

DEPRESSION AND ANXIETY STATUS IN KANSAS

2010 Behavioral Risk Factor Surveillance System

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Depression and Anxiety Status in Kansas 2010

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The Depression and Anxiety Status in Kansas is available in its entirety at <http://www.kdheks.gov/brfss/publications.html>. Visit the site to request or download additional copies of the report.

Kansas Department of Health and Environment (KDHE)

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To protect and improve the health and environment of all Kansans

Vision

Healthy Kansans living in safe and sustainable environments

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Executive Summary

Depression and anxiety are considered leading causes of mental health disorders. They are associated with increased risk of morbidity, mortality and poor quality of life. Healthy People 2010 and its corollary Healthy Kansans 2010 plans provide objectives and indicators related to disease prevention and health promotion. Both plans recognize mental health as one of the major public health concerns and include it as one of the ten leading health indicators to monitor population health.

KDHE collected and analyzed data on depression and anxiety utilizing the 2010 Kansas Behavioral Risk Factor Surveillance System (BRFSS). This report provides comprehensive review of the status of depression and anxiety among Kansas residents. The Kansas Behavioral Risk Factor Surveillance System Survey is an ongoing population-based telephone survey of non-institutionalized adults aged 18 years and older. Better understanding of the burden of depression and anxiety will assist KDHE and key stakeholders in identifying gaps and developing effective and targeted preventive services for mental illnesses.

Survey results indicate that, in Kansas, an estimated 312,548 (14.7%) adults aged 18 years and older have ever been diagnosed with depression and nearly 161,590 (7.6%) are currently depressed. Similarly, an estimated 218,996 (10.3%) adult Kansans aged 18 years and older have ever been diagnosed with anxiety.

One of the objectives addressing mental health issues recommended by Healthy People 2010 is to increase the proportion of adults with recognized depression who receive treatment. Before 2008, data on treatment among Kansans with depression were not available. This information was collected for the first time in Kansas through the 2008 Kansas BRFSS survey. The information was also collected in 2010. In 2010, survey results showed that about 4 out of 10 (43.5%) adults aged 18 years and older with symptoms of depression for a period of two weeks or longer in the past 12 months, received treatment for depression. These data would assist us to track the progress towards the Healthy Kansans 2010 indicator for mental health.

The anxiety and depression burden data now available for three years (2006, 2008 and 2010), provide adequate sample size to generate scientifically stable estimates of depression (ever been diagnosed and current) and anxiety (ever been diagnosed) prevalence in population subgroups like age, race, ethnicity, binge drinking, heavy drinking, coronary heart disease, and stroke.

According to the KS BRFSS, about one in five females had ever been diagnosed with depression as compared to one in ten males. Higher prevalence of ever being diagnosed with depression was seen among adults aged 35-64 years, divorced or separated, unemployed, unable to work, and with lower education and income status. Being diagnosed with depression was also high among obese adults, current cigarette smokers, those who do not participate in leisure time physical activity, among adults with chronic diseases such as current asthma, and stroke. One in three adults who rated their health as fair or poor had ever been diagnosed with depression as compared to one in eight who rated their health as excellent, very good or good. A higher prevalence of ever being diagnosed with depression was seen among adults without health care coverage as compared to adults

who had health care coverage. About one in three adults who needed to see a doctor in the past twelve months but did not because of the cost had depression. Diagnosis of depression was also higher among adults living with disability as compared to adults living without disability.

About one in ten females were currently depressed as compared to one in seventeen males. The prevalence of current depression was also high among adults who were divorced or separated as compared to adults who were married. The prevalence of current depression was higher among adults who had less than high school education as compared to adults who were a college graduate. Higher prevalence of current depression was also seen among adults aged 35-54 years, lower income and adults that were unable to work.

Current depression was also high among current cigarette smokers, obese adults, those who did not participate in physical activity and those with chronic diseases such as stroke and current asthma. A higher prevalence of current depression was seen among adults without health care coverage as compared to adults who had health care coverage. One in four adults who rated their health as fair or poor had current depression as compared to one in twenty who rated their health as excellent, very good or good. One in four adults who needed to see a doctor in the past twelve months but could not because of the cost had current depression. Current depression was also higher among adults living with disability as compared to adults living without disability.

About 4 in 10 (43.5%) adults aged 18 years and older with symptoms of depression over a period of two weeks and longer in the past 12 months received any treatment.

About one in eight females had ever been diagnosed with anxiety as compared to one in thirteen males. The prevalence of ever receiving a diagnosis of anxiety was higher among adults who had lower annual household income (< \$15,000) and were unable to work as compared to adults with higher annual household income (>= \$50,000) and who were employed. The prevalence of ever receiving a diagnosis of anxiety was also high among adults who were divorced or separated and who were never married as compared to adults who were married. Higher prevalence of ever being diagnosed with anxiety was also seen among current smokers, and those with chronic disease such as current asthma, coronary heart disease, and stroke. The higher prevalence of ever being diagnosed with anxiety was seen among adults that reside in an urban region of the state as compared to adults who reside in a frontier region.

One in five adults who rated their health as fair or poor had ever been diagnosed with anxiety as compared to one in twelve who rated their health as excellent, very good or good. One in five adults who needed to see a doctor in the past twelve months but did not because of the cost reported having anxiety. Diagnosis of anxiety was also higher among adults living with disability as compared to adults living without disability.

Thus, anxiety and depression, the two leading mental health issues, are prevalent conditions in Kansas. In addition, disparities are seen with respect to various socio-demographic sub groups and among those with other chronic diseases and disability. More than half of the adults with depression do

not receive any treatment. This population based surveillance information indicates the need for public health strategies to address these two important mental health conditions among Kansas adults.

Introduction

Attaining mental health is essential to live a more productive, and quality life. Healthy People 2010 (HP 2010) defines mental health as “a state of successful mental functioning, resulting in productive activities, fulfilling relationships and the ability to adapt to change and cope with adversity.” HP 2010 has a focus area on mental health and mental disorders that addresses mental health status improvement and treatment expansion. Mental health plays a vital role in a person’s well being, family and interpersonal relationships, and a person’s involvement in society.¹ Mental health is also chosen as an area of public health concern and one of the ten leading health indicators in the Healthy Kansans 2010 (HK 2010) plan. HK 2010 plan is a set of recommendations and strategies to address against leading health issues in Kansas. The plan that was developed through partnerships with health providers, organizations, communities, and the state encourages systematic change to reduce health risks and behaviors. Changing behavior, improving the built environment, adequate management of diseases and strengthening the infrastructure that supports positive health outcomes related to leading health issues like mental illness are the key components of the recommendations made through Healthy Kansans 2010.

Depression is one of the leading mental health disorders.² It affects about 20.9 million or 9.6% of the United States population aged 18 years or older in a given year.³ It is associated with increased risk of morbidity, mortality and impaired quality of life.⁴ Depressive and related depressive disorders are the cause of more than two-thirds of suicides each year.¹ Depression is a risk factor for noncompliance of medical treatment and may increase severity of a disease.⁴ It is also a costly disease; in 2002, an estimated \$83 billion were spent on direct and indirect cost in the United States.⁵ The Healthy People 2010 plan has included Mental Health as one of the ten leading indicators for monitoring health status of the nation and has recommended increasing the proportion of adults with recognized depression who receive treatment.

The types of depression include major depression disorder (MDD), minor depression, dysthymia, and bipolar disorder. Symptoms of depression include persistent sad, anxious, or “empty” mood; feelings of hopelessness, pessimism; feelings of guilt, worthlessness, helplessness; loss of interest or pleasure in hobbies and activities that were once enjoyed, including sex; decreased energy, fatigue, being “slowed down”; difficulty concentrating, remembering, making decisions; insomnia, early-morning awakening, or oversleeping; appetite and/or weight loss or overeating and weight gain; thoughts of death or suicide, suicide attempts; restlessness, irritability; persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders, and chronic pain.⁶

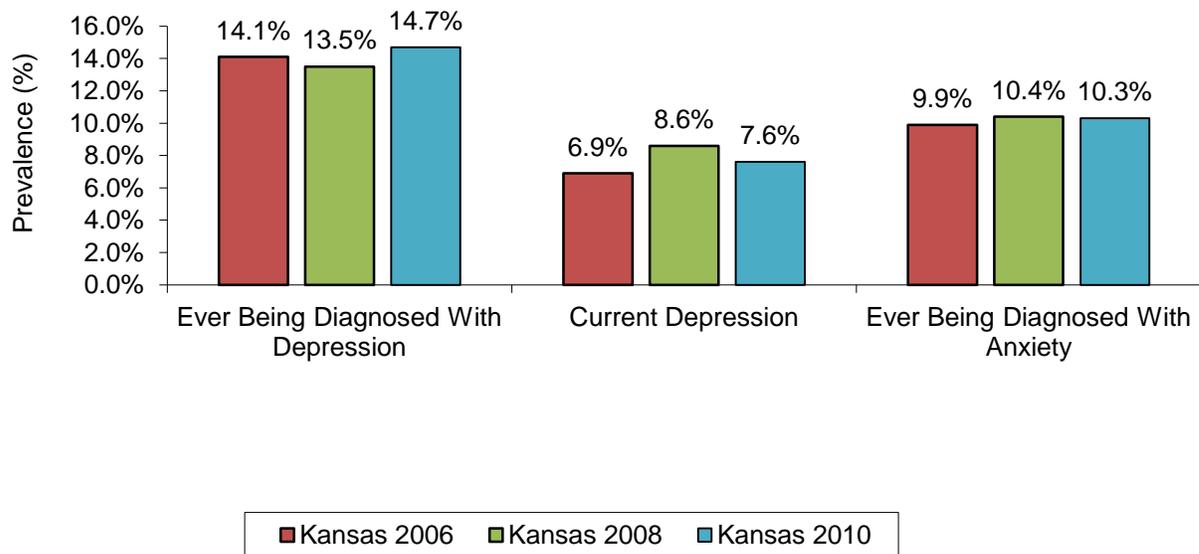
Anxiety disorders are considered the most prevalent mental disorder among adults in the United States.^{3, 7} In a given year, an estimated 40 million or 18.1% of adults are affected with an anxiety disorder.^{3, 7} An estimated 50% of American adults diagnosed with major depression are also diagnosed with a type of anxiety disorder.⁸ Individuals with an anxiety disorder tend to make more frequent trips to the doctors, and are six times more likely to be hospitalized for psychiatric disorders.⁷ Despite being in the presence of health care professionals, the symptoms of an anxiety disorder can easily be masked with physical illnesses therefore proper treatment of the disorder is difficult.⁷

Scientific literatures showed that people suffering from both a major depression and general anxiety disorder have significantly greater disability as opposed to suffering from just one of the disorders.⁹ The type of anxiety disorders include acute stress disorder (ASD), generalized anxiety disorders (GAD), obsessive-compulsive disorder (OCD), panic disorder (PD), posttraumatic stress disorder (PTSD), social anxiety disorder (also known as social phobia), and specific phobias such as fear of heights and spiders.¹⁰

In 2010, it is estimated that 14.7% adult Kansans aged 18 years and older had ever been diagnosed with depression, 7.6% had current depression and 10.3% had ever been diagnosed with anxiety as shown in figure 1. The prevalence of ever being diagnosed with depression, current depression and ever being diagnosed with anxiety remained stable since 2006.

Figure 1

Prevalence of Ever Being Diagnosed With Depression, Current Depression and Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older, Kansas 2006, 2008 and 2010



Source: 2006 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE
 2008 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE
 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The Status of Ever Being Diagnosed with Depression in Kansas

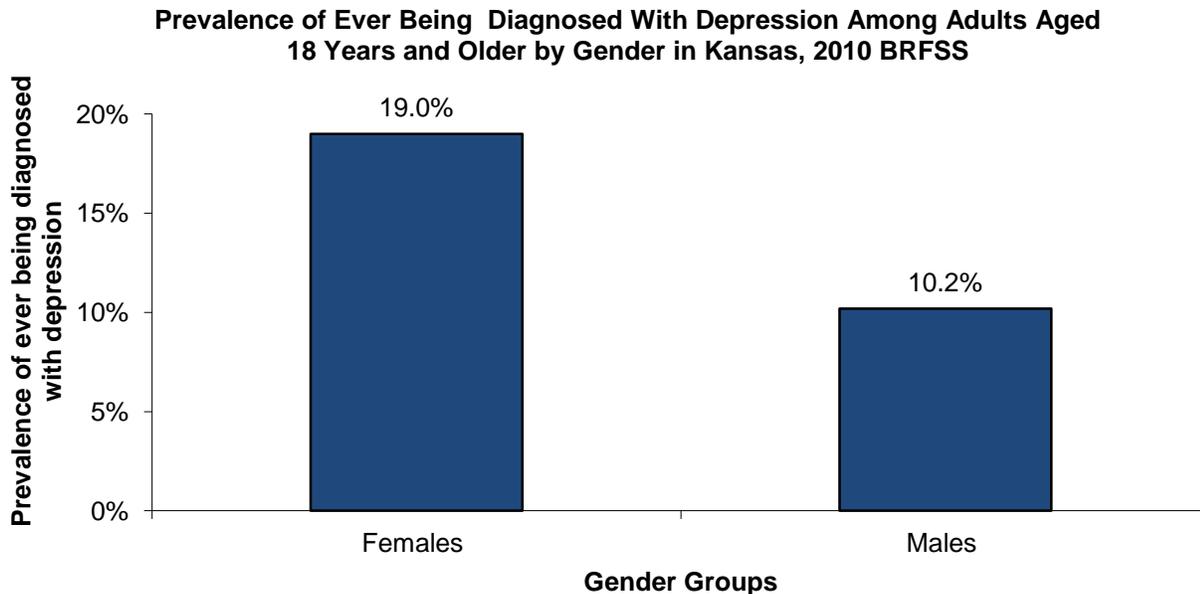
The 2010 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if a healthcare provider ever told them that they have a depressive disorder (including depression, major depression, dysthymia, or minor depression). Data from this question were used to analyze and report results for lifetime or ever being diagnosed with depression.

In Kansas, according to the 2010 Behavioral Risk Factor Surveillance System, an estimated 312,548 (14.7%) adults aged 18 years and older had ever been diagnosed with depression.

Sociodemographic Profile of Adults with Depression

The prevalence of ever being diagnosed with depression was nearly two times higher among females as compared to males. One in five (19.0% [95% CI: 17.1%-20.8%]) adult females reported ever being diagnosed with depression as compared to one in ten (10.2% [95% CI: 8.4%-12.0%]) adult males (Figure 2).

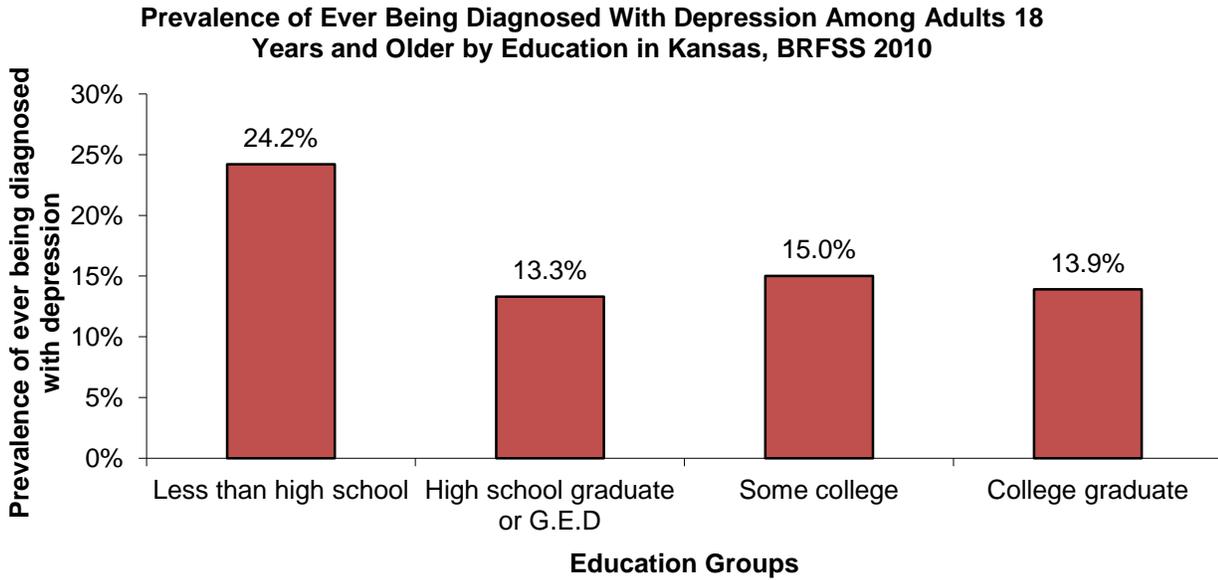
Figure 2



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

In 2010, higher prevalence of ever being diagnosed with depression was seen among adults that had less than high school graduation (24.2% [95% CI: 16.8%-31.6%]) as compared to college graduates (13.9% [95% CI: 11.9%-15.9%]) as shown in figure 3.

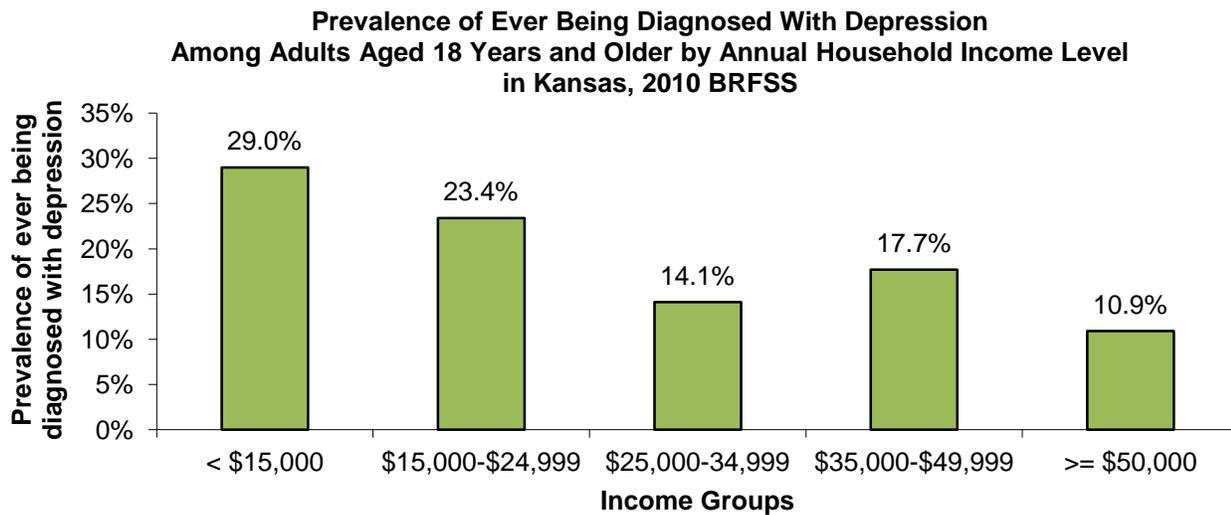
Figure 3



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

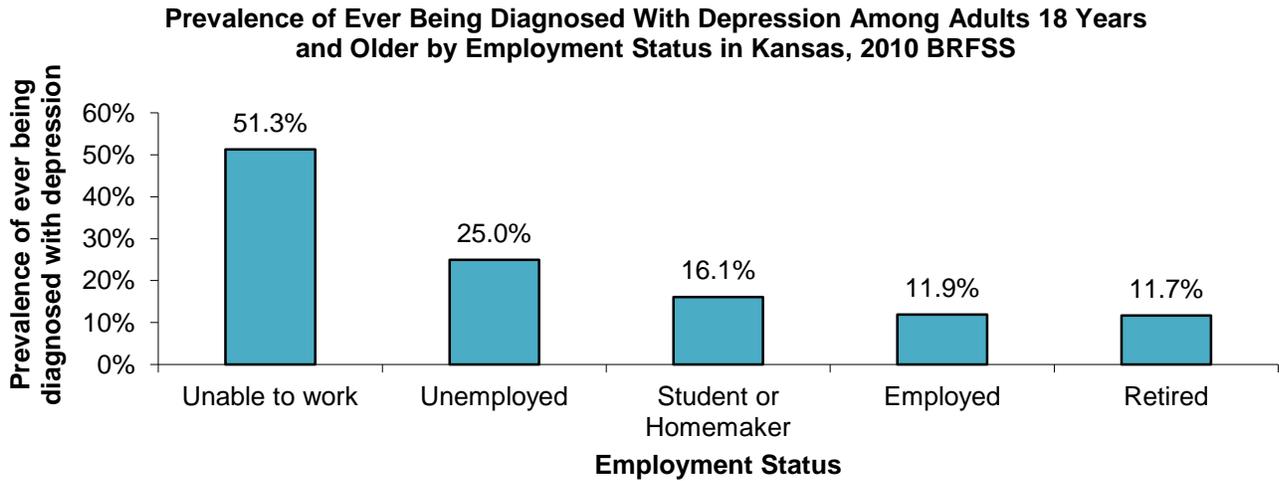
The prevalence of ever being diagnosed with depression appeared to be associated with lower socioeconomic status. Higher prevalence of ever being diagnosed with depression was seen among adults with lower annual household income and among individuals that were unemployed or unable to work. The prevalence of ever being diagnosed with depression was 29.0% (95% CI: 22.5%-35.5%) among adults with an annual household income of less than \$15,000 as compared to 10.9% (95% CI: 9.2%-12.6%) among adults with an annual household income greater than \$50,000 (Figure 4). Among adults who were unemployed or unable to work, the prevalence of ever being diagnosed with depression was 25.0% (95% CI: 17.5%-32.5%) and 51.3% (95% CI: 43.1%-59.6%) respectively as compared to 11.9% (95% CI: 10.3%-13.5%) among adults who were employed (Figure 5).

