



**HBRFSS**



**Survey Shows...**

**The Hawaii Behavioral Risk Factor Surveillance System  
Special Report**

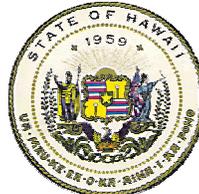
**Year 5 Issue 2**

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**Prevalence of  
Anxiety and Depression  
among Hawaii's Adults  
Derived from HBRFSS 2006**

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### ***Acknowledgement***

We would like to acknowledge the adult residents of Hawaii who voluntarily participated in the HBRFSS. Without their participation this report as well as other studies derived from HBRFSS would have not been made possible. We would also like to acknowledge the survey interviewers for their perseverance and dedication in on-going data gathering. We would like to thank Dr. Philippe Gross, Research Psychologist of Mental Health Services Research, Evaluation, and Training Program at the University of Hawaii and Lila Johnson, Public Health Educator of Tobacco Prevention and Education Program at the Department of Health for their review and comments. Finally, we would also like to thank Dr. Chiyome Leinaala Fukino, Director of Health and Susan C. Jackson, Deputy Director of Health at the Department of Health for their support.

### ***About the Hawaii Behavioral Risk Factor Surveillance System (HBRFSS)***

The HBRFSS is an ongoing land-based random telephone survey of randomly selected adult residents 18 years and older on behaviors that affects health directly and indirectly. The HBRFSS is funded by the Centers for Disease Control and Prevention (CDC) as part of the national Behavioral Risk Factor Surveillance System (BRFSS). The HBRFSS has been in operation since 1986. For more information about HBRFSS results, please visit the following website: <http://hawaii.gov/health/statistics/brfss/index.html>. If the information you are looking is not on the website, you may contact the state BRFSS coordinator via e-mail at [brfsshi@doh.hawaii.gov](mailto:brfsshi@doh.hawaii.gov) or via phone at 808-586-4509.

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## MESSAGE FROM THE DIRECTOR

The State of Hawaii Department of Health is pleased to present the first report on anxiety and depression derived from a population-based survey, the Hawaii Behavioral Risk Factor Surveillance System survey of 2006.

Healthy People 2010, a comprehensive, nationwide health promotion and disease prevention agenda, includes health objectives related to the two mental health disorders of anxiety and depression. The anxiety disorders are the most common mental disorders in our nation, and major depression is the leading cause of disability in the U.S.

This report, "*Prevalence of Anxiety and Depression among Hawaii's Adults Derived from HBRFSS 2006*," documents the lifetime prevalence of anxiety or depression and provides prevalence estimates of recent depression. The report looks at the prevalence of these afflictions in several sub-populations grouped according to circumstances, characteristics and health conditions. The findings clearly show the relationship between mental health and physical health. The results indicate that while anxiety and depression affect all segments of the population, anxiety and depression are associated with disabling conditions and certain chronic conditions, and that disparities exist in ethno-socio-economic circumstances. The cost of anxiety and depression to the individual and the state is tremendous.

We hope that this report will be used for integrated planning, implementation and evaluation of programs that will work to alleviate the burdens of anxiety and depression for the people of our communities and especially for those among us who are the most vulnerable.

This report would not have been made possible without the survey participation of the people of Hawaii. Together we can work for a healthy Hawaii.

Sincerely,

Chiyome Leinaala Fukino, M.D.  
Director of Health

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## **Executive Summary**

This is the first population based prevalence estimate of adult anxiety and depression in the state. Results indicate the following:

- 8.0% lifetime adult anxiety prevalence rate, which translates to 77,800 adults
- 8.8% lifetime adult depression prevalence rate, which translates to 85,700 adults
- 8.3% current adult depression prevalence rate, which translates to 81,000 adults

The lowest rates of lifetime anxiety and depression and current depression prevalence are for age 65 or older, probably due in part to the fact that these adults have survived the challenges of living. Women's lifetime prevalence rate of depression is twice that of men, but is not significantly different in current depression prevalence rate. This suggests the possibility that some men are not diagnosed with depressive disorder because they may be less likely to access the health care system. Among ethnic groups the Hawaiians or part Hawaiians have the highest prevalence rate for current depression but not for lifetime depression. This result suggests that they may have a higher rate of depression in the past but not diagnosed probably due to less contact with the health care system. Most of the significantly related characteristics, diseases and conditions examined in this study are significantly associated with lifetime anxiety, lifetime depression and current depression. The detailed bivariate analysis indicated that the prevalence rate of lifetime anxiety or lifetime depression or current depression is highest in the following adult subpopulations:

- unable to work
- unemployed
- live in households having less than \$20,000 annual income
- not a high school graduate
- smokers
- obese
- have asthma
- had heart attack
- use special equipment due to health condition
- have activity limitation due to health condition
- reported fair or poor health
- unable to see a doctor within the previous 12 months due to cost
- the only adult in the household
- reported usually, rarely or never get emotional support
- reported being dissatisfied or very dissatisfied with life

The prevalence rate of lifetime depression and current depression is lower among adults who did engage in leisure time physical activity in the past month than those adults who did not.

Overall, the number of days in poor health or unable to do usual activities among adults that had anxiety disorder, had depressive disorder or are currently depressed is significantly greater than among those adults who did not have the anxiety or depression condition. The economic cost of adult depression statewide is estimated to be at least \$300 million. The emotional toll to loved ones cannot be measured.

## **Introduction**

Both physical and mental health is critical for successful living; however, mental health has not received as much attention as physical health. Healthy People 2010, managed by the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services, included fourteen health objectives related to mental health and mental health disorders.<sup>1</sup> In this report, we focus on two prevalent mental health disorders: anxiety and depression.

Depression is one of the most widespread health conditions that negatively impact the ability of people to function and participate in the economic and social life of their communities. Studies have also demonstrated that depression is associated with poor physical health.<sup>2</sup> Without intervention, depression can sometimes assume a chronic course.<sup>3</sup> Major Depressive Disorder is the leading cause of disability in the U.S. for ages 15-44.<sup>4</sup> It affects approximately 14.8 million American adults, or about 6.7 percent of the U.S. population age 18 and older in a given year.<sup>5</sup>

Clinical anxiety is also a challenge to the functionality of adult residents. The anxiety disorders are the most common of all mental disorders.<sup>6</sup> Analyses of the largest prevalence studies of psychiatric illnesses in the United States found that anxiety disorders afflict 15.7 million people in the United States each year, and 30 million people in the United States at some point in their lives.<sup>7</sup> Approximately 6.8 million American adults, or about 3.1 percent of people age 18 and over, have Generalized Anxiety Disorder (GAD)<sup>8</sup> in a given year.<sup>9</sup>

Anxiety and depression are treatable conditions but remain important health challenges facing the people of Hawaii. The Mental Health Association in Hawaii has stated that mental illness, including

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<sup>1</sup> Visit [http://www.healthypeople.gov/document/HTML/Volume2/18Mental.htm#\\_Toc486932697](http://www.healthypeople.gov/document/HTML/Volume2/18Mental.htm#_Toc486932697) for definitions of mental health and mental health disorders and listing and discussions of the fourteen objectives.

<sup>2</sup> American Psychiatric Association. Coexisting severe mental disorders and physical illness. Statement of July, 2003, Arlington, VA: American Psychiatric Association; 2003.

<sup>3</sup> Chapman DP, Perry G, Strine TW. The vital link between depression and chronic disease. *Prev Chronic Dis* 2005;2:A14.

<sup>4</sup> The World Health Organization. The World Health Report 2004: Changing History, Annex Table 3: Burden of disease in DALYs by cause, sex, and mortality stratum in WHO regions, estimates for 2002. Geneva: WHO, 2004.

<sup>5</sup> Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry*, 2005 Jun;62(6):617-27.

<sup>6</sup> U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, 1999.

<sup>7</sup> Lépine JP. The epidemiology of anxiety disorders: prevalence and societal costs. *J Clin Psychiatry*. 2002;63 Suppl 14:4-8.

<sup>8</sup> Generalized anxiety disorder (GAD) is a prevalent and disabling disorder characterized by persistent worrying, anxiety symptoms, and tension.

<sup>9</sup> Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry*, 2005 Jun;62(6):617-27.

anxiety and depression, is the most common health problem in the state today, affecting one in five, or over 250,000 people, in the state of Hawaii.<sup>10</sup> A recent National Survey on Drug Use and Health (NSDUH) has estimated that 6.74% of persons 18 and over in the state of Hawaii experienced a major depressive episode within the previous year.<sup>11</sup>

These disorders also represent a real cost to our community. Generalized Anxiety Disorder is associated with a significant economic burden owing to decreased work productivity and increased use of health care services, particularly primary health care.<sup>12</sup> The annual cost of anxiety disorders has been estimated to be approximately \$42.3 billion for 1990 in the United States.<sup>13</sup> The "Global Burden of Disease" study reported that the annual economic burden of depression in the United States, including direct care, mortality, and morbidity costs, totaled almost \$44 billion.<sup>14</sup> If the state of Hawaii's share is assumed to be proportionate to its percentage of the U.S. population, the state's financial burden related to both anxiety and depression could be close to \$400 million annually.

The principal objectives of this report are:

- 1) to show connection between mental health and physical health
- 2) describe the lifetime prevalence of anxiety and depression as it relates to demographics, chronic diseases, health status, health behaviors, emotional support and life satisfaction
- 3) estimate the current prevalence of depression
- 4) describe the current prevalence of depression as it relates to demographics, chronic diseases, health status, health behaviors, emotional support and life satisfaction.

This study is confined to the state of Hawaii's adult population using the statistics derived from the 2006 Hawaii BRFSS. The presentation of the results will be as follows: Lifetime prevalence rates of anxiety and depression will be describe first, followed by current prevalence of depression. The analysis will conclude with a summary, discussion of findings and recommendations.

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<sup>10</sup> Accepting help may speed relief for your mind, Honolulu Star-Bulletin, April 24, 2000.

<sup>11</sup> Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (June 11, 2007). The NSDUH Report: State Estimates of Depression 2004 and 2005. Rockville, MD.

<sup>12</sup> Hans-Ulrich Wittchen, Ph.D. Generalized anxiety disorder: prevalence, burden, and cost to society. *Depression and Anxiety* 16:162-171, 2002.

<sup>13</sup> Greenberg PE, Sisitsky T, Kessler RC, Finkelstein SN, Berndt ER, Davidson JR, Ballenger JC, Fyer AJ. The economic burden of anxiety disorders in the 1990s. *J Clin Psychiatry*. 1999 Jul;60(7):427-35.

<sup>14</sup> Murray CJL and Lopez AD (Eds). *The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020*. Cambridge, MA: Harvard School of Public Health; 1996.

## **Data, Research Methods and Procedures**

The Hawaii Behavioral Risk Factor Surveillance System (Hawaii BRFSS) is an ongoing land-based random telephone survey of randomly selected adult residents 18 years and older concerning behaviors that affect health directly and indirectly. The Hawaii BRFSS is funded by the Centers for Disease Control and Prevention (CDC) as part of the nationwide Behavioral Risk Factor Surveillance System (BRFSS). The Hawaii BRFSS has been in operation since 1986.

The survey population for the Hawaii BRFSS is all civilian, non-institutionalized residents aged 18 years of age and older in the state of Hawaii who have land-based telephones. People in households without telephones, using cell phones exclusively, or living in non-traditional homes are not included. Following CDC's guidelines and standards, the Disproportionate Stratified Sample (DSS) method is used to select randomly land-based telephone numbers throughout the state of Hawaii. Business, government, and nonworking numbers are excluded from the sample. An individual 18 years of age and older is randomly selected from each eligible household contacted. Interviewers are trained to ask questions exactly the same way for every call using a Computer Assisted Telephone Interview (CATI) program, which is also used to dial telephone numbers and enter data. The survey data are edited and weighted by the CDC.

The Council on American Survey Research Organization (CASRO) method of determining the survey response rate or survey participation rate was computed for the Hawaii BRFSS 2006 survey and was found to be about 48%, which is above the 40% minimum requirement of BSB/CDC. Nearly 6,500 adults participated in the survey but only 5,840 provided usable records for this study. This set of records was re-weighted by county, age and sex to extrapolate to the state population.

The Anxiety and Depression Module recommended by the CDC and supported by the Substance Abuse and Mental Health Services Administration (SAMHSA) was included in the Hawaii Behavioral Risk Factor Surveillance System (BRFSS) for calendar year 2006. The eight questions in the BRFSS health questionnaire are referred to as the PHQ-8. From the PHQ-8, the current depression prevalence rate among adults 18 years or older can be estimated. The module also asked two additional questions about whether the respondent was ever told by a healthcare provider that he or she has anxiety disorder or depressive disorder. These two questions are useful for measuring the lifetime prevalence of anxiety and depression in the state of Hawaii. Prevalence measures for anxiety and depression are described in Appendix 1.

In general a statistically significant difference between two prevalence rates was indicated when the ranges of their confidence intervals did not overlap. In a few instances where the two ranges were close to an overlap, a proc descript pairwise tabulation was run using the SUDAAN program to indicate whether there was a statistically significant difference between the prevalence rates.

The variables used in this analysis of anxiety and depression prevalence are derived from the data provided by the questions in the 2006 Hawaii BRFSS Survey listed in Appendix 3. The anxiety and depression analysis presented in this report only implies presence or absence of significant associations with the variables considered and not causality because of the nature of the questions and the fact that the BRFSS is a cross-sectional survey.

## **Lifetime Prevalence of Anxiety and Depression**

The Anxiety and Depression Module, which included the PHQ-8, also asked two questions about whether the respondent was ever told by a healthcare provider that he or she has anxiety disorder or depressive disorder. The actual questions are:

- A. Has a doctor or other healthcare provider EVER told you that you had an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?
- B. Has a doctor or other healthcare provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?

The first question, question A, provides an indicator of lifetime anxiety prevalence. The second question, question B, provides an indicator of lifetime depression prevalence.

**Table 1: Lifetime Anxiety and Depression 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

The prevalence rates of anxiety disorder and depressive disorder among adults are very close to one another, as indicated by the table above. In addition, some adults have experienced both anxiety and depression in their lives. About 4% to 5% of all adults in the state of Hawaii have had both an anxiety and a depressive disorder sometime in their lifetime, and overall, 12.4% of the population (nearly 121,000 adults) has experienced either anxiety or depression in their lifetime.

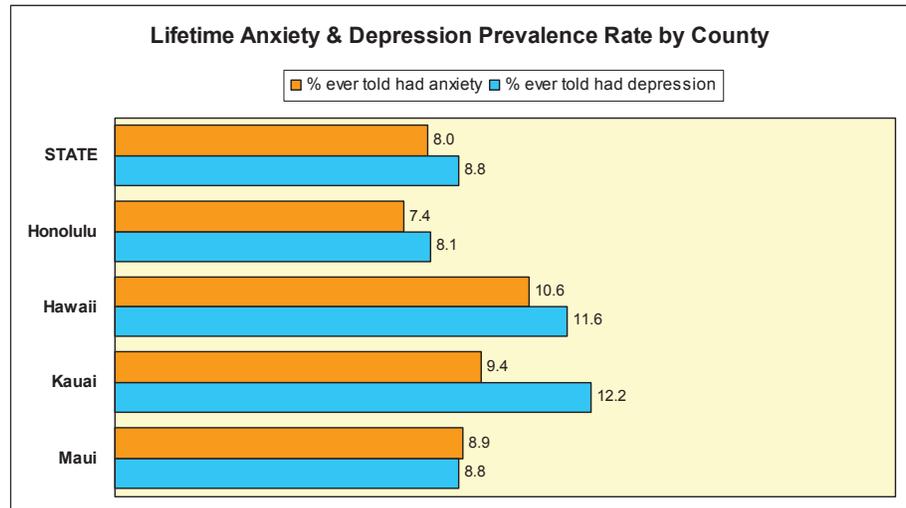
The prevalence rate of lifetime anxiety and lifetime depression by sub-populations in the state are provided on the following pages. The 95% confidence intervals (CI) of the prevalence rates are in Tables A1 and A2 in Appendix 2.

## County

The County of Hawaii bears the highest mental health burden among counties in the state for lifetime anxiety, followed by Kauai and Maui, with Honolulu County having the lowest prevalence rate. Kauai leads in the lifetime prevalence rate for depression, followed by Hawaii and Maui Counties, with Honolulu County having the lowest rate.

Hawaii County has significantly higher lifetime depression prevalence rates for both depression and anxiety than does Honolulu County – the lifetime prevalence rates of anxiety and depression for Hawaii County are significantly greater than that for Honolulu County ( $p < .05$ ).<sup>15</sup>

Figure 1

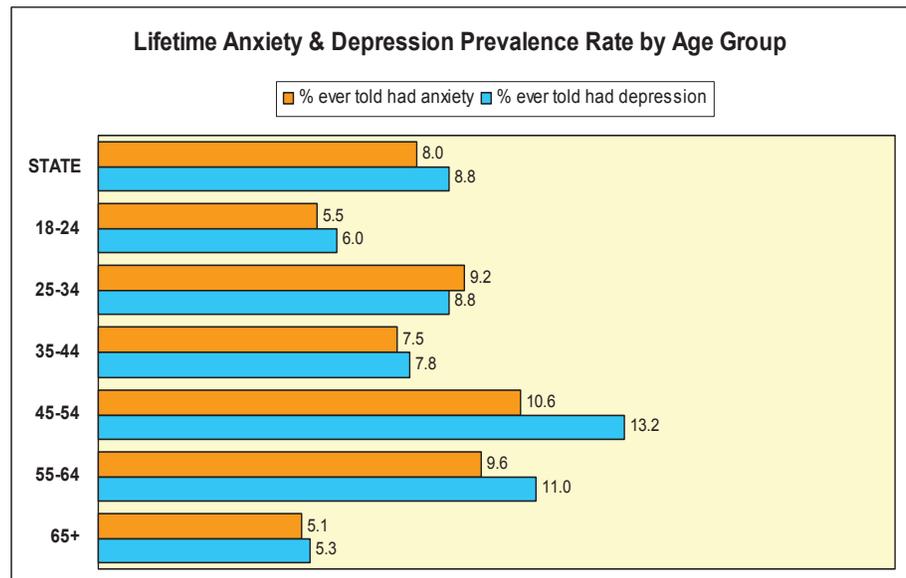


## Demographic and Socioeconomic Characteristics

### Age

The lifetime anxiety and depression prevalence rates are highest at age group 45-54, generally decreasing for both younger and older adults, with the youngest (18-24) and oldest groups (65 or older) having the lowest rates. In addition, the lifetime anxiety and depression prevalence rates in the oldest group are significantly lower than those in ages 45-54 and 55-64 ( $p < .05$ ).

Figure 2

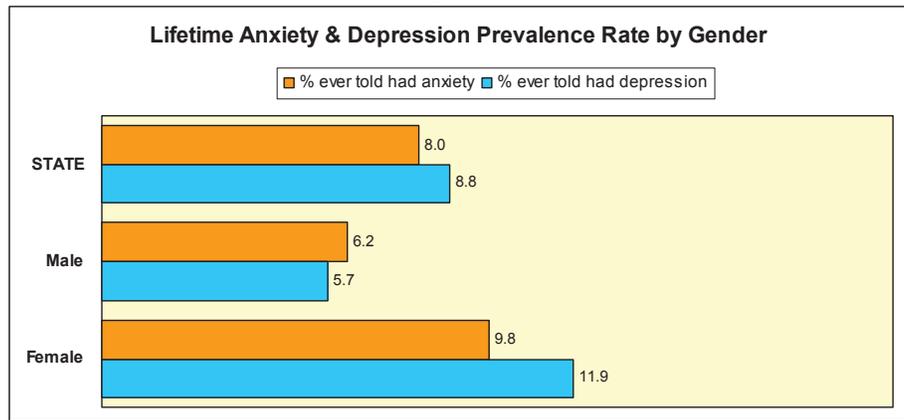


<sup>15</sup>A statistically significant difference between two prevalence rates is indicated by the fact that the ranges of their confidence intervals (CIs) do not overlap. For confidence interval ranges see Tables 1 and 2 in Appendix 2.

*Gender*

In their lifetime women are more likely to have experienced anxiety and depression than men ( $p < .05$ ).

