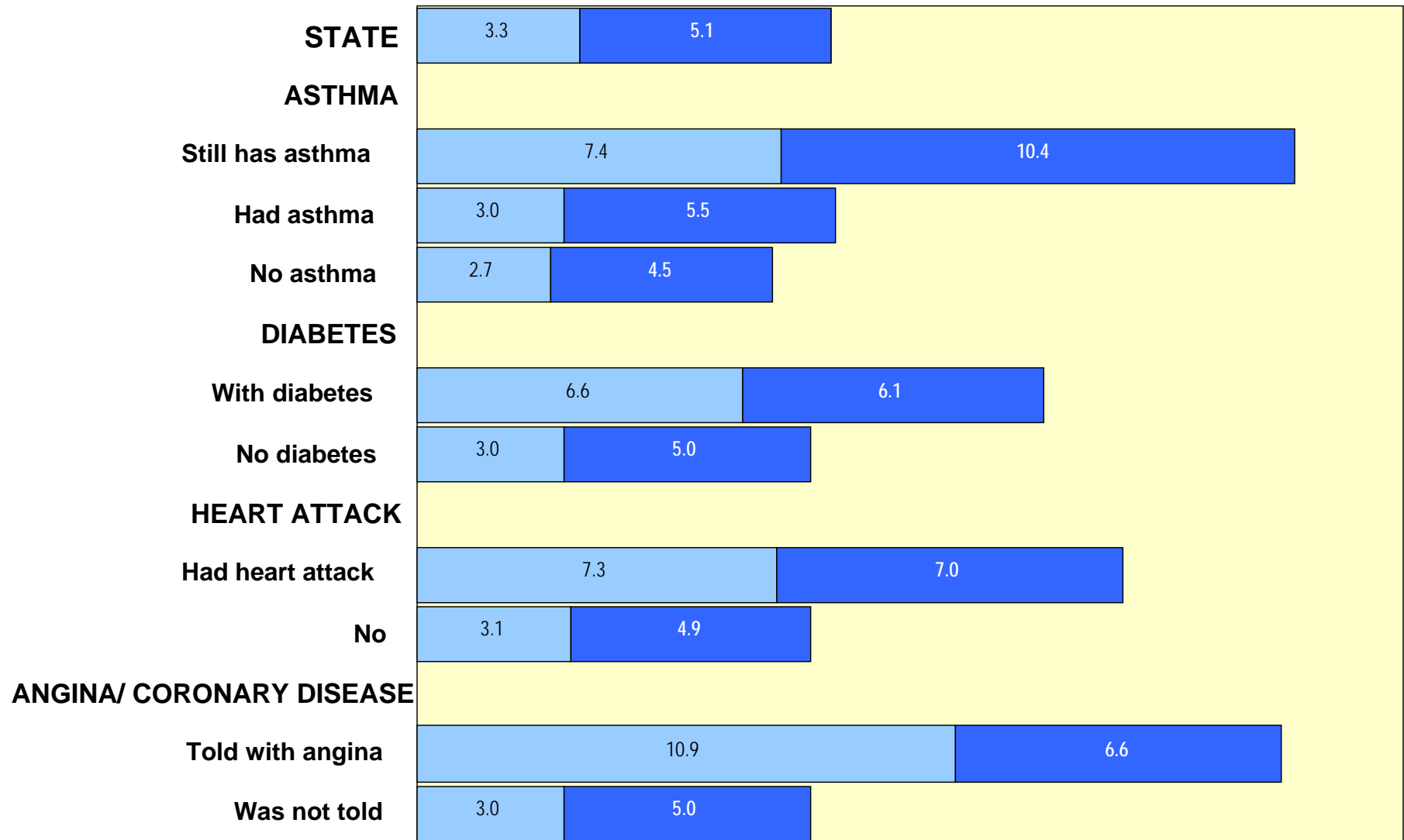
## Current Depression Prevalence Rate by Vehicle Seatbelt Use, Smoking Status, Physical Activity Past Month, and Weight Status