Figure 4



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

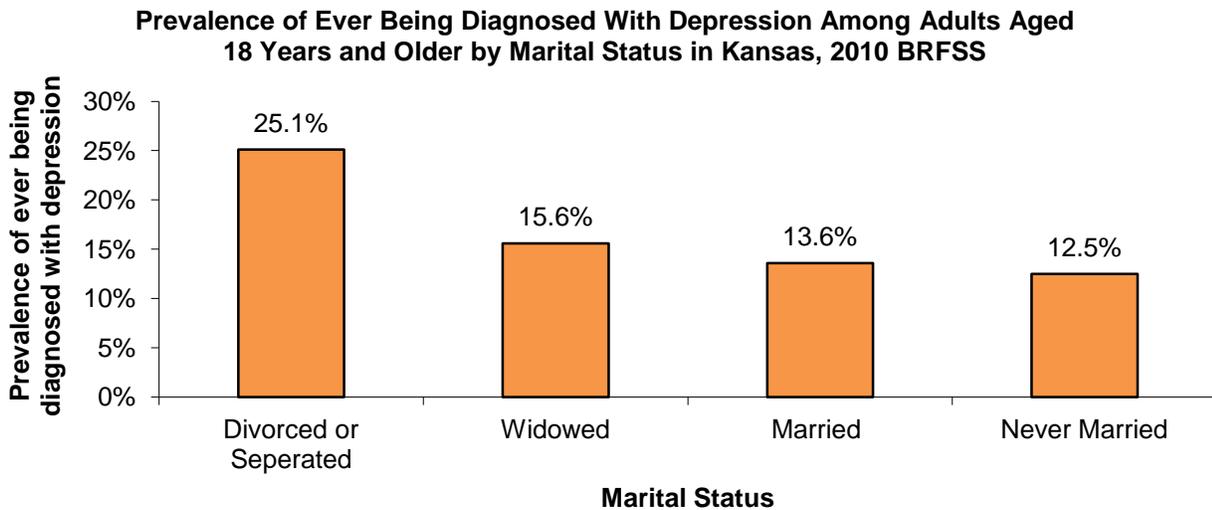
Figure 5



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with depression was higher among adults who were divorced or separated (25.1% [95% CI: 20.5%-29.8%]) as compared to adults who were married (13.6% [95% CI 12.0%-15.1%]), adults who were widowed (15.6% [95% CI: 12.1%-19.1%]) and adults who were never married (12.5% [95% CI 8.8%-16.2%]) as shown in figure 6.

Figure 6



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

There was no statistical difference in the prevalence of ever being diagnosed with depression among Kansans living in five geographical areas of the state classified on the basis of population density. (Table 1).

Table 1. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by sociodemographic characteristics in Kansas, 2010 BRFSS

Sociodemographic Characteristics	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Gender						
Males	178	10.2	8.4-12	1414	89.8	88-91.6
Females	489	19.0	17.1-20.8	2089	81.0	79.2-82.9
Education						
Less than high school	58	24.2	16.8-31.6	191	75.8	68.4-83.2
High school graduate or G.E.D	174	13.3	11-15.7	1021	86.7	84.3-89
Some college	190	15.0	12.5-17.4	973	85.0	82.6-87.5
College graduate	244	13.9	11.9-15.9	1312	86.1	84.1-88.1
Annual household income						
< \$ 15,000	97	29.0	22.5-35.5	212	71.0	64.5-77.5
\$15,000 - \$24,999	133	23.4	18.9-27.9	441	76.6	72.1-81.1
\$25,000 - \$34,999	74	14.1	10.4-17.7	407	85.9	82.3-89.6
\$35,000 - \$49,999	104	17.7	13.8-21.7	516	82.3	78.3-86.2
>= \$50,000	199	10.9	9.2-12.6	1460	89.1	87.4-90.8
Employment status						
Employed for wages / Self-employed	291	11.9	10.3-13.5	1849	88.1	86.5-89.7
Out of work (unemployed)	51	25.0	17.5-32.5	117	75.0	67.5-82.5
Homemaker / Student	52	16.1	11.2-20.9	273	83.9	79.1-88.8
Retired	150	11.7	9.6-13.8	1151	88.3	86.2-90.4
Unable to work	120	51.3	43.1-59.6	106	48.7	40.4-56.9
Marital status						
Married / Member of Unmarried Couple	350	13.6	12-15.1	2179	86.4	84.9-88
Divorced / Separated	141	25.1	20.5-29.8	463	74.9	70.2-79.5
Widowed	102	15.6	12.1-19.1	551	84.4	80.9-87.9
Never married	72	12.5	8.8-16.2	306	87.5	83.8-91.2
Population Density (5 Level)*						
Frontier	27	15.2	9.2-21.2	134	84.8	78.8-90.8
Rural	81	12.1	9.1-15.1	552	87.9	84.9-90.9
Densely-settled rural	90	16.0	12-20	451	84.0	80-88
Semi-urban	97	13.0	10.2-15.8	566	87.0	84.2-89.8
Urban	372	15.6	13.7-17.5	1799	84.4	82.5-86.3
Population Density (2 Level)*						
Rural	198	14.1	11.8-16.4	1137	85.9	83.6-88.2
Urban	469	15.0	13.4-16.6	2365	85.0	83.4-86.6

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

*See the definition of regions based on population density on page 59

Table 2. Prevalence of ever being diagnosed with depression among adults by age, race and ethnicity in Kansas, 2010 BRFSS

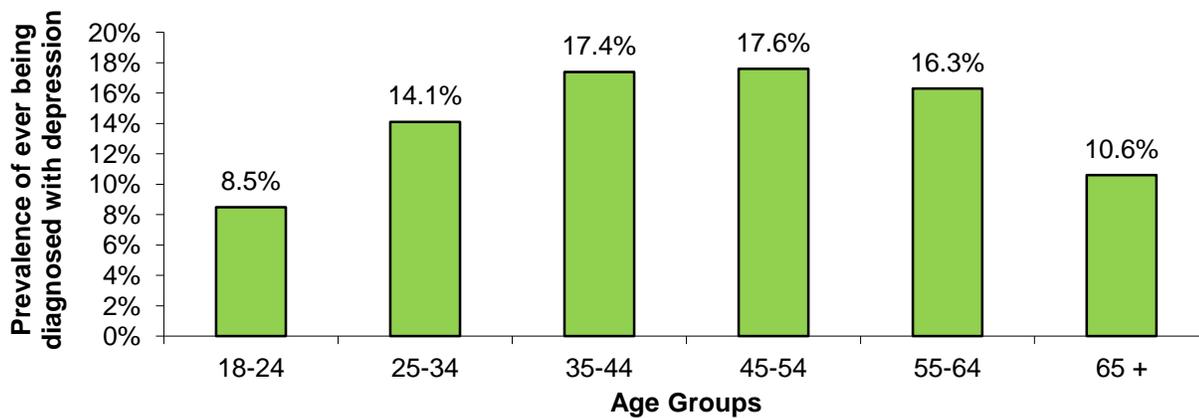
Age groups	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
18-24 years	12	8.5	3.4-13.6	96	91.5	86.4-96.6
25-34 years	53	14.1	9.8-18.4	250	85.9	81.6-90.2
35-44 years	101	17.4	13.8-21	457	82.6	79-86.2
45-54 years	156	17.6	14.7-20.4	603	82.4	79.6-85.3
55-64 years	183	16.3	13.8-18.8	799	83.7	81.2-86.2
65 years and above	162	10.6	8.7-12.4	1298	89.4	87.6-91.3
Race and Ethnicity						
Non-Hispanic Whites only	577	14.6	13.2-15.9	3077	85.4	84.1-86.8
Non-Hispanic African Americans only	35	13.2	8.1-18.2	160	86.8	81.8-91.9
Non-Hispanic Other race* only	10	13.7	2.5-24.9	67	86.3	75.1-97.5
Non Hispanic Multiracial only	16	19.2	8.9-29.6	53	80.8	70.4-91.1
Hispanic	28	16.3	9.3-23.4	135	83.7	76.6-90.7
Ethnicity						
Hispanic	28	16.3	9.3-23.4	135	83.7	76.6-90.7
Non-Hispanic	638	14.5	13.2-15.9	3365	85.5	84.1-86.8

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

Figure 7

Prevalence of Ever Being Diagnosed With Depression Among Adults 18 Years and Older by Age groups in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with depression was higher in adults aged 25-34 years (14.1% [95% CI: 9.8%-18.4%]), adults aged 35-44 years (17.4% [95% CI: 13.8%-21.0%]), adults aged 45-54 years (17.6% [95% CI: 14.7%-20.4%]), and adults aged 55-64 years (16.3% [95% CI: 13.8%-18.8%]), as compared to adults aged 65 years and older (10.6% [95% CI: 8.7%-12.4%]) as shown in Figure 7 and Table 2.

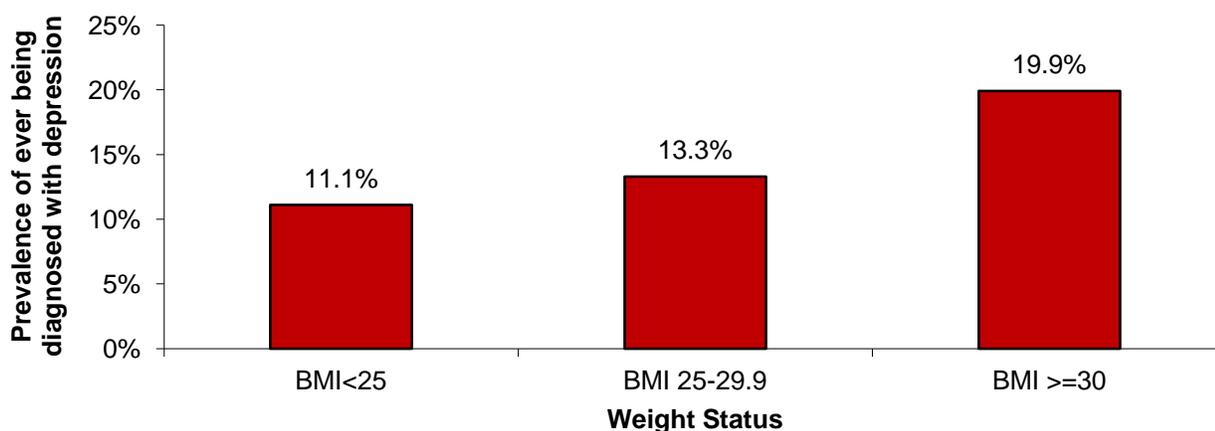
There was no statistical difference in the prevalence of ever being diagnosed with depression among race and ethnicity groups.

Adverse Health Behaviors and Depression

The prevalence of ever being diagnosed with depression was higher among adults who were obese (19.9% [95% CI: 17.1%-22.7%]) as compared to those with underweight or normal weight status (11.1% [95% CI: 9.3%-13.0%]) as shown in figure 8.

Figure 8

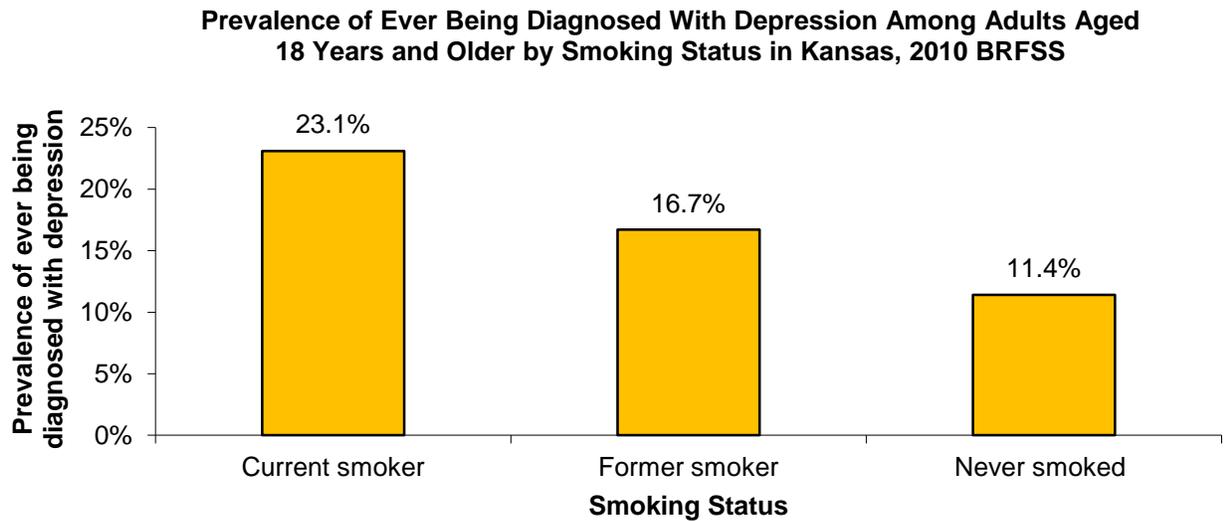
Prevalence of Ever Being Diagnosed With Depression Among Adults Aged 18 Years and Older by BMI status in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Higher prevalence of ever being diagnosed with depression was seen among current cigarette smokers (23.1% [95% CI: 18.9%-27.3%]) as compared to never smokers (11.4% [95% CI: 9.9%-13.0%]) as shown in figure 9.

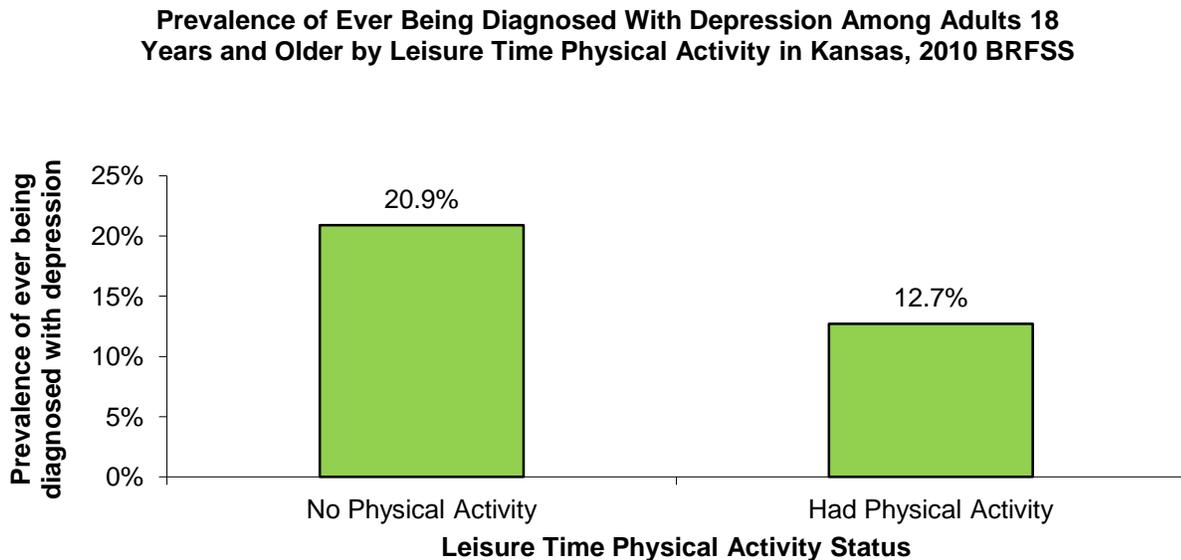
Figure 9



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with depression was higher among adults who did not participate in any physical activity or exercise other than their regular job (20.9% [95% CI: 17.9%-23.9%]) compared to adults who participate in any physical activity or exercise (12.7% [95% CI: 11.3%-14.1%]) as shown in figure 10.

Figure 10



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 3. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by adverse health behavior characteristics in Kansas, 2010 BRFSS

Adverse Health Behavior Characteristics	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Weight Status						
Normal or underweight (body mass index < 25.0 kg/m ²)	181	11.1	9.3-13	1205	88.9	87-90.7
Overweight (body mass index 25.0-29.9 kg/m ²)	210	13.3	11.2-15.5	1206	86.7	84.5-88.8
Obese (body mass index ≥ 30.0 kg/m ²)	245	19.9	17.1-22.7	944	80.1	77.3-82.9
Smoking status						
Current smoker	159	23.1	18.9-27.3	445	76.9	72.7-81.1
Former smoker	188	16.7	14.1-19.3	1031	83.3	80.7-85.9
Never smoker	317	11.4	9.9-13	2006	88.6	87-90.1
Exercise						
Yes	422	12.7	11.3-14.1	2610	87.3	85.9-88.7
No	244	20.9	17.9-23.9	887	79.1	76.1-82.1

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

There was no statistical difference in the prevalence of ever being diagnosed with depression among binge drinkers (defined as males having five or more drinks or females having four or more drinks on one occasion) and non-binge drinkers of alcohol and among heavy drinkers (defined as adult men having more than two drinks per day and adult women having more than one drink per day) and non heavy drinkers of alcohol, (Table 4).

Table 4. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by binge and heavy drinking categories in Kansas, 2010 BRFSS

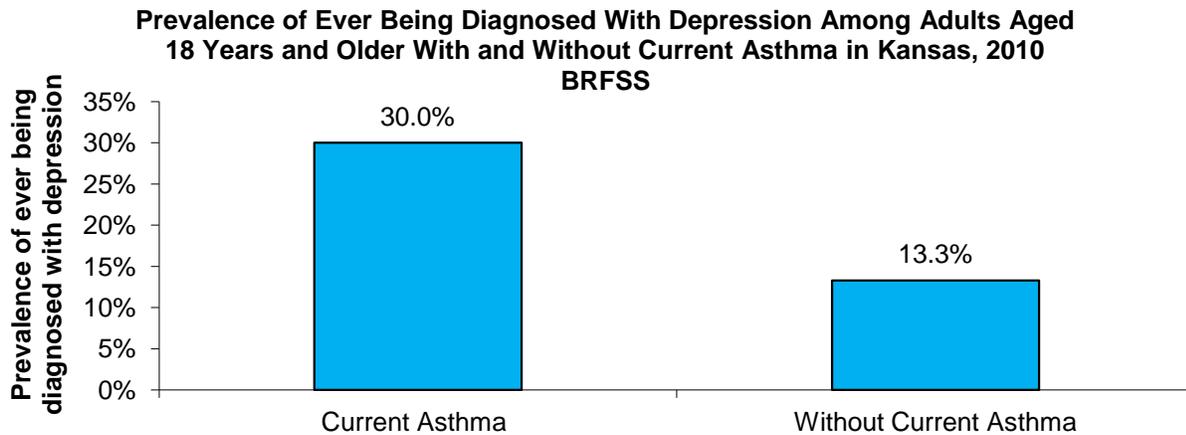
	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Binge drinking						
No	600	14.9	13.6-16.3	3139	85.1	83.7-86.4
Yes	63	13.2	9.4-17	321	86.8	83-90.6
Heavy drinking						
No	644	14.8	13.4-16.1	3348	85.2	83.9-86.6
Yes	16	13.5	6.1-20.8	94	86.5	79.2-93.9

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Chronic Diseases and Depression

The prevalence of ever being diagnosed with depression was higher among adults with current asthma (30.0% [95% CI: 24.1%-35.9%]) as compared to adults without current asthma (13.3% [95% CI: 11.9%-14.6%]) as shown in figure 11.