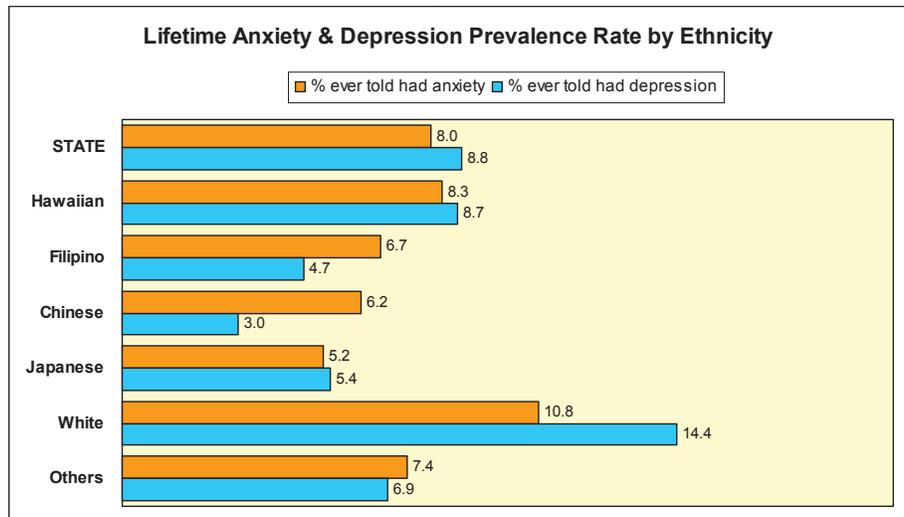
**Figure 3**



*Ethnicity*

Whites have significantly higher prevalence rates of lifetime anxiety than do persons of Japanese ancestry, and report having had depression sometime in their lives at higher rates than those of Hawaiian, Chinese, Filipino, or Japanese ancestry ( $p < .05$ ).

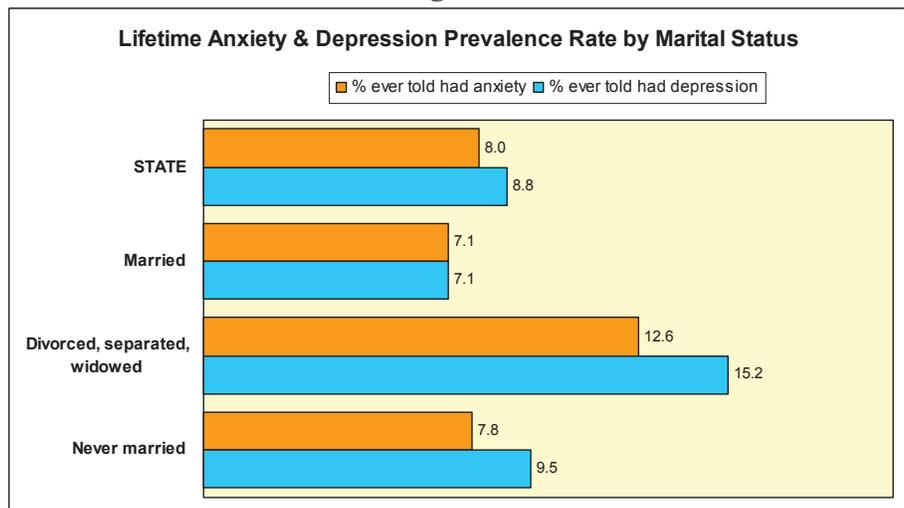
**Figure 4**



*Marital Status*

Those who are divorced, widowed or separated have the highest prevalence rate of lifetime anxiety or depressive disorders, significantly higher than married individuals ( $p < .05$ ).

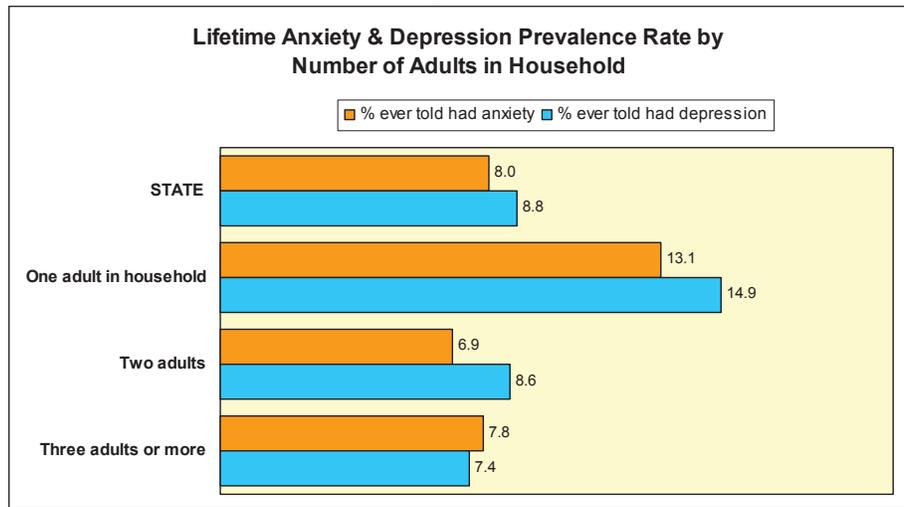
**Figure 5**



*Number of Adults in the Household*

Adults who live without other adults have the highest lifetime prevalence rates of depression and anxiety, significantly higher than for those living with one or more adults ( $p < .05$ ).

**Figure 6**

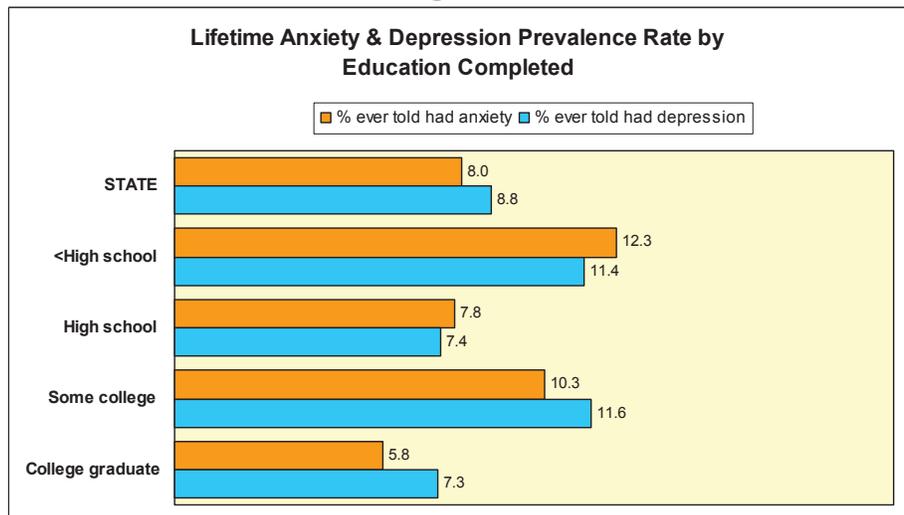


Veterans or those who have joined the military service may have had a traumatic experience that triggered depression or anxiety. The analysis found no significant difference in the lifetime anxiety or lifetime depression prevalence rates for those who have and have not served in the active duty military service ( $p > .05$ ). This pattern was also true after age-adjustment was done.

*Education*

Those with college degrees are less likely than those with only some college to have had encounters with either anxiety or depression in their lives ( $p < .05$ ).

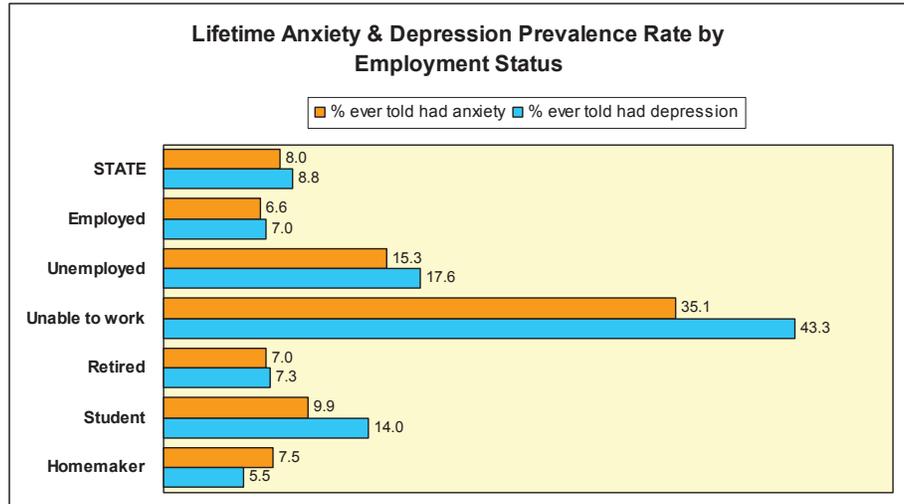
**Figure 7**



*Employment*

Those who are unable to work have the highest lifetime prevalence rates of anxiety and depression compared to all others. Those able to work but unemployed have significantly lower rates of anxiety and depression than persons unable to work, but their anxiety and depression prevalence rates are still significantly higher than the employed.

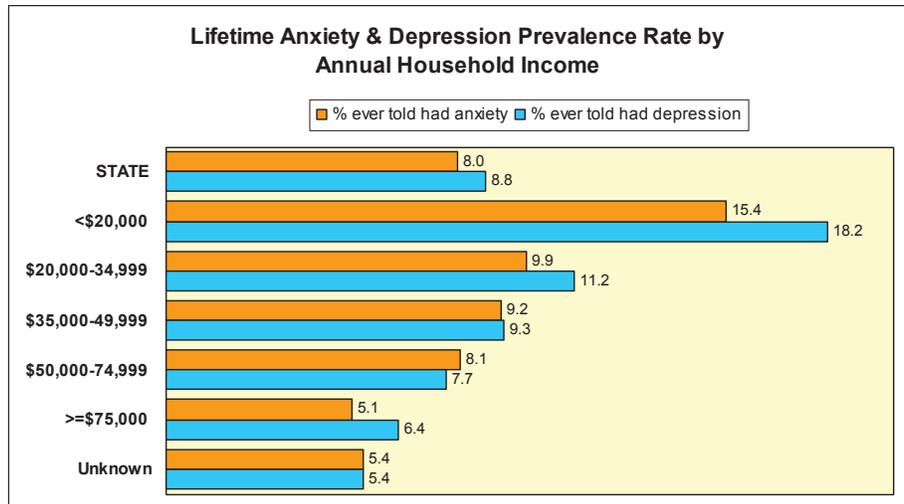
**Figure 8**



*Income*

Adults in the lowest annual household income category of under \$20,000 have the highest lifetime rates of anxiety and/or depressive disorder, significantly higher than those for individuals with household incomes of \$50,000 or above ( $p < .05$ ). In general, prevalence rates of both anxiety and depression decrease with increasing income group.

**Figure 9**



## Health Lifestyles

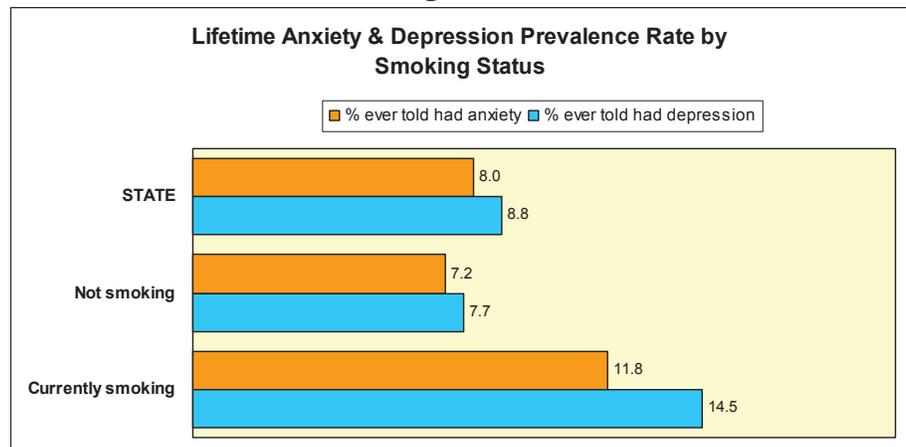
The next paragraphs refer to health lifestyles (e.g., smoking or exercise) or conditions that resulted from health lifestyles (e.g., obesity) which could be related to mental health.

Healthy People 2010 reported that substance use is associated with mental disorder. The Hawaii BRFSS has questions relevant to substance use. These are questions on alcohol consumption and cigarette smoking. The analysis of the alcohol consumption data with that of lifetime anxiety and depression data did not indicate any significant relationship between binge drinking and depression, binge drinking and anxiety, chronic drinking and anxiety, or chronic drinking and depression. However, a significant relationship was found with cigarette use, as reflected in Figure 10.

### Cigarette Smoking

Current smokers are significantly more likely than non-smokers to have been told they have anxiety or depression ( $p < .05$ ).

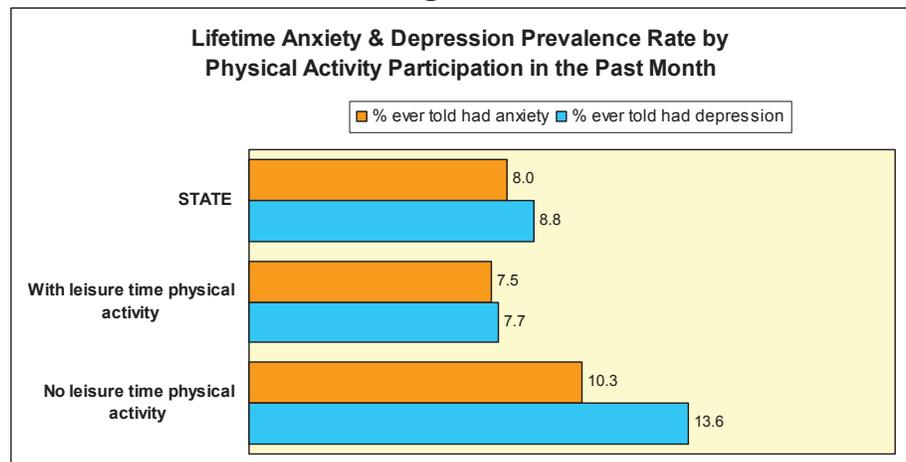
Figure 10



### Physical Activity

Getting exercise has a significant relationship with lifetime depression prevalence. Those engaging in leisure time physical activity within the previous 30 days are significantly less likely than others to have been told they have depression ( $p < .05$ ).

Figure 11



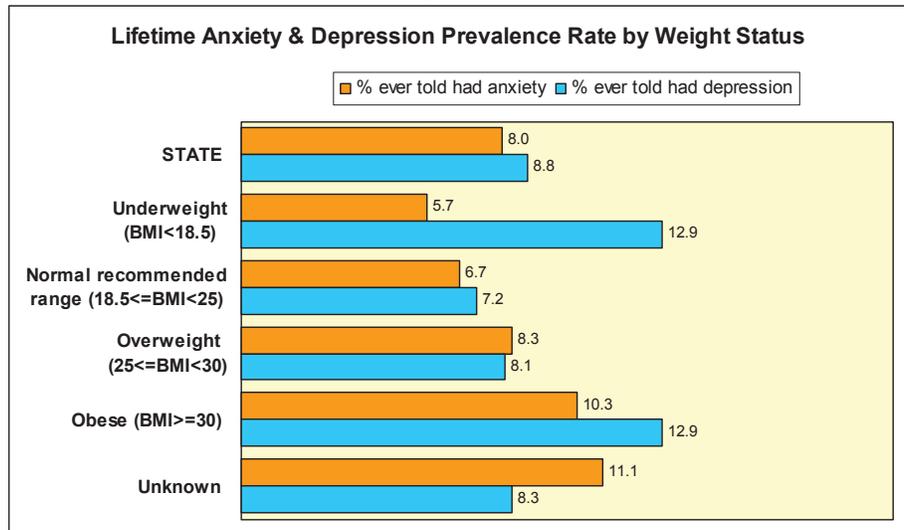
The weight status of the individual can be controlled or managed with proper diet and exercise. The weight status is measured by the Body Mass Index (BMI) derived from the height and weight questions in the Hawaii BRFSS.

*Weight*

Persons with a Body Mass Index (BMI) of 30 or more (considered as obese) are significantly more likely to have been diagnosed with anxiety or depression than those within the recommended range ( $18.5 \leq \text{BMI} < 25$ ) ( $p < .05$ ).

The prevalence rate of lifetime depression among underweight adults (12.9%), although equal to the rate of obese adults (12.9%), is not significantly different from the depression prevalence rate of those adults in the normal weight range (7.2%) because of a small sample size.

**Figure 12**



Other possible health-related behaviors include use of car seatbelts. The lifetime anxiety prevalence rate and lifetime depression prevalence rate of the adult group that uses seatbelt nearly all the time is not significantly different from those who don't always use their car seatbelts ( $p > .05$ ). However, this is not the case for current depression (see Figure 30).

Another possible health related behavior is oral hygiene or dental care. Lifetime anxiety and lifetime depression do not seem to have a statistically significant link to dental care. However, as Figure 31 later in this report shows, teeth care is related to current depressive states.

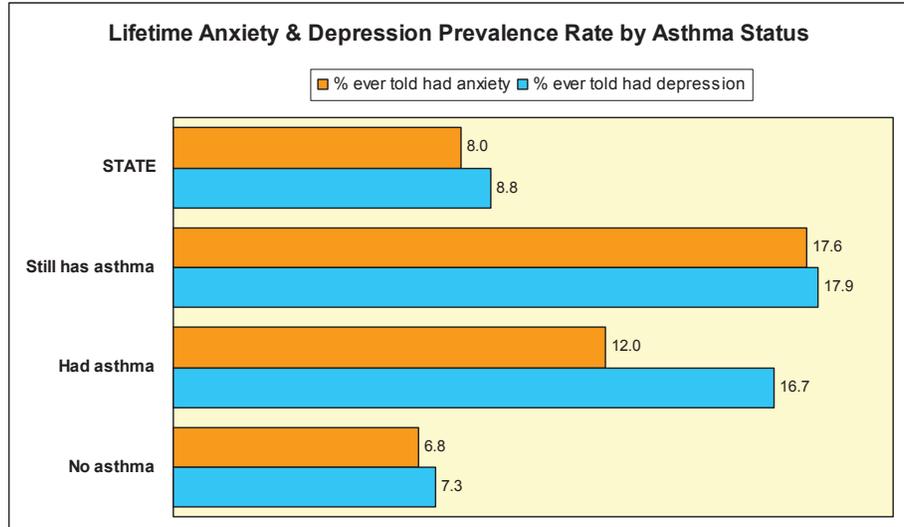
### Chronic Diseases and Disability

The next paragraphs refer to chronic diseases and disabilities that may be related to mental health.

#### Asthma

Persons who currently have asthma are significantly more likely to have been told during their lives that they have anxiety or depression than individuals who have never had asthma ( $p < .05$ ).

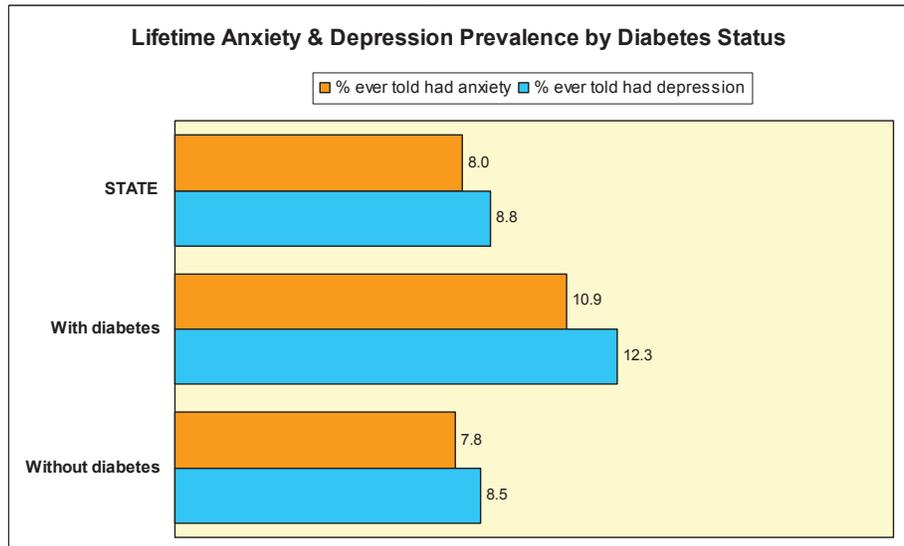
Figure 13



#### Diabetes

Lifetime anxiety and presence of diabetes was not found to be associated with each other. However, there is an association between lifetime depression and presence of diabetes. The percent of adults with lifetime depression is significantly higher among diabetic adults than among non-diabetics (12.3% vs. 8.5%;  $p < .05$ ).