■ % current major depression   
 ■ % current other depression



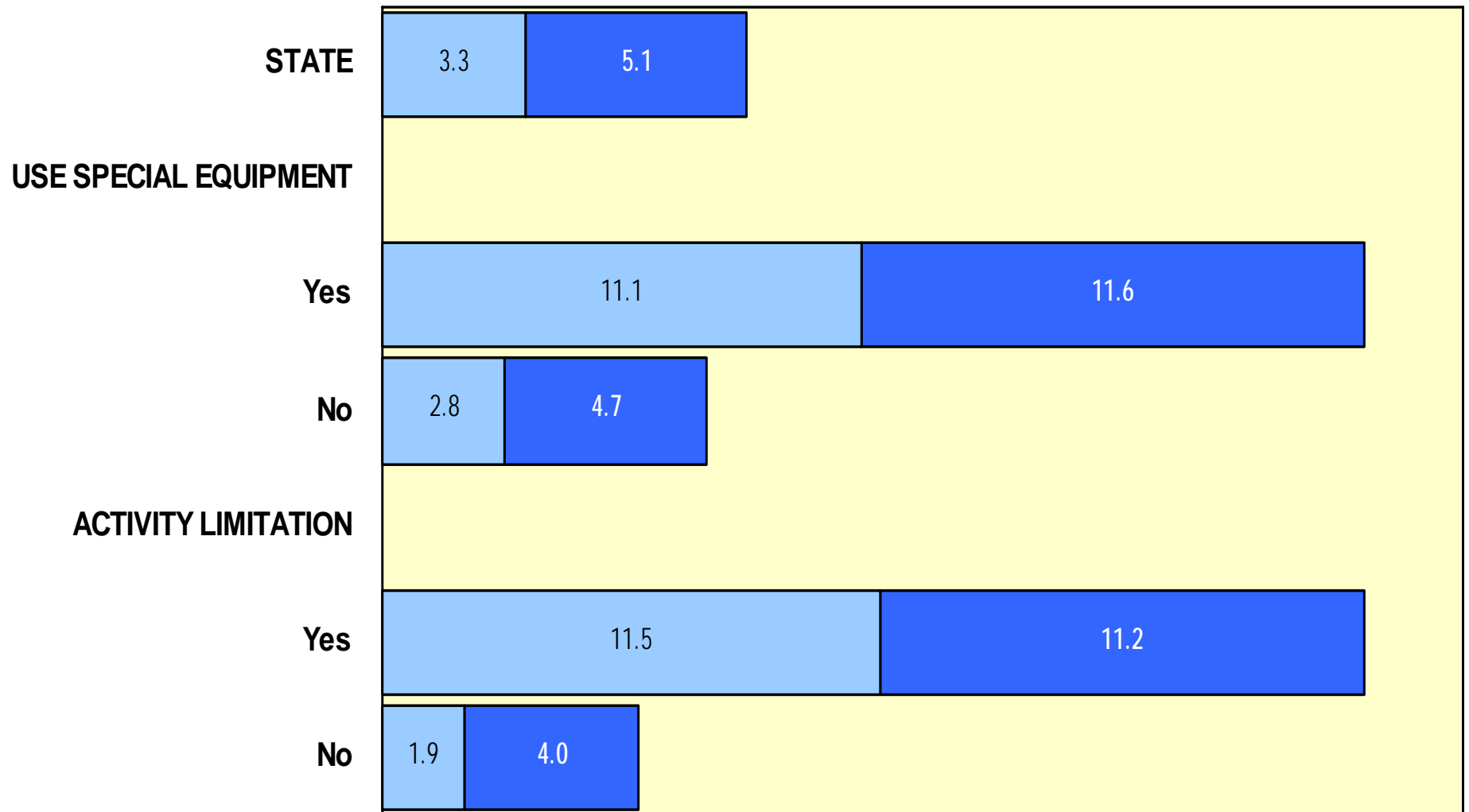
## Current Depression Prevalence Rate by Asthma, Diabetes, Heart Attack, and Angina/Coronary Heart Disease Status