Figure 11



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 5. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by chronic disease status, Kansas 2010

Chronic Disease Status	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Current Asthma						
No	551	13.3	11.9-14.6	3241	86.7	85.4-88.1
Yes	110	30.0	24.1-35.9	240	70.0	64.1-75.9
Diabetes						
Yes	88	16.6	12.5-20.8	429	83.4	79.2-87.5
No	577	14.4	13-15.7	3069	85.6	84.3-87
Coronary Heart Disease						
Yes	42	18.0	12-24	229	82.0	76-88
No	618	14.5	13.2-15.8	3241	85.5	84.2-86.8
Stroke						
Yes	49	28.2	19.6-36.9	145	71.8	63.1-80.4
No	617	14.2	12.9-15.5	3351	85.8	84.5-87.1

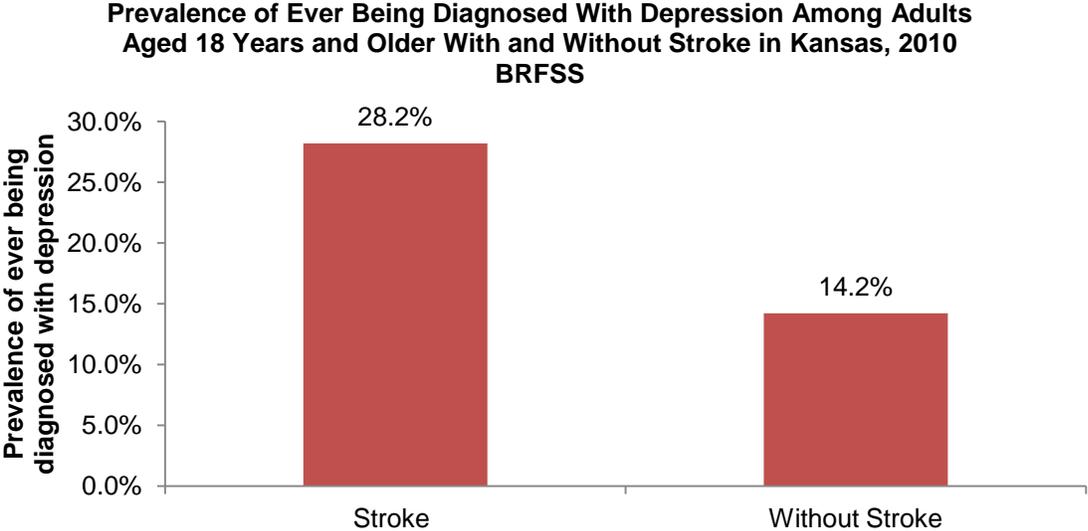
Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Among adults who were diagnosed as having had a stroke, the prevalence of ever being diagnosed with depression was higher (28.2% [95% CI: 19.6%-36.9%]) as compared to adults who were not diagnosed with stroke (14.2% [95% CI: 12.9%-15.5%]) as shown in figure 12.

There was no statistical difference in the prevalence of ever being diagnosed with depression among adults with diabetes as compared to adults without diabetes as shown in table 5.

Also there was no statistical difference in the prevalence of ever being diagnosed with depression among adults with coronary heart disease, as compared to adults without coronary heart disease (Table 5).

Figure 12.



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

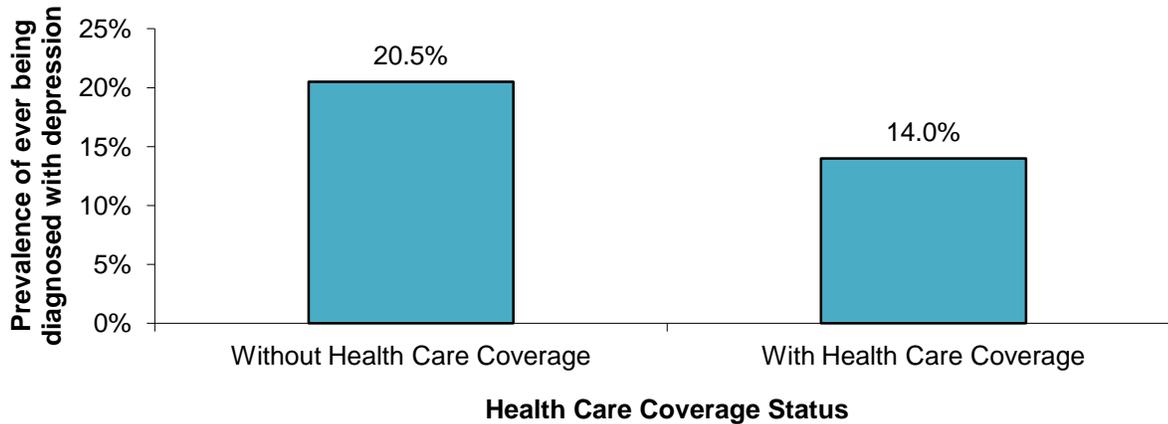
Health Care Access and Depression

The prevalence of ever being diagnosed with depression was higher among adults without any health care coverage (20.5% [95% CI: 15.4%-25.6%]) as compared to adults with some kind of health care coverage (14.0% [95% CI: 12.7%-15.3%]) as shown in figure 13.

There was no statistical difference in the prevalence of ever being diagnosed with depression among adults with personal health care provider as compared to adults without personal health care provider (table 6).

Figure 13.

Prevalence of Ever Being Diagnosed With Depression Among Adults Aged 18 Years and Older With and Without Health Care Coverage in Kansas, 2010 BRFSS



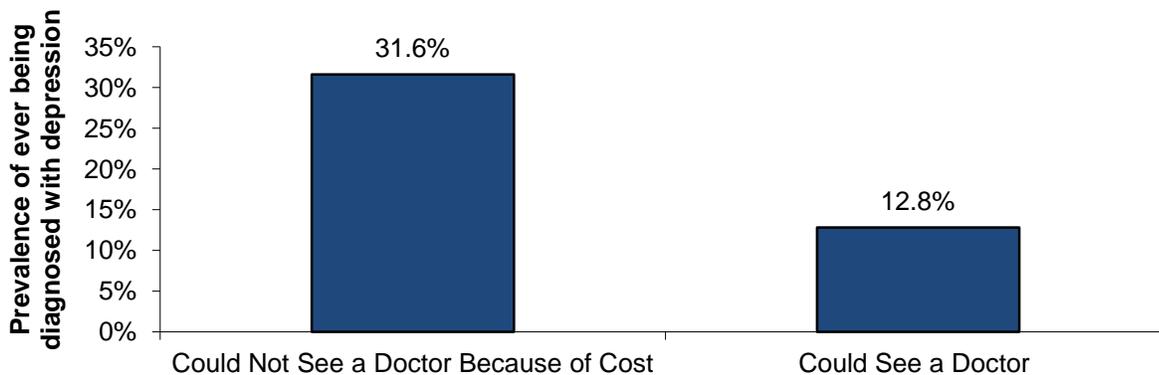
Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Medical Cost and Depression

The prevalence of ever receiving a diagnosis of depression was higher among adults who needed to see a doctor in the past twelve months but could not because of the cost (31.6% [95% CI: 25.8%-37.5%]) as compared to adults who could see a doctor with cost not being a barrier for seeking health care (12.8% [95% CI: 11.5%-14.1%]), (figure 14).

Figure 14.

Prevalence of Ever Being Diagnosed With Depression Among Adults Aged 18 Years and Older Able and Unable to see doctor because of cost in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 6. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by health care access status, Kansas 2010

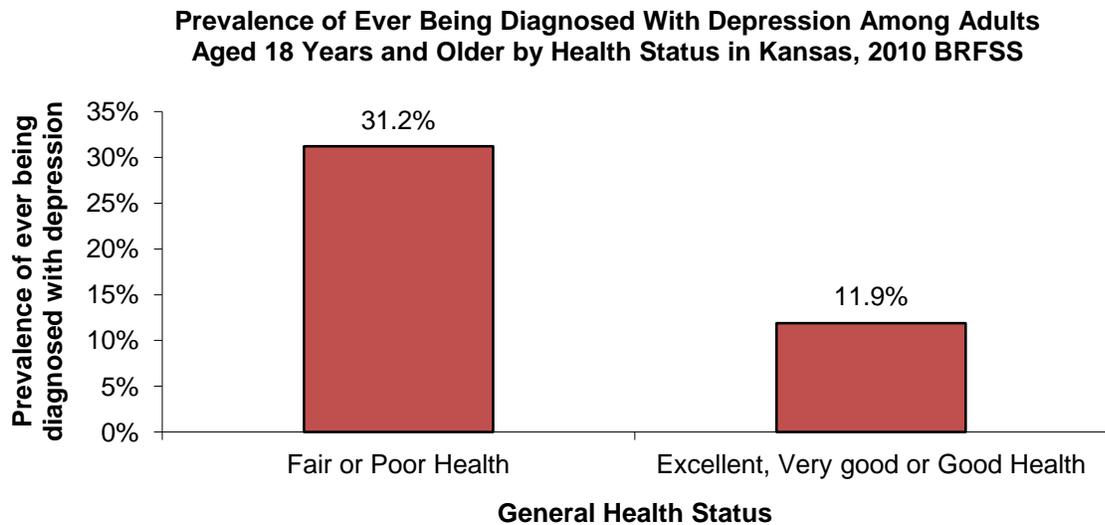
Health Care Access Status	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Health care coverage						
Yes	586	14.0	12.7-15.3	3228	86.0	84.7-87.3
No	81	20.5	15.4-25.6	266	79.5	74.4-84.6
Personal health care provider						
Yes	607	15.1	13.7-16.5	3178	84.9	83.5-86.3
No	59	11.5	8.1-14.8	323	88.5	85.2-91.9
Could not see doctor because of cost						
Yes	131	31.6	25.8-37.5	236	68.4	62.5-74.2
No	535	12.8	11.5-14.1	3257	87.2	85.9-88.5

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Self-rated Health and Depression

The prevalence of ever being diagnosed with depression was higher among adults (31.2% [95% CI: 26.7%-35.6%]) who rated their health as fair or poor as compared to adults (11.9% [95% CI: 10.6%-13.2%]) who rated their health as excellent, very good or good as shown in figure 15.

Figure 15.

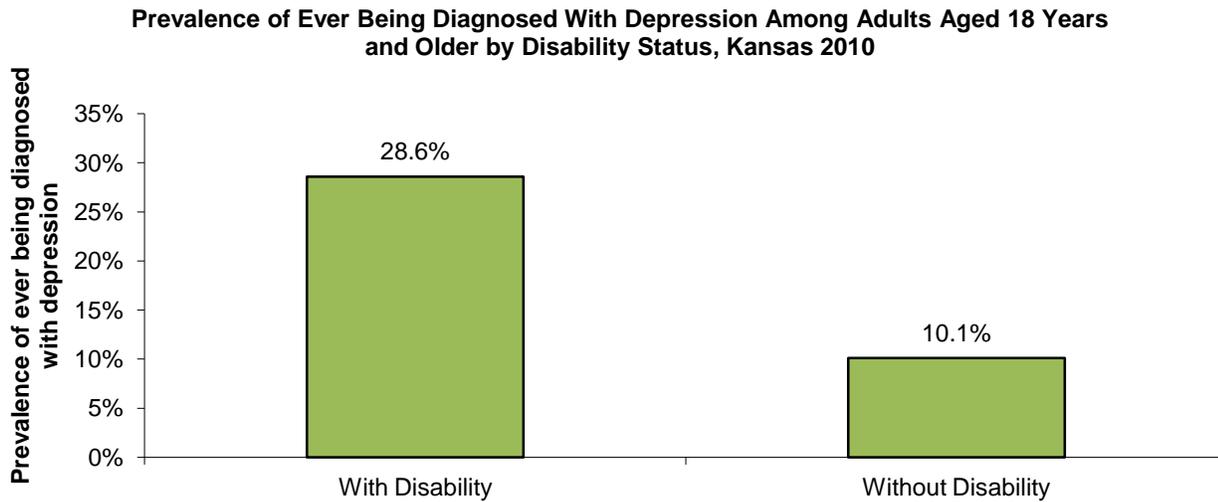


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Disability and Depression

Disability is defined as adults who reported they were limited in any activities because of physical, mental, or emotional problems or who reported having a health problem that requires them to use special equipment such as a cane, wheelchair, a special bed, or a special telephone. The prevalence of ever being diagnosed with depression appeared to be associated with disability. The prevalence of ever being diagnosed with depression was three times higher among adults living with disability (28.6% [95% CI: 25.4%-31.8%]) as compared to adults living without disability (10.1% [95% CI: 8.7%-11.4%]) as shown in figure 16.

Figure 16



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Depression Severity Status in Kansas

The Behavioral Risk Factor Surveillance Survey module on anxiety and depression included eight questions that asked respondents about their mood status and depressive symptoms. These questions were adapted and modified from the Patient Health Questionnaire (PHQ) Version 9^{2, 11} and include eight of the nine criteria's for the diagnosis of depression by levels of severity (referred as PHQ-8). PHQ-9 is a tool derived from Primary Care Evaluation of Mental Disorders (PRIME-MD) to provide assistance to general practitioners in the diagnosis and evaluation of psychiatric disorders. In the mid-1990s, Drs. Robert Spitzer and Kurt Kroenke and colleagues at Columbia University in collaboration with researchers at the Regenstrief Institute at Indiana University developed PRIMEMD. The questionnaire includes items corresponding to each of the nine depression criteria listed in the Diagnostic and Statistical Manual disorders, Fourth Edition Text Revision (DSM-IV-TR), and scores range from 0 to 27. Cut-points of 5, 10, 15 and 20 represent the threshold for mild, moderate, moderately severe, and severe depression.¹² The PHQ-9 is posted online at www.pfizer.com/phq-9/. The Kansas BRFSS data for the 8 questions of PHQ-8 were analyzed using the severity score methodology described by the authors of PHQ-9 (Available at:

http://www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/severity_scoring/).

In 2010, these eight questions were asked from 4,272 Kansas BRFSS respondents to assess their interest or pleasure in doing things; feeling down, depressed or hopeless; trouble falling asleep or staying asleep or sleeping too much; feeling tired or having little energy; having poor appetite or eating too much; feeling bad about themselves or feeling like a failure or feeling that they had let themselves down or their family down; trouble concentrating on things; and moving so slowly that other people have noted or being fidgety or restless and moving around a lot more than usual.

The respondents were asked for each of the eight questions whether, during the previous two weeks how many days they had the symptom. A depression severity scale was created by converting the number of days in response to each of the eight questions into points as shown in the following table:

Number of days had symptom	Points
0-1	0
2-6	1
7-11	2
12-14	3

The number of points was totaled across the eight questions in order to determine the depressive symptoms severity score. No depression was determined if the total points were 0-4, mild depression was determined if the total points across the eight questions was 5-9, moderate depression was determined if the total score was 10-14 points, moderately severe depression was determined if the total score was 15-19 points and severe depression was determined if the total score across eight questions was 20 or more points. If any of the eight questions was missing, a score was not calculated and data for that respondent were not included in the analysis.

The depression severity score was calculated for 3,789 respondents who responded to all eight questions.

Depression status by depressive symptoms severity score

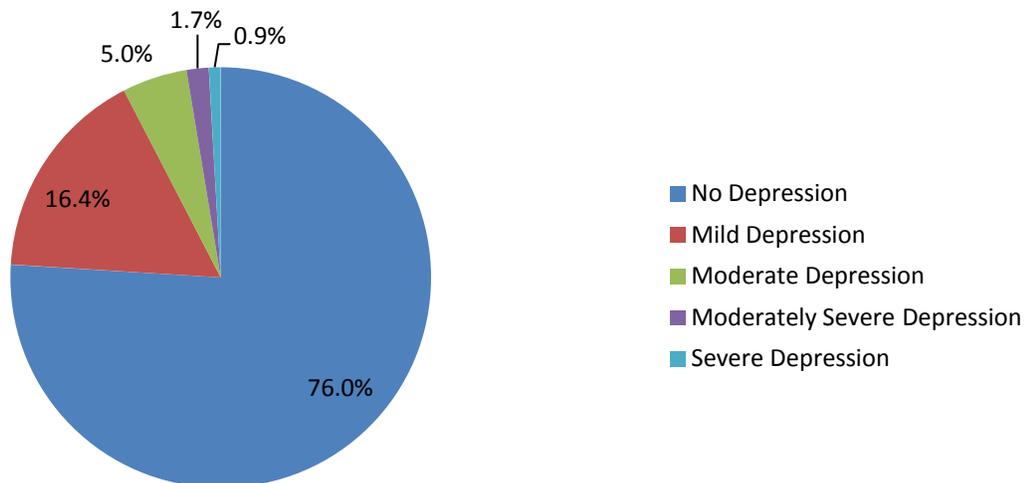
Points	Depression status
0-4	No depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20 +	Severe depression

Analysis conducted by using the method described above showed that 24% of adult Kansans had mild to severe depression (figure 21).

In 2010, 14.7% of adults aged 18 years and older had doctor diagnosed depressive disorder (including depression, major depression, dysthymia, or minor depression). However, mood status and depressive status assessed by using the Patient Health Questionnaire (PHQ-8) showed that 24% of adults had mild to severe depression. Thus PHQ-8 tool assists in identifying additional number of adults with mild to severe depression in the population.

Figure 21

Severity Status of Depression Among Adults Aged 18 Years and Older, Kansas 2010



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

There was no statistical difference in the prevalence of mild, moderate, moderately severe and severe depression among males and females (Table 7).

There was no statistical difference in the prevalence of mild, moderate, moderately severe and severe depression among adults with and without health care coverage and with or without a personal health care provider (Table 7).

Table 7. Severity of depression severity among adults aged 18 years and older by selected characteristics, Kansas 2010

Characteristic	No depression	Mild depression	Moderate depression	Moderately severe depression	Severe depression
	Frequency (n) Weighted percentage (%) 95% CI				
Gender					
Males	1180 79.2 76.5-82.0	200 14.9 12.4-17.4	48 4.1 2.8-5.4	15 0.9 0.7-1.6	13 0.9 0.3-1.4
Females	1727 72.9 70.6-75.1	392 17.8 15.8-19.7	136 6.0 4.8-7.2	54 2.3 1.6-3.1	24 1.0 0.5-1.5
Health care coverage					
Yes	2693 77.3 75.5-79.1	535 16.2 14.6-17.8	153 4.3 3.5-5.1	59 1.5 1.1-2.0	27 0.7 0.4-1.0
No	208 64.9 58.2-71.7	55 17.9 12.3-23.4	31 11.5 7.0-16.1	10 2.8 0.7-4.9	10 2.9 0.8-5.0
Personal health care provider					
Yes	2672 77.6 75.9-79.4	526 15.4 13.8-17.0	160 4.6 3.7-5.4	58 1.5 1.1-2.0	32 0.9 0.5-1.2
No	234 64.5 57.7-71.2	66 23.4 17.0-29.7	24 8.3 4.6-12.0	11 2.5 0.7-4.2	5 1.4 0.0-2.8

Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Status of Current Depression in Kansas

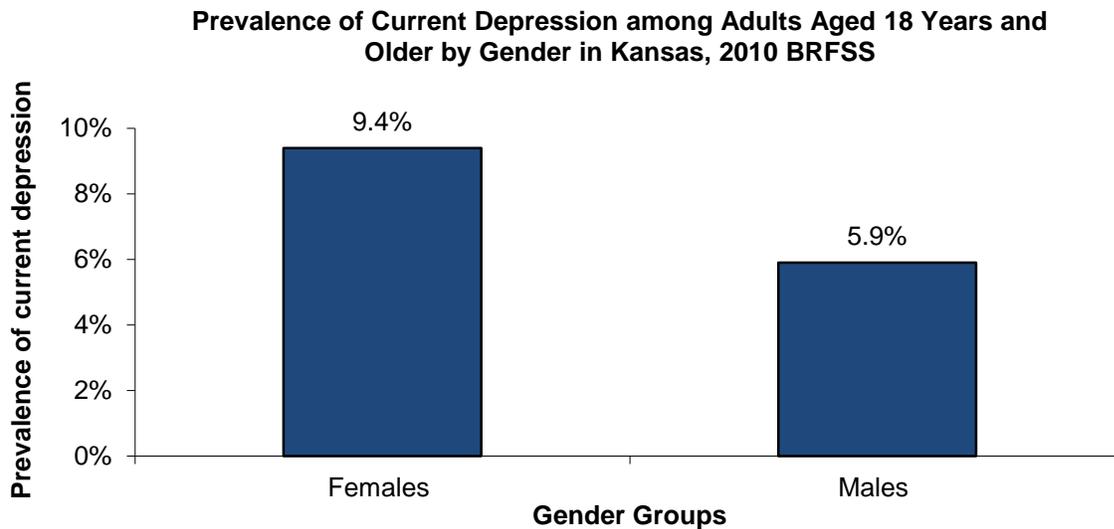
The depression severity scale that was created to determine the severity of depression was dichotomized into total score of < 10 or \geq 10 points. Current depression was defined as a score of \geq 10 points on the depressive symptoms severity score.

