

DEPRESSION AND ANXIETY STATUS IN KANSAS

2011 Behavioral Risk Factor Surveillance System

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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)

Mission

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 2020 and Healthy Kansans 2020 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 2011 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 living in private residence with landline and/or cell phone service. 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.

According to the 2011 Kansas BRFSS, an estimated 341,381 (15.9%) adults aged 18 years and older have ever been diagnosed with depression and nearly 188,940 (8.8%) are currently depressed. Similarly, an estimated 242,616 (11.3%) adult Kansans aged 18 years and older have ever been diagnosed with anxiety.

According to the 2011 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 25-64 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 fifteen 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 with 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 fifteen 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.

One of the objectives addressing mental health issues recommended by Healthy People 2020 is to increase the proportion of adults with recognized depression who receive treatment. About 1 in 3 (36.8%) 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 seven females had ever been diagnosed with anxiety as compared to one in twelve 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.

About one in four adults who rated their health as fair or poor had ever been diagnosed with anxiety as compared to one in eleven 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. Two thirds 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 2020 (HP 2020) defines mental health as “a state of successful performance of mental functioning, resulting in productive activities, fulfilling relationships and the ability to adapt to change and cope with adversity.” HP 2020 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 in the Healthy Kansans 2020 (HK 2020) planning process: 2020.

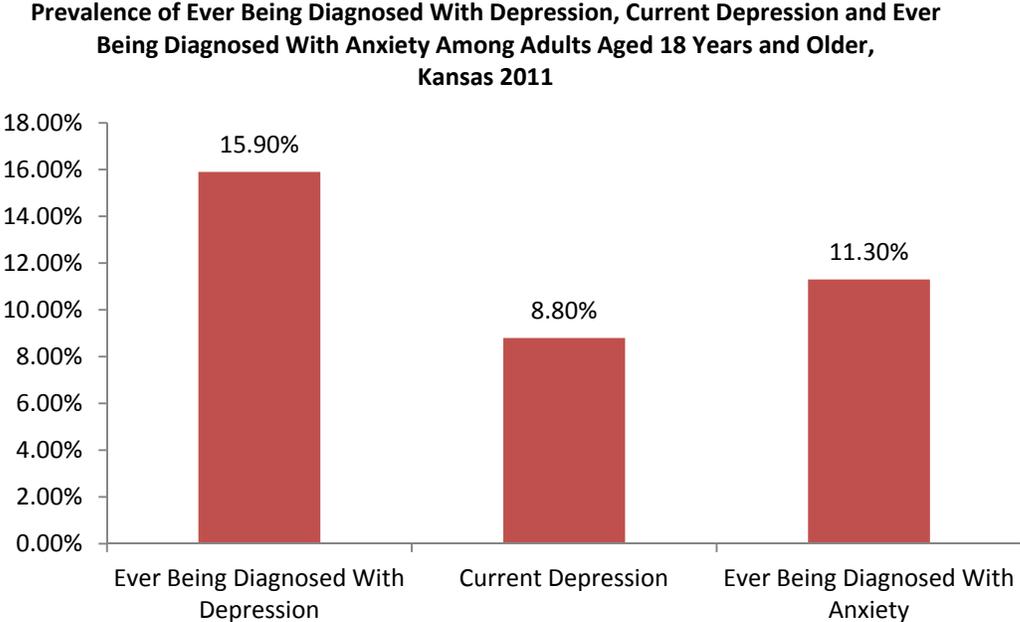
Depression is one of the leading mental health disorders.² It affects about 20.9 million or 9.6% of the United States population aged 18 years or older in a given year.³ It is associated with increased risk of morbidity, mortality and impaired quality of life.⁴ Depressive and related depressive disorders 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 2020 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 2011, it is estimated that 15.9% adult Kansans aged 18 years and older had ever been diagnosed with depression, 8.9% had current depression and 11.3% had ever been diagnosed with anxiety as shown in Figure 1.