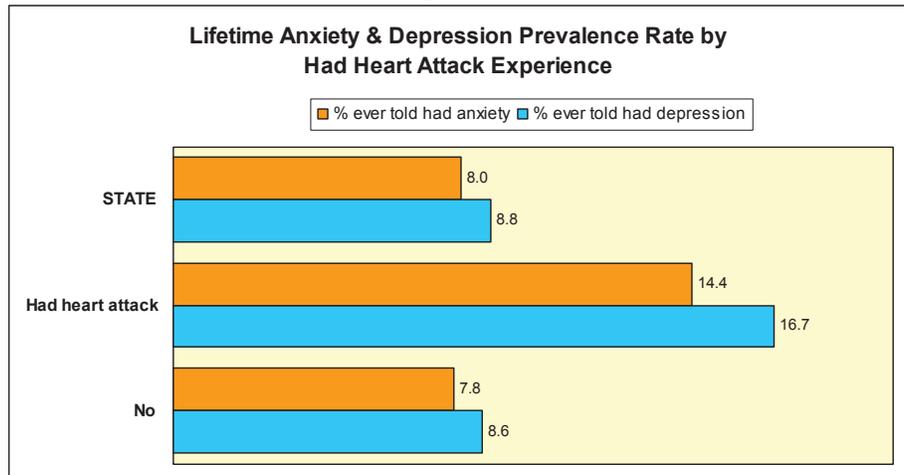
Figure 14



*Heart Attack*

Those who have had a heart attack have a much higher lifetime prevalence rate of anxiety or depression than individuals who haven't suffered one ( $p < .05$ ).

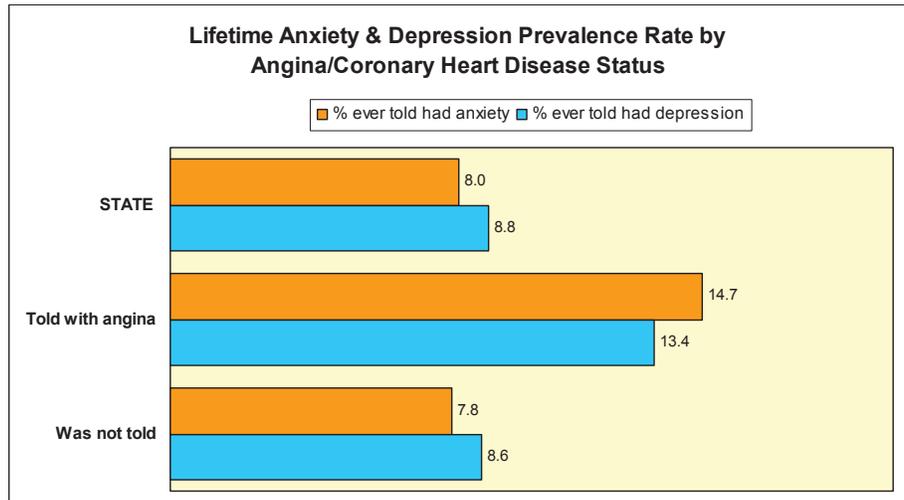
**Figure 15**



*Angina or Coronary Heart Disease*

Individuals who have had angina or coronary heart disease are significantly more likely to have been told at one time that they have anxiety than individuals who have never had this disease ( $p < .05$ ).

**Figure 16**



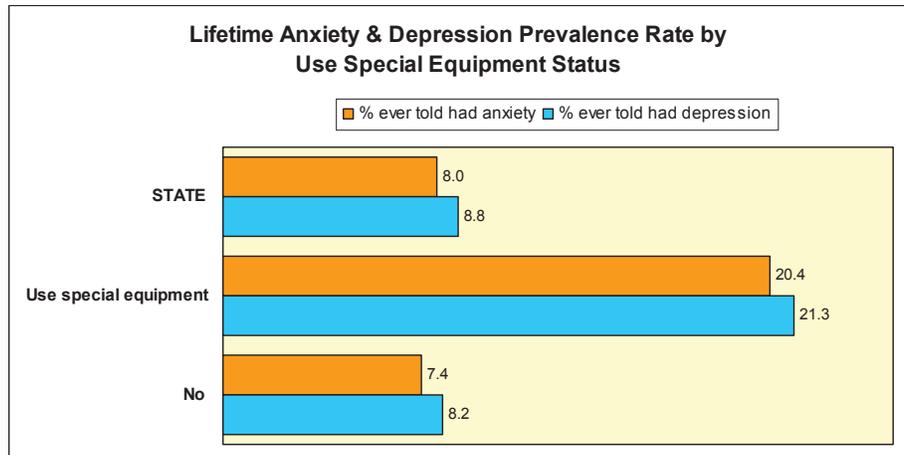
*Disability*

Two questions in the Hawaii BRFSS 2006 relate to the disability condition of the adults, use of special equipment and activity limitation. Healthy People 2010 in its discussion of mental disorders reported that individuals with mental illness such as anxiety or depression experienced periods of temporary disability.

*Special Equipment*

Persons who need to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone, have a much higher lifetime prevalence rate of anxiety or depression than those who don't need it ( $p < .05$ ).

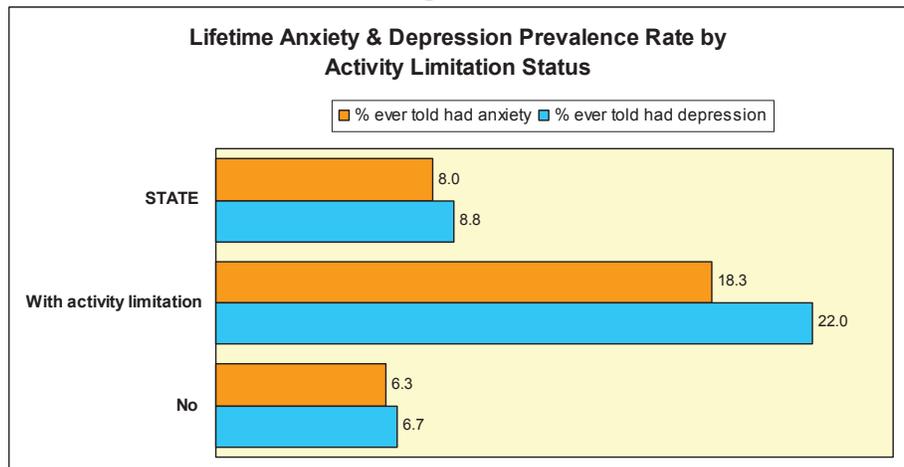
**Figure 17**



*Activity Limitation*

Individuals who are limited in any activities because of physical, mental, or emotional problems are much more likely to have been diagnosed with anxiety or depression than people without such limitation ( $p < .05$ ).

**Figure 18**



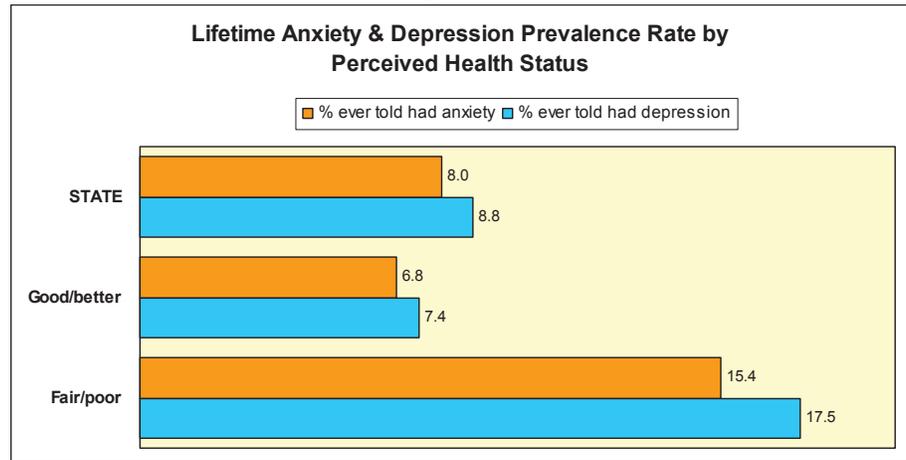
## Health Status and Quality of Life

Based on prior findings that those with a lifetime prevalence of anxiety and/or depression also reported some co-morbid condition(s), it can be expected that their general health as well as their quality of life may also be affected.

### Health Status

People who report their own health as excellent, very good, or good are significantly less likely to have been told they have anxiety or depression compared to those who report it fair or poor ( $p < .05$ ).

Figure 19



Other indicators of health status are the number of days in which physical health is not good and mental health is not good. These two measures can be combined to form a third indicator: Days when either physical or mental health is not good, or unhealthy days. Finally, there are also days in which poor health kept the individual from usual activities. These measures are better known as health-related quality of life (or HRQOL) measures.

### Mean Days of Not Good Health

The mean number of days in which physical health, mental health, or either was not good, as well as the mean number of days kept from usual activities because of poor health, is all significantly higher for persons with lifetime anxiety or depression than for those without the lifetime diagnosis.

Table 2. Mean Number of Health Related Quality of Life Days by Lifetime Anxiety and Lifetime Depression

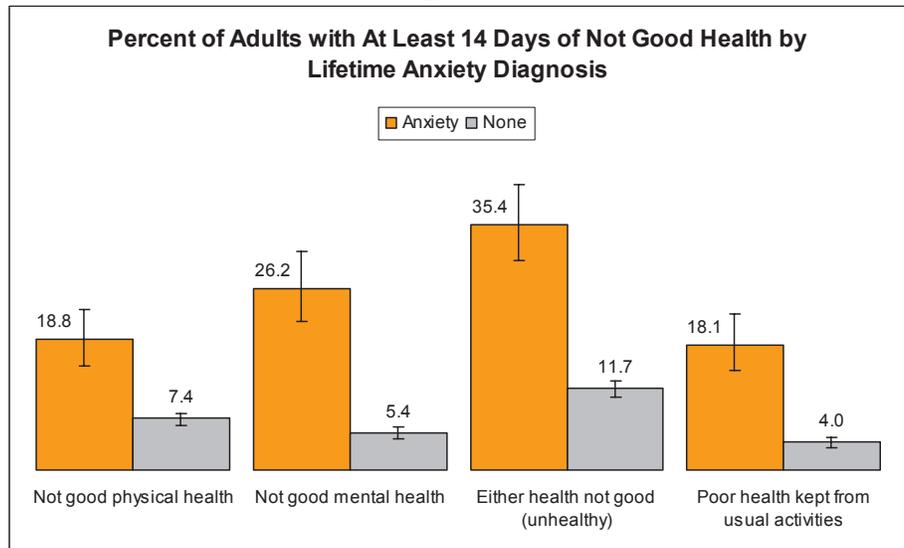
In past 30 days:	Ever told you had an anxiety disorder			
	Yes	95% CI	No	95% CI
Not good physical health	6.1	5.1-7.1	2.6	2.4-2.9
Not good mental health	8.2	6.9-9.5	2.1	1.9-2.3
Either health not good (unhealthy)	11.4	10.0-12.9	4.3	4.0-4.6
Poor health kept from usual activities	5.1	4.1-6.1	1.4	1.2-1.5
In past 30 days:	Ever told you had a depressive disorder			
	Yes	95% CI	No	95% CI
Not good physical health	6.7	5.6-7.8	2.5	2.3-2.8
Not good mental health	8.7	7.5-9.8	2.0	1.8-2.2
Either health not good (unhealthy)	12.1	10.8-13.4	4.2	3.9-4.5
Poor health kept from usual activities	5.5	4.6-6.5	1.3	1.2-1.5

In response to the question, “Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?,” a person who gave an answer of 14 days or more was identified as having Frequent Mental Distress (FMD). This 14-day minimum period was selected because physicians and researchers often use a similar period as a marker for clinical depression and anxiety disorders.<sup>16</sup> It is assumed that individuals with lifetime anxiety or depression also suffer from FMD. The percent of adults with FMD among those with lifetime anxiety and/or lifetime depression is about the same (26.2% and 27.4% respectively, as shown in Figures 20 & 21).

*14 Days or More of Not Good Health and Anxiety*

The percent experiencing 14 days or more of not good physical health, mental health, or both, as well as the percent kept from usual activities for 14 days or more because of poor health, are all significantly higher for persons with lifetime anxiety than for those without any past diagnosis of anxiety.

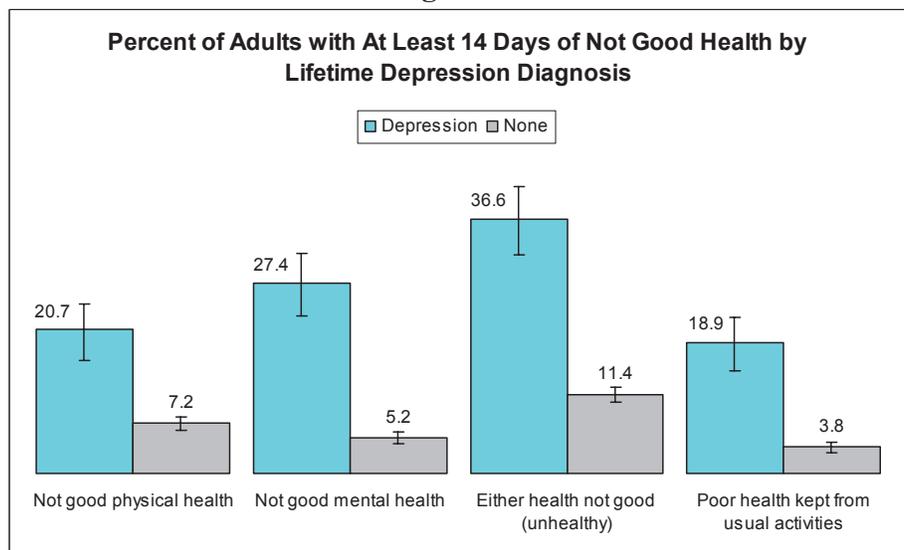
**Figure 20**



*14 Days or More of Not Good Health and Depression*

The percent with 14 days or more of not good physical health, mental health, or either, and the percent kept from usual activities for 14 days or more because of poor health, are all significantly higher for persons with lifetime depression than for those without this past diagnosis.

**Figure 21**



<sup>16</sup> CDC. Self-reported frequent mental distress among adults---United States, 1993--1996. MMWR 1998; 47:326--31.

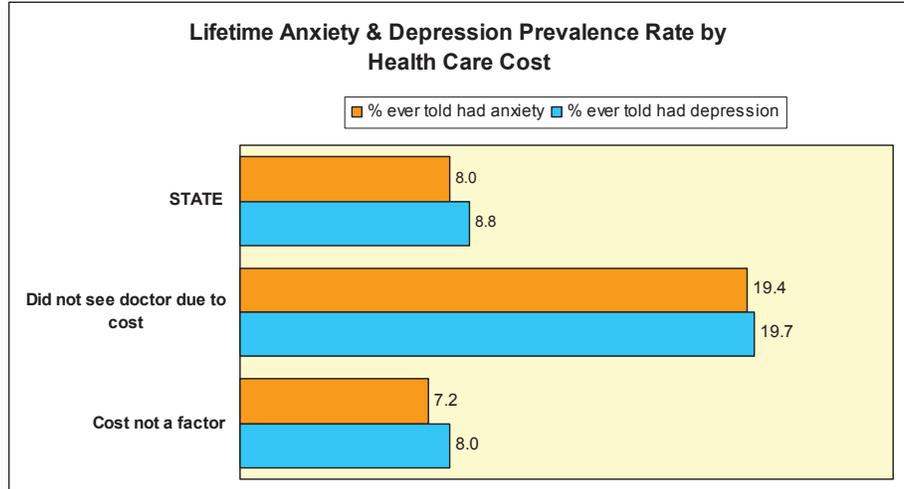
## Access to Care

The lifetime anxiety and depression prevalence rates of adults without health insurance coverage are not significantly different from the lifetime anxiety and depression prevalence rates of those with health insurance coverage ( $p > .05$ ).<sup>17</sup> However, the cost of health care for those who had experienced anxiety or depression in their lifetime, or their perception of that cost, may differ from that of other adults without depression or anxiety.

### Health Care Access Cost

Residents who needed to see a doctor in the previous 12 months but could not because of the cost have a much higher lifetime prevalence of anxiety or depression than individuals who didn't have the cost problem ( $p < .05$ ).

Figure 22



<sup>17</sup> Pairwise tabulations were run to test the differences in the lifetime anxiety and depression prevalence rates for adults with and without health insurance.

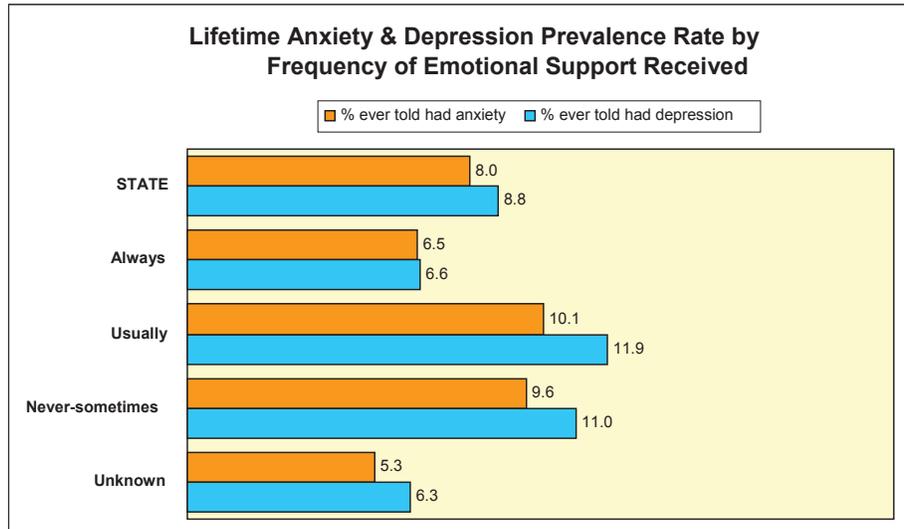
### Social Support and Life Satisfaction

Social support is very important particularly for individuals who are suffering from chronic diseases and conditions, whether it is a physical or mental health condition.

#### Social Support

The prevalence rate of lifetime anxiety and depression is significantly lower among adults who always have gotten the emotional support they need compared to adults who usually, sometimes, rarely, or never get that support ( $p < .05$ ).

Figure 23

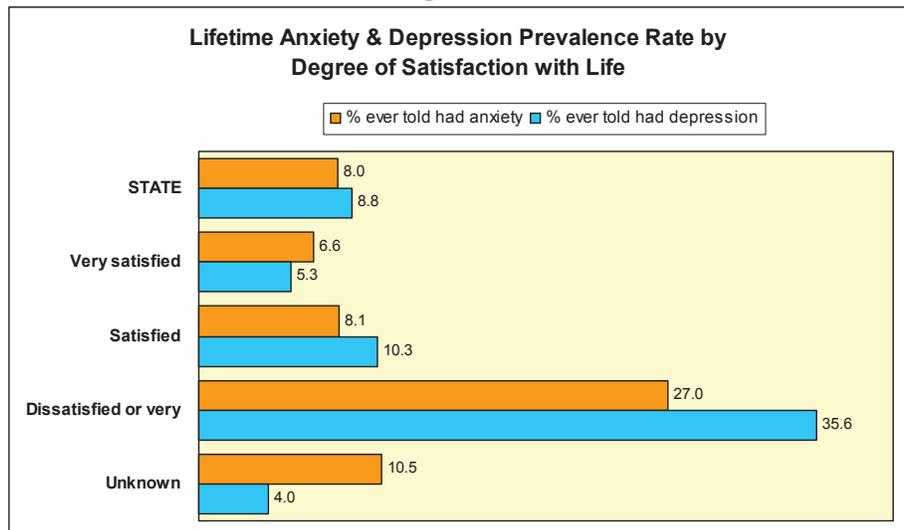


A person's outlook on life may affect his or her physical health as well as mental health. On the other hand, not having good physical or mental health can also affect a person's outlook. One manifestation of outlook in life is satisfaction.

#### Satisfaction with Life

Residents who say they are dissatisfied or very dissatisfied with their lives have a much higher lifetime prevalence rate of anxiety or depression than individuals who are very satisfied or satisfied with life ( $p < .05$ ).

Figure 24



## **Current Depression Prevalence Estimate**

Current depression prevalence is a measure of depression being experienced by the adult population in the state of Hawaii two weeks prior to the interview. Three different depression measures can be derived using the PHQ-8 questions from the Anxiety and Depression Module in the 2006 Hawaii BRFSS survey. The module includes the following 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?