■ % current major depression   
 ■ % current other depression

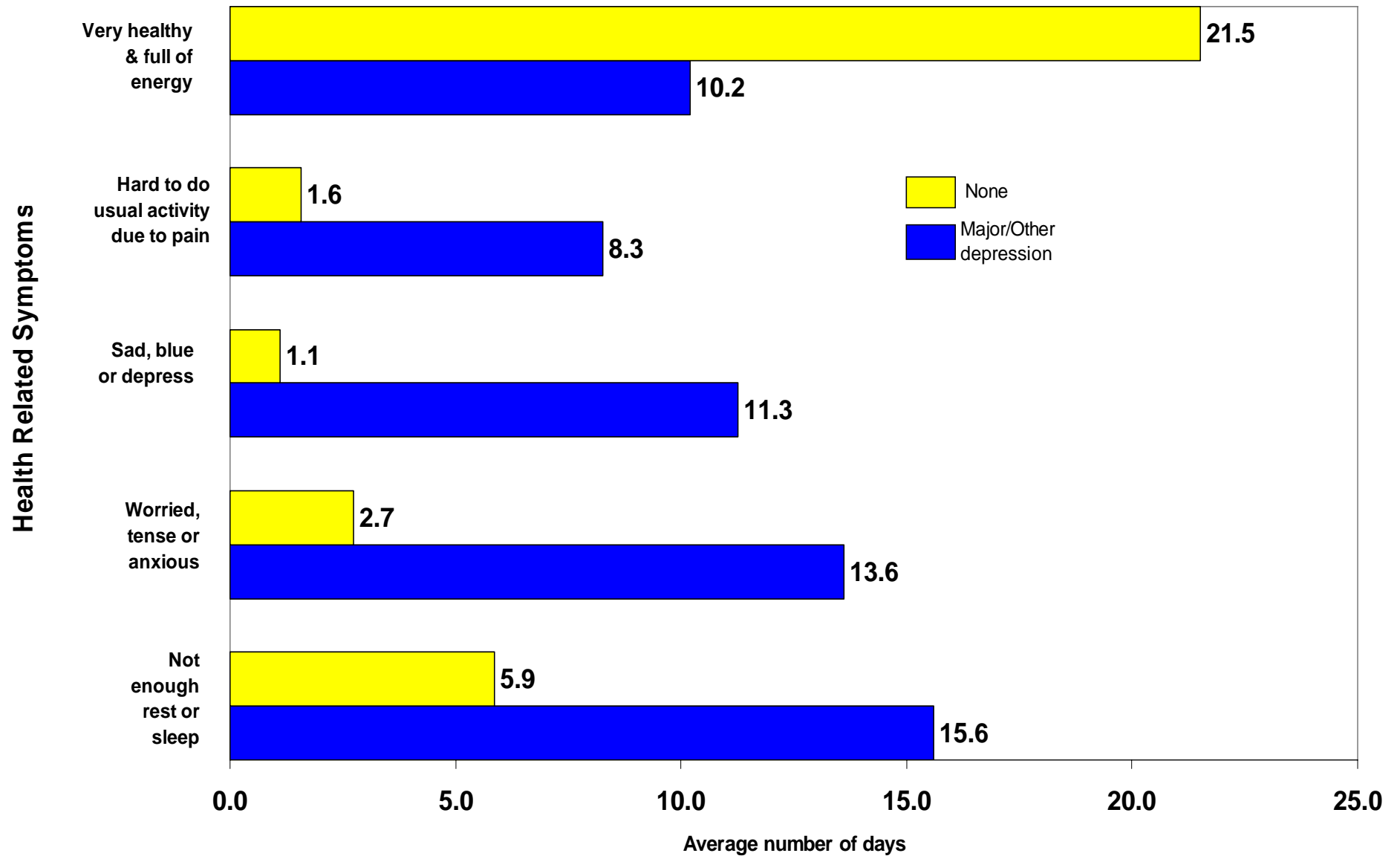


## Current Depression Prevalence Rate by Use of Special Equipment and Activity Limitation

■ % current major depression   
 ■ % current other depression



# Average Number of Days with Health Related Symptoms by Current Depression (PDD) Status



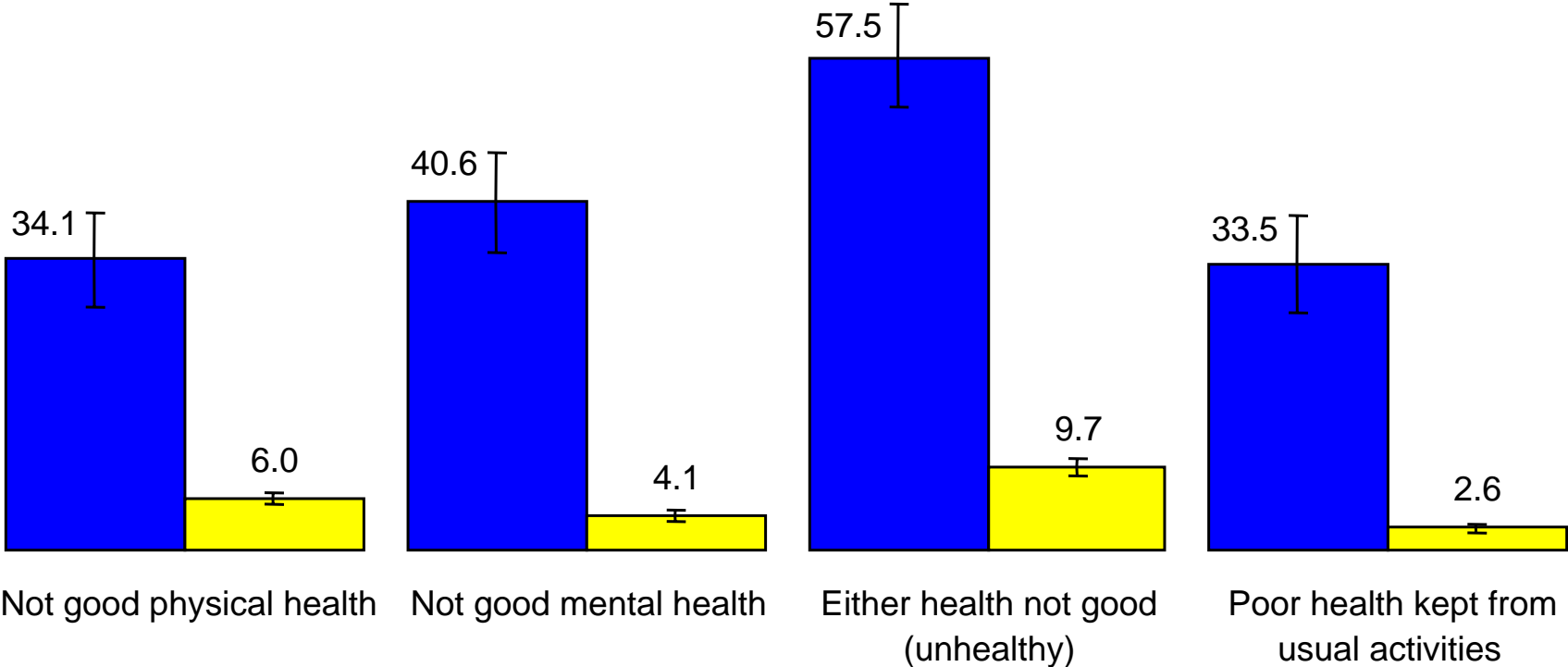
*Average Number of Health Related Quality of Life Days  
by Current Depression Status*

*In past 30 days:*

	Major/other	95% CI	None	95% CI
Not good physical health	9.7	8.4-11.0	2.3	2.1-2.5
Not good mental health	11.7	10.3-13.1	1.8	1.6-2.0
Either health not good (unhealthy)	16.6	15.1-18.1	3.8	3.6-4.1
Poor health kept from usual activities	8.9	7.6-10.2	1.0	0.9-1.2