Figure 1



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The Status of Ever Being Diagnosed with Depression in Kansas

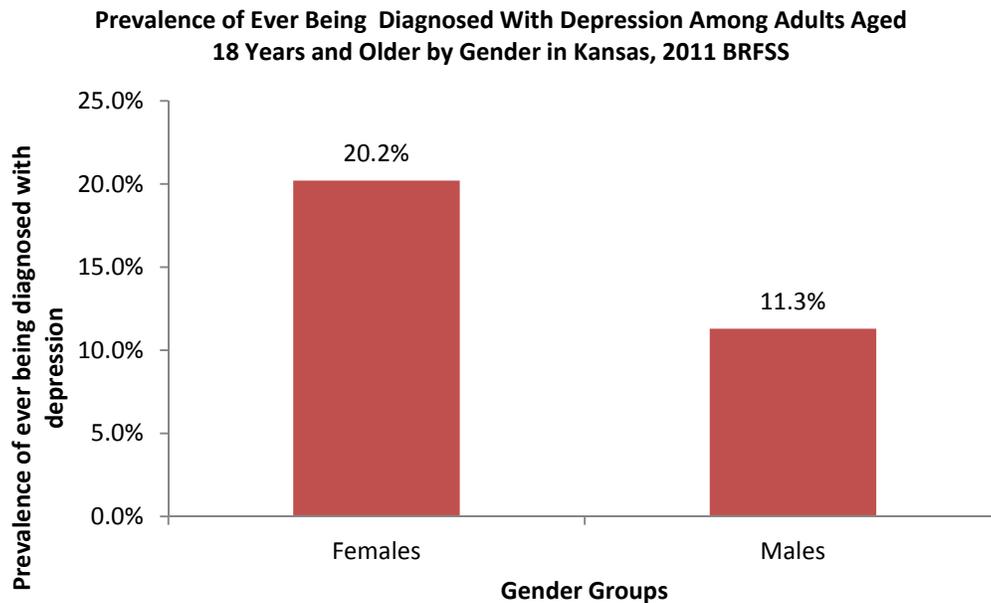
The 2011 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if a healthcare provider ever told them that they have a depressive disorder (including depression, major depression, dysthymia, or minor depression). Data from this question were used to analyze and report results for lifetime or ever being diagnosed with depression.

In Kansas, according to the 2011 Behavioral Risk Factor Surveillance System, an estimated 341,381 (15.9%) 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 (20.2% [95% CI: 19.3%-21.1%]) adult females reported ever being diagnosed with depression as compared to one in ten (11.3% [95% CI: 10.4%-12.2%]) adult males (Figure 2).