In 2010, about one in fourteen (7.6% [95% CI: 6.6%-8.7%]) adults aged 18 years and older had current depression. This accounts for an estimated 161,590 adult Kansans who had current depression.

Sociodemographic Profile of Adults With Current Depression

The prevalence of current depression was higher among adult females (9.4% [95% 7.9%-10.8%]) as compared to adult males (5.9% [95% CI: 4.4%-7.4%]) as shown in figure 17.

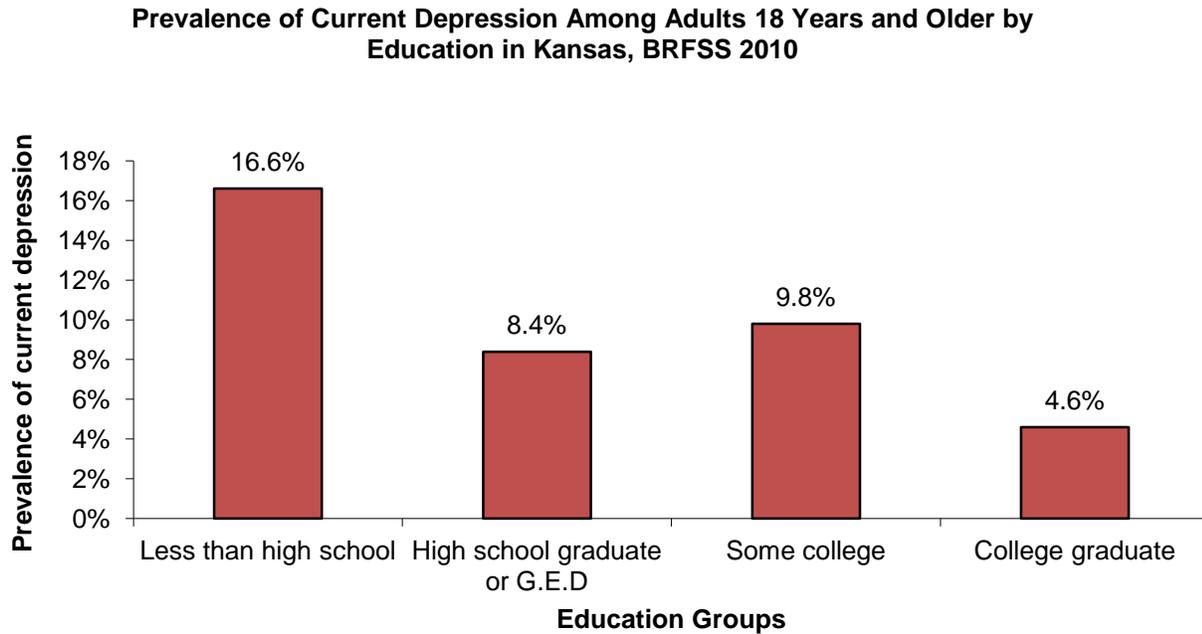
Figure 17



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Higher prevalence of current depression was seen among adults with less than high school 16.6% (95% CI: 9.6%-23.6%) as compared to adults that were college graduate 4.6% (95% CI: 3.3%-5.8%) as shown in figure 18.

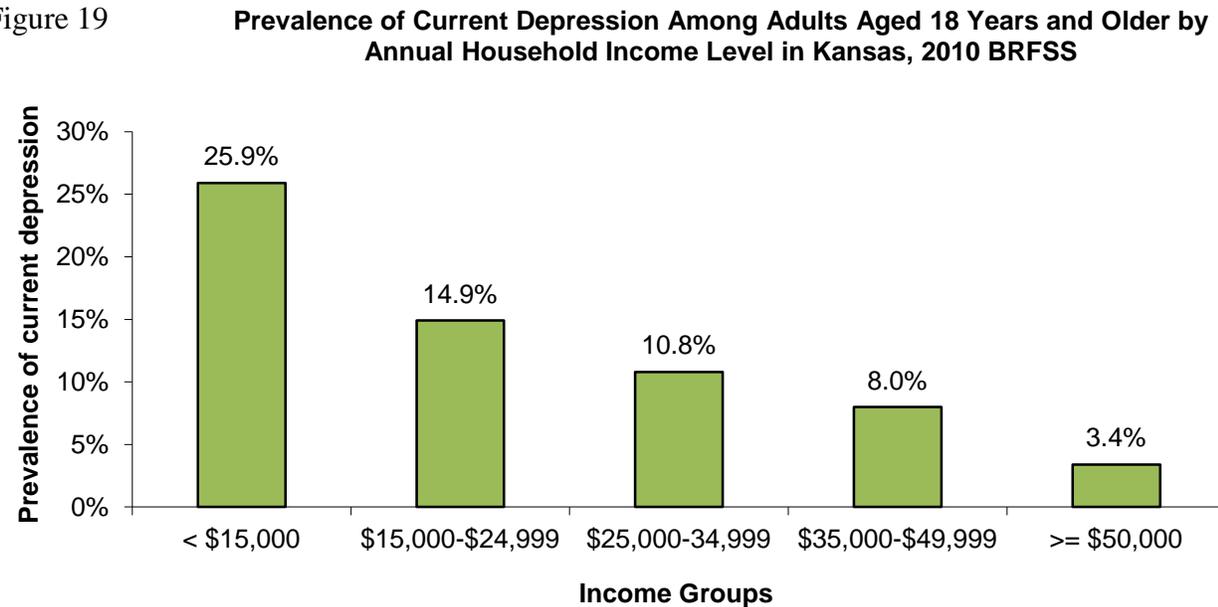
Figure 18



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

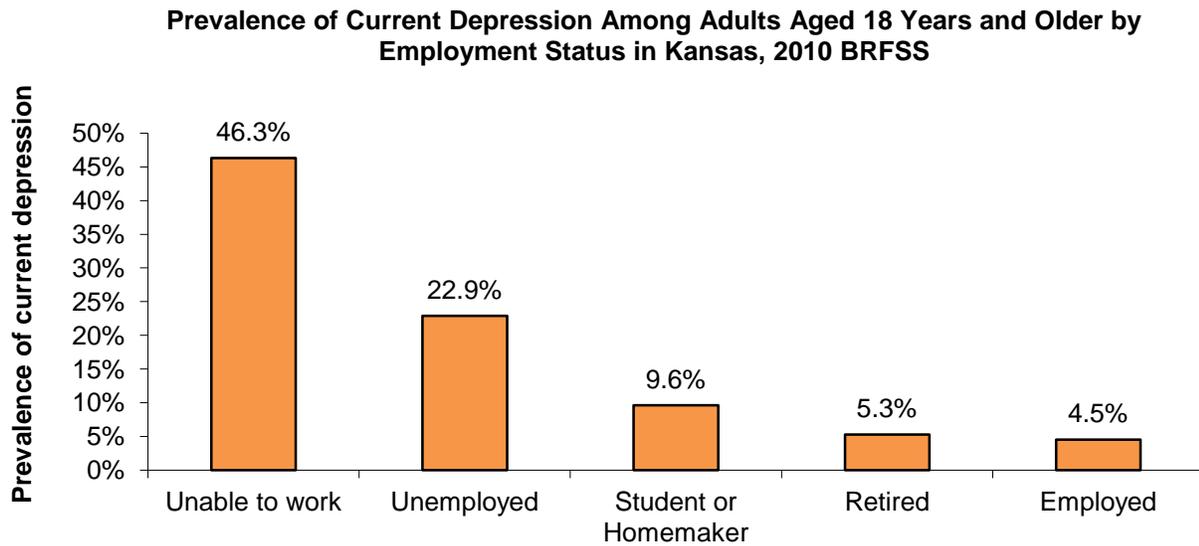
The prevalence of current depression appeared to be associated with lower socioeconomic status. The prevalence of current depression was higher among adults with low levels of annual household income and among individuals that were unable to work. The prevalence of current depression was 25.9% (95% CI: 18.2%-33.6%) among adults with an annual household income of less than \$15,000 as compared to adults with an annual household income more than \$15,000 (figure 19). Among adults who were unable to work, the prevalence of current depression was 46.3% (95% CI: 37.3%-55.3%) as compared to 4.5% (95% CI: 3.5%-5.5%) of adults who were employed (figure 20).

Figure 19



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

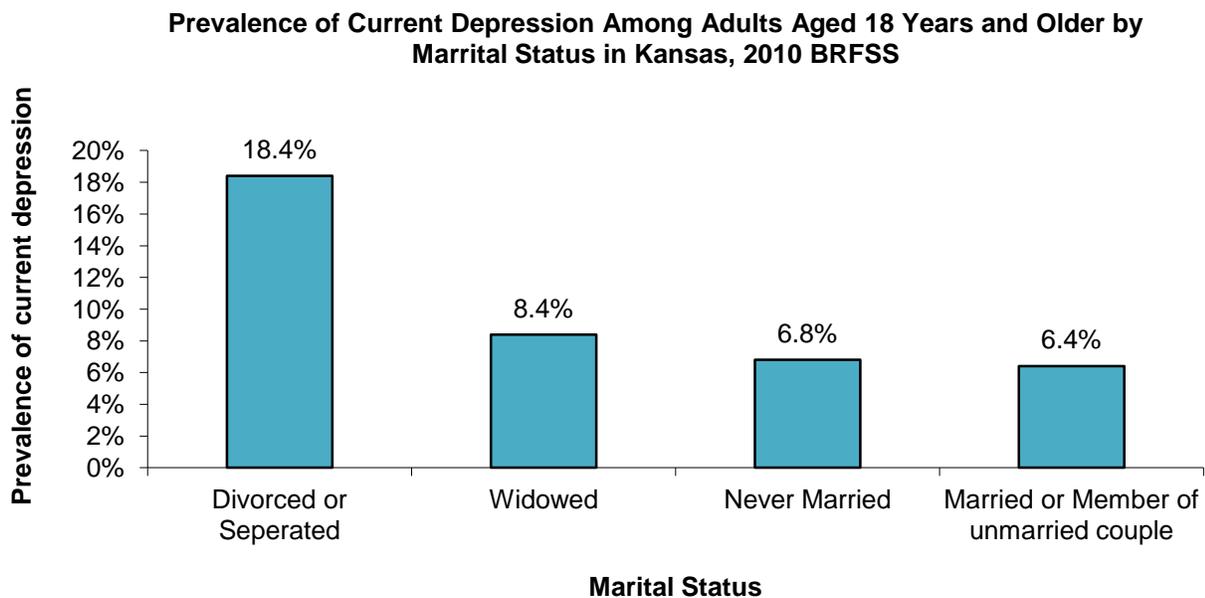
Figure 20



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of current depression was higher among adults who were divorced or separated (18.4% [95% CI: 13.9%-22.9%]) as compared to adults who were married (6.4% [95% CI 5.2%-7.6%]) as shown in figure 21.

Figure 21



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 8. Prevalence of current depression among adults aged 18 years and older by sociodemographic characteristics, Kansas 2010

Sociodemographic Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Gender			
Males	76	5.9	4.4-7.4
Females	214	9.4	7.9-10.8
Education			
Less than high school	27	16.6	9.6-23.6
High school graduate or G.E.D	88	8.4	6.3-10.5
Some college	109	9.8	7.6-12
College graduate	66	4.6	3.3-5.8
Annual household income			
< \$ 15,000	54	25.9	18.2-33.6
\$15,000 - \$24,999	73	14.9	10.9-18.8
\$25,000 - \$34,999	39	10.8	6.8-14.8
\$35,000 - \$49,999	37	8.0	5.1-11
>= \$50,000	61	3.4	2.4-4.3
Employment status			
Employed for wages / Self-employed	99	4.5	3.5-5.5
Out of work (unemployed)	31	22.9	14.2-31.7
Homemaker / Student	25	9.6	5.6-13.6
Retired	61	5.3	3.8-6.8
Unable to work	73	46.3	37.3-55.3
Marital status			
Married / Member of Unmarried Couple	140	6.4	5.2-7.6
Divorced / Separated	80	18.4	13.9-22.9
Widowed	43	8.4	5.5-11.3
Never married	27	6.8	3.6-10
Population Density (5 Level)*			
Frontier	8	6.0	1.5-10.5
Rural	45	8.8	5.9-11.7
Densely-settled rural	37	7.4	4.5-10.4
Semi-urban	44	6.9	4.6-9.3
Urban	156	7.7	6.2-9.2
Population Density (2 Level)*			
Rural	90	7.9	6-9.8
Urban	200	7.5	6.3-8.8

Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

*See the definition of regions based on population density on page 59

There was no statistical difference in the prevalence of current depression in five geographical areas of the state classified on the basis of population density and also no statistical difference when divided into two geographic areas as rural and urban (table 8).

Table 9. Prevalence of current depression among adults aged 18 years and older by age, race and ethnicity, Kansas 2010

Sociodemographic Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Age groups			
18-24 years	11	9.0	3.4-14.7
25-34 years	22	6.6	3.6-9.6
35-44 years	52	9.4	6.6-12.2
45-54 years	76	9.3	7-11.7
55-64 years	66	6.9	5.1-8.8
65 years and above	63	5.0	3.6-6.5
Race and Ethnicity			
Non-Hispanic Whites only	235	6.9	5.9-8
Non-Hispanic African Americans only	25	13.4	7.3-19.5
Non-Hispanic Other race* only	4	5.8	0-11.9
Non-Hispanic Multiracial	9	14.8	3.8-25.8
Hispanic	16	13.0	6.1-19.8
Ethnicity			
Hispanic	16	13.0	6.1-19.8
Non-Hispanic	274	7.4	6.3-8.4

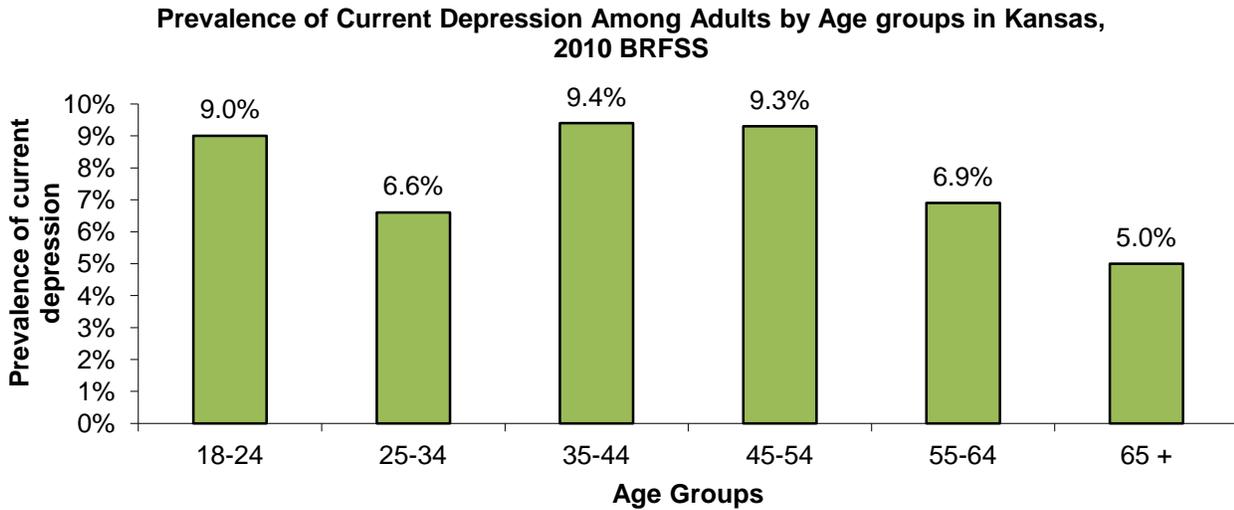
Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

The prevalence of current depression was higher in adults aged 35-44 years (9.4% [95% CI: 6.6%-12.2%]) and adults aged 45-54 years (9.3% [95% CI: 7.0%-11.7%]) as compared to adults aged 65 years and older (5.0% [95% CI: 3.6%-6.5%]) as shown in Figure 22 and Table 9.

There was no statistical difference in the prevalence of current depression by race and ethnicity groups (table 9).

Figure 22

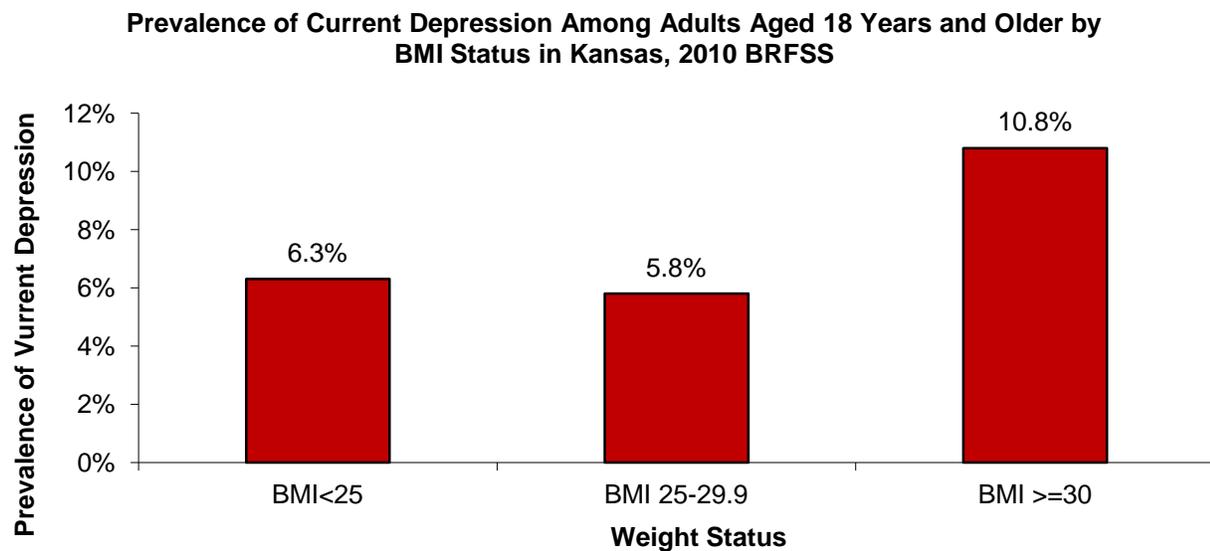


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Adverse Health Behaviors and Current Depression

The prevalence of current depression was higher among adults who were obese (10.8% [95% CI: 8.5%-13.0%]) as compared to adults that were overweight (5.8% [95% CI: 4.2%-7.3%]) and adults that were normal or underweight (6.3% [95% CI: 4.6%-8.0%]) as shown in figure 23.