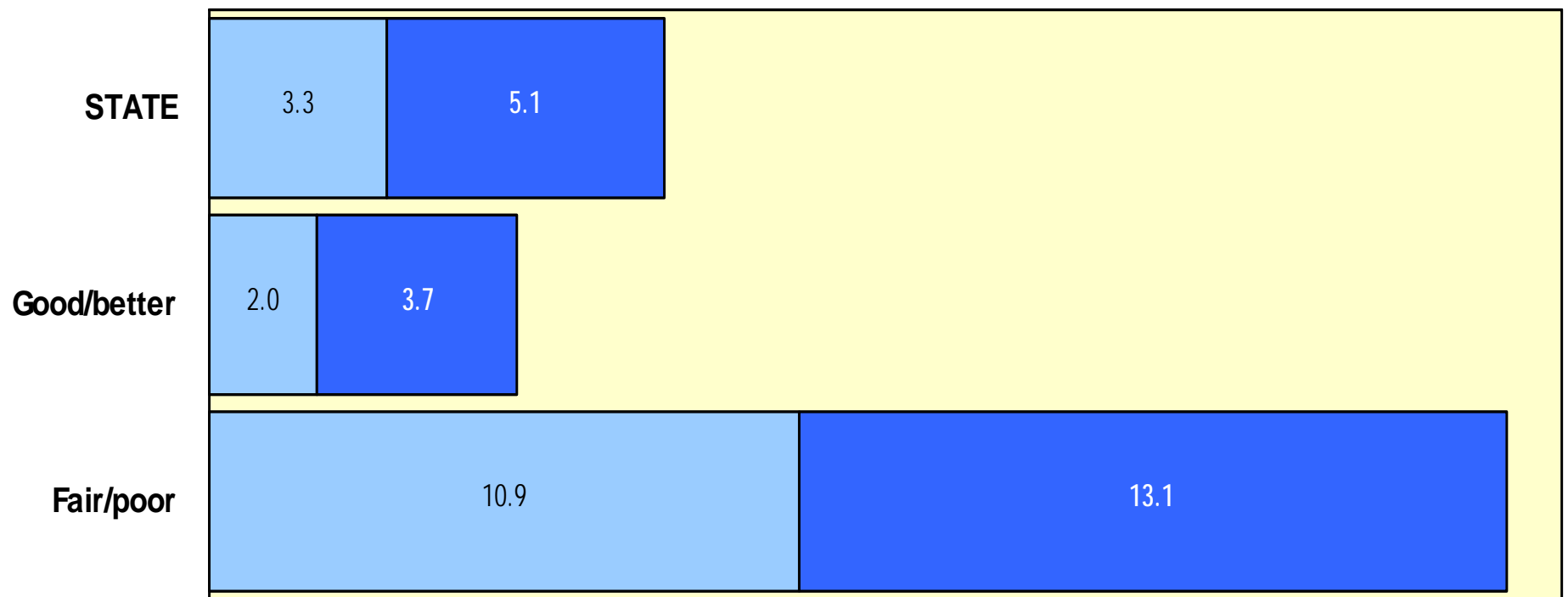
# Percent of Adults with At Least 14 Days of Not Good Health by Current Depression (PDD) Status