The first measure uses a procedure to classify respondents into the five categories: (a) no depression, (b) mild depression, (c) moderate depression, (d) moderately severe depression, and (e) severe depression. Based on this scale, 22.6% of adults are currently depressed. The second measure, the Depression severity scale, consists of two categories with total scores of < 10 points and  $\geq 10$  points.<sup>18</sup> Based on this scale, it was estimated that 7.1% of adults in the state have at least moderate depression.

The third measure of current depression derived from the PHQ-8 questions, the Provisional Depressive Disorder diagnosis or PDD, consists of three categories: (a) major depressive disorder, (b) other depression, and (c) no depression.<sup>19</sup> The measure of depression presented here is the Provisional Depressive Disorder diagnosis (PDD). The Provisional Depressive Disorder diagnosis (PDD) is preferred for this analysis because the PDD gives more relative importance to the first two of the PHQ-8 questions, which ask specifically about anhedonia and depression.

In the PDD, 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

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<sup>18</sup> See Appendix 1 for an explanation of point scoring.

<sup>19</sup> Technical details of the derivation of these three different measures can be found in Appendix 1.

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.

As shown in Table 3, using the PDD it is estimated that about 8.3% of Hawaii adults, or about 81,000 adults, experienced current depression two weeks prior to the survey. This is very close to the lifetime depression prevalence rate of 8.8% noted in the previous section. About 40% of the 81,000 currently depressed adults, or 32,200 adults, are estimated to have experienced *major* depression two weeks prior to the survey. In terms of the *overall* adult population, the 32,200 adults with major depression represent 3.3%. The balance, 5.1% of the adults or 48,800 adults have experienced other forms of depression two weeks prior to the survey.

**Table 3: Current Depression Prevalence Estimate using PDD**

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.

There is a strong link between past and current depressive states. Those with current depression (PDD) are more likely to have been diagnosed with depression in the past as shown in Table 4. It reveals that nearly 43% of adults reporting current symptoms of major depression have previously been told sometime during their life that they have depression. However, it also means that about 57%\*\* of adults with current major depression symptoms have not been diagnosed. This may be because they have not seen a doctor, or they were not given a depression screening assessment. On the other hand, about 7% of those with no current symptoms had been told at a previous time that they were depressed which suggests that their depression has lifted or is under control.

**Table 4: Current Depression Prevalence per 100 and Told Had Depressive Disorder**

Current Depression indicator Provisional Depressive Disorder (PDD)	Has a doctor or other healthcare provider ever told you that you have a depressive disorder (including depression, major depression, dysthymia or minor depression)?		
	told had depressive disorder (Rate per 100)	Lower 95% CI	Upper 95% CI
With Major depression	42.8	34.2	51.8
With Other forms of depression	21.9	16.3	28.7
No depression	6.9	6.1	7.8

In the following figures and discussions, prevalence of major depression and other depression will be called current depression prevalence and is derived using the Provisional Depressive Disorder measure (PDD). Table A3 in Appendix 2 provides the current depression prevalence rates (major and other) as well as the 95% confidence interval for the prevalence rate estimates.

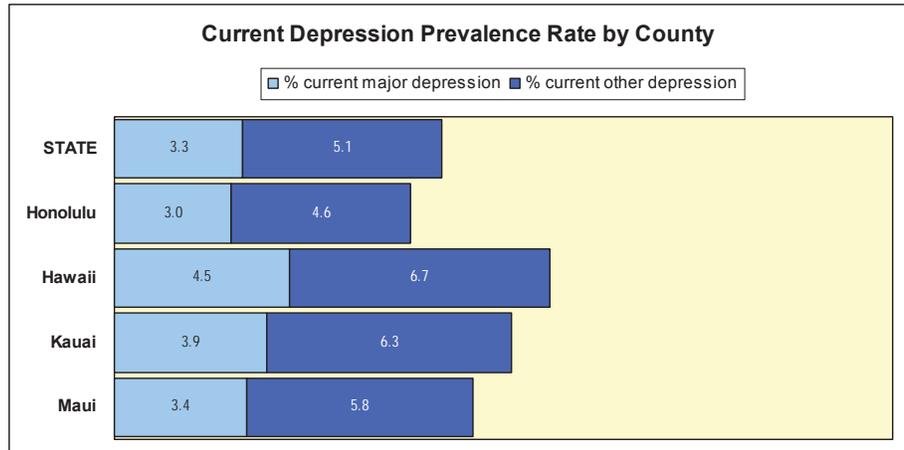
\*\*Computed by subtracting 42.8 from 100, i.e.,  $100 - 42.8 = 57.2$ .

## County

The County of Hawaii has the highest mental health burden among counties in the state in terms of current depression prevalence.

The County of Hawaii has the highest prevalence rate of depression, followed by Kauai and Maui, with Honolulu County having the lowest depression rate.<sup>20</sup> The current depression prevalence rate for Hawaii County (11.3%) is significantly greater than that for Honolulu County (7.5%) ( $p < .05$ ).

Figure 25



In comparison, for lifetime depression Kauai County had the highest lifetime depression prevalence rate in the state and Honolulu County the lowest (see Figure 1).

<sup>20</sup> The current depression prevalence rate which is total current depression including current major depression and current other depression is shown in Table A3 in Appendix 2.

On the following pages results for current depression for the state's population are shown for demographic and socioeconomic characteristics, health lifestyles, chronic diseases and disability, health status and quality of life, access to care, and social support and life satisfaction.

### Demographic and Socioeconomic Characteristics

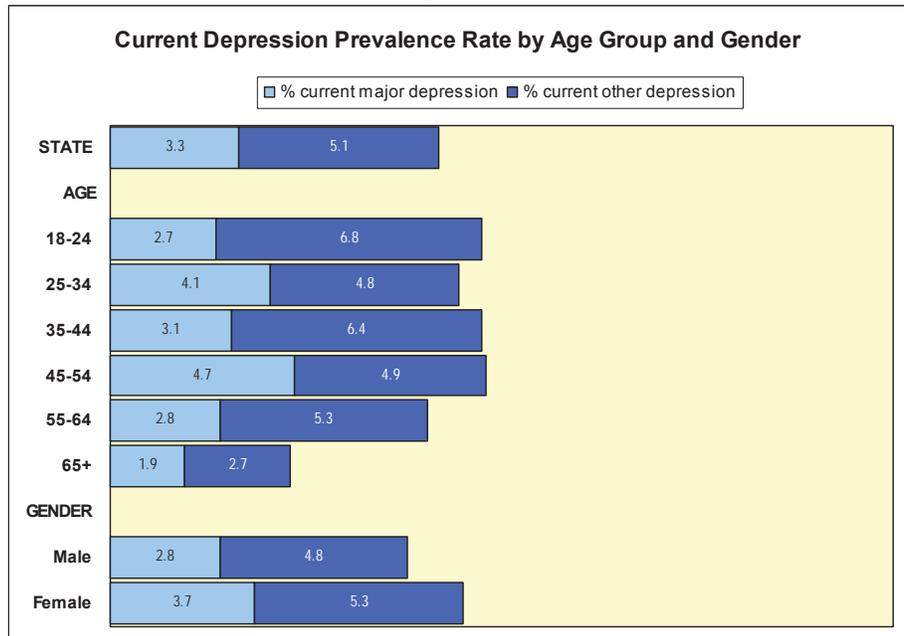
These characteristics are important risk markers, which enable epidemiologists to identify and target priority populations for public health education or intervention.

#### Age and Gender

Residents 65 or older has the lowest current depression prevalence rate, significantly lower than the prevalence rates of residents in age groups 25-34, 35-44, and 45-54 ( $p < .05$ ).

There was no significant difference between the current depression prevalence rate of men and women.

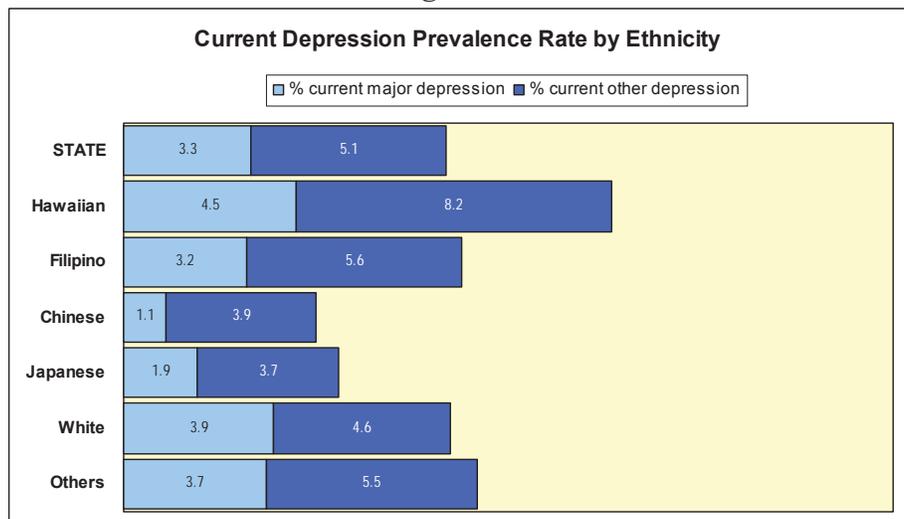
Figure 26



#### Ethnicity

Those of Hawaiian or Part Hawaiian ancestry have the highest current depression prevalence rate (12.7%), significantly higher than depression prevalence rates for persons of either Chinese or Japanese ancestry ( $p < .05$ ). In contrast, Whites had the highest rates among ethnic groups for lifetime anxiety and lifetime depression prevalence rate (Figure 4).

Figure 27



Hawaiians or Part Hawaiians have the highest prevalence rate for current depression in Figure 27 while Whites had the highest rate for lifetime depression prevalence in Figure 4. One explanation for this is that those of Hawaiian ancestry are more often in a lower socio-economic status, as shown in Table 5. Thus, Hawaiians may have been less likely to come in contact with the health care system than others and in turn have been less likely to be diagnosed with depression in the past. Those with lower socio-economic status generally make use of the health care system less frequently than others because of a lack of resources.

Table 5 shows that Hawaiians and Part Hawaiians tend to have the lowest level of educational attainment (53.4% high school degree or less) and income (54.3% below \$50,000 in annual household income) among the major ethnic groups in the state.

**Table 5. Ethnic Group Education and Income**

	Total	Hawaiian	Filipino	Chinese	Japanese	White	Others
<b>EDUCATION</b>							
Less than high school	5.6	8.6	7.3	2.0	4.3	4.9	6.3
High school graduate/GED	28.6	44.8	32.9	24.5	24.3	21.2	37.8
Some college	29.0	29.0	33.5	18.4	28.2	29.7	27.3
College graduate	36.9	17.6	26.3	55.1	43.3	44.3	28.6
<b>HOUSEHOLD INCOME</b>							
< \$20,000	9.3	13.4	7.3	5.8	8.2	8.3	13.3
\$20 < \$50,000	31.7	40.9	36.5	30.2	24.8	30.0	34.9
\$50 < \$75,000	16.8	16.0	18.2	21.5	18.2	16.2	13.0
>= \$75,000	26.3	16.7	15.9	29.6	30.3	32.6	21.9
Unknown	16.0	13.0	22.1	13.0	18.6	12.9	16.9
Total sample	5,840	694	646	235	1,140	2,542	583
Estimated adult population	976,549	114,630	144,136	48,301	213,972	332,534	122,976

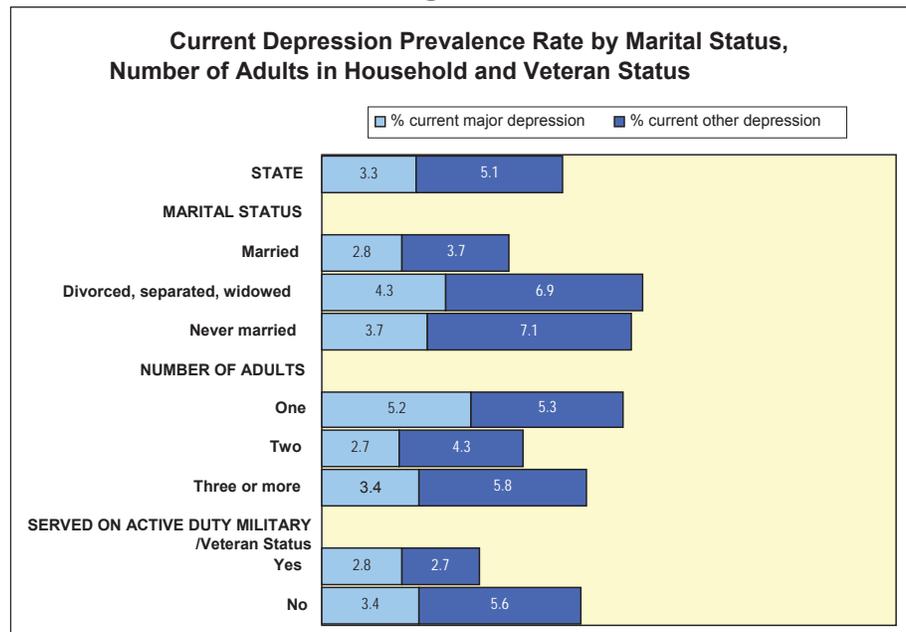
*Marital Status, Adults in the Household, Veterans*

Divorced, widowed, separated or never married persons have significantly higher depression prevalence rates than married individuals ( $p < .05$ ).

Adults living without other adults in the household have the highest current depression prevalence rate, significantly higher than those living with one adult ( $p < .05$ ).

Those who have not served in the active duty military service or not veterans are more prone to current depression than those who have (9.0% vs. 5.7%). However, this is attributable to age structure differences in the two groups. When age adjustment is applied, the significant difference in the current depression prevalence rate of non-veterans and veterans vanishes ( $p > .05$ ).

**Figure 28**



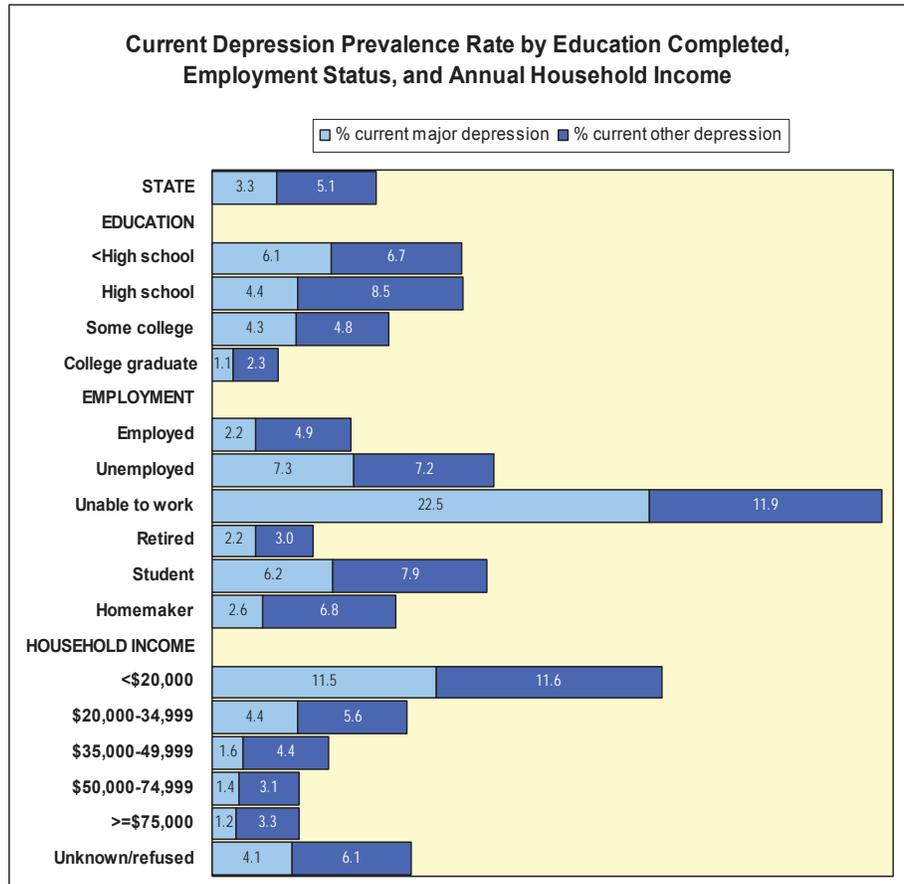
Education, Employment, Income

Those with college degrees are significantly less likely than those with lesser educational achievement to have current experiences of depression in their lives ( $p < .05$ ).

The current depression prevalence rates of those unable to work (34.3%) and able to work but unemployed (14.5%) are higher than the rates of other employment categories and significantly higher than depression rates of either employed or retired residents ( $p < .05$ ). This pattern is also true for lifetime prevalence of anxiety and depression (see Figure 8).

Those with household incomes of under \$20,000 have the highest rate of current depression (23.1%). Persons with household income under \$20,000 and between \$20,000 and \$35,000 have prevalence rates of current depression significantly higher than those with household incomes of \$50,000 or above ( $p < .05$ ).

Figure 29



## Health Lifestyles

Health practices are indicative of self-care. Depressed individuals are less likely to practice self-care or personal hygiene, thus putting themselves at risk. In addition, some unhealthy lifestyles, like a lack of regular exercise, can contribute to depression.

### *Seatbelt Use, Smoking, Leisure Physical Activity, Weight*

Individuals who sometimes or never use their seatbelts report higher current depressive states than residents who nearly always use their seatbelts ( $p < .05$ ).

Similar to findings noted in the previous section, there was no association found between alcohol consumption (binge drinking and chronic drinking) and current depression. However, smoking cigarettes is clearly related to current depressive symptoms, as shown in Figure 30.

Current cigarette smokers are much more likely to experience current depression than those who do not smoke ( $p < .05$ ).

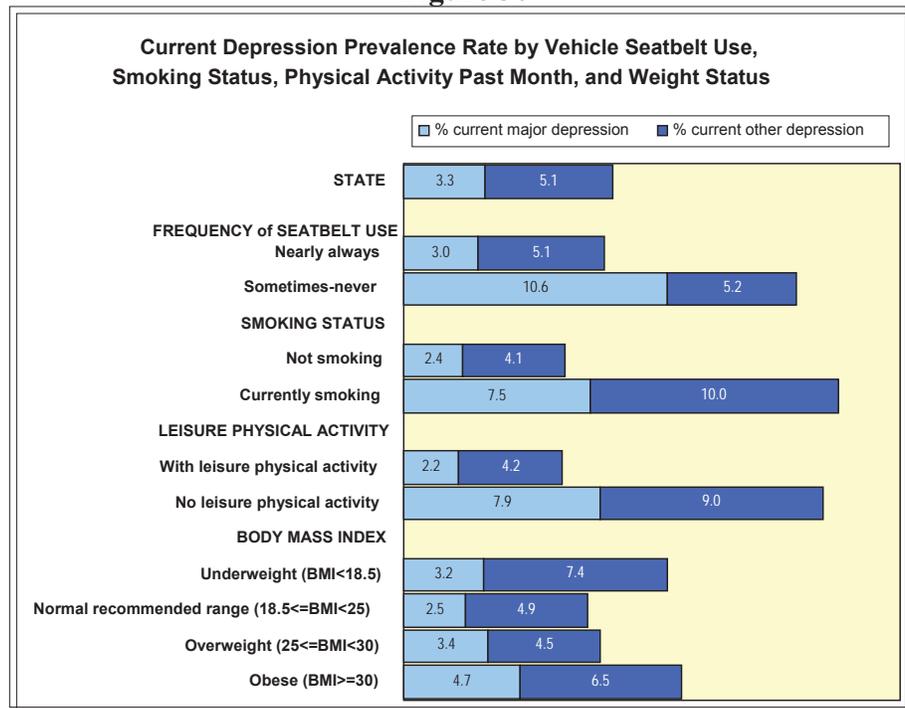
Those participating in leisure time physical activity or exercise in the past month are significantly less likely to have had current depression than people not taking part in leisure time physical activity ( $p < .05$ ).

Obese individuals are significantly more likely to have experienced current depression than

those within the normal recommended weight range or persons who are classified as overweight ( $p < .05$ ).<sup>21</sup>

The prevalence rate of current depression for underweight individuals is not significantly different from the current depression prevalence rate of those in the normal weight range due to a small sample size. However, both underweight and obese persons have higher current depression

**Figure 30**



<sup>21</sup> Pairwise comparisons in SUDAAN proc descript were used to test for significant differences between rates. The depression rate for underweight was not significantly different from that for the recommended range or overweight ( $p > .30$ ).

prevalence rates than those within the normal weight range; underweight because they have a diminished appetite associated with depression and obese because of overeating associated with depression as well as lack of physical activity.