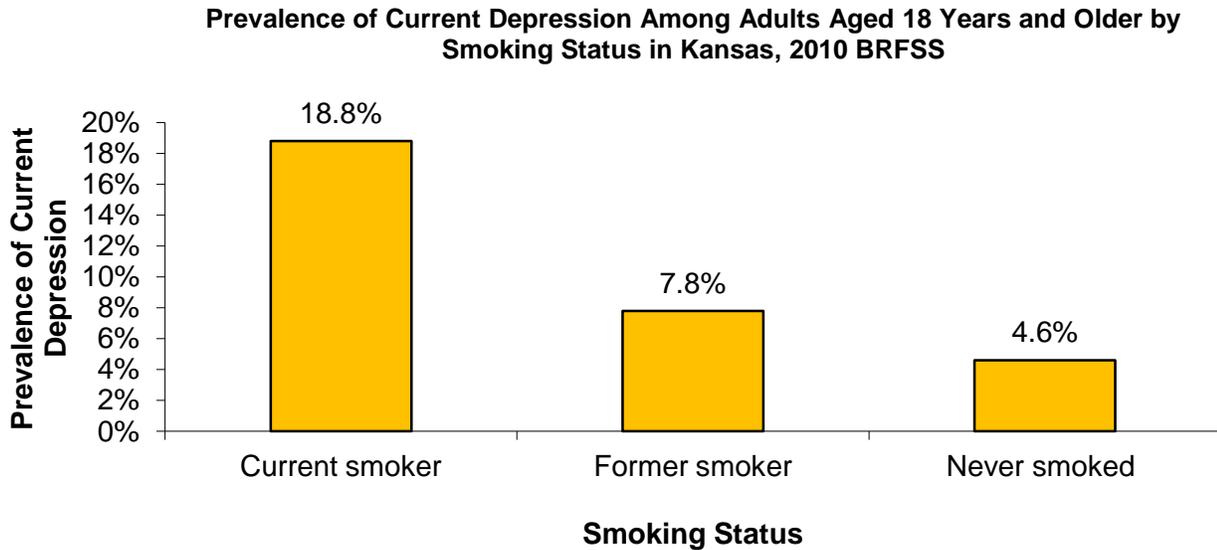
Figure 23



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Higher prevalence of current depression was seen among current cigarette smokers (18.8% [95% CI: 14.6%-23.0%]) as compared to non-smokers (4.6% [95% CI: 3.6%-5.7%]) and former smokers (7.8% [95% CI: 5.8%-9.8%]) as shown in figure 24.

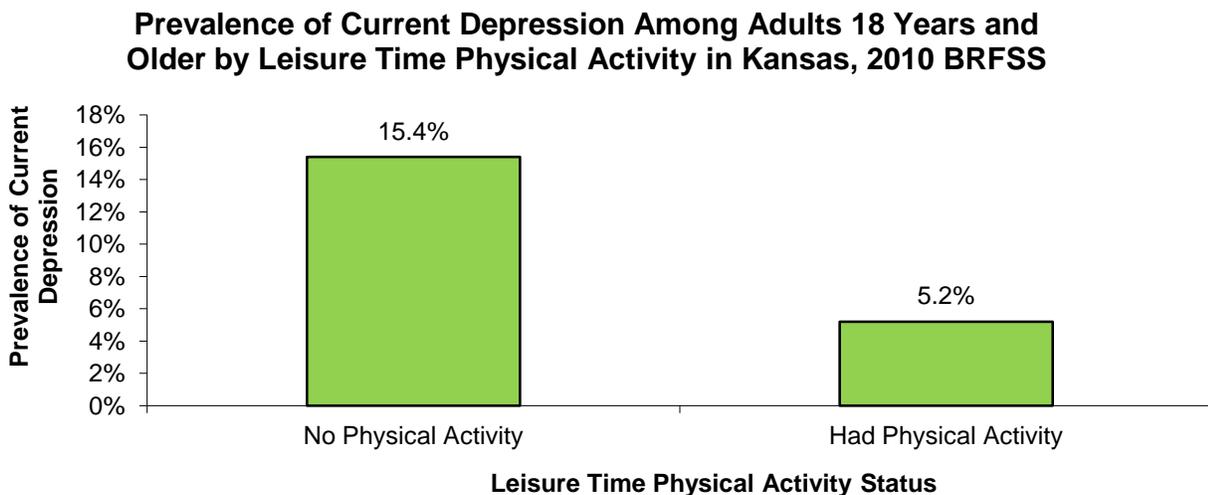
Figure 24



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of current depression was higher among adults who did not participate in any leisure time physical activity or exercise other than their regular job (15.4% [95% CI: 12.4%-18.4%]) as compared to adults who participated in any leisure time physical activity or exercise (5.2% [95% CI: 4.2%-6.2%]) as shown in figure 25.

Figure 25



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 10. Prevalence of current depression among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2010

Adverse Health Behavior Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Weight Status			
Normal or underweight (body mass index < 25.0 kg/m ²)	74	6.3	4.6-8
Overweight (body mass index 25.0-29.9 kg/m ²)	81	5.8	4.2-7.3
Obese (body mass index ≥ 30.0 kg/m ²)	120	10.8	8.5-13
Smoking status			
Current smoker	96	18.8	14.6-23
Former smoker	80	7.8	5.8-9.8
Never smoker	113	4.6	3.6-5.7
Exercise			
Yes	149	5.2	4.2-6.2
No	139	15.4	12.4-18.4

Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Table 11. Prevalence of current depression among adults aged 18 years and older by binge and heavy drinking categories in Kansas, 2010 BRFSS

Adverse Health Behavior Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Binge drinking			
No	262	8.0	6.8-9.1
Yes	28	6.1	3.5-8.8
Heavy drinking			
No	279	7.6	6.5-8.6
Yes	10	11.1	3.5-18.8

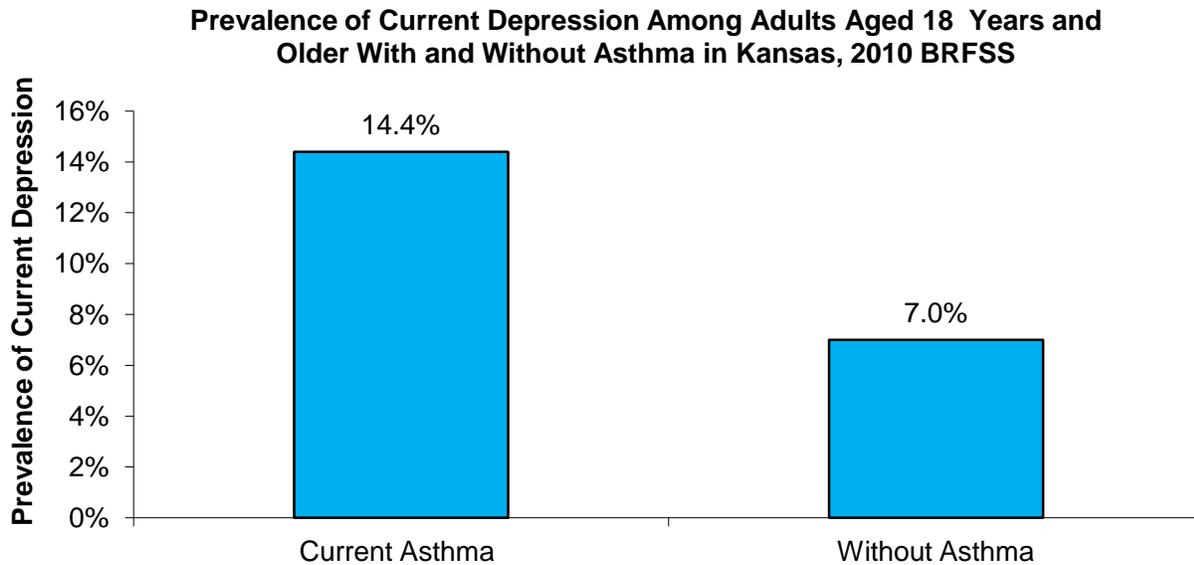
Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

There was no statistical difference in the prevalence of current depression among binge drinkers (defined as males having five or more drinks or females having four or more drinks on one occasion) and non-binge drinkers of alcohol and among heavy drinkers (defined as adult men having more than two drinks per day and adult women having more than one drink per day) and non heavy drinkers of alcohol (Table 11). However, these results should be interpreted with caution due to small numbers.

Chronic Diseases and Current Depression

The prevalence of current depression was higher among adults with current asthma (14.4% [95% CI: 9.8%-19.1%]) as compared to adults without current asthma (7.0% [95% CI: 6.0%-8.1%]) as shown in figure 26.

Figure 26



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

There was no statistical difference in the prevalence of current depression among adults with diabetes as compared to adults without diabetes. Also, there was no statistical difference in the prevalence of current depression among adults who had coronary heart disease as compared to adults who did not have coronary heart disease.

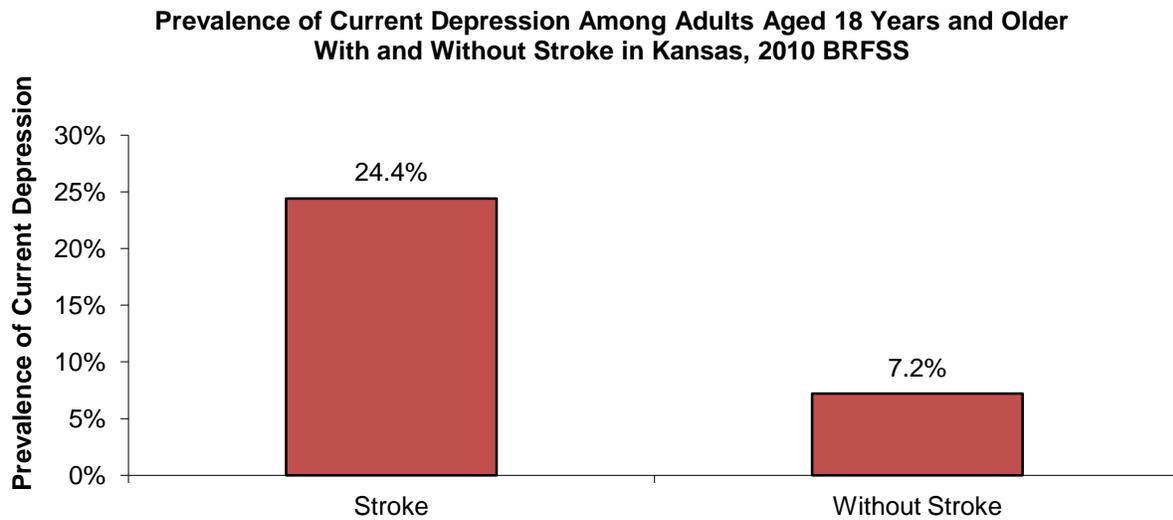
The prevalence of current depression was higher among adults who had a stroke (24.4% [95% CI: 14.2%-34.6%]) as compared to adults without stroke (7.2% [95% CI: 6.2%-8.2%]) as shown in figure 27.

Table 12. Prevalence of current depression among adults aged 18 years and older by chronic disease status, Kansas 2010

Chronic Disease	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Current Asthma			
No	239	7.0	6-8.1
Yes	49	14.4	9.8-19.1
Diabetes			
Yes	49	10.4	7.1-13.8
No	241	7.4	6.3-8.5
Coronary Heart Disease			
Yes	29	12.7	7.1-18.2
No	259	7.4	6.4-8.5
Stroke			
Yes	28	24.4	14.2-34.6
No	262	7.2	6.2-8.2

Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Figure 27

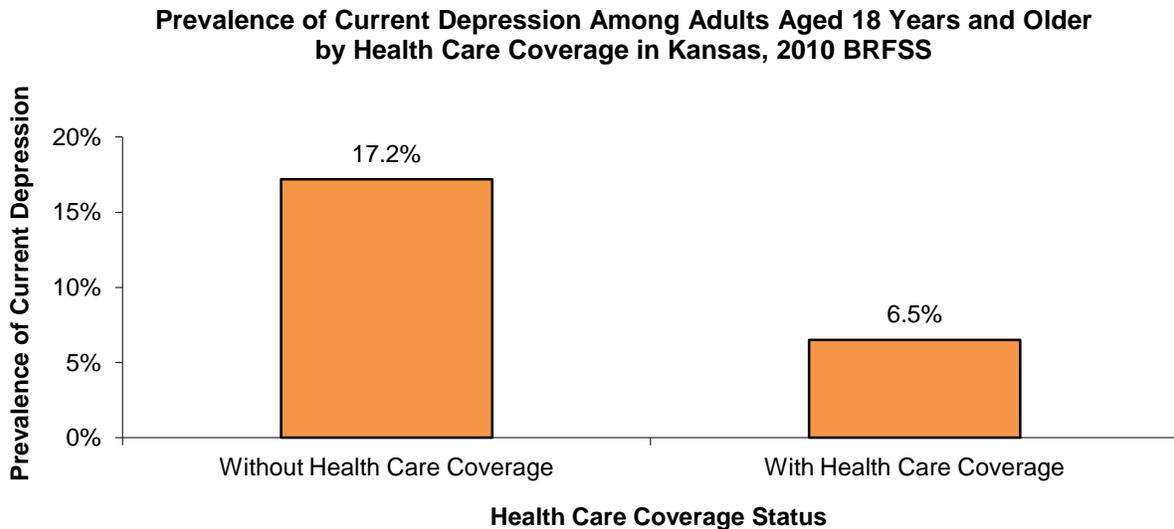


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Health Care Access and Current Depression

Higher prevalence of current depression was seen among adults without health care coverage (17.2% [95% CI: 12.0%-22.4%]) as compared to adults with health care coverage (6.5% [95% CI: 5.5%-7.5%]) as shown in figure 28.

Figure 28



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

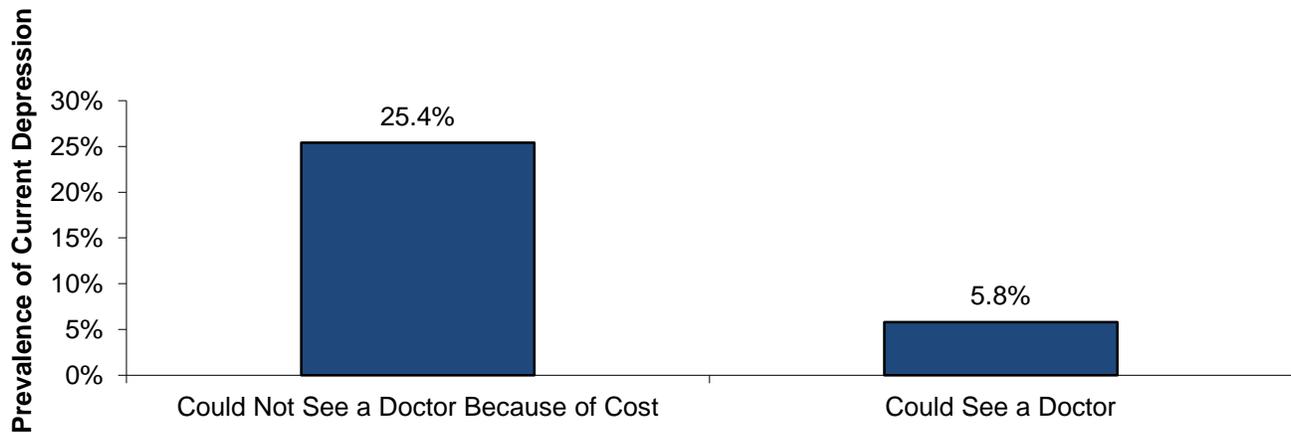
There was no statistical difference in the prevalence of current depression among adult Kansans with and without personal health care provider as shown in table 13.

Medical Cost and Current Depression

The prevalence of current depression was higher among adults (25.4% [95% CI: 19.6%-31.3%]) who needed to see a doctor in the past twelve months but could not because of the cost as compared to adults who were able to see a doctor without cost being a barrier to seek health care (5.8% [95% CI: 4.9%-6.8%]) as shown in figure 29.

Figure 29

Prevalence of Current Depression Among Adults Aged 18 Years and Older Able or Unable to see doctor because of cost in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 13. Prevalence of current depression among adults aged 18 years and older by health care access status, Kansas 2010

Health Care Access Status	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Health care coverage			
Yes	239	6.5	5.5-7.5
No	51	17.2	12-22.5
Personal health care provider			
Yes	250	7.0	6-8
No	40	12.2	7.9-16.4
Could not see doctor because of cost			
Yes	82	25.4	19.6-31.3
No	207	5.8	4.9-6.8

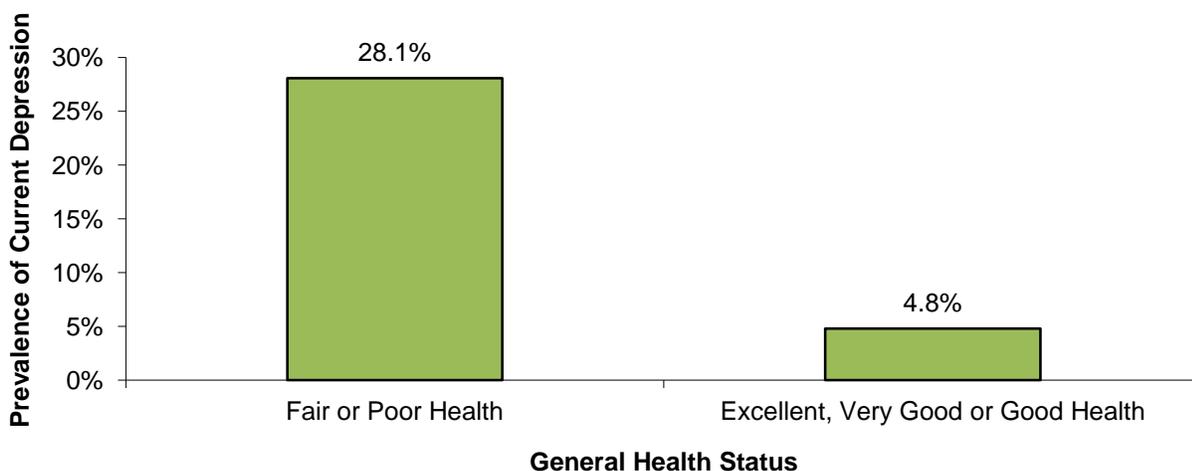
Among 3,789 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Self-rated Health and Current Depression

The prevalence of current depression was higher among adults (28.1% [95% CI: 23.3%-32.9%]) who rated their health as fair or poor as compared to adults (4.8% [95% CI: 3.8%-5.7%]) who rated their health as excellent, very good or good as shown in figure 30.

Figure 30

Prevalence of Current Depression Among Adults Aged 18 Years and Older by Health Status in Kansas, 2010 BRFSS



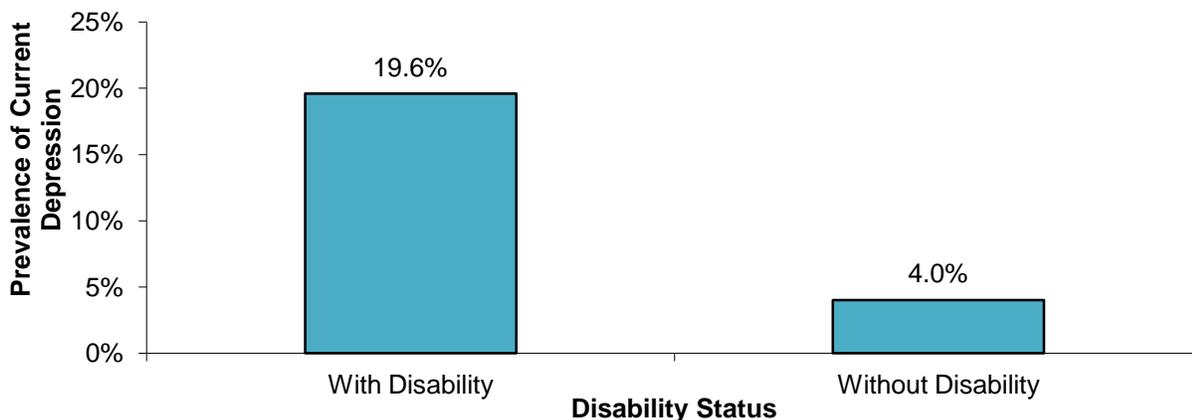
Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Disability and Current Depression

As mentioned previously, disability is defined as adults who reported they were limited in any activities because of physical, mental, or emotional problems or who reported having a health problem that requires them to use special equipment such as a cane, wheelchair, a special bed, or a special telephone. The higher prevalence of current depression appeared to be associated with disability. The prevalence of current depression was about four times higher among adults living with disability (19.6% [95% CI: 16.6%-22.7%]) as compared to adults living without a disability (4.0% [95% CI: 3.1%-4.9%]) as shown in figure 31.