■ Major or other ■ None



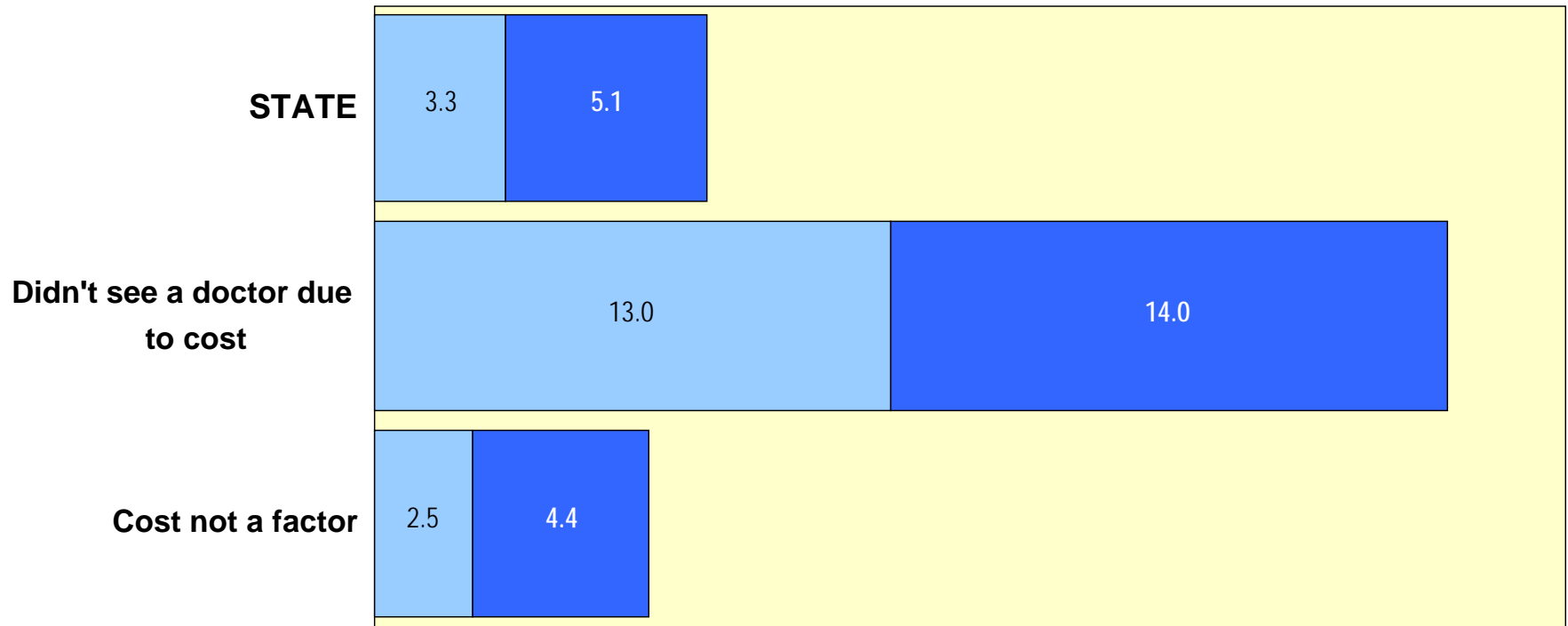
## Current Depression Prevalence Rate by Perceived Health Status