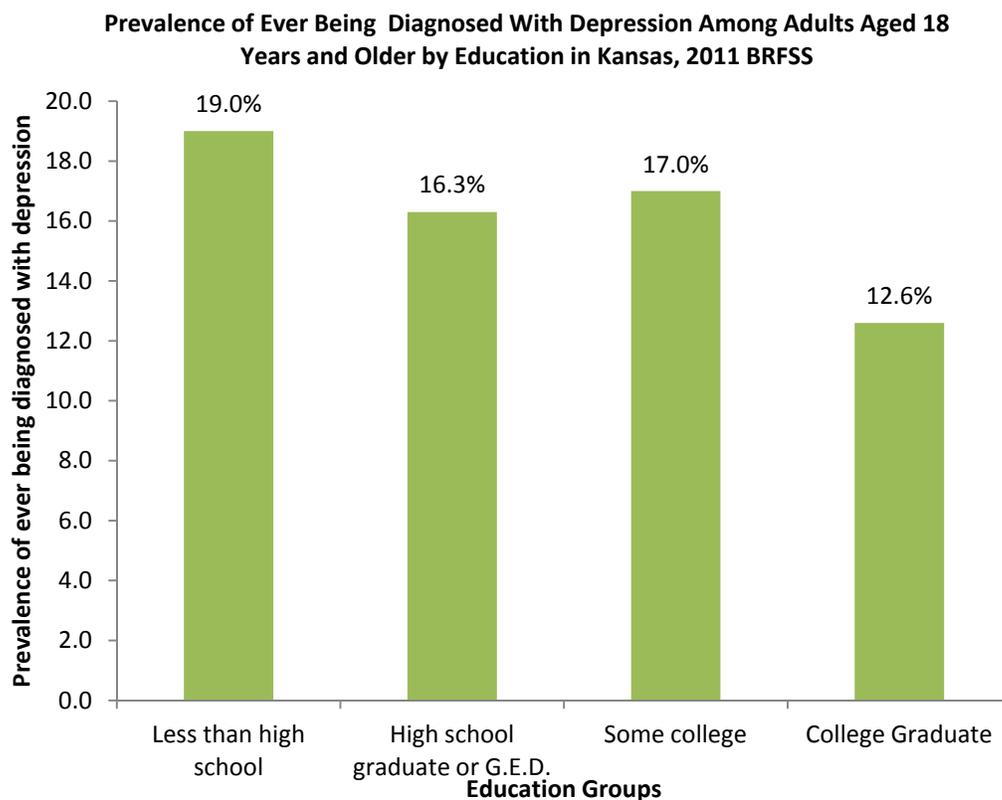
Figure 2



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

In 2011, higher prevalence of ever being diagnosed with depression was seen among adults that had less than high school education (19.0% [95% CI: 16.4%-21.6%]), high school graduate or GED (16.3% [95% CI: 15.0%-17.2%]), and some college education (17.0% [95% CI: 15.9%-18.2%]) as compared to college graduates (12.6% [95% CI: 11.8%-13.5%]) as shown in figure 3.

Figure 3

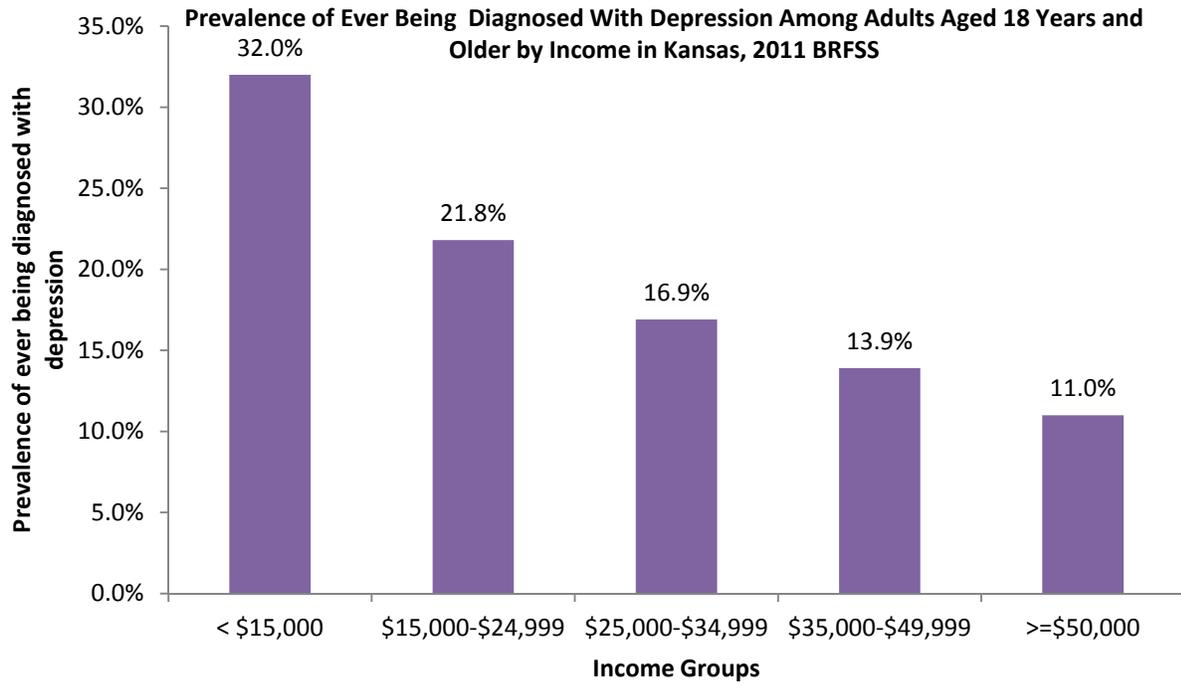


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 32.0% (95% CI: 28.8%-35.1%) among adults with an annual household income of less than \$15,000 as compared to 11.0% (95% CI: 10.2%-11.9%) among adults with an annual household income greater than \$50,000 (Figure 4).