Figure 31

Prevalence of Current Depression Among Adults Aged 18 Years and Older by Disability Status, Kansas 2010



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

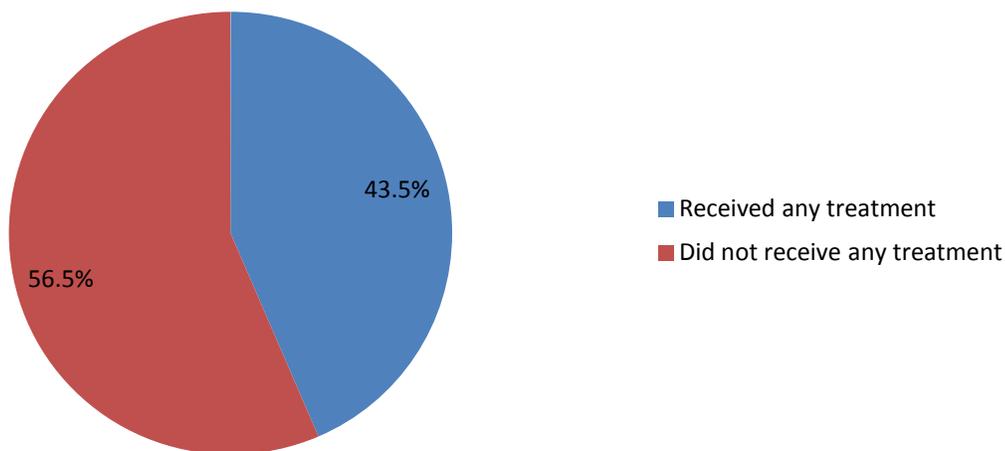
Depression Treatment

One of the objectives addressing mental health issues recommended by the Healthy People 2010 plan is to increase the proportion of adults with recognized depression who receive treatment. Depression is a treatable condition. Available medications and psychological treatments, alone or in combination, can help 80 percent of those with depression. With adequate treatment, future episodes of depression can be prevented or reduced in severity. Treatment for depression can enable people to return to satisfactory, functioning lives. The Healthy people 2010 target for the adults aged 18 years and older with recognized depression to receive treatment is 64 %.

Before 2008, data on treatment among Kansans with depression were not available. In 2008 and again in 2010, a set of seven questions to assess the treatment status among adults with depression was asked in the Kansas BRFSS survey. Treatment was defined as any treatment or hospitalization for sadness, discouragement or lack of interest at any time in the past 12 months. In Kansas about 4 in 10 (43.5%) adults aged 18 years and older who had symptoms of depression over a period of two weeks and longer in the past 12 months received treatment (figure 32).

Figure 32

Depression Treatment Among Adults Aged 18 Years and Older With Depressive Symptoms, Kansas 2010



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Sociodemographic Profile of Adults with Symptoms of Depression with and without treatment

Table 14. Prevalence of ever received treatment among adults aged 18 years and older who had depression symptoms by sociodemographic characteristics, Kansas 2010

	Received Treatment for Depression Symptoms			Did not Receive Treatment for Depressive Symptoms		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Age groups						
18-34 years	27	42.1	26.5-57.7	29	57.9	42.3-73.5
35-44 years	38	42.6	30-55.2	43	57.4	44.8-70
45-54 years	69	48.8	39.1-58.5	64	51.2	41.5-60.9
55-64 years	71	47.5	38-57	71	52.5	43-62
65 years and above	53	34.1	24.7-43.5	95	65.9	56.5-75.3
Gender						
Males	59	32.3	23.5-41.1	113	67.7	58.9-76.5
Females	199	51.5	45.3-57.7	189	48.5	42.3-54.7
Race and Ethnicity						
Non-Hispanic Whites only	218	44.5	38.7-50.2	253	55.5	49.8-61.3
Non-Hispanic African Americans only	19	42.3	23.7-60.9	18	57.7	39.1-76.3
Hispanic	9	31.6	10.4-52.8	18	68.4	47.2-89.6
Ethnicity						
Hispanic	9	31.6	10.4-52.8	18	68.4	47.2-89.6
Non-Hispanic	249	44.6	39.2-50.1	284	55.4	49.9-60.8
Education						
Less than high school	20	32.4	15.1-49.7	23	67.6	50.3-84.9
High school graduate or G.E.D	63	36.0	26.3-45.6	99	64.0	54.4-73.7
Some college	91	49.9	40.9-58.9	99	50.1	41.1-59.1
College graduate	84	48.1	38.8-57.5	80	51.9	42.5-61.2
Annual household income						
< \$ 15,000	48	47.4	33.7-61.1	41	52.6	38.9-66.3
\$15,000 - \$24,999	49	41.0	29.2-52.7	62	59.0	47.3-70.8
\$25,000 - \$34,999	21	26.4	12.2-40.6	47	73.6	59.4-87.8
\$35,000 - \$49,999	31	42.2	27.8-56.6	39	57.8	43.4-72.2
>= \$50,000	78	51.3	41.7-60.9	76	48.7	39.1-58.3
Marital status						
Married / Member of Unmarried Couple	121	45.2	38.1-52.4	140	54.8	47.6-61.9
Divorced / Separated	71	46.2	35.6-56.8	74	53.8	43.2-64.4
Widowed	40	44.8	32-57.7	53	55.2	42.3-68
Never married	25	30.5	14.9-46.2	35	69.5	53.8-85.1

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Non-Hispanic Other Race* and Non Hispanic Multiracial only categories are not reported because of small cell size.

*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

There was no statistical difference in the prevalence of receiving treatment among adult Kansans with depressive symptoms by age, gender, race, ethnicity, education, annual household income and marital status as shown in table 14.

The respondents who had depression symptoms but did not receive the treatment were asked the main reason for not receiving the treatment. The top three reasons include: just did not seek treatment (27.5%), could not afford the treatment (23.0%); and they did not feel the need or felt that their symptoms were not severe enough (21.1%) as shown in table 15.

Table 15. Percentage of adults aged 18 years and above with depressive symptoms main reason for not receiving treatment in the past 12 months.

Reasons for not receiving treatment	Frequency (n)	Weighted Percentage (%)
Just did not seek treatment	69	27.5
Could not afford/cost/too expensive	52	23
Did not feel need/not severe enough for treatment	70	21.1
Illness or death of family member or friend	34	8.1
Other (Specify)	19	8.1
Do not have/know a health provider	5	2.7
Work related situation or stress	8	2.6
Fear/apprehension/nervousness/ dislike going	8	2.2
Other physical ailments	7	1.6
Do not want to take prescribed medications	5	1
Hours aren't convenient	4	0.9
Denial that needs treatment	2	0.8
Lack transportation/too far away	2	0.4

Among 302 adult respondents

The Status of Ever Being Diagnosed with Anxiety in Kansas

The 2010 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if a healthcare provider ever told them that they 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). The data from this question was used to analyze and report the results for prevalence of lifetime or ever being diagnosed with anxiety, among adults 18 years and older in Kansas.

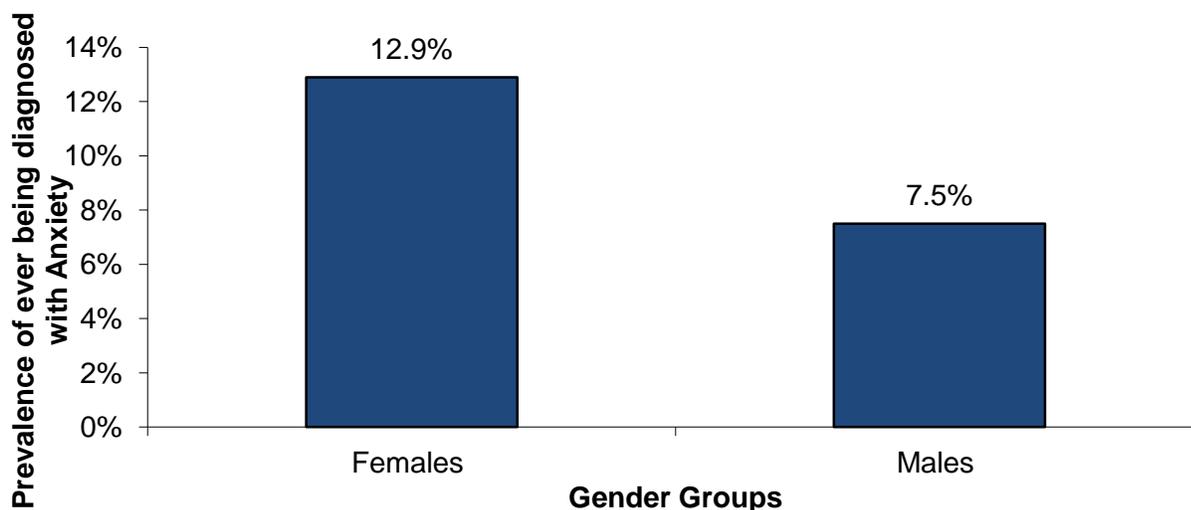
In Kansas, according to the 2010 Behavioral Risk Factor Surveillance System Survey, an estimated 218,996 (10.3%) adults aged 18 years and older had ever been diagnosed with anxiety.

Sociodemographic Profile of Adults With Anxiety

In 2010, the prevalence of ever being diagnosed with anxiety was higher among females as one in eight (12.9% [95% CI: 11.3%-14.5%]) adult women were ever being diagnosed with anxiety as compared to one in fourteen (7.5% [95% CI: 5.8%-9.2%]) males (figure 33).

Figure 33

Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older by Gender in Kansas, 2010 BRFSS



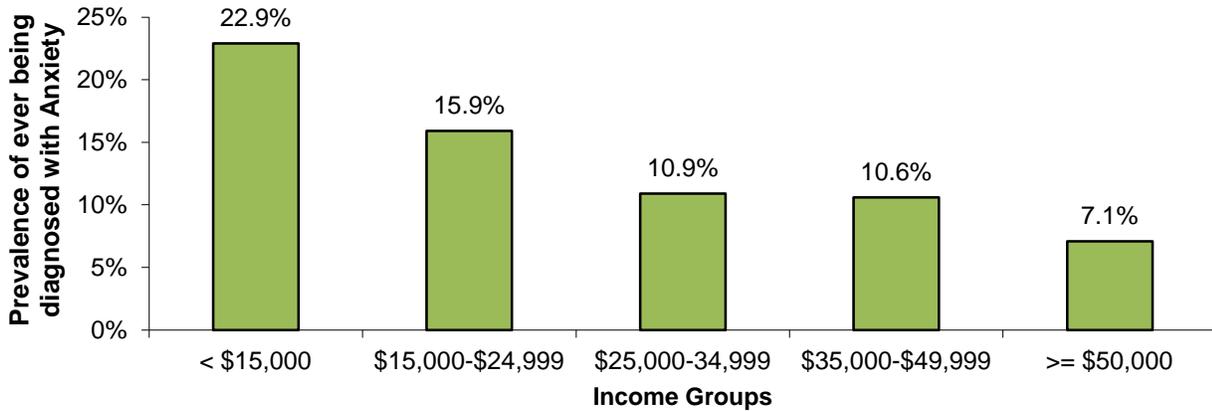
Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with anxiety appeared to be associated with lower socioeconomic status. Higher prevalence of ever being diagnosed with anxiety was seen among adults with lower annual household income and among individuals that were unable to work. The prevalence of ever being diagnosed with anxiety was 22.9% (95% CI: 16.9%-29.0%) among adults with an annual household income of less than \$15,000 as compared to 7.1% (95% CI: 5.7%-8.6%) adults with an annual household income greater than \$50,000 (figure 34). Among adults who were unable to work,

the prevalence of ever being diagnosed with anxiety was 41.9% (95% CI: 33.6%-50.3%) as compared to 8.0% (95% CI: 6.5%-9.4%) in adults who were employed (figure 35).

Figure 34

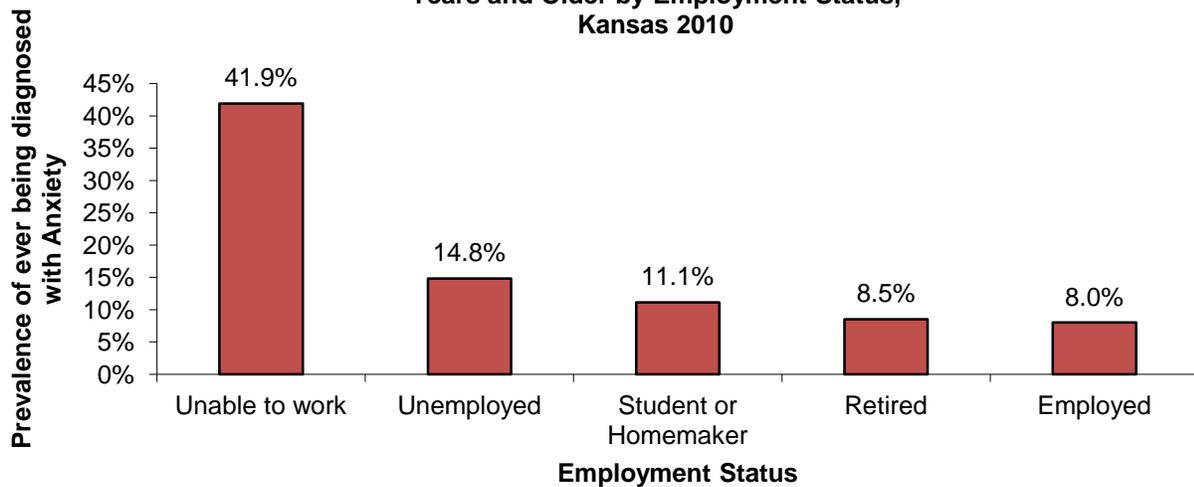
Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older by Annual Household Income Level, Kansas 2010



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Figure 35

Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older by Employment Status, Kansas 2010

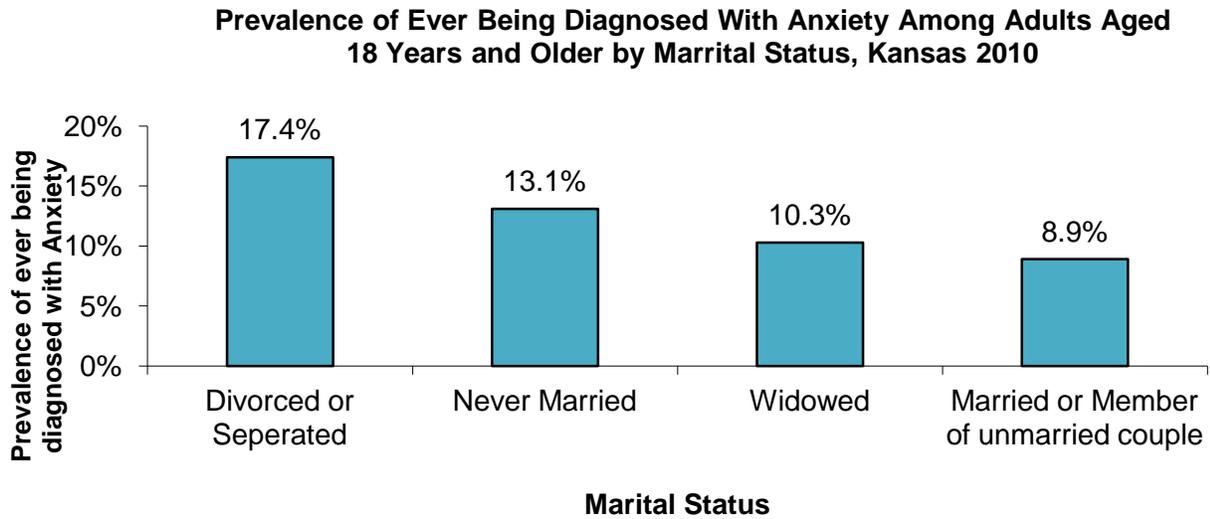


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with anxiety was higher among adults who were divorced or separated (17.4% [95% CI: 13.7%-21.0%]) as compared to adults who were married (8.9% [95% CI 7.6%-10.1%]) as shown in figure 36.

There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults with different educational levels (table 16).

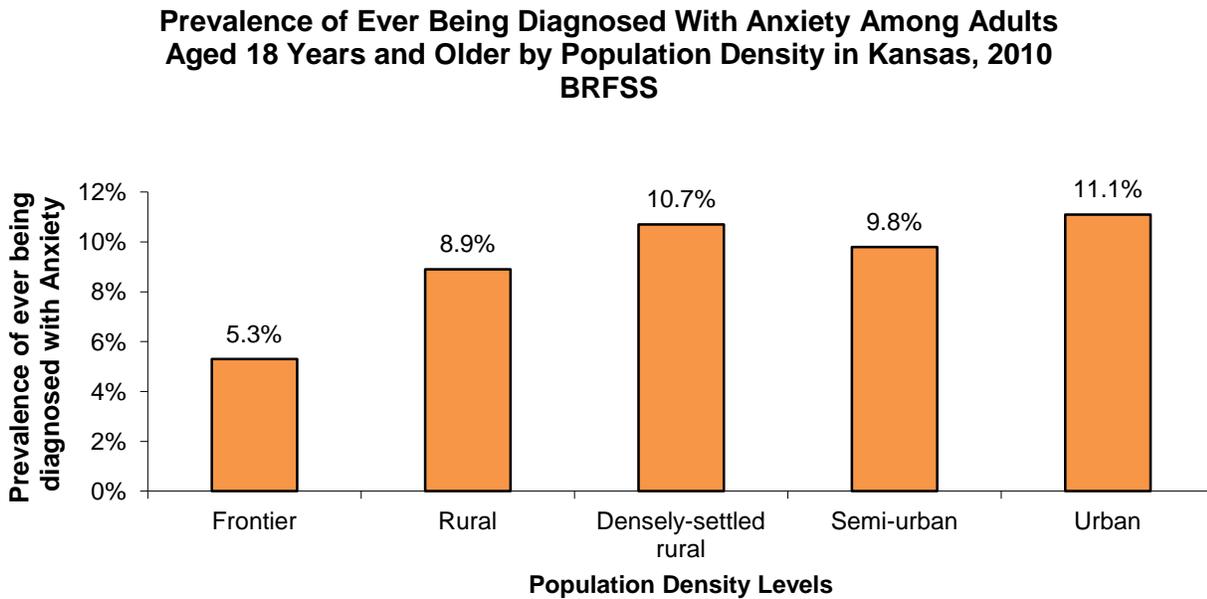
Figure 36



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The higher prevalence of ever being diagnosed with anxiety was seen among adults that reside in the urban region of the state 11.1% (95% CI: 9.4%-12.8%) as compared to adults who reside in the frontier region 5.3% (95% CI: 1.9%-8.7%) as shown in figure 37.