*Dental Care*

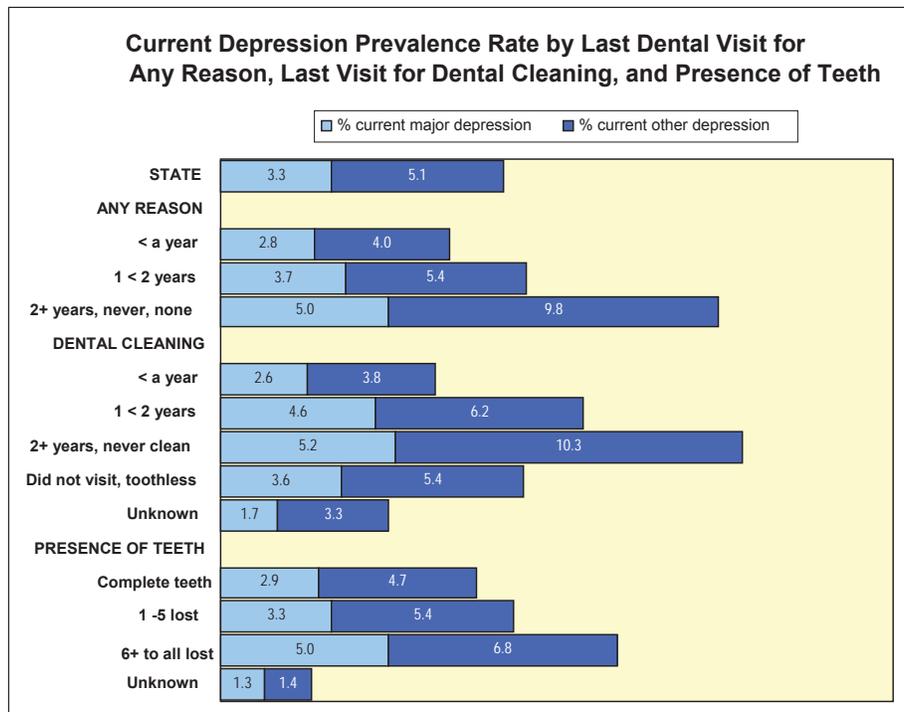
Attention to, or lack of care for, one's teeth can be significantly associated with current depressive states.

Persons who have visited a dentist within the past year are significantly less likely to have experienced current depression than those who have not gone for two or more years or have never gone ( $p < .05$ ).

Those who have gone to a dentist within the past year for teeth cleaning are significantly less likely to have experienced current depression than those who have not gone for a cleaning for a year or more or have never had their teeth cleaned ( $p < .05$ ).

Finally, adults who still have their complete set of teeth are significantly less likely to have been currently depressed when compared to those who have lost six or more of their teeth ( $p < .05$ ).

**Figure 31**



## Chronic Diseases and Disability

Chronic diseases and disabilities can be associated with depression, as physical problems and challenges impact mental health. Anxiety and depression while treatable can re-occur. Re-occurring anxiety and depression can be considered as chronic conditions.

### *Asthma, Diabetes, Heart Attack, and Angina/Coronary Disease*

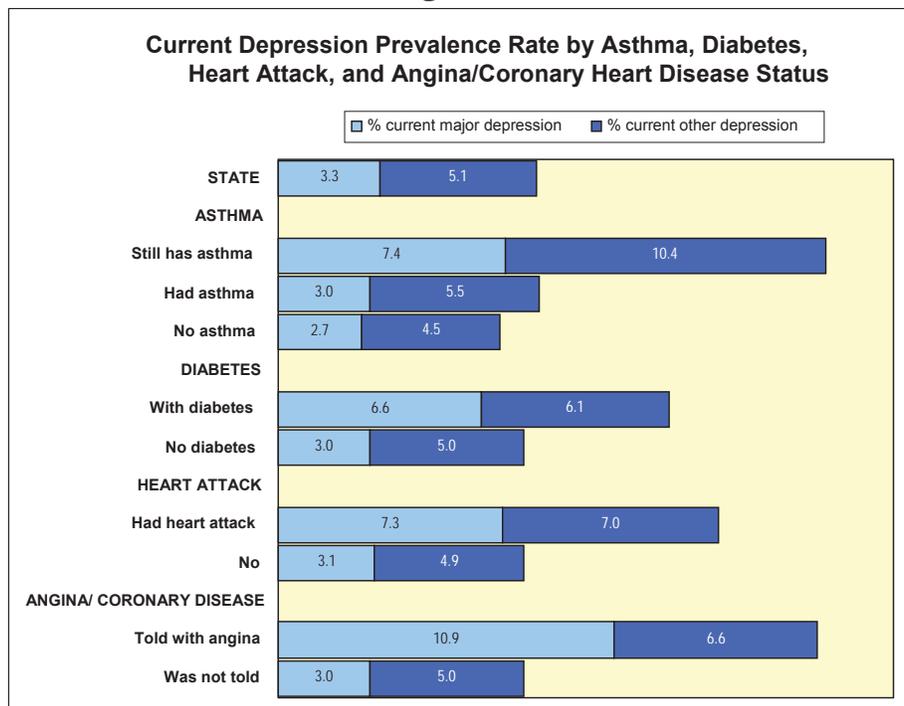
Asthma is associated with depression. Persons with current asthma are significantly more likely to have had current depression than former asthma sufferers or those who have never experienced it ( $p < .05$ ).

Diabetes is also linked to depression. Persons with diabetes are significantly more likely to have had current depression than individuals who are not diabetic ( $p < .05$ ).

Persons who have experienced a heart attack are significantly more likely to have experienced current depression than individuals who have not suffered one ( $p < .05$ ).

Individuals with angina or coronary heart disease are much more likely to have had current depression than others without angina or coronary heart disease ( $p < .05$ ).

**Figure 32**

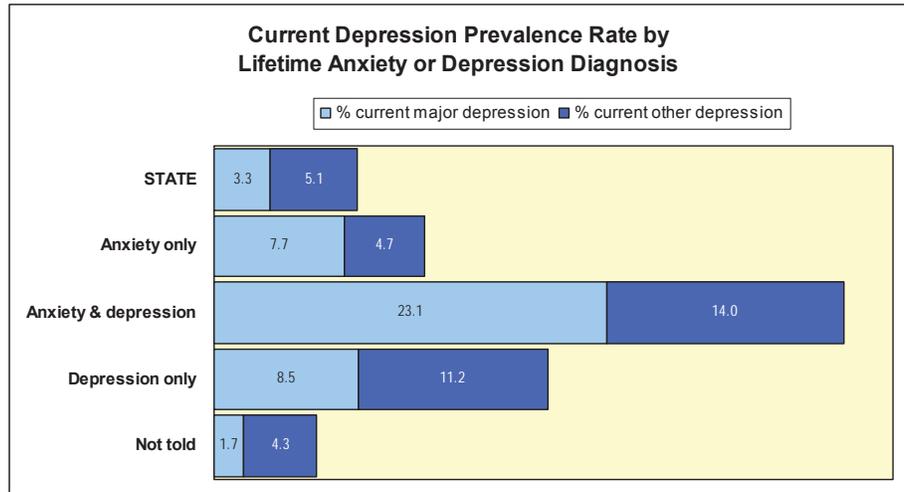


*Lifetime Anxiety and Depression*

Having been diagnosed with anxiety or depression sometime in the past is associated with the likelihood of current depression.

Persons who have been told they have anxiety, depression, or both are significantly more likely to have experienced current depression than individuals who have never been diagnosed with either ( $p < .05$ ). Three out of eight persons (37.1%) who have been told in the past that they have both anxiety and depression have experienced a current depression.

**Figure 33**



*Disability*

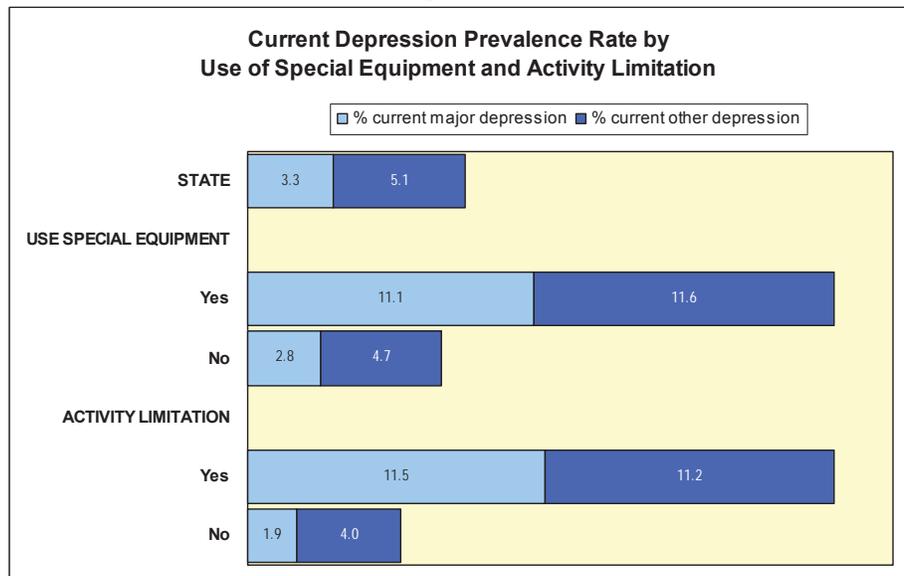
Individuals with depression may experience periods of disability, and disabilities may also impact the mood and mental outlook of those afflicted by them.

*Special Equipment and Activity Limitation*

Individuals who require special equipment due to a condition are much more likely than other persons to have experienced current depression ( $p < .05$ ).

Persons who are limited in any activities due to physical, mental, or emotional problems are much more likely than others to have had current depression ( $p < .05$ ).

**Figure 34**



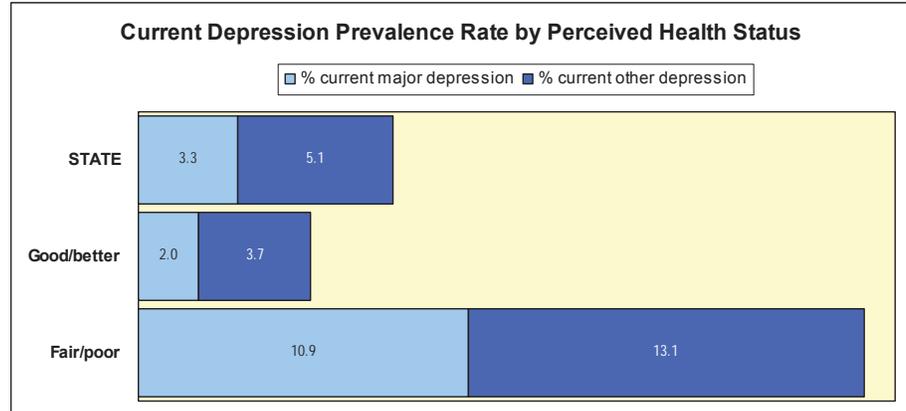
## Health Status and Quality of Life

Depressive states of mind maybe associated with poor health status.

### Health Status

A resident's present health rating is strongly related to a depressive state of mind. Persons who report their current health status as only fair or poor are much more likely to have current depression than persons who report good or better health ( $p < .05$ ).

Figure 35



Additional indicators of health status are the number of days in which physical health is not good and mental health is not good or the combined measure of either mental or physical health is not good (unhealthy days). The number of days in which poor health kept the individual from usual activities is also another indicator of health status. These indicators are also known as health-related quality of life (HRQOL).

### Mean Days of Not Good Health

The mean number of days in which physical health, mental health, or either is not good and the mean number of days kept from usual activities because of poor health are all significantly higher for persons with current depression ( $p < .05$ ).

Table 6. Mean Number of Health Related Quality of Life Days by Provisional Depressive Disorder (PDD)

In past 30 days:	Provisional Depressive Disorder (PDD)			
	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

For those with current depression, the average number of days that poor health kept one from doing usual activities, such as self-care, work or recreation, was 8.9. Using this 8.9 average for poor health days, for employed adults who have current depression and an average weekly wage of \$699<sup>22</sup> the productivity loss can be estimated at close to \$300 million annually. This economic and productivity loss estimate is conservative since it does not include other adults with current depression or take into account the cost of doctor visits, prescribed medications or caregivers, and average days of poor health is used as a measure rather than average unhealthy days. The economic

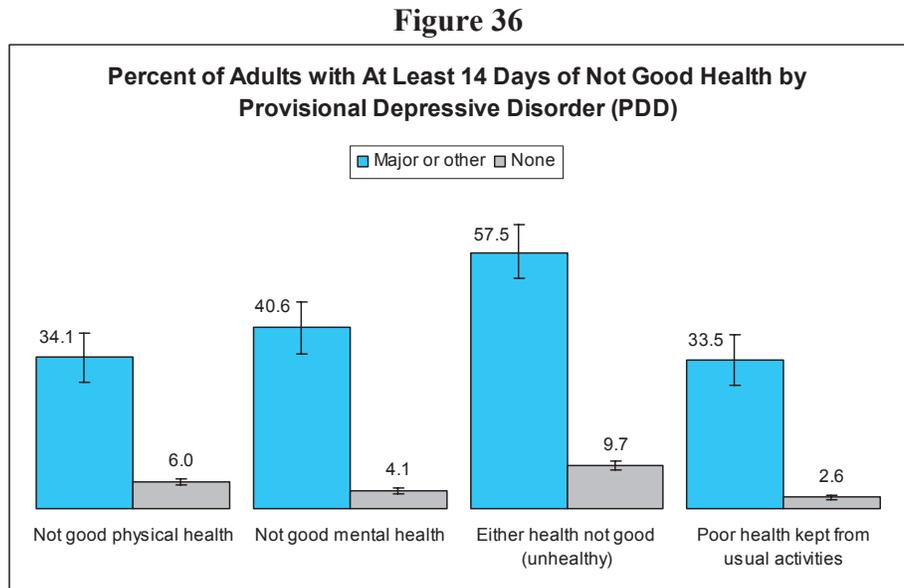
<sup>22</sup> Bureau of Labor Statistics estimated average weekly wage for the State of Hawaii, 2005

impact would probably be much more if these factors were included in the equation. However, it should be kept in mind that some of the adults with current depression have co-morbid conditions which may have affected the number of days they were in poor health. The presence of co-morbid conditions was not considered in estimating the productivity lost.

Lost days of schooling due to current depression can also be approximated. The estimated number of missed school days attributed to current depression, using the estimated number of adults that were students with current depression and an average poor health of 8.9 days, would be 37,840 students' days, or about 103.5 students' years.

### 14 Days or More of Not Good Health

The percent experiencing 14 days or more of not good physical health, mental health, or either, as well as the percent kept from usual activities for 14 days or more because of poor health, are all significantly higher for persons with current depression than for those without current depression experience.



Nearly two out of every five adults with current depression had Frequent Mental Distress (FMD) – 40.6% of adults with current depression reported that their mental health was not good for 14 days or more in the month prior to the survey. About 60% of this proportion (the 40.6%) has major depression symptoms.

### Access to Care

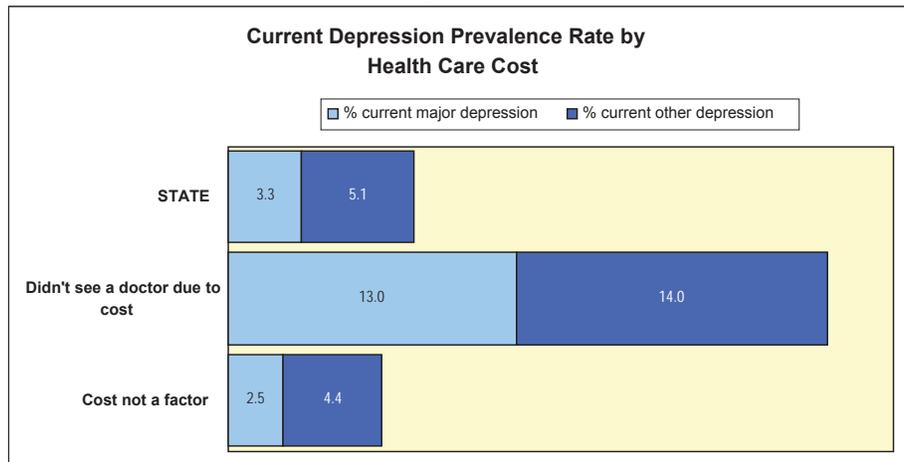
The ability to get access to needed care can have an impact on depressive states. To prevent the progression of depression, individuals suffering from it must have access to health care.

As was found in the previous section for rates of lifetime anxiety or lifetime depression, the rate of current depression among those with health insurance coverage is not significantly different from those who do not have health insurance coverage.<sup>23</sup> What is strongly associated with depression, however, is the failure to see a doctor because of cost.

#### Health Care Access Cost

The prevalence rate of current depression is nearly four times higher among those who were not able to see a doctor because of cost in the previous 12 months compared to those who were ( $p < .05$ ).

Figure 37



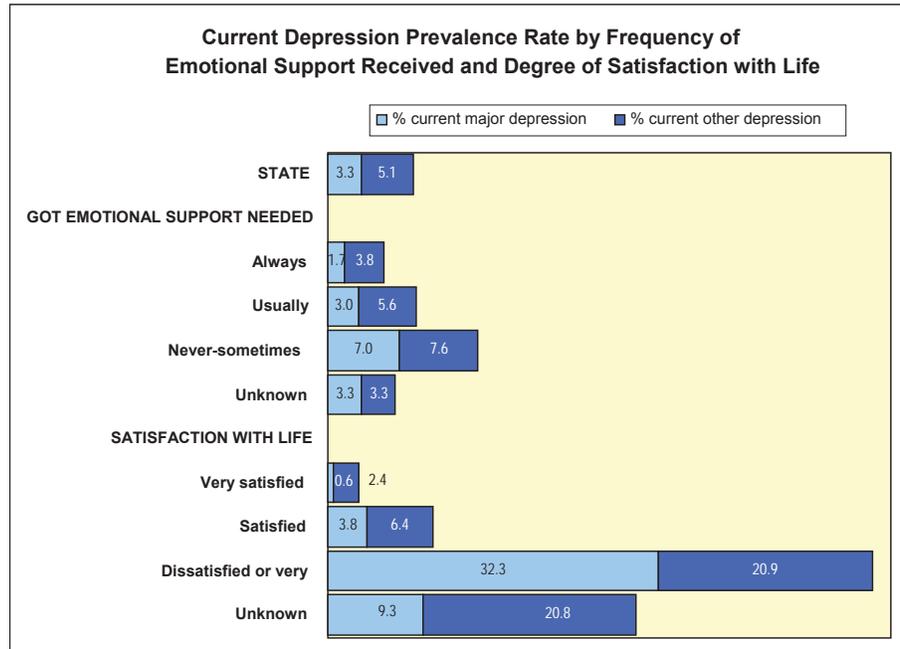
<sup>23</sup> A pairwise tabulation was run to test the difference in the prevalence rate for adults with and without health insurance.

### Social Support and Life Satisfaction

Social support and satisfaction with life affect one's outlook as well as health. The data show that both are strongly associated with current depression.

The current depression prevalence rate is lowest among adults who always have the emotional support they need and highest among adults who sometimes/rarely/never have emotional support. The current depression prevalence rate in adults that usually have emotional support is also significantly higher than those who always have emotional support ( $p < .05$ ). In brief, the current depression prevalence rate increases with declining frequency of emotional support.

Figure 38



The current depression prevalence rate is significantly higher among those dissatisfied or very dissatisfied with their lives than it is among those who are satisfied. In turn, the current depression prevalence rate is significantly higher among persons who are satisfied (but not very satisfied) with their lives than it is for persons who say they are very satisfied with their lives ( $p < .05$ ). In short, the current depression prevalence rate increases significantly with the degree of life dissatisfaction.

## **Summary, Discussion and Recommendations**

The lifetime prevalence rates of anxiety and depression are fairly close to each other (8.0% vs. 8.8%). Nearly 4% to 5% of adults were diagnosed to have both anxiety and depression disorders. The current depression prevalence rate estimate is very close to the lifetime depression prevalence (8.8% vs. 8.3%). Overall, the pattern for lifetime anxiety prevalence rate and the pattern for lifetime depression prevalence rate for the population subgroups examined are nearly identical. However, when the lifetime depression prevalence rate is compared with the current depression prevalence rate by age, gender and ethnicity, differences in patterns emerge.