□ % current major depression   ■ % current other depression



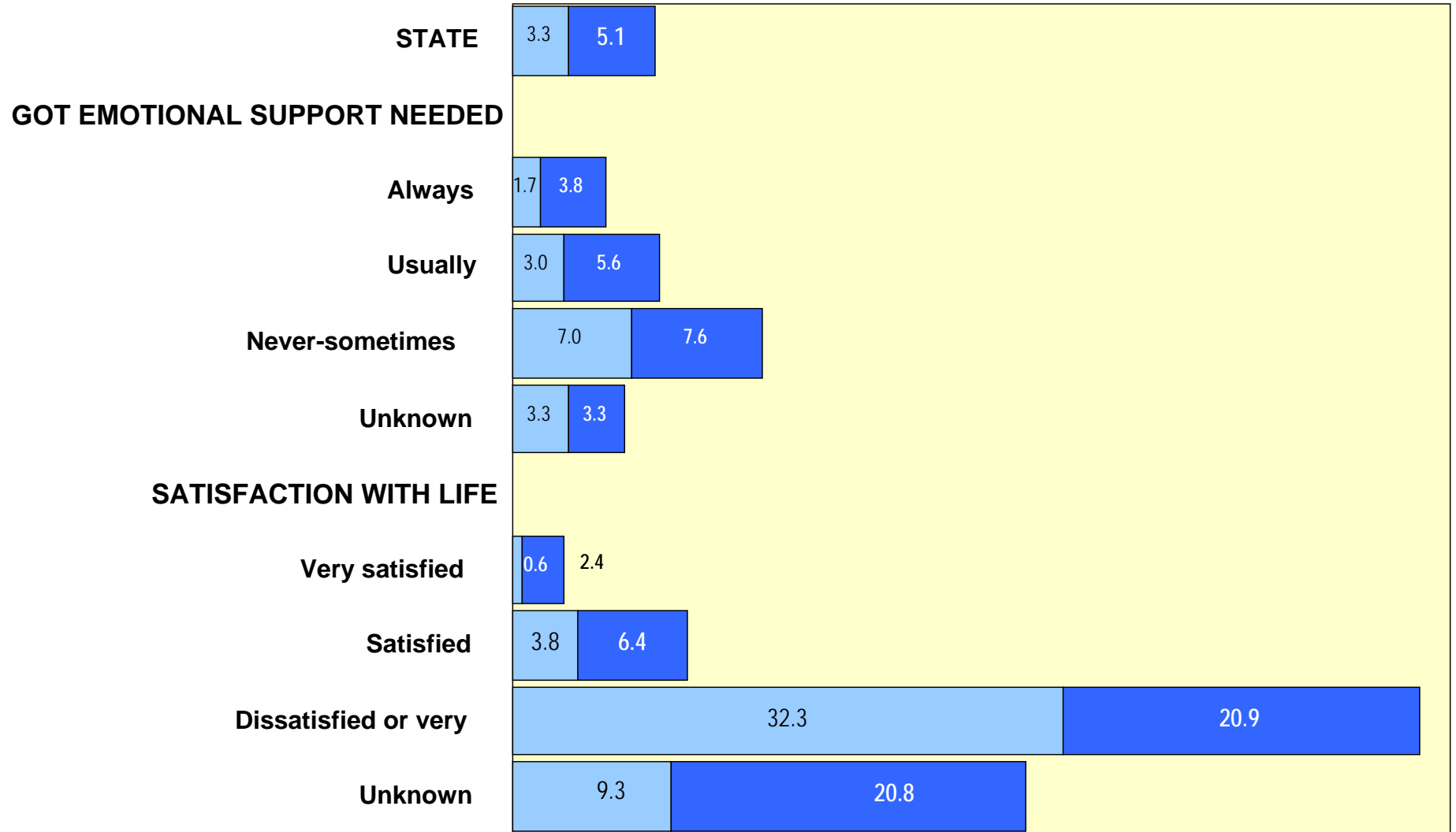
## Current Depression Prevalence Rate by Health Care Cost