Figure 37



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 16. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by sociodemographic characteristics, Kansas 2010

Sociodemographic Characteristics	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Gender						
Males	118	7.5	5.8-9.2	1474	92.5	90.8-94.2
Females	330	12.9	11.3-14.5	2254	87.1	85.5-88.7
Education						
Less than high school	36	15.5	9.1-21.8	212	84.5	78.2-90.9
High school graduate or G.E.D	125	10.2	7.9-12.4	1072	89.8	87.6-92.1
Some college	138	11.5	9.1-13.8	1027	88.5	86.2-90.9
College graduate	149	8.7	7.1-10.4	1411	91.3	89.6-92.9
Annual household income						
< \$ 15,000	71	22.9	16.9-29	238	77.1	71-83.1
\$15,000 - \$24,999	84	15.9	11.5-20.2	492	84.1	79.8-88.5
\$25,000 - \$34,999	56	10.9	7.7-14.2	426	89.1	85.8-92.3
\$35,000 - \$49,999	59	10.6	7.3-13.9	561	89.4	86.1-92.7
>= \$50,000	131	7.1	5.7-8.6	1531	92.9	91.4-94.3
Employment status						
Employed for wages / Self-employed	183	8.0	6.5-9.4	1963	92.0	90.6-93.5
Out of work (unemployed)	31	14.8	9-20.6	138	85.2	79.4-91
Homemaker / Student	37	11.1	7.1-15.2	288	88.9	84.8-92.9
Retired	104	8.5	6.7-10.4	1198	91.5	89.6-93.3
Unable to work	90	41.9	33.6-50.3	134	58.1	49.7-66.4
Marital status						
Married / Member of Unmarried Couple	234	8.9	7.6-10.1	2295	91.1	89.9-92.4
Divorced / Separated	102	17.4	13.7-21	502	82.6	79-86.3
Widowed	58	10.3	7.1-13.5	602	89.7	86.5-92.9
Never married	53	13.1	8.1-18	324	86.9	82-91.9
Population Density (5 Level)*						
Frontier	10	5.3	1.9-8.7	151	94.7	91.3-98.1
Rural	57	8.9	6-11.7	577	91.1	88.3-94
Densely-settled rural	56	10.7	7.3-14.1	487	89.3	85.9-92.7
Semi-urban	73	9.8	7.3-12.3	591	90.2	87.7-92.7
Urban	252	11.1	9.4-12.8	1921	88.9	87.2-90.6
Population Density (2 Level)*						
Rural	123	9.2	7.2-11.2	1215	90.8	88.8-92.8
Urban	325	10.8	9.3-12.2	2512	89.2	87.8-90.7

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

*See the definition of regions based on population density on page 59

There was no statistical difference in the prevalence of ever being diagnosed with anxiety by age, race and ethnicity as shown in table 17.

Table 17. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by age, race and ethnicity categories in Kansas, 2010 BRFSS

	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Age groups						
18-24 years	13	12.1	4.7-19.6	94	87.9	80.4-95.3
25-34 years	33	9.9	6.2-13.7	270	90.1	86.3-93.8
35-44 years	77	12.3	9.2-15.3	480	87.7	84.7-90.8
45-54 years	94	10.1	7.9-12.3	666	89.9	87.7-92.1
55-64 years	116	10.6	8.6-12.7	870	89.4	87.3-91.4
65 years and above	115	7.9	6.3-9.5	1348	92.1	90.5-93.7
Race and Ethnicity						
Non-Hispanic Whites only	386	10.1	8.9-11.3	3275	89.9	88.7-91.1
Non-Hispanic African Americans only	26	11.8	6.8-16.9	169	88.2	83.1-93.2
Non-Hispanic Other race* only	11	19.7	3.9-35.5	66	80.3	64.5-96.1
Non Hispanic Multiracial only	9	10.9	3.1-18.7	60	89.1	81.3-96.9
Hispanic	15	7.6	3.3-12	147	92.4	88-96.7
Ethnicity						
Hispanic	15	7.6	3.3-12	147	92.4	88-96.7
Non-Hispanic	432	10.4	9.2-11.6	3578	89.6	88.4-90.8

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

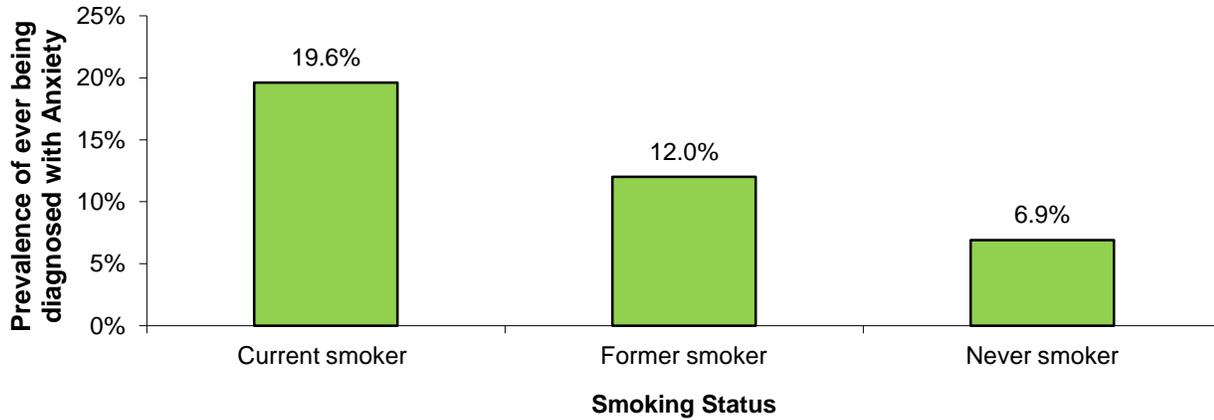
*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

Adverse Health Behaviors and Anxiety

Higher prevalence of ever being diagnosed with anxiety was seen among current cigarette smokers (19.6% [95% CI: 15.4%-23.8%]) as compared to non-smokers (6.9% [95% CI: 5.7%-8.1%]) and former cigarette smokers (12.0% [95% CI: 9.6%-14.4%]) as shown in figure 38.

Figure 38

Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older by Smoking Status in Kansas, 2010 BRFSS

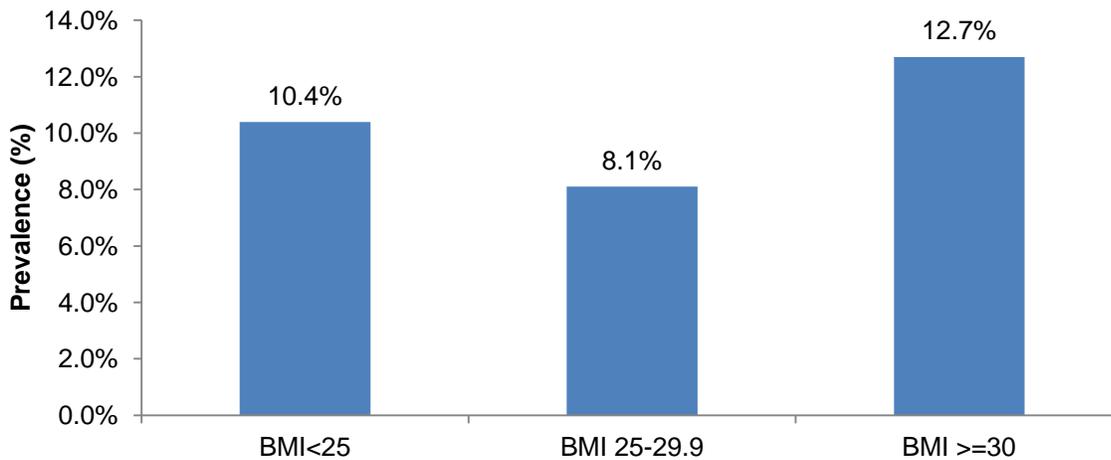


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with anxiety was higher among adults who were obese (12.7% [95% CI: 10.4%-15.0%]) as compared to overweight (8.1% [95% CI 6.2%-10.0%]) as shown in figure 39.

Figure 39.

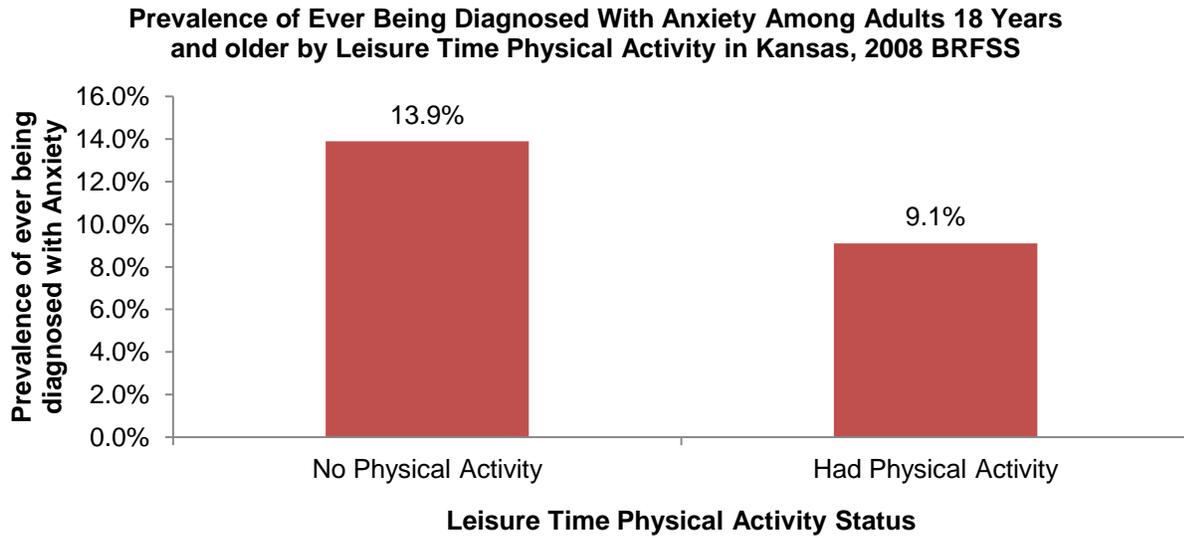
Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older by BMI status in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with anxiety was higher among adults who did not participate in any physical activity or exercise other than their regular job (13.9% [95% CI: 11.3%-16.6%]) compared to adults who participate in any physical activity or exercise (9.1% [95% CI: 7.8%-10.4%]) as shown in figure 40.

Figure 40.



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 18. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2010

Adverse Health Behavior Characteristics	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Weight Status						
Normal or underweight (body mass index < 25.0 kg/m ²)	144	10.4	8.4-12.4	1244	89.6	87.6-91.6
Overweight (body mass index 25.0-29.9 kg/m ²)	124	8.1	6.2-10	1293	91.9	90-93.8
Obese (body mass index ≥ 30.0 kg/m ²)	163	12.7	10.4-15	1030	87.3	85-89.6
Smoking status						
Current smoker	122	19.6	15.4-23.8	483	80.4	76.2-84.6
Former smoker	141	12.0	9.6-14.4	1081	88.0	85.6-90.4
Never smoker	183	6.9	5.7-8.1	2142	93.1	91.9-94.3
Exercise						
Yes	293	9.1	7.8-10.4	2742	90.9	89.6-92.2
No	154	13.9	11.3-16.6	980	86.1	83.4-88.7

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults among binge drinkers (defined as males having five or more drinks or females having four or more drinks on one occasion) and non-binge drinkers of alcohol and among heavy drinkers (defined as adult men having more than two drinks per day and adult women having more than one drink per day) and non heavy drinkers of alcohol. (table19)

Table 19. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by binge and heavy drinking categories in Kansas, 2010 BRFSS

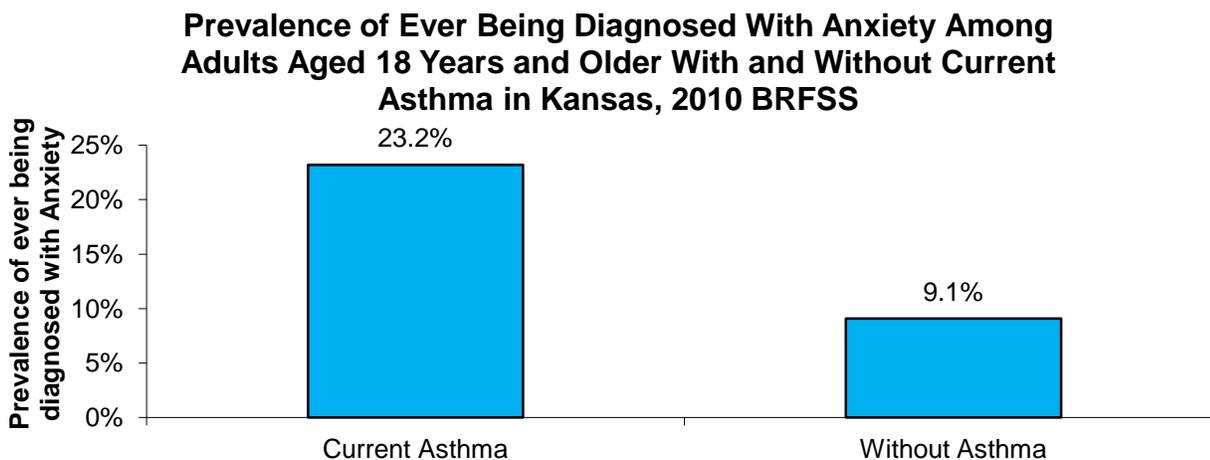
	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Binge drinking						
No	401	10.1	8.9-11.2	3343	89.9	88.8-91.1
Yes	44	11.3	7-15.6	341	88.7	84.4-93
Heavy drinking						
No	427	9.9	8.8-11	3571	90.1	89-91.2
Yes	17	15.9	6.2-25.7	93	84.1	74.3-93.8

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Chronic Diseases and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults with current asthma (23.2% [95% CI: 17.3%-29.1%]) as compared to adults without current asthma (9.1% [95% CI: 7.9%-10.2%]) as shown in figure 41.

Figure 41



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 20. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by chronic diseases, Kansas 2010

Chronic Disease	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Asthma						
No	364	9.1	7.9-10.2	3434	90.9	89.8-92.1
Yes	80	23.2	17.3-29.1	270	76.8	70.9-82.7
Diabetes						
Yes	56	11.2	7.6-14.8	460	88.8	85.2-92.4
No	390	10.1	8.8-11.3	3263	89.9	88.7-91.2
Coronary Heart Disease						
Yes	41	17.8	11.8-23.8	229	82.2	76.2-88.2
No	400	9.8	8.6-11.1	3465	90.2	89-91.4
Stroke						
Yes	36	21.6	13.4-29.9	157	78.4	70.1-86.6
No	411	9.9	8.7-11.1	3563	90.1	88.9-91.3

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

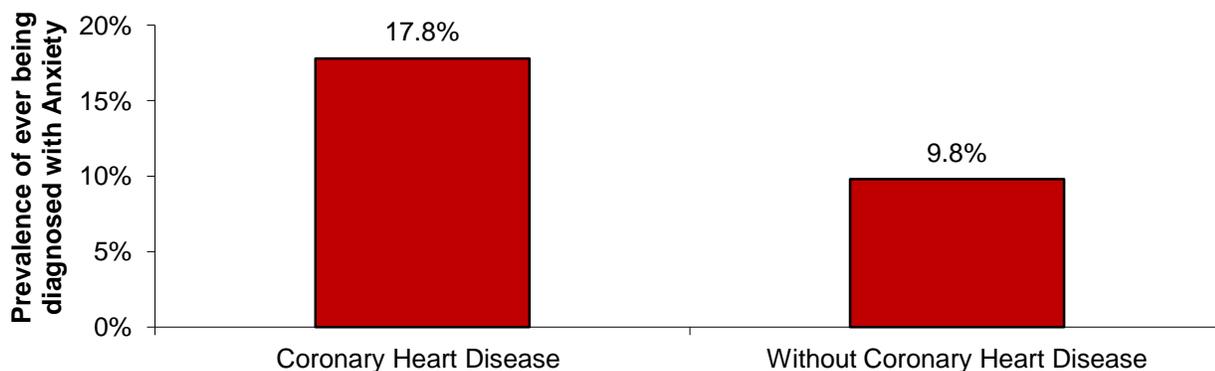
There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults with and without diagnosed diabetes (table 20).

Among adults with coronary heart disease, the prevalence of ever being diagnosed with anxiety was higher (17.8% [95% CI: 11.8%-23.8%]) as compared to adults without coronary heart disease (9.8% [95% CI: 8.6%-11.0%]) as shown in figure 42 and table 20.

Higher prevalence of ever being diagnosed with anxiety was seen among adults with stroke (21.6% [95% CI: 13.4%-29.9%]) as compared to adults without stroke (9.9% [95% CI: 8.7%-11.1%]) as shown in figure 43 and table 20.

Figure 42

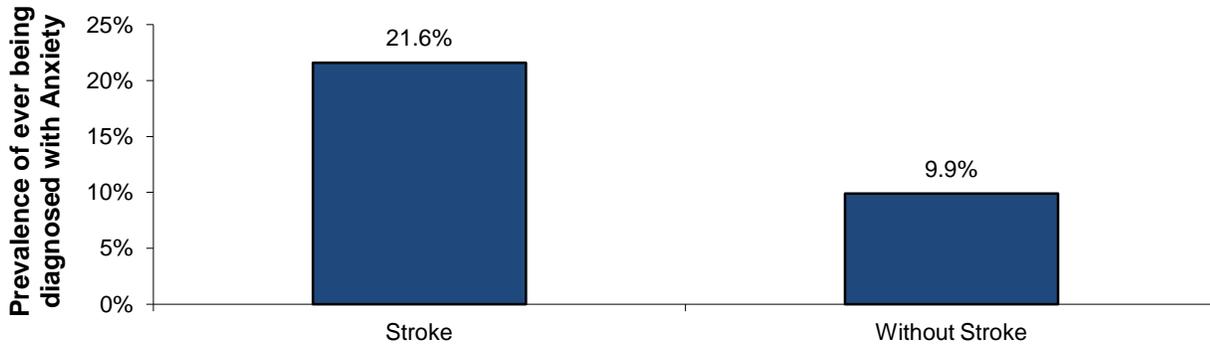
Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older With and Without Coronary Heart Disease in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Figure 43

Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older With and Without Stroke in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System

Health Care Access and Anxiety

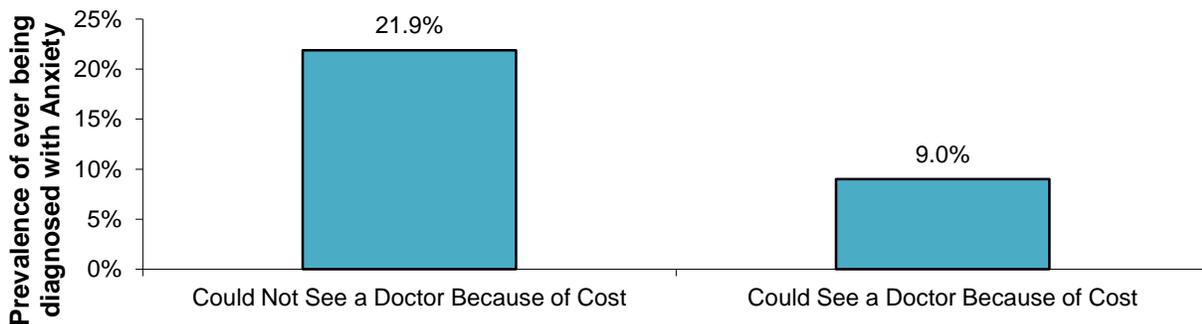
There was no statistical difference in the prevalence of ever receiving a diagnosis of anxiety among adult Kansans with and without having health care coverage and with and without a personal health care provider as shown in table 21.

Medical Cost and Anxiety

The prevalence of ever receiving a diagnosis of anxiety was higher among adults (21.9% [95%CI: 16.4%-27.4%]) who needed to see a doctor in the past twelve months but could not because of the cost as compared to adults who were able to see the doctor (9.0% [95%CI: 7.8%-10.1%]) as shown in figure 44.