**Lifetime Anxiety and Depression Prevalence** Adult residents who have experienced anxiety or depression in their lifetime (who have been told that they have an anxiety or a depressive condition) are most likely to have particular health conditions or be in specific life circumstances.

Socio-economic circumstances are related to lifetime anxiety and depression. Individuals with employment problems and low income are likely to experience lifetime anxiety and depression. An inability to work features the highest lifetime anxiety and depression prevalence rates for adults in the state. Adults with a college graduate degree features low prevalence rates for both anxiety and depression. This is as expected since education is associated with employment and income.

Some demographic characteristics are associated with lifetime anxiety and depression. Those in the 45-54 age range have the highest lifetime anxiety and depression prevalence rates for age groups. Whites report the highest lifetime prevalence rates for anxiety and depression, and women likewise report higher lifetime anxiety and depression than men. Being divorced, separated, or widowed and the only adult living in the household are also related to both anxiety and depression.

Among counties, however, Hawaii County has the highest lifetime anxiety prevalence rate while Kauai has the highest lifetime depression prevalence rate.

Health lifestyles or result of health lifestyles associated with both anxiety and depression prevalence include smoking and obesity, while having no leisure time physical activity during the previous 30 days was found to be related to depression but not to anxiety.

A chronic disease highly associated with both anxiety and depression is asthma. Health conditions that are highly associated with anxiety and depression are the experience of a heart attack, presence of disability indicated by activity limitations due to health and the need to use special equipment because of health. All these implied poor health. Thus, it is not surprising that the anxiety and depression prevalence rate among adults with perceived health reported as fair or poor health is significantly higher compared to adults who reported their health as good or better.

Adults who were unable to see a doctor within the previous 12 months have high lifetime anxiety and depression prevalence rates. The degree of satisfaction with life as well as the frequency of social and emotional support received when needed is strongly related to anxiety and depression, i.e., decreasing satisfaction with life and decreasing frequency of emotional support showed increasing lifetime anxiety and depression prevalence rates.

**Current Depression Prevalence** Current depression, as determined by a score of either major or other depression on the Provisional Depressive Disorder diagnosis (PDD) measure, is related to both lifetime anxiety and lifetime depression. Current depression is strongly associated with having been diagnosed with both anxiety and depression or with depression alone in the past. When comparing current with lifetime depression prevalence rates, some differences can be noted.

Adults who are unable to work or unemployed or live in a household with annual income of less than \$20,000 have high prevalence of both lifetime depression and current depression. Adults with a college graduate degree have low prevalence rates for both lifetime depression and current depression, which makes sense since educational attainment is related to both employment success and greater income.

The age group 45-54 years has the highest prevalence rate of lifetime depression and current depression. Persons living as the only adult in the household have both high lifetime anxiety and depression rates, as do those who are divorced, separated, or widowed. On the other hand, some characteristics show differences between current and lifetime depression prevalence rates. Adults of Hawaiian or Part Hawaiian ethnicity have the highest prevalence rate for current depression while Whites are the highest for lifetime depression. Women have a high prevalence rate of lifetime depression but not current depression.

In terms of health lifestyles or consequence of health lifestyles, smoking, obesity and having no leisure time physical activity in the previous 30 days exhibited strong association for both lifetime depression and current depression. Some behaviors feature is associated with current depression but not with lifetime depression, including frequency of seatbelt use (with sometimes or never use seatbelt showing higher current depression prevalence rate) and oral hygiene indicated by last visit to the dentist or absence of teeth.

Chronic diseases such as asthma and diabetes as well as having had heart attack and conditions of disabilities indicated by the need to use special equipment or by activity limitation due to health, and fair/poor health status are significantly associated with lifetime depression and current depression. Angina or coronary heart disease is significantly associated with current depression but not with lifetime depression.

Adults who were unable to see a doctor within the previous 12 months, dissatisfied or very dissatisfied with life in general or don't always get the emotional support needed are more likely to have both lifetime depression and current depression.

## **Discussion of Findings**

In comparing lifetime depression and current depression prevalence rates, the common pattern is that the lowest rate of depression is at age 65 or older. This is probably due in part to the fact that adults in this age group are select individuals who have survived the challenges of daily living. The higher lifetime depression prevalence rate for ages 45-54 and 55-64, in contrast to current depression prevalence rates for the same age groups, suggests that adults in this age range may have their depression under control or may have recovered from it. The higher prevalence of current depression at the young ages of 18-24 compared to the lifetime depression prevalence rate for this

older age range suggests that these young adults are not being diagnosed, in part because they are not as likely to have health insurance coverage. About 20% of 18-24 years old adults do not have health insurance coverage. In turn they are not as likely to access the health care system.

The literature indicates that women are more likely to suffer from depression than men. The lifetime prevalence rate of depression showed that women are diagnosed with depression twice as often as men. The absence of a significant gender difference in current depression prevalence rate estimates suggests that there may actually be no gender difference in depression. It is possible that men were not diagnosed because men are less likely to access the health care system than women. In addition, the PDD algorithm gives extra emphasis on the first two questions of the PHQ-8. An examination of those two questions, which measure depressed mood and anhedonia, reveals no gender difference (11.2% males compared to 11.3% females had symptoms for seven or more days in response to either one of the first two questions).

Hawaiians or Part Hawaiians have the highest prevalence rate among ethnic groups for current depression (12.7%), although Whites have the highest rate for lifetime depression prevalence. Persons of Hawaiian ancestry may have been less likely to come in contact with the health care system and thus less likely to be diagnosed with depression in the past, and as a result, may have a higher rate of undiagnosed lifetime depression than others. Those with lower socio-economic status generally make use of the health care system less frequently than others because of a lack of resources, and persons of Hawaiian background fit that profile.

In the figures in this report, the percent with depression is always higher for the group with a chronic disease or health condition.

Finally, a review of the results shows that there are 15 attributes that are common and significantly related to the adult prevalences investigated – lifetime anxiety, lifetime depression, and current depression.<sup>24</sup> These attributes are displayed in Figure 39 on the following page.

A common element in most of these attributes may be a level of frustration, which acts as a mediating factor in the anxiety or depression prevalence. Certainly dissatisfaction with one's life, the most important association with lifetime or current depression, is an expression of frustration. An inability to work, the second most important correlate in the study overall, as well as being unemployed represent a lack of control over economic circumstances which can be a major source of frustration, as can the inability to afford needed medical care coupled with living in a household of less than \$20,000 annual income. Low education is of course related to both low income and lack of employment opportunities.

Chronic diseases and health conditions that are included in this list (see Figure 39) typically entail restrictions on one's accustomed lifestyle and movement, in addition to the discomfort associated with the condition. Among them is disability indicated by the need to use special equipment and being limited in any way in activities because of physical, mental, or emotional problems. Certainly, having had a heart attack as well as suffering from the disease of asthma can be disabling and can

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<sup>24</sup> Since the data are cross-sectional rather than longitudinal it can't be said reliably that these are "causes" of anxiety or depression, but they are associated with them.

limit one's activity or physical movements. All these are connected to health status. Thus, it is not surprising that these health diseases and conditions together with reported fair/poor health were found to be strongly connected with lifetime anxiety, lifetime depression and current depression. Social factors such as the only adult in the household and lack of emotional support or perceived lack of emotional support are also associated with lifetime anxiety, lifetime depression and current depression.

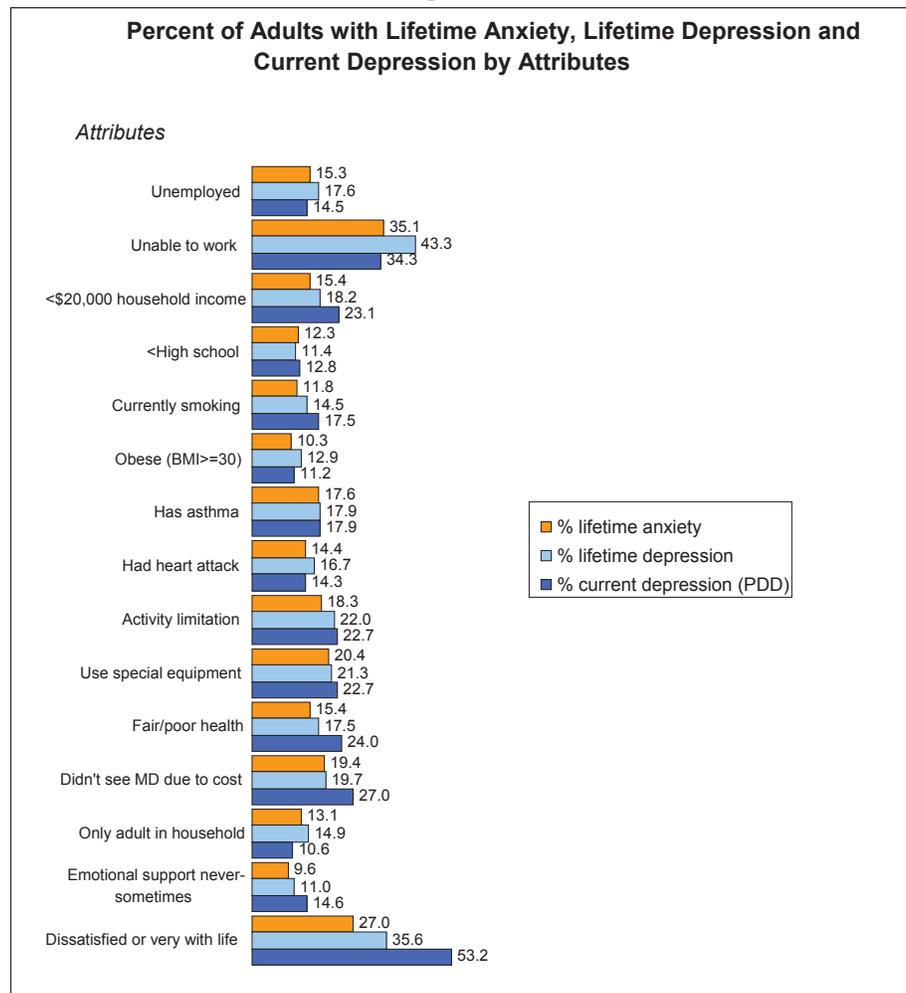
The only health-related behavior significantly related to all three prevalence measures is cigarette smoking, which is currently being addressed by media education campaigns.

Indicators of excessive alcohol consumption such as binge drinking and chronic drinking were not associated with current depression or lifetime depression. This may be attributed to several factors – it may be that alcohol consumption is under-reported in the state or there is the economic and legal restriction associated with alcohol consumption. Alcoholic drinks are more expensive than a pack of cigarettes. In addition, one is prohibited from driving when under the influence

of alcoholic drink. There is a fine or jail time when caught driving under the influence. Lack of leisure time physical activity is, however, significantly associated with both lifetime and current depression prevalence, although not anxiety. On the one hand, lack of leisure time physical activity may be a product of an inactive lifestyle initiated by depression. On the other hand, leisure time physical exercise is known to have a physiological impact, which can elevate mood.

Anxiety, depression, co-morbid conditions and other exacerbating factors may be experienced simultaneously by some individuals. The study showed that lifetime anxiety and lifetime depression and current depression have a number of economic characteristics, chronic diseases and health conditions, and circumstances in common. These in turn often involve economic or physical

Figure 39



limitations, which may engender frustration over a lack of control of one's fate and sometimes an inability to accomplish or do what used to be possible. Depression may arise from an inability to overcome these conditions, and anxiety can come from concern about outcomes that cannot be affected. Be that as it may, as noted earlier in this report the financial burden from adult anxiety and depression in the state could be close to \$400 million annually or may even actually exceed the \$400 million mark. Moreover, the human toll to the individual and his or her family is most likely beyond calculation for either of these afflictions.

## **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.

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## **Appendix 1**

### **Prevalence Measures**

Whether a person has been diagnosed with either anxiety or depression at any time in his or her life (lifetime prevalence) was determined by two questions in the Anxiety and Depression Module of the questionnaire:

- 9 Has a doctor or other healthcare provider EVER told you that you had an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?
- 10 Has a doctor or other healthcare provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?

The eight questions used to detect current levels of depression in the Hawaii BRFSS population were originally derived from the first eight questions in a depression scale for clinical applications called the PHQ-9.<sup>25</sup> This measure has been shown to have sensitivity and specificity equivalent to longer depression measures and is derived from the criteria on which the diagnosis of DSM-IV depressive disorders is based.<sup>26</sup> The eight questions in the resulting PHQ-8 contained in the Anxiety and Depression Module are listed below. The original wording for these eight questions in the PHQ-9 measure asked whether over the last two weeks the individual had been bothered not at all, several days, more than half the days, or nearly every day by any of these problems. For use in the BRFSS telephone survey number of days in the past two weeks was asked instead of the original categories.

- 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?

From this question set three different measures of current depression have been derived. The first two involved a scoring system. The number of days the respondent gives in answer to each question was converted into points, with 0-1 day = 0 points, 2-6 days = 1 point, 7-11 days = 2 points, and 12-

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<sup>25</sup> Kurt Kroenke, MD, and Robert L. Spitzer, MD. The PHQ-9: A New Depression Diagnostic and Severity Measure. *Psychiatric Annals* 32:9. September 2002.

<sup>26</sup> Kroenke and Spitzer, p. 1.

14 days = 3 points. For the five-point Depression severity scale, the number of points was totaled across the eight questions in order to determine the depressive symptoms severity score. If any of the eight questions was missing, a score was not calculated.

- 0-4 points = no depression
- 5-9 points = mild depression
- 10-14 points = moderate depression
- 15-19 points = moderately severe depression
- 20+ points = severe depression

The second measure, the dichotomous Depression severity scale, has total scores of < 10 points and => 10 points based on the same point system. This has sensitivity for major depression of 88% and a specificity of 88%.<sup>27</sup>

The third measure arising from the PHQ-8 questions, the Provisional Depressive Disorder diagnosis or PDD, consists of three categories:

- Major depressive disorder: Positive response (7+ days) to Question 1 or 2 AND Positive Response (7+ days) to a total of 5 or more questions
- Other depression: Positive response (7+ days) to Question 1 or 2 AND Positive response (7+ days) to between 2–4 questions
- No depression: Negative response (<7 days) to both questions 1 and 2 OR Positive response (7+ days) to fewer than 2 questions

If any of the eight questions was missing, a score was not calculated.

This analysis utilized the Provisional Depressive Disorder diagnosis (PDD) for two primary reasons: 1) The PDD gives more importance to the first two questions dealing with anhedonia and depression. 2) A tabulation of the point assignment used in the first two measures by the number of days of symptoms shows that respondents with fewer total days of symptoms can be assigned to a higher depression category on the five point or dichotomous scale, or vice versa, because the points assigned and the number of days of symptoms are not monotonically related.

Some respondents in the 2006 Hawaii BRFSS Survey did not answer all eight PHQ-8 questions and thus did not receive a Provisional Depressive Disorder diagnosis (PDD) score. As a result analyses based on PDD involved 5,840 cases, fewer than the total 2006 survey sample size of 6,564, causing projections of the total adult population to equal less than the estimated total number of adults. To produce appropriate population counts a different set of weights was calculated and used to ensure that accurate total population estimates would result from tabulation of the 5,840 sub-sample.

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<sup>27</sup>Kroenke and Spitzer, p. 2.

## Appendix 2

### Tables

#### *Notes*

Of the 6,564 respondents in the Hawaii BRFSS Survey 2006, a total of 5,840 completed the PHS-8 questions on anxiety and depression. These 5,840 respondent records were used in this study. A revised set of weights was calculated and employed to ensure that the data file using this sample subset produced appropriate estimates of the adult population in the state.

To estimate the total number of adults with lifetime anxiety or lifetime depression or current depression from the following tables multiply the prevalence rate by the adult population estimate in the last column and divide by 100. For example, to obtain an estimate of the number of adults in Hawaii County who were ever told they had anxiety:

- 1) Use Table A1
- 2) From the second column, i.e. the first column next to Hawaii County, multiply 10.6 by 121,873, the number from the last column which represent the estimated adult population for Hawaii County and divide by 100, providing an estimate of 12,919 adults with anxiety.

**Table A1: Lifetime Adult Anxiety\* Prevalence Rate by Selected Characteristics, HBRFSS 2006**

	% told had anxiety	95% Confidence Interval		Total sample	Est. adult population**
		Lower	Upper		
STATE	8.0	7.1	9.0	5,820	973,001
COUNTY					
Honolulu	7.4	6.3	8.6	2,664	697,085
Hawaii	10.6	8.7	12.8	1,251	121,873
Kauai	9.4	6.5	13.4	598	47,931
Maui	8.9	7.1	11.0	1,307	106,112
AGE GROUP					
18-24 Years	5.5	3.3	9.2	313	122,827
25-34 Years	9.2	6.7	12.5	716	162,056
35-44 Years	7.5	5.8	9.7	1,000	176,356
45-54 Years	10.6	8.6	12.9	1,331	187,575
55-64 Years	9.6	7.6	12.1	1,205	147,124
65+ Years	5.1	3.7	7.0	1,255	177,062
GENDER					
Male	6.2	5.0	7.6	2,472	481,042
Female	9.8	8.6	11.2	3,348	491,959
ETHNICITY					
Hawaiian	8.3	6.1	11.3	691	114,336
Filipino	6.7	4.6	9.7	641	143,692
Chinese	6.2	3.3	11.5	234	48,217
Japanese	5.2	3.7	7.2	1,137	213,240
White	10.8	9.2	12.6	2,538	332,049
Others	7.4	5.2	10.3	579	121,467
MARITAL STATUS					
Married	7.1	6.1	8.2	3,322	581,533
Divorced/Separated/Widowed	12.6	9.9	16.0	1,245	133,707
Never married	7.8	6.1	10.0	1,241	256,583
EDUCATION					
<High school	12.3	8.2	18.1	315	54,159
High school	7.8	6.1	9.9	1,500	278,026
Some college	10.3	8.5	12.5	1,673	281,568
College graduate	5.8	4.8	6.9	2,331	359,181
EMPLOYMENT					
Employed	6.6	5.6	7.7	3,672	632,967
Unemployed	15.3	9.5	23.8	150	33,707
Unable to work	35.1	27.4	43.7	236	29,671
Retired	7.0	5.4	9.0	1,374	187,363
Student	9.9	6.2	15.4	270	50,372
Homemaker	7.5	3.2	16.5	111	38,231
HOUSEHOLD INCOME					
<\$20,000	15.4	11.9	19.7	679	89,747
\$20,000-34,999	9.9	7.8	12.6	1,014	170,189
\$35,000-49,999	9.2	6.8	12.3	891	137,910
\$50,000-74,999	8.1	6.1	10.7	1,009	163,030
>=\$75,000	5.1	4.0	6.5	1,491	256,168
Unknown/Refused	5.4	3.5	8.2	736	155,957
WITH CHILDREN					
None	8.3	7.2	9.6	3,705	550,908
Yes	7.7	6.4	9.3	2,104	419,770

\*Ever diagnosed with an anxiety disorder

\*\*To estimate the total number of adults with lifetime anxiety for a population group, multiply the prevalence rate by the adult population estimate in the right-hand column and divide by 100.