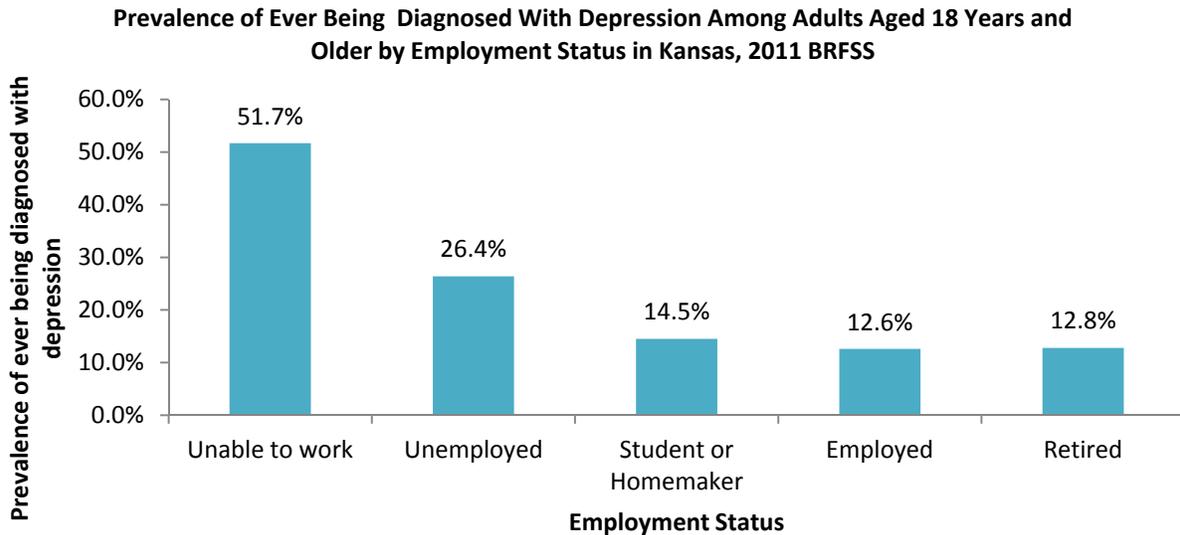
Among adults who were unemployed or unable to work, the prevalence of ever being diagnosed with depression was 26.4% (95% CI: 22.9%-29.9%) and 51.7% (95% CI: 47.9%-55.5%) respectively as compared to 12.6% (95% CI: 11.8%-13.4%) among adults who were employed (Figure 5).