Figure 44

Prevalence of Ever Being Diagnosed With Anxiety Among Adults Aged 18 Years and Older Able and Unable to See a Doctor Because of Cost in Kansas, 2010 BRFSS



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 21. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by health care access status, Kansas 2010

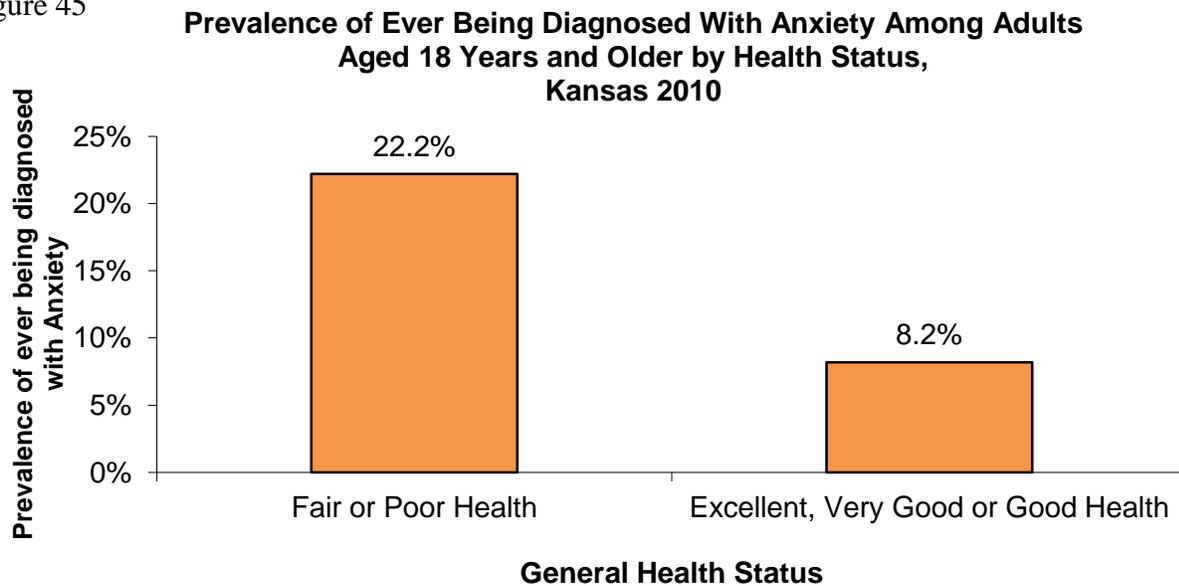
Health Care Access Status	Ever Being Diagnosed with Anxiety, BRFSS 2010			No Anxiety, BRFSS 2010		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Health care coverage						
Yes	396	10.1	8.9-11.3	3423	89.9	88.7-91.1
No	51	11.6	8-15.2	297	88.4	84.8-92
Personal health care provider						
Yes	405	10.4	9.2-11.7	3387	89.6	88.3-90.8
No	42	9.0	5.8-12.3	339	91.0	87.7-94.2
Could not see doctor because of cost						
Yes	87	21.9	16.4-27.4	284	78.1	72.6-83.6
No	360	9.0	7.8-10.1	3434	91.0	89.9-92.2

Among all 4,272 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

Self-rated Health and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults (22.2% [95% CI: 18.0%-26.4%]) who rated their health as fair or poor as compared to adults (8.2% [95% CI: 7.1%-9.4%]) who rated their health as excellent, very good or good as shown in figure 45.

Figure 45

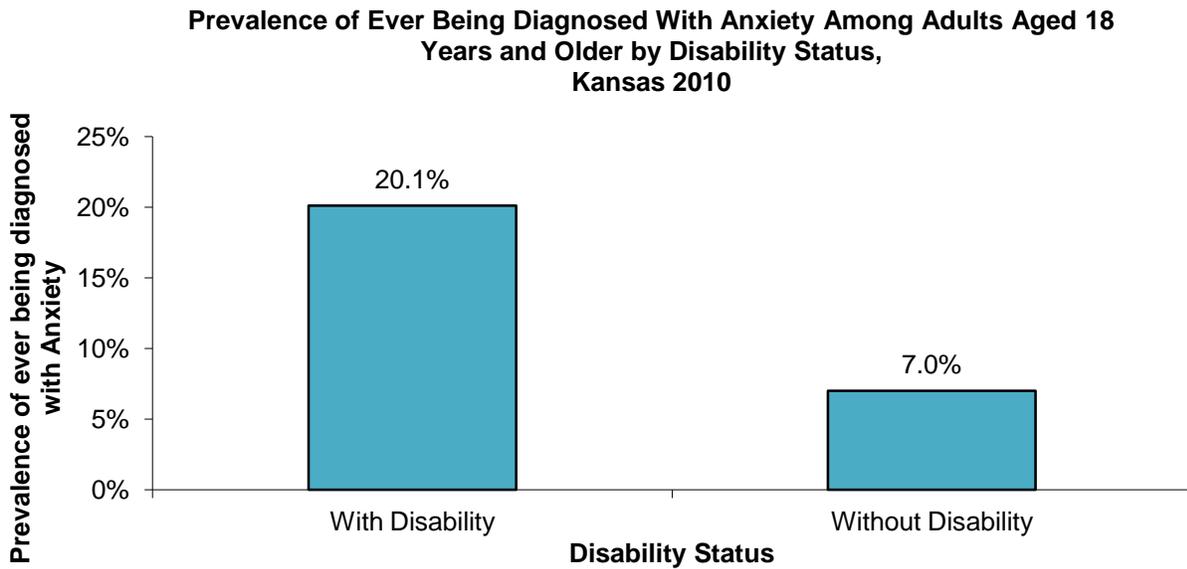


Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Disability and Anxiety

As mentioned previously, disability is defined as adults who reported they were limited in any activities because of physical, mental, or emotional problems or who reported having a health problem that requires them to use special equipment such as a cane, wheelchair, a special bed, or a special telephone. The prevalence of ever being diagnosed with anxiety appeared to be associated with disability. The prevalence of ever being diagnosed with anxiety was almost three times higher among adults living with a disability (20.1% [95% CI: 17.3%-22.9%]) as compared to adults without a disability (7.0% [95% CI: 5.8%-8.3%]) as shown in figure 46.

Figure 46



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Technical Notes

2010 Kansas BRFSS Design and Methodology:

The Behavioral Risk Factor Surveillance System (BRFSS) is a random digit dial telephone survey among non-institutionalized adults age 18 years and older. In addition, adult respondents provide limited data on a randomly selected child in the household via surrogate interview. The BRFSS is coordinated and partially funded by the Centers for Disease Control and Prevention and is the largest continuously conducted telephone survey in the world. It is conducted in every state, the District of Columbia and several United States territories. The first BRFSS survey in Kansas was conducted as a point-in-time survey in 1990 and since 1992 Kansas has conducted the BRFSS survey annually.

The 2010 BRFSS questionnaire in its entirety included 222 questions. The survey interview took on an average about 19-20 minutes to complete. The 2010 Kansas BRFSS survey included questions on health status, healthy days, health care access, sleep, exercise, diabetes, oral health, cardiovascular disease prevalence, asthma, disability, tobacco use, demographics, alcohol consumption, immunization, falls, seatbelt use, drinking and driving, women's health, prostate cancer screening, colorectal cancer screening, HIV/AIDS, emotional support and life satisfaction, average hours worked, random child selection module, childhood asthma prevalence, and questions pertaining to asthma call back survey, pre-diabetes, diabetes, diabetes, diabetes assessment, heart attack and stroke, tobacco indicators, oral health, anxiety and depression, depression treatment, arthritis burden, disability, inadequate sleep.

The overall goal of the BRFSS is to develop and maintain the capacity for conducting population based health risk surveys in Kansas. BRFSS data are used to monitor the leading contributors to morbidity and premature death, track health status and assess trends, measure knowledge, attitudes, and opinions, policy development, evaluation. It is also used in program planning in terms of needs assessment, development of goals and objectives and identification of target groups.

Data from BRFSS are weighted to account for the complex sample design and non-response bias so that the resulting estimates will be representative of the underlying population as a whole as well as for selected subpopulations.

For more information about Kansas BRFSS, including past questionnaires and estimates, please visit: www.kdheks.gov/brfss/index.html

Questionnaire Design:

The BRFSS survey is conducted by all states and consists of a core section and optional modules/state-added questions section. The core section of the survey is consistent across all states as this section includes questions prescribed by the CDC. The optional modules are selected by each state from a bank of CDC-supported modules. Additionally each state may design its own modules (state-added modules).

Each year, stakeholders are invited to attend an annual planning meeting and propose optional modules and state added questions to be added to the survey. Then, a survey selection committee consisting of the BRFSS Coordinator, Director of Science and Surveillance/Health Officer II, and Director of Bureau of Health Promotion meet to determine the final questionnaire content which is reviewed by State Health Officer for final approval. The survey selection committee uses a specific set of criteria to determine the questionnaire's content.

The Kansas BRFSS uses a split questionnaire design. It consists of the core section, which is designed by CDC and asked of all respondents and then the survey splits into two "branches" of optional modules/state-added modules. After each respondent is asked the core questions, they are either asked questions in questionnaire A (also called Part A) or questionnaire B (also called Part B) of the survey. Respondents are randomly assigned to one of these two arms of the survey. Approximately half of the respondents receive questionnaire A and the remaining receive questionnaire B.

Advantages of a split questionnaire:

- Collect data on numerous topics within one data year
- Collect in-depth data on one specific topic
- Ability to keep questionnaire time and length to a minimum

Disadvantages of a split questionnaire:

- Complexity of data weighting; additional weighting factors are needed
- Variables on questionnaire A cannot be analyzed with variables on questionnaire B

Anxiety and Depression Module:

The module was included in part B of the questionnaire. Data for this module was collected from 4272 respondents.

Depression Treatment Module:

The module was included in part B of the questionnaire. Data for this module was collected from 667 respondents who reported having ever been told by a health professional that they have depressive disorder (including depression, major depression, dysthymia, or minor depression).

Survey Methodology:

- **Sampling**

The 2010 BRFSS used a disproportionate stratified sample consisting of ten geographical strata. These 10 geographical strata include; Johnson county, Sedgwick county, Shawnee county, Wyandotte county, Northwest public health district, Southwest public health district, North Central public health district, South Central public health district excluding Sedgwick county, Northeast public health

district excluding Johnson, Shawnee and Wyandotte counties, and Southeast public health district. The sample drawn from each geographical stratum was based on population size within each geographical stratum, the confidence level and the margin of error. This sampling methodology includes random selection of telephone numbers within geographical strata comprised of county groupings, and is commonly used to increase collection from geographically identifiable subpopulations, to increase the accuracy of prevalence estimates for small area estimates, such as rural areas. Thus, the sampling methodology of the 2010 survey and for future Kansas BRFSS will address the need to collect adequate sample to provide local or county level data. These data are needed to determine priority health issues, to identify population subgroups at higher risk of illness, and to monitor the health status of local communities. This goal can be achieved by providing BRFSS data for the individual counties (counties with bigger population sizes) and for groups of counties with very small populations.

Approximately the same number of persons was called each month throughout the calendar year to reduce bias caused by seasonal variation of health risk behaviors. Potential working telephone numbers were dialed during three separate calling periods (daytime, evening, and weekends) for a total of 15 call attempts before being replaced. Upon reaching a valid household number, one household member ages 18 years or older was randomly selected. If the selected respondent was not available, an appointment was made to call at a later time or date. Because respondents were selected at random and no identifying information was solicited, all responses to this survey are anonymous.

- **Response Rate**

The CASRO (Council of American Survey Research Organizations) response rate is used as a measure of quality of data. The 2010 Kansas BRFSS achieved a rate of 60.0% indicating reliable results. The CASRO formula is based on the number of interviews completed, the number of households reached, and the number of households with unknown eligibility status. The CASRO response rate is used because in addition to those persons who refused to answer questions, lack of response can also arise because household members were not available despite repeated call attempts, or household members refused to pick up the phone based on what they detect from caller ID.

- **Weighting Procedure**

Data weighting is an important statistical process that attempts to remove bias in the sample. It corrects for differences in the probability of selection due to non-response and non-coverage errors. It adjusts variables of age and gender between the sample and the entire population. Data weighting also allows the generalization of findings to the whole population, not just those who respond to the survey. In BRFSS survey, the design factors that affect weighting include; number of residential telephones in household, number of adults in household and geographic or density stratification. This allows comparability of data. Additional facts about data weighting are as follows:

- Weighting consists of a lot more than post-stratification.
- Weighting for design factors has more of an effect on final results than does post-stratification.
- Weighting affects both the point estimate (bias) and confidence intervals (precision).

- **Sample Size:**

The analysis in this report is based on adequate sample size to provide scientifically reliable and precise estimates.

Data Analysis:

For BRFSS, the weighted data analysis is conducted to estimate overall prevalences of the risk factors, diseases and behaviors among adults 18 years and older in Kansas. On some questions which pertain to a particular topic, only respondents who responded in a specific way [subpopulation] on an initial question continue to the next question. Though the subsequent question is asked from those respondents who responded in a particular manner to an initial question, analysis for the subsequent question is based on the denominator that includes all respondents who responded to the initial question (in any manner). Therefore, the presented results are on all respondents vs. the subpopulation. Questions which have this approach applied are indicated with the statement "Denominator adjusted to represent the prevalence in the overall population". In addition to overall prevalences, stratified analyses are also conducted to examine burden of a public health issue within different population subgroups based on socio-demographic factors, risk behaviors and co-morbid conditions.

Data analysis techniques applied for anxiety, depression, and depression treatment estimates are described in the text of this report.

Limitations:

Personal characteristics which are presented in this report are univariate (i.e., examine each risk factor in relationship to only one characteristic at a time); however, the complexity of health associations are not fully represented by examining single relationships. For example, an examination of ever been diagnosed with depression and employment status might show a greater prevalence of ever been diagnosed with depression among persons who are unable to work than among persons who are employed. However, persons who are unable to work might be older than persons who are employed; consequently, this relationship might entirely disappear if we removed the effects of age. (If this were the case we would say that the relationship between ever been diagnosed with depression and employment status was being confounded by age.)

Likewise, this report does not attempt to explain the causes of the anxiety or depression examined. For instance, BRFSS data might show a higher prevalence of ever been diagnosed with anxiety among smokers, but one should not conclude from this that smoking causes anxiety. That is not a conclusion that can be drawn from a cross-sectional survey such as this. Rather this is a "snapshot" of disease, risk factors, and population characteristics for adult residents of Kansas at a point in time.

Definition of Population Density Subgroup of Kansas Population

Geographically Kansas is divided into five regions based on the number of people per square mile.

Category	Definition	Kansas Counties
Frontier	<6 persons/square mile	Barber, Chase, Cheyenne, Clark, Comanche, Decatur, Edwards, Elk, Gove, Graham, Greeley, Hamilton, Hodgeman, Jewell, Kearny, Kiowa, Lane, Lincoln, Logan, Meade, Morton, Ness, Osborne, Rawlins, Rush, Sheridan, Smith, Stanton, Trego, Wallace, Wichita
Rural	6 to <20 persons/square mile	Anderson, Brown, Chautauqua, Clay, Cloud, Coffey, Ellsworth, Grant, Gray, Greenwood, Harper, Haskell, Jackson, Kingman, Linn, Marion, Marshall, Mitchell, Morris, Nemaha, Norton, Ottawa, Pawnee, Phillips, Pratt, Republic, Rice, Rooks, Russell, Scott, Sherman, Stafford, Stevens, Thomas, Wabaunsee, Washington, Wilson, Woodson
Densely Settled Rural	20 to <40 persons/square mile	Allen, Atchison, Barton, Bourbon, Cherokee, Cowley, Dickinson, Doniphan, Ellis, Finney, Ford, Jefferson, Labette, McPherson, Neosho, Osage, Pottawatomie, Seward, Sumner
Semi-urban	40 to <150 persons/square mile	Butler, Crawford, Franklin, Geary, Harvey, Leavenworth, Lyon, Miami, Montgomery, Reno, Riley, Saline
Urban	150+ persons/square mile	Douglas, Johnson, Sedgwick, Shawnee, Wyandotte

Based on 2000 U.S. Census

Geographically Kansas was also categorized into two regions, rural and urban based on the number of people per square mile or population density. Rural category was defined as region with <40 persons/square mile and urban was defined as region with more than 40 persons/square.

Description of Anxiety and Depression Module

CDC Module: Anxiety and Depression

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 eaten 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

Description of Depression Treatment

State-Added Module: Depression Treatment

1 About how long has it been since you were diagnosed with depression?

Please read:

- 1 During the past twelve months (one year or less)
- 2 During the past two years (more than 1 year to 2 years)
- 3 During the past five years (more than 2 years to 5 years)
- 4 More than five years

Do not read:

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

Now, I am going to ask few questions about your feelings of being sad, discouraged or uninterested in the past 12 months and the treatment received for these feelings.

2 During the past 12 months, have you had a period of two weeks or longer when you felt sad, discouraged or uninterested?

- 1 Yes
- 2 No [**Go to Closing**]
- 7 Don't know / Not sure [**Go to Closing**]
- 9 Refused [**Go to Closing**]

3 Did you receive any treatment for your sadness, discouragement or lack of interest at any time in the past 12 months by a medical doctor or other health professional? (By health professional we mean psychologists, counselors, spiritual advisors, herbalists, acupuncturists, and other healing professionals)

- 1 Yes
- 2 No [**Go to Q6**]
- 7 Don't know / Not sure
- 9 Refused

4 During the past 12 months, did you get a prescription medicine for your sadness, discouragement or lack of interest?

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

5 During the past 12 months, did you receive counseling or therapy from a medical doctor or other health professional for your sadness, discouragement or lack of interest? (By health professional we mean psychologists, counselors spiritual advisors, herbalists, acupuncturists, and other healing professionals)

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

If Q3=2 (No), then continue. Otherwise, go to Q7

6 What was the main reason you did not receive treatment that you needed for your sadness, discouragement or lack of interest in the past 12 months?

Read only if necessary:

- 01 Fear/apprehension/nervousness/ dislike going
- 02 Could not afford/cost/too expensive
- 03 Provider will not accept my insurance, including Medicaid
- 04 Do not have/know a health provider
- 05 Lack transportation/too far away
- 06 Hours aren't convenient
- 07 Other (Specify)_____
- 08 Illness or Death of family member or friend
- 09 Did not feel need/not severe enough for treatment
- 10 Denial of need for treatment
- 11 Work related situation or stress
- 12 Just did not seek treatment
- 13 Other physical ailments
- 14 Don't want to take prescribed medications

Do not read:

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

7 During the past 12 months, how many different times have you stayed overnight or longer in a hospital to receive treatment for your sadness, discouragement or lack of interest?

- ___ ___ Number of Times
- 88 None
- 77 Don't know/Not sure
- 99 Refused

References

1. "Mental Health: Leading Health Indicator." Healthy People 2010. Accessed February, 2012 from <http://www.healthypeople.gov/2010/?visit=1>
2. Kroneke K, Spitzer RL, Williams JBW. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*; 16: 606-613.
3. Kessler RC, Chiu WT, Demler O, Walters EE. (2005). Prevalence, severity and comorbidity of 12-month *DSM-IV* disorders in the National Comorbidity Survey replication. *Archives of General Psychiatry*; 62:617-627.
4. Martin A, Rief W, Klaiberg A, Braehler E. Validity of the brief Patient Health Questionnaire (PHQ-9) mood scale in the general population. (2006). *General Hospital Psychiatry*; 28: 71-77.
5. Greenburg PE, Kessler RC, Birnbaum HG, Leong SA, Lowe SW, Berglund PA, Corey-Lisle PK. The economic burden of depression in the United States: how did it change between 1990 and 2000? (2003). *Journal of Clinical Psychiatry*; 64:1465-1475.
6. "Depression." National Institute of Mental Health. 2000. Accessed February, 2012 from <http://www.nimh.nih.gov/health/publications/depression/complete-index.shtml>
7. "Statistics and Facts about Anxiety Disorders." Anxiety Disorders Association of America. Accessed February, 2012 from < <http://www.adaa.org/about-adaa/press-room/facts-statistics>
8. "Anxiety and Depression: What to do When You Have Both." Anxiety Disorders Association of America. Accessed February, 2012 from from < [http://www.adaa.org/GettingHelp/MFarchives/MonthlyFeatures\(september\).asp](http://www.adaa.org/GettingHelp/MFarchives/MonthlyFeatures(september).asp)>.
9. Grant BF, Hasin DS, Stinson FS, Dawson DA, June Ruan W, Goldstein RB, Smith SM, Saha TD, Huang B. (2005). Prevalence, correlates, co-morbidity, and comparative disability of DSM-IV generalized anxiety disorder in the USA: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine*; 35(12):1747-59.
10. "Anxiety Disorders." National Institute of Mental Health. 2006. Accessed February, 2012 from <http://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>
11. Spitzer RL, Kroenke K, Williams JB. (1999). Validation and utility of a self-report version of PRIME-MD. The PHQ Primary Care Study. *Journal of American Medical Association*; 282(18): 1737-1744.
12. PHQ-9 Becoming Popular tool. *Psychiatric News*.2005;40(11):5. 2005 American Psychiatric Association. Accessed February, 2012 from <http://psychnews.psychiatryonline.org/newsArticle.aspx?articleid=109015>.