**Table A1: Lifetime Adult Anxiety Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	% told had anxiety	95% Confidence Interval		Total sample	Est. adult population
		Lower	Upper		
<b>NUMBER OF ADULTS</b>					
One	13.1	11.3	15.2	1,488	111,585
Two	6.9	6.0	8.0	3,082	453,219
Three or more	7.8	6.2	9.8	1,250	408,197
<b>ROUTINE CHECKUP</b>					
Within 1 year	8.7	7.7	9.9	3,935	643,065
1 to <2 years ago	5.5	3.8	7.9	741	137,478
2 to <5 years ago	6.6	4.3	9.9	481	84,815
5+ years ago	8.4	5.0	13.7	544	87,178
Never	1.5	0.2	9.5	63	10,578
Unknown/refused	15.0	5.0	37.2	56	9,887
<b>LAST VISITED DENTIST FOR ANY REASON</b>					
< a year	7.9	6.8	9.0	4,339	713,566
1 < 2 years	6.8	4.9	9.5	611	110,347
2+ years, never, none	9.7	7.4	12.7	859	147,545
Unknown	6.0	0.8	34.6	11	1,542
<b>LAST VISITED FOR DENTAL CLEANING</b>					
< a year	7.1	6.1	8.2	4,134	688,023
1 < 2 years	9.0	6.5	12.3	592	104,122
2+ years, never clean	10.4	8.1	13.3	894	144,803
Did not visit, toothless	10.2	5.1	19.2	180	31,352
Unknown	36.5	12.3	70.3	20	4,702
<b>PRESENCE OF TEETH</b>					
Complete	6.9	5.8	8.1	3,117	567,010
1 -5 lost	9.8	8.0	11.9	1,798	277,846
6+ to all	10.1	7.5	13.4	774	108,711
Unknown	5.6	2.8	10.9	131	19,433
<b>SMOKING STATUS</b>					
Not smoking	7.2	6.3	8.3	4,809	806,020
Currently smoking	11.8	9.4	14.8	980	164,223
<b>ALCOHOL HEAVY DRINKER</b>					
Not heavy drinker	7.9	7.0	8.9	5,296	897,908
Heavy drinker	8.1	5.1	12.4	457	64,020
Unknown	15.0	6.5	31.1	67	11,073
<b>ALCOHOL BINGE DRINKER</b>					
Not binge drinker	8.0	7.0	9.0	4,855	786,960
Binge drinker	8.4	6.2	11.3	878	171,528
Unknown	7.6	2.8	19.0	87	14,513
<b>DRIVING UNDER THE INFLUENCE</b>					
Yes drove	9.6	5.1	17.4	173	34,097
No did not drive	7.5	6.4	8.9	2,838	460,484
Did not drink	8.4	7.1	9.9	2,791	475,739
Unknown	11.5	2.6	38.6	18	2,681
<b>SEATBELT USE</b>					
Nearly always	7.9	7.0	8.9	5,651	942,636
Sometimes-never	11.0	6.2	18.7	168	30,049
<b>LEISURE TIME ACTIVITY</b>					
With physical activity	7.5	6.6	8.6	4,819	795,654
No physical activity	10.3	8.1	12.9	999	177,165

**Table A1: Lifetime Adult Anxiety Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	% told had anxiety	95% Confidence Interval		Total sample	Est. adult population
		Lower	Upper		
<b>BODY MASS INDEX</b>					
Underweight (BMI<18.5)	5.7	2.8	11.2	152	24,929
Normal recommended (BMI<25)	6.7	5.5	8.1	2,444	399,881
Overweight (BMI<30)	8.3	6.8	10.0	1,992	340,280
Obese (BMI>=30)	10.3	8.2	12.9	1,119	189,706
Unknown	11.1	4.2	26.2	113	18,206
<b>ASTHMA STATUS</b>					
Still has asthma	17.6	13.5	22.7	480	78,576
Had asthma	12.0	8.1	17.3	364	71,343
No asthma	6.8	5.9	7.8	4,939	814,605
<b>DIABETES</b>					
With diabetes	10.9	7.7	15.3	494	78,249
No diabetes	7.8	6.9	8.8	5,321	893,735
<b>HAD HEART ATTACK</b>					
Yes	14.4	9.2	21.8	216	31,410
No	7.8	7.0	8.8	5,584	937,377
<b>HAD ANGINA/CORONARY</b>					
Yes	14.7	9.7	21.7	237	32,288
No	7.8	6.9	8.7	5,547	935,611
<b>TOLD HAD STROKE</b>					
Yes	9.0	5.7	13.9	175	26,080
No	7.9	7.0	8.9	5,636	945,428
<b>ACTIVITY LIMITATION</b>					
Yes	18.3	15.5	21.5	1,019	133,950
No	6.3	5.5	7.4	4,784	836,577
<b>USE SPECIAL EQUIPMENT</b>					
Yes	20.4	15.4	26.5	348	48,144
No	7.4	6.5	8.4	5,470	924,409
<b>PERCEIVED HEALTH</b>					
Good/better	6.8	5.9	7.8	4,951	836,645
Fair/poor	15.4	12.7	18.6	865	136,067
<b>GOT EMOTIONAL SUPPORT</b>					
Always	6.5	5.5	7.7	3,038	516,933
Usually	10.1	8.0	12.7	1,381	225,079
Never-sometimes	9.6	7.8	11.8	1,322	220,519
Unknown	5.3	2.3	12.1	79	10,469
<b>SATISFACTION WITH LIFE</b>					
Very satisfied	6.6	5.4	8.0	2,822	446,111
Satisfied	8.1	6.9	9.5	2,780	493,067
Dissatisfied or very	27.0	20.2	35.2	204	31,489
Unknown	10.5	2.6	34.2	14	2,334
<b>HEALTH CARE COVERAGE</b>					
Yes	8.1	7.2	9.1	5,366	891,504
No	7.3	4.9	10.6	441	78,330
<b>DIDN'T SEE MD DUE TO COST</b>					
Yes	19.4	14.5	25.4	399	67,918
No	7.2	6.3	8.1	5,416	904,238
<b>HAVE PERSONAL MD OR HCP</b>					
One	7.5	6.6	8.6	4,109	668,194
More than one	11.2	8.5	14.5	907	146,335
No	7.4	5.1	10.4	786	154,957
<b>SERVED ON ACTIVE DUTY</b>					
Yes	8.0	5.9	10.9	988	175,953
No	8.0	7.1	9.1	4,828	796,735

**Table A2: Lifetime Adult Depression\* Prevalence Rate by Selected Characteristics, HBRFSS 2006**

	% told had depression	95% Confidence Interval		Total sample	Est. adult population**
		Lower	Upper		
STATE	8.8	8.0	9.8	5,822	973,514
COUNTY					
Honolulu	8.1	7.0	9.3	2,667	697,803
Hawaii	11.6	9.7	13.8	1,251	121,770
Kauai	12.2	9.0	16.3	597	47,897
Maui	8.8	7.0	10.9	1,307	106,043
AGE GROUP					
18-24 Years	6.0	3.9	9.1	314	123,146
25-34 Years	8.8	6.6	11.6	714	161,700
35-44 Years	7.8	6.1	10.0	999	176,199
45-54 Years	13.2	11.0	15.8	1,334	187,954
55-64 Years	11.0	8.9	13.6	1,207	147,503
65+ Years	5.3	4.0	7.1	1,254	177,012
GENDER					
Male	5.7	4.6	7.0	2,473	481,344
Female	11.9	10.6	13.3	3,349	492,169
ETHNICITY					
Hawaiian	8.7	6.3	11.8	693	114,567
Filipino	4.7	3.0	7.4	642	143,808
Chinese	3.0	1.6	5.6	233	48,048
Japanese	5.4	3.8	7.4	1,136	213,305
White	14.4	12.8	16.2	2,539	332,270
Others	6.9	4.8	9.8	579	121,516
MARITAL STATUS					
Married	7.1	6.1	8.2	3,322	581,716
Divorced/Separated/Widowed	15.2	12.4	18.5	1,245	133,800
Never married	9.5	7.7	11.6	1,243	256,820
EDUCATION					
<High School	11.4	7.4	17.2	316	54,243
High School	7.4	6.0	9.2	1,495	277,503
Some College	11.6	9.7	13.8	1,677	282,511
College	7.3	6.3	8.6	2,333	359,190
EMPLOYMENT					
Employed	7.0	6.0	8.0	3,672	633,214
Unemployed	17.6	11.4	26.1	152	33,993
Unable to work	43.3	34.5	52.5	237	29,747
Retired	7.3	5.8	9.3	1,373	187,313
Student	14.0	10.0	19.3	270	50,325
Homemaker	5.5	2.6	11.0	111	38,231
HOUSEHOLD INCOME					
<\$20,000	18.2	14.4	22.7	680	90,036
\$20,000-34,999	11.2	8.8	14.1	1,016	170,180
\$35,000-49,999	9.3	7.3	11.8	892	138,057
\$50,000-74,999	7.7	6.0	9.9	1,011	163,533
>=\$75,000	6.4	5.1	8.0	1,489	256,032
Unknown/Refused	5.4	3.8	7.7	734	155,674
WITH CHILDREN					
None	9.9	8.7	11.3	3,709	551,690
Yes	7.4	6.2	8.8	2,102	419,500

\*Ever diagnosed with a depressive disorder

\*\*To estimate the total number of adults with lifetime depression for a population group, multiply the prevalence rate by the adult population estimate in the right-hand column and divide by 100.

**Table A2: Lifetime Adult Depression Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	% told had depression	95% Confidence Interval		Total sample	Est. adult population
		Lower	Upper		
<b>NUMBER OF ADULTS</b>					
One	14.9	13.0	17.1	1,490	111,743
Two	8.6	7.5	9.7	3,083	453,727
Three or more	7.4	5.9	9.3	1,249	408,044
<b>ROUTINE CHECKUP</b>					
Within 1 year	9.2	8.2	10.3	3,936	643,481
1 to <2 years ago	7.1	4.9	10.0	743	137,794
2 to <5 years ago	7.4	4.9	11.0	480	84,730
5+ years ago	10.6	7.1	15.4	543	86,968
Never	5.6	2.2	13.6	64	10,654
Unknown/refused	11.1	4.5	24.7	56	9,887
<b>LAST VISITED DENTIST FOR ANY REASON</b>					
< a year	8.7	7.7	9.8	4,343	714,273
1 < 2 years	8.6	6.2	11.7	612	110,679
2+ years, never, none	9.3	7.3	11.9	856	147,020
Unknown	17.3	2.5	63.6	11	1,542
<b>LAST VISITED FOR DENTAL CLEANING</b>					
< a year	8.0	7.0	9.0	4,135	688,493
1 < 2 years	10.1	7.5	13.5	594	104,609
2+ years, never clean	11.8	9.3	14.9	892	144,197
Did not visit, toothless	7.3	3.9	13.3	180	31,352
Unknown	23.1	5.8	59.4	21	4,862
<b>PRESENCE OF TEETH</b>					
Complete	7.7	6.7	8.9	3,119	567,483
1 -5 lost	10.5	8.8	12.6	1,797	277,734
6+ to all	11.2	8.4	14.6	777	109,117
Unknown	3.0	1.3	7.0	129	19,179
<b>SMOKING STATUS</b>					
Not smoking	7.7	6.8	8.6	4,813	806,732
Currently smoking	14.5	11.8	17.8	978	164,023
<b>ALCOHOL HEAVY DRINKER</b>					
Not heavy drinker	8.8	7.9	9.8	5,300	898,652
Heavy drinker	9.1	6.2	13.2	456	63,866
Unknown	9.6	3.5	23.3	66	10,995
<b>ALCOHOL BINGE DRINKER</b>					
Not binge drinker	8.9	7.9	9.9	4,857	787,579
Binge drinker	9.0	6.9	11.7	878	171,422
Unknown	4.1	1.6	9.9	87	14,513
<b>DRIVING UNDER THE INFLUENCE</b>					
Yes drove	10.9	6.1	18.6	173	34,030
No did not drive	9.5	8.2	10.9	2,842	461,140
Did not drink	8.1	6.9	9.4	2,789	475,663
Unknown	3.8	0.5	23.1	18	2,681
<b>SEATBELT USE</b>					
Nearly always	8.7	7.8	9.7	5,654	943,302
Sometimes-never	12.0	7.0	19.8	167	29,896
<b>LEISURE TIME ACTIVITY</b>					
With physical activity	7.7	6.8	8.7	4,820	795,944
No physical activity	13.6	11.1	16.6	1,000	177,388

**Table A2: Lifetime Adult Depression Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	% told had depression	95% Confidence Interval		Total sample	Est. adult population
		Lower	Upper		
<b>BODY MASS INDEX</b>					
Underweight (BMI<18.5)	12.9	7.2	21.9	151	24,799
Normal recommended (BMI<25)	7.2	6.1	8.5	2,447	400,016
Overweight (BMI<30)	8.1	6.7	9.8	1,990	340,251
Obese (BMI>=30)	12.9	10.6	15.7	1,121	190,242
Unknown	8.3	4.5	14.7	113	18,206
<b>ASTHMA STATUS</b>					
Still has asthma	17.9	13.9	22.6	480	78,576
Had asthma	16.7	12.4	22.1	365	71,661
No asthma	7.3	6.5	8.3	4,940	814,800
<b>DIABETES</b>					
With diabetes	12.3	8.9	16.8	494	78,249
No diabetes	8.5	7.6	9.5	5,323	894,247
<b>HAD HEART ATTACK</b>					
Yes	16.7	11.0	24.5	216	31,410
No	8.6	7.7	9.5	5,585	937,814
<b>HAD ANGINA/CORONARY</b>					
Yes	13.4	8.9	19.6	237	32,288
No	8.6	7.8	9.6	5,548	936,048
<b>TOLD HAD STROKE</b>					
Yes	13.4	7.8	21.9	175	26,080
No	8.6	7.8	9.6	5,638	945,940
<b>ACTIVITY LIMITATION</b>					
Yes	22.0	18.9	25.3	1,021	134,261
No	6.7	5.9	7.7	4,784	836,779
<b>USE SPECIAL EQUIPMENT</b>					
Yes	21.3	16.4	27.2	349	48,220
No	8.2	7.3	9.1	5,471	924,845
<b>PERCEIVED HEALTH</b>					
Good/better	7.4	6.5	8.4	4,951	836,877
Fair/poor	17.5	14.6	20.9	867	136,348
<b>GOT EMOTIONAL SUPPORT</b>					
Always	6.6	5.5	7.9	3,036	516,781
Usually	11.9	9.9	14.1	1,383	225,660
Never-sometimes	11.0	9.2	13.2	1,324	220,555
Unknown	6.3	2.7	14.0	79	10,518
<b>SATISFACTION WITH LIFE</b>					
Very satisfied	5.3	4.5	6.4	2,823	446,199
Satisfied	10.3	8.9	11.8	2,779	493,368
Dissatisfied or very	35.6	27.3	44.9	205	31,565
Unknown	4.0	0.9	16.6	15	2,381
<b>HEALTH CARE COVERAGE</b>					
Yes	8.5	7.6	9.4	5,372	892,483
No	12.9	8.8	18.4	438	78,017
<b>DIDN'T SEE MD DUE TO COST</b>					
Yes	19.7	15.1	25.3	403	68,605
No	8.0	7.1	8.9	5,414	904,064
<b>HAVE PERSONAL MD OR HCP</b>					
One	9.0	7.9	10.1	4,108	668,263
More than one	10.0	7.8	12.8	910	146,777
No	7.0	5.2	9.4	786	155,065
<b>SERVED ON ACTIVE DUTY</b>					
Yes	7.1	5.3	9.5	987	175,851
No	9.2	8.2	10.3	4,831	797,350

**Table A3: Current Adult Depression\* Prevalence Rate by Selected Characteristics, HBRFSS 2006**

	Major depression			Other depression			Major or other depression (combined)			Total sample	Est. adult pop.**
	%	95% Confidence Interval		%	95% Confidence Interval		%	95% Confidence Interval			
		Lower	Upper		Lower	Upper		Lower	Upper		
STATE	3.3	2.7	3.9	5.1	4.3	5.9	8.3	7.4	9.3	5,840	976,549
COUNTY											
Honolulu	3.0	2.3	3.8	4.6	3.7	5.6	7.5	6.4	8.8	2,675	699,911
Hawaii	4.5	3.4	6.0	6.7	5.0	8.9	11.3	9.2	13.7	1,255	122,259
Kauai	3.9	2.5	6.0	6.3	3.8	10.3	10.2	7.2	14.3	598	47,931
Maui	3.4	2.3	5.0	5.8	4.2	7.9	9.2	7.2	11.7	1,312	106,449
AGE GROUP											
18-24 Years	2.7	1.0	6.6	6.8	4.4	10.4	9.4	6.3	13.9	316	123,686
25-34 Years	4.1	2.7	6.3	4.8	3.2	7.0	8.9	6.7	11.8	717	162,217
35-44 Years	3.1	2.0	4.7	6.4	4.8	8.5	9.5	7.4	11.9	1,006	177,610
45-54 Years	4.7	3.5	6.3	4.9	3.4	7.0	9.6	7.7	12.0	1,336	188,208
55-64 Years	2.8	1.9	4.0	5.3	3.6	7.6	8.0	6.1	10.5	1,208	147,507
65+ Years	1.9	1.1	3.3	2.7	1.8	4.1	4.6	3.3	6.4	1,257	177,321
GENDER											
Male	2.8	2.0	3.9	4.8	3.8	6.1	7.6	6.3	9.2	2,478	482,188
Female	3.7	2.9	4.6	5.3	4.4	6.4	9.0	7.8	10.4	3,362	494,361
ETHNICITY											
Hawaiian	4.5	2.9	6.8	8.2	5.6	11.7	12.7	9.6	16.5	694	114,630
Filipino	3.2	1.9	5.3	5.6	3.6	8.5	8.8	6.3	12.1	646	144,136
Chinese	1.1	0.3	3.4	3.9	1.9	7.9	5.0	2.7	9.1	235	48,301
Japanese	1.9	1.2	3.1	3.7	2.6	5.4	5.6	4.2	7.5	1,140	213,972
White	3.9	2.9	5.1	4.6	3.6	5.9	8.5	7.1	10.1	2,542	332,534
Others	3.7	2.1	6.4	5.5	3.5	8.4	9.2	6.5	12.8	583	122,976
MARITAL STATUS											
Married	2.8	2.2	3.7	3.7	3.0	4.7	6.6	5.5	7.8	3,332	584,099
Div/Sep/Widowed	4.3	3.1	6.0	6.9	4.8	9.7	11.2	8.8	14.2	1,250	134,008
Never married	3.7	2.6	5.2	7.1	5.5	9.2	10.8	8.8	13.3	1,246	257,264
EDUCATION											
<High School	6.1	3.7	10.0	6.7	4.1	10.9	12.8	9.0	18.0	318	54,400
High School	4.4	3.2	5.9	8.5	6.7	10.8	12.9	10.7	15.5	1,505	279,515
Some College	4.3	3.1	5.9	4.8	3.7	6.3	9.1	7.4	11.1	1,679	282,752
College graduate	1.1	0.8	1.7	2.3	1.7	3.2	3.4	2.7	4.4	2,337	359,815
EMPLOYMENT											
Employed	2.2	1.6	3.1	4.9	4.0	6.0	7.1	6.0	8.4	3,683	635,189
Unemployed	7.3	4.1	12.8	7.2	3.7	13.7	14.5	9.3	22.0	152	33,993
Unable to work	22.5	16.4	30.0	11.9	7.5	18.2	34.3	26.8	42.8	238	29,751
Retired	2.2	1.4	3.5	3.0	2.1	4.4	5.3	3.9	7.0	1,376	187,622
Student	6.2	3.6	10.5	7.9	4.4	13.6	14.1	9.5	20.3	272	51,010
Homemaker	2.6	0.9	7.6	6.8	3.2	14.0	9.4	5.0	17.0	112	38,294
HOUSEHOLD INCOME											
<\$20,000	11.5	8.5	15.5	11.6	8.6	15.4	23.1	18.9	27.9	682	90,349
\$20,000-34,999	4.4	3.0	6.2	5.6	4.0	7.9	10.0	7.8	12.7	1,023	171,521
\$35,000-49,999	1.6	0.9	2.7	4.4	2.9	6.8	6.0	4.2	8.4	893	138,226
\$50,000-74,999	1.4	0.8	2.6	3.1	2.1	4.6	4.6	3.3	6.3	1,012	163,618
>=\$75,000	1.2	0.7	1.9	3.3	2.3	4.9	4.5	3.3	6.1	1,492	256,396
Unknown/Refused	4.1	2.4	6.8	6.1	4.1	8.9	10.1	7.4	13.7	738	156,438
NUMBER OF ADULTS											
One	5.2	4.1	6.7	5.3	4.1	6.9	10.6	8.9	12.5	1,495	112,071
Two	2.7	2.1	3.4	4.3	3.6	5.2	7.0	6.0	8.1	3,092	455,118
Three or more	3.4	2.3	4.8	5.8	4.4	7.5	9.2	7.4	11.2	1,253	409,360

\*Provisional Depressive Disorder diagnosis (PDD)

\*\*To estimate the total number of adults with current depression for a population group, multiply the prevalence rate by the adult population estimate in the right-hand column and divide by 100.