Figure 4



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

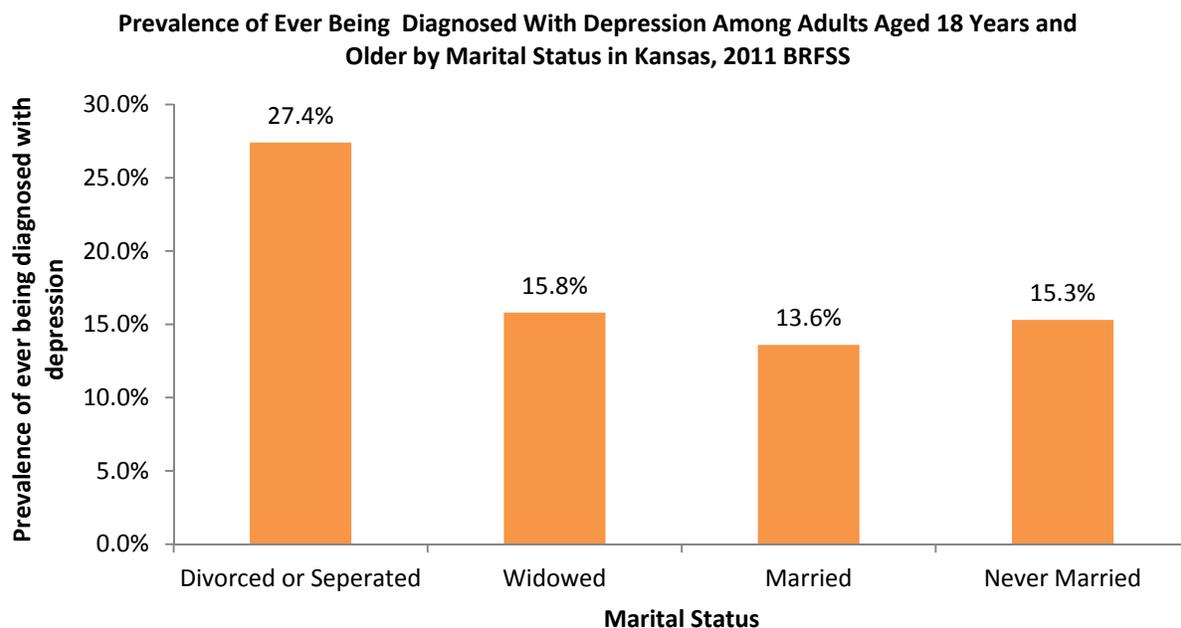
Figure 5



Source: 2011 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 (27.4% [95% CI: 25.3%-29.5%]) as compared to adults who were married (13.6% [95% CI 12.8%-14.3%]), adults who were widowed (15.8% [95% CI: 14.0%-17.5%]) and adults who were never married (15.3% [95% CI 13.5%-17.1%]) as shown in figure 6.

Figure 6



Source: 2011 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 Socio-demographic characteristics in Kansas, 2011 BRFSS

Sociodemographic Characteristics	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage	95% Confidence	Frequency (n)	Weighted Percentage	95% Confidence
Gender						
Males	931	11.3	10.4-12.2	7,168	88.7	87.8-89.6
Females	2,429	20.2	19.3-21.1	10,102	79.8	78.9-80.7
Education						
Less than high school	281	19.0	16.4-21.6	1,081	81.0	78.4-83.6
High school graduate or G.E.D	965	16.3	15.0-17.5	4,904	83.7	82.5-85.0
Some college	1,101	17.0	15.9-18.2	4,970	83.0	81.8-84.1
College graduate	108	12.6	11.8-13.5	6,287	87.4	86.5-88.2
Annual household income						
< \$ 15,000	543	32.0	28.8-35.1	1,111	68.0	64.9-71.2
\$15,000 - \$24,999	667	21.8	19.8-23.7	2,490	78.2	76.3-80.2
\$25,000 - \$34,999	388	16.9	14.9-19.0	1,955	83.1	81.0-85.1
\$35,000 - \$49,999	444	13.9	12.4-15.4	2,473	86.1	84.6-87.6
>= \$50,000	889	11.0	10.2-11.9	6,737	89.0	88.1-89.8
Employment status						
Employed for wages / Self-employed	1,405	12.6	11.8-13.4	9,276	87.4	86.7-88.2
Out of work (unemployed)	284	26.4	22.9-30.0	734	73.6	70.1-77.1
Homemaker / Student	271	14.5	12.4-16.5	1,390	85.5	83.5-87.6
Retired	772	12.8	11.8-13.8	5,264	87.2	86.2-88.2
Unable to work	621	51.7	47.9-55.5	577	48.3	44.5-52.1
Marital status						
Married / Member of Unmarried Couple	1,663	13.6	12.8-14.3	10,484	86.4	85.7-87.2
Divorced / Separated	841	27.4	25.3-29.5	2,269	72.6	70.5-74.7
Widowed	417	15.8	14.0-14.5	2,568	84.2	82.5-86.0
Never married	427	15.3	13.5-17.1	1,899	84.7	82.9-86.5
Population Density (5 Level)*						
Frontier	158	15.5	12.7-18.3	991	84.5	81.7-87.3
Rural	302	11.7	10.2-13.3	1,995	88.3	86.7-89.8
Densely-settled rural	584	16.2	14.6-17.8	3,055	83.8	82.2-85.4
Semi-urban	564	18.5	16.8-20.2	2,567	81.5	79.8-83.2
Urban	1,752	15.8	14.9-16.7	8,662	84.2	83.3-85.1
Population Density (2 Level)*						
Rural	1,044	14.7	13.7-15.8	6,041	85.3	84.2-86.3
Urban	2,316	16.4	15.6-17.2	11,229	83.6	82.8-84.4