□ % current major depression    ■ % current other depression

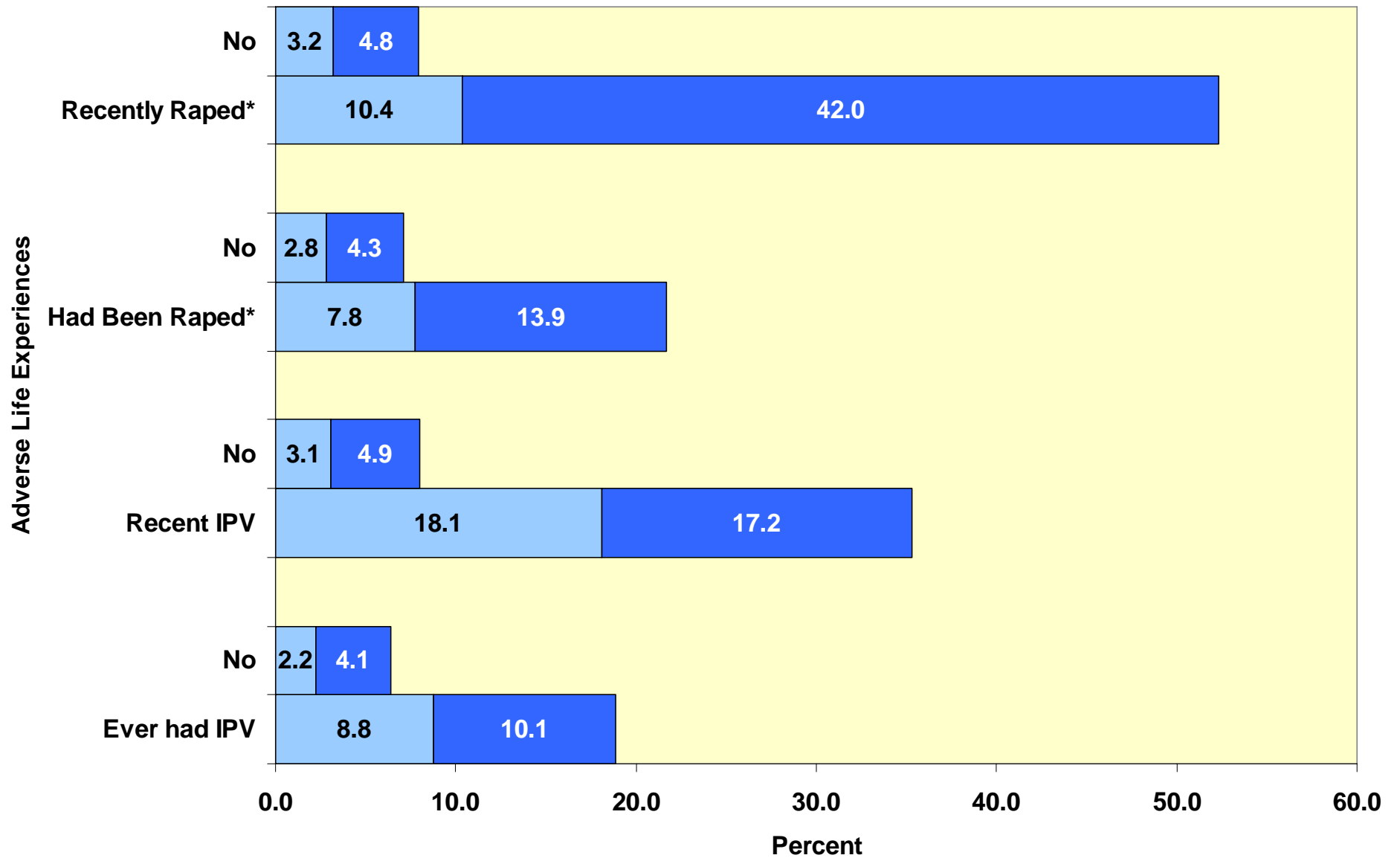


## Current Depression Prevalence Rate by Frequency of Emotional Support Received and Degree of Satisfaction with Life

■ % current major depression   
 ■ % current other depression



## Current Depression Prevalence Rate by Adverse Life Experiences



\* Attempted or Completed

Recent(ly) refers to the past 12 months prior to the survey

Major Other

# Summary and Conclusions

Bivariate analysis showed that current depression is significantly higher among adults:

- **IN LOW SOCIO-ECONOMIC STATUS**

- > Un-able to work, un-employed, in low income households, low education

- **Not married; Living without another adult in the household**

- **PRACTICE POOR HEALTH BEHAVIORS**

- > Not visiting dental clinic for two years or more; missing  $\geq 6$  teeth

- > Not frequently using seatbelt when driving, smokers, not physically active

- **IN FAIR/POOR HEALTH**

- > Obese, asthmatic, diabetic, other health conditions such as angina, had suffered from heart attack, have some form of disability

- > More days of poor health and frequent mental distress

- **UN-ABLE TO ACCESS HEALTH CARE DUE TO COST**

- **HARDLY HAVE EMOTIONAL SUPPORT**

- **AT LEAST DISSATISFIED WITH LIFE**

- **HAD ADVERSE LIFE EXPERIENCES**

## Recommendations

1. Coordinated, integrated and synchronized approaches among health programs particularly chronic diseases and mental health programs must be in-place given that mental health and physical health are closely related to each other.
2. Screening and assessments for anxiety and depression of those that come-in through primary health care systems must be a part of the health care protocols for early detection.
3. Health promotion specialists, such as those promoting physical activity or tobacco cessation or oral care, must provide appropriate ways to motivate and reach their target populations particularly if the segments of the population have mental depression.
4. Socio-economic environment and support systems must be provided and improved for vulnerable segments of the population. While anyone can have anxiety or depression regardless of socio-economic status, these mental disorders are more common in the lower socio-economic status as this study suggests.

ALOHA 😊

- e-mail:

[brfsshi@doh.hawaii.gov](mailto:brfsshi@doh.hawaii.gov)

- website:

<http://hawaii.gov/health/statistics/brfss/index.html>