**Table A3: Current Adult Depression Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	Major depression		Other depression		Major or other depression (combined)			Total sample	Est. adult population	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval				
		Lower Upper		Lower Upper		Lower Upper				
<b>ROUTINE CHECKUP</b>										
Within 1 year	3.3	2.7 4.2	4.5	3.8 5.5	7.9	6.8 9.1	3,948	645,499		
1 to <2 years ago	2.9	1.7 4.9	6.0	3.9 9.1	8.9	6.3 12.3	747	138,517		
2 to <5 years ago	2.6	1.4 4.8	5.0	3.1 7.9	7.5	5.2 10.9	481	84,815		
5+ years ago	3.7	2.2 6.4	7.4	4.6 11.6	11.1	7.8 15.6	544	87,178		
Never	3.2	1.0 9.6	9.0	2.7 25.8	12.1	4.7 28.0	64	10,654		
Unknown/refused	3.9	1.0 14.3	2.1	0.4 10.8	6.0	2.0 16.5	56	9,887		
<b>LAST VISITED DENTIST FOR ANY REASON</b>										
< a year	2.8	2.2 3.6	4.0	3.3 4.9	6.9	5.9 8.0	4,356	716,618		
1 < 2 years	3.7	2.2 6.0	5.4	3.7 7.9	9.1	6.7 12.2	613	110,683		
2+ years, never, none	5.0	3.5 7.1	9.8	7.3 13.1	14.8	11.8 18.4	860	147,706		
Unknown	0.0		0.0		0.0		11	1,542		
<b>LAST VISITED FOR DENTAL CLEANING</b>										
< a year	2.6	2.0 3.4	3.8	3.1 4.7	6.4	5.5 7.5	4,148	690,839		
1 < 2 years	4.6	2.8 7.5	6.2	4.2 9.2	10.8	7.9 14.5	594	104,609		
2+ years, never clean	5.2	3.8 7.1	10.3	7.7 13.6	15.5	12.5 19.0	896	144,883		
Did not visit, toothless	3.6	1.5 8.4	5.4	2.6 11.0	9.0	5.2 15.4	181	31,356		
Unknown	1.7	0.2 12.1	3.3	0.4 21.0	5.0	1.1 20.4	21	4,862		
<b>PRESENCE OF TEETH</b>										
Complete	2.9	2.2 3.9	4.7	3.8 5.8	7.6	6.4 9.0	3,126	568,399		
1 -5 lost	3.3	2.4 4.5	5.4	4.1 7.0	8.7	7.1 10.6	1,803	279,111		
6+ to all	5.0	3.6 7.1	6.8	4.6 10.0	11.9	9.1 15.3	779	109,129		
Unknown	1.3	0.4 4.3	1.4	0.4 4.9	2.6	1.1 6.4	132	19,910		
<b>SMOKING STATUS</b>										
Not smoking	2.4	1.9 3.0	4.1	3.4 4.9	6.4	5.6 7.4	4,825	808,074		
Currently smoking	7.5	5.7 9.9	10.0	7.6 13.0	17.5	14.5 21.0	983	165,239		
<b>ALCOHOL HEAVY DRINKER</b>										
Not heavy drinker	3.2	2.6 3.9	5.0	4.3 5.9	8.2	7.2 9.2	5,316	901,457		
Heavy drinker	4.5	2.6 7.7	6.1	3.7 9.8	10.5	7.3 14.9	457	64,020		
Unknown	3.5	1.0 11.8	3.3	1.0 10.0	6.8	2.8 15.4	67	11,073		
<b>ALCOHOL BINGE DRINKER</b>										
Not binge drinker	3.1	2.5 3.7	5.1	4.3 6.0	8.1	7.2 9.2	4,873	790,251		
Binge drinker	4.2	2.6 6.8	5.0	3.3 7.5	9.2	6.7 12.4	880	171,785		
Unknown	3.0	1.0 9.2	5.6	2.3 13.1	8.7	4.3 16.8	87	14,513		
<b>DRIVING UNDER THE INFLUENCE</b>										
Yes drove	7.2	3.4 14.5	5.0	1.7 13.9	12.1	6.6 21.3	174	34,183		
No did not drive	2.7	2.0 3.7	4.5	3.6 5.7	7.3	6.0 8.7	2,846	461,546		
Did not drink	3.5	2.8 4.4	5.5	4.5 6.8	9.0	7.8 10.5	2,802	478,140		
Unknown	1.8	0.2 12.3	7.9	1.2 37.4	9.7	2.0 36.1	18	2,681		
<b>SEATBELT USE</b>										
Nearly always	3.0	2.5 3.7	5.1	4.3 5.9	8.1	7.2 9.1	5,671	946,184		
Sometimes-never	10.6	5.7 19.0	5.2	2.6 10.3	15.8	9.8 24.5	168	30,049		
<b>LEISURE TIME ACTIVITY</b>										
With physical activity	2.2	1.7 2.8	4.2	3.5 5.0	6.4	5.5 7.4	4,831	797,223		
No physical activity	7.9	6.0 10.4	9.0	6.9 11.8	17.0	14.1 20.3	1,007	179,144		
<b>BODY MASS INDEX</b>										
Underweight (BMI<18.5)	3.2	1.2 7.9	7.4	3.0 17.1	10.6	5.4 19.9	152	24,929		
Normal recommend (BMI<25)	2.5	1.8 3.6	4.9	3.9 6.2	7.5	6.1 9.1	2,452	400,548		
Overweight (BMI<30)	3.4	2.5 4.5	4.5	3.4 5.9	7.8	6.4 9.5	1,998	341,368		
Obese (BMI>=30)	4.7	3.3 6.5	6.5	4.8 8.7	11.2	9.0 13.9	1,124	191,494		
Unknown	2.3	0.8 6.5	0.5	0.1 3.8	2.8	1.1 7.1	114	18,210		

**Table A3: Current Adult Depression Prevalence Rate by Selected Characteristics, HBRFSS 2006 (continued)**

	Major depression			Other depression			Major or other depression (combined)			Total sample	Est. adult population
	%	95% Confidence Interval		%	95% Confidence Interval		%	95% Confidence Interval			
		Lower	Upper		Lower	Upper		Lower	Upper		
<b>ASTHMA STATUS</b>											
Still has asthma	7.4	5.0	10.9	10.4	7.2	14.9	17.9	13.7	22.9	482	78,787
Had asthma	3.0	1.7	5.2	5.5	3.2	9.2	8.5	5.7	12.4	366	72,138
No asthma	2.7	2.2	3.3	4.5	3.8	5.4	7.2	6.3	8.3	4,955	817,147
<b>DIABETES</b>											
With diabetes	6.6	4.2	10.2	6.1	3.8	9.9	12.7	9.2	17.3	495	78,726
No diabetes	3.0	2.4	3.6	5.0	4.2	5.8	7.9	7.0	9.0	5,340	896,805
<b>TOLD HAD HEART ATTACK</b>											
Yes	7.3	4.3	12.0	7.0	3.5	13.7	14.3	9.4	21.3	216	31,410
No	3.1	2.6	3.8	4.9	4.2	5.8	8.1	7.1	9.1	5,602	940,845
<b>TOLD HAD ANGINA/CORONARY HEART DISEASE</b>											
Yes	10.9	6.1	18.9	6.6	3.7	11.7	17.6	11.6	25.7	237	32,288
No	3.0	2.4	3.6	5.0	4.3	5.9	8.0	7.1	9.0	5,566	939,083
<b>TOLD WITH ANXIETY/DEPRESSION</b>											
Anxiety only	7.7	3.9	14.6	4.7	2.9	7.7	12.4	7.9	19.1	226	34,951
Anxiety & depression	23.1	17.9	29.3	14.0	9.4	20.1	37.1	30.3	44.4	331	43,125
Depression only	8.5	5.4	13.0	11.2	7.1	17.5	19.7	14.4	26.4	314	42,717
Not told	1.7	1.3	2.4	4.3	3.6	5.2	6.1	5.2	7.1	4,957	853,406
Unknown	30.9	6.4	74.6	0.0			30.9	6.4	74.6	12	2,350
<b>ACTIVITY LIMITATION</b>											
Yes	11.5	9.2	14.2	11.2	8.8	14.1	22.7	19.5	26.2	1,026	135,233
No	1.9	1.4	2.6	4.0	3.3	4.9	5.9	5.1	7.0	4,797	838,843
<b>USE SPECIAL EQUIPMENT</b>											
Yes	11.1	7.5	16.3	11.6	7.3	17.8	22.7	17.1	29.5	349	48,220
No	2.8	2.3	3.5	4.7	4.0	5.5	7.5	6.6	8.5	5,489	927,881
<b>PERCEIVED HEALTH</b>											
Good/better	2.0	1.5	2.6	3.7	3.1	4.5	5.7	4.9	6.7	4,967	839,282
Fair/poor	10.9	8.6	13.8	13.1	10.2	16.5	24.0	20.4	28.0	869	136,978
<b>GOT EMOTIONAL SUPPORT NEEDED</b>											
Always	1.7	1.1	2.6	3.8	3.0	4.7	5.5	4.5	6.7	3,042	517,786
Usually	3.0	2.1	4.4	5.6	4.0	7.7	8.6	6.8	10.9	1,385	225,798
Never-sometimes	7.0	5.5	8.9	7.6	5.9	9.8	14.6	12.3	17.3	1,332	222,289
Unknown	3.3	0.9	11.4	3.3	1.1	9.1	6.6	2.8	14.6	81	10,675
<b>SATISFACTION WITH LIFE</b>											
Very satisfied	0.6	0.3	1.0	2.4	1.7	3.3	2.9	2.2	3.9	2,829	446,978
Satisfied	3.8	2.9	4.9	6.4	5.3	7.7	10.2	8.8	11.8	2,790	495,620
Dissatisfied or very	32.3	24.5	41.2	20.9	13.9	30.1	53.2	43.2	62.9	205	31,565
Unknown	9.3	1.3	44.4	20.8	4.3	60.9	30.1	9.2	64.8	16	2,385
<b>HEALTH CARE COVERAGE</b>											
Yes	3.1	2.5	3.8	4.8	4.1	5.6	7.9	7.0	8.9	5,384	894,846
No	4.8	2.9	7.8	7.3	4.2	12.3	12.1	8.3	17.3	443	78,535
<b>DIDN'T SEE MD DUE TO COST</b>											
Yes	13.0	9.2	18.1	14.0	9.7	19.7	27.0	21.3	33.5	404	68,609
No	2.5	2.0	3.1	4.4	3.7	5.2	6.8	6.0	7.8	5,431	907,095
<b>HAVE PERSONAL MD OR HC</b>											
One	3.0	2.4	3.8	5.2	4.4	6.2	8.2	7.2	9.4	4,121	670,694
More than one	5.4	3.7	7.7	4.7	3.1	7.2	10.1	7.7	13.1	913	147,018
No	2.3	1.3	4.0	4.1	2.6	6.4	6.4	4.5	9.0	787	155,275
<b>SERVED ON ACTIVE DUTY</b>											
Yes	2.8	1.8	4.5	2.7	1.7	4.2	5.5	4.0	7.5	990	176,388
No	3.4	2.7	4.1	5.6	4.7	6.6	8.9	7.9	10.1	4,846	799,848

## Appendix 3

### 2006 Hawaii BRFSS Survey Questions Relevant to the Analysis

How many members of your household, including yourself, are 18 years of age or older?

— Number of adults

1.1 Would you say that in general your health is—

**Please read:**

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair

**Or**

- 5 Poor

**Do not read:**

- 7 Don't know / Not sure
- 9 Refused

3.1 Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

3.2 Do you have one person you think of as your personal doctor or health care provider?

**If "No," ask: "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?"**

- 1 Yes, only one
- 2 More than one
- 3 No
- 7 Don't know / Not sure
- 9 Refused

3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**4.1** During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**5.1** Have you ever been told by a doctor that you have diabetes?  
**If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"**  
**If respondent says pre-diabetes or borderline diabetes, use response code 4.**

- 1 Yes
- 2 Yes, but female told only during pregnancy
- 3 No
- 4 No, pre-diabetes or borderline diabetes
- 7 Don't know / Not sure
- 9 Refused

**6.1** How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists.

**Read only if necessary:**

- 1 Within the past year (anytime less than 12 months ago)
- 2 Within the past 2 years (1 year but less than 2 years ago)
- 3 Within the past 5 years (2 years but less than 5 years ago)
- 4 5 or more years ago

**Do not read:**

- 7 Don't know / Not sure
- 8 Never
- 9 Refused

**6.2** How many of your permanent teeth have been removed because of tooth decay or gum disease? Include teeth lost to infection, but do not include teeth lost for other reasons, such as injury or orthodontics.

**NOTE: If wisdom teeth are removed because of tooth decay or gum disease, they should be included in the count for lost teeth.**

- 1 1 to 5
- 2 6 or more but not all
- 3 All
- 8 None
- 7 Don't know / Not sure
- 9 Refused

**6.3** How long has it been since you had your teeth cleaned by a dentist or dental hygienist?

**Read only if necessary:**

- 1 Within the past year (anytime less than 12 months ago)
- 2 Within the past 2 years (1 year but less than 2 years ago)
- 3 Within the past 5 years (2 years but less than 5 years ago)
- 4 5 or more years ago

**Do not read:**

- 7 Don't know / Not sure
- 8 Never
- 9 Refused

Has a doctor, nurse, or other health professional EVER told you that you had any of the following? For each, tell me "Yes", "No", or you're "Not sure."

**7.1** (Ever told) you had a heart attack, also called a myocardial infarction?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**7.2** (Ever told) you had angina or coronary heart disease?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**7.3** (Ever told) you had a stroke?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**8.1** Have you ever been told by a doctor, nurse, or other health professional that you had asthma?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**8.2** Do you still have asthma?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**9.1** Are you limited in any way in any activities because of physical, mental, or emotional problems?

- 1 Yes
- 2 No
- 7 Don't know / Not Sure
- 9 Refused

**9.2** Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?

**Include occasional use or use in certain circumstances.**

- 1 Yes
- 2 No
- 7 Don't know / Not Sure
- 9 Refused

**10.1** Have you smoked at least 100 cigarettes in your entire life?

**NOTE: 5 packs = 100 cigarettes**

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**10.2** Do you now smoke cigarettes every day, some days, or not at all?

- 1 Every day
- 2 Some days
- 3 Not at all
- 7 Don't know/Not sure
- 9 Refused

**11.1** What is your age?

- Code age in years
- 0 7 Don't know / Not sure
- 0 9 Refused

**11.5** Are you...?

**Please read:**

- 1 Married
- 2 Divorced
- 3 Widowed
- 4 Separated
- 5 Never married

**Or**

- 6 A member of an unmarried couple

**Do not read:**

- 9 Refused

**11.6** How many children less than 18 years of age live in your household?

- \_\_ Number of children
- 8 8 None
- 9 9 Refused

**11.7** What is the highest grade or year of school you completed?

**Read only if necessary:**

- 1 Never attended school or only attended kindergarten
- 2 Grades 1 through 8 (Elementary)
- 3 Grades 9 through 11 (Some high school)
- 4 Grade 12 or GED (High school graduate)
- 5 College 1 year to 3 years (Some college or technical school)
- 6 College 4 years or more (College graduate)

**Do not read:**

- 9 Refused

**11.8** Are you currently...?

**Please read:**

- 1 Employed for wages
- 2 Self-employed
- 3 Out of work for more than 1 year
- 4 Out of work for less than 1 year
- 5 A Homemaker
- 6 A Student
- 7 Retired

**Or**

- 8 Unable to work

**Do not read:**

- 9 Refused

**11.9** Is your annual household income from all sources—  
**If respondent refuses at ANY income level, code '99' (Refused)**

**Read only if necessary:**

- 04 Less than \$25,000 **If "no," ask 05; if "yes," ask 03**  
(\$20,000 to less than \$25,000)
- 03 Less than \$20,000 **If "no," code 04; if "yes," ask 02**  
(\$15,000 to less than \$20,000)
- 02 Less than \$15,000 **If "no," code 03; if "yes," ask 01**  
(\$10,000 to less than \$15,000)
- 01 Less than \$10,000 **If "no," code 02**
- 05 Less than \$35,000 **If "no," ask 06**  
(\$25,000 to less than \$35,000)
- 06 Less than \$50,000 **If "no," ask 07**  
(\$35,000 to less than \$50,000)
- 07 Less than \$75,000 **If "no," code 08**  
(\$50,000 to less than \$75,000)
- 08 \$75,000 or more

**Do not read:**

- 77 Don't know / Not sure
- 99 Refused

**11.10** About how much do you weigh without shoes?  
**Note: If respondent answers in metrics, put "9" in column 116.**

**Round fractions up**

\_\_\_\_ Weight  
(pounds/kilograms)  
7 7 7 7 Don't know / Not sure  
9 9 9 9 Refused

**11.11** About how tall are you without shoes?

**Note: If respondent answers in metrics, put "9" in column 120.**

**Round fractions down**

\_\_ / \_\_ Height  
(ft / inches/meters/centimeters)  
7 7 7 7 Don't know / Not sure  
9 9 9 9 Refused

**11.17** **Indicate sex of respondent. Ask only if necessary.**

1 Male  
2 Female

**12.1** Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?

1 Yes  
2 No  
7 Don't know / Not sure  
9 Refused

**13.1** During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?

1 Yes  
2 No [Go to next section]  
7 Don't know / Not sure [Go to next section]  
9 Refused [Go to next section]

**13.2** During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?

1 \_\_\_ Days per week  
2 \_\_\_ Days in past 30 days  
8 8 8 No drinks in past 30 days [Go to next section]  
7 7 7 Don't know / Not sure  
9 9 9 Refused

**13.3** One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on the average?

\_\_ Number of drinks  
7 7 Don't know / Not sure  
9 9 Refused

**13.4** Considering all types of alcoholic beverages, how many times during the past 30 days did you have X [CATI X = 5 for men, X = 4 for women] or more drinks on an occasion?

— — Number of times  
8 8 None  
7 7 Don't know / Not sure  
9 9 Refused

**13.5** During the past 30 days, what is the largest number of drinks you had on any occasion?

— — Number of drinks  
7 7 Don't know / Not sure  
9 9 Refused

**16.1** How often do you use seat belts when you drive or ride in a car? Would you say—

**Please read:**

1 Always  
2 Nearly always  
3 Sometimes  
4 Seldom  
5 Never

**Do not read:**

7 Don't know / Not sure  
8 Never drive or ride in a car  
9 Refused

**17.1** During the past 30 days, how many times have you driven when you've had perhaps too much to drink?

— — Number of times  
8 8 None  
7 7 Don't know / Not sure  
9 9 Refused

**22.1** How often do you get the social and emotional support you need?

**INTERVIEWER NOTE: If asked, say "please include support from any source".**

**Please read:**

1 Always  
2 Usually  
3 Sometimes  
4 Rarely  
5 Never

**Do not read:**

7 Don't know / Not sure  
9 Refused

**22.2** In general, how satisfied are you with your life?

**Please read:**

- 1 Very satisfied
- 2 Satisfied
- 3 Dissatisfied
- 4 Very dissatisfied

**Do not read:**

- 7 Don't know / Not sure
- 9 Refused

Now, I am going to ask you some questions about your mood. When answering these questions, please think about how many days each of the following has occurred in the past 2 weeks.

**1.** Over the last 2 weeks, how many days have you had little interest or pleasure in doing things?

- 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

**2.** Over the last 2 weeks, how many days have you felt down, depressed or hopeless?

- 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

**3.** Over the last 2 weeks, how many days have you had trouble falling asleep or staying asleep or sleeping too much?

- 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

**4.** Over the last 2 weeks, how many days have you felt tired or had little energy?

- 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

**5.** Over the last 2 weeks, how many days have you had a poor appetite or ate too much?

- 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

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?

- \_\_ 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

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?

- \_\_ 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

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?

- \_\_ 01-14 days
- 8 8 None
- 7 7 Don't know / Not sure
- 9 9 Refused

9. Has a doctor or other healthcare provider EVER told you that you had an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

10. Has a doctor or other healthcare provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

**SAQ5.** Which one of these groups would you say best represents your ethnicity?

- 1 Caucasian (includes European, German, Irish, Italian, English)
  - 2 Hawaiian
  - 3 Chinese
  - 4 Filipino
  - 5 Japanese
  - 6 Korean
  - 7 Samoan
  - 8 Black
  - 9 American Indian/ Alaska Native/ Eskimo/ Inuit
  - 10 Vietnamese
  - 11 Asian Indian
  - 12 Portuguese
  - 13 Guamanian/Chamorro
  - 14 Puerto Rican
  - 15 Mexican
  - 16 Tongan
  - 17 Laotian
  - 18 Cambodian
  - 19 Malaysian
  - 20 Fijian
  - 21 Micronesian
  - 22 Other Asian (specify)
  - 23 Other (specify)
- Do not read**
- 24 Don't know/ Not sure
  - 25 Refuse
  - 26 No additional choices

## **Prevalence of Anxiety and Depression Among Hawaii's Adult Derived from HBRFSS 2006**

This publication is available on the World Wide Web at the Hawaii Behavioral Risk Factor Surveillance System site <http://www.hawaii.gov/health/statistics/brfss/index.html>.

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