Among all 20,630 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

*See the definition of regions based on population density on page 64

Table 2: Prevalence of ever being diagnosed with depression among adults by age, race and ethnicity in Kansas, 2011 BRFSS

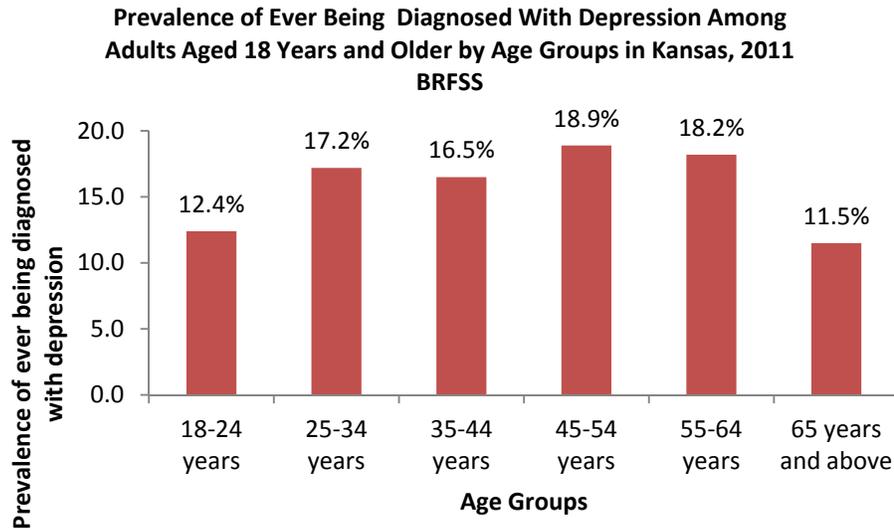
	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Age groups						
18-24 years	132	12.4	10.1-14.6	803	87.6	85.4-89.9
25-34 years	344	17.2	15.3-19.1	1,652	82.8	80.9-84.7
35-44 years	427	16.5	14.8-14.2	2,052	83.5	81.8-85.2
45-54 years	781	18.9	17.5-20.3	3,121	81.1	79.7-82.5
55-64 years	892	18.2	16.9-19.5	3,789	81.8	80.5-83.1
65 years and above	784	11.5	10.6-12.3	5,853	88.5	87.7-89.4
Race and Ethnicity (age-adjusted[€])						
Non-Hispanic Whites only	2,941	16.5	15.7-17.2	15,170	83.5	82.8-84.3
Non-Hispanic African Americans only	119	14.4	11.0-17.8	658	85.6	82.2-89.0
Non-Hispanic Other race* only	78	15.4	11.5-19.4	372	84.6	80.6-88.5
Non Hispanic Multiracial only	87	23.9	18.1-29.6	203	76.1	70.4-81.9
Hispanic	128	13.6	11.0-16.2	801	86.4	83.8-89.0
Ethnicity (Age-Adjusted[€])						
Hispanic	128	14.8	13.5-16.0	801	85.2	84.0-86.5
Non-Hispanic	3,229	16.0	11.2-20.9	16,436	84.0	79.1-88.8

Among all 3,360 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

*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

[€]Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.

Figure 7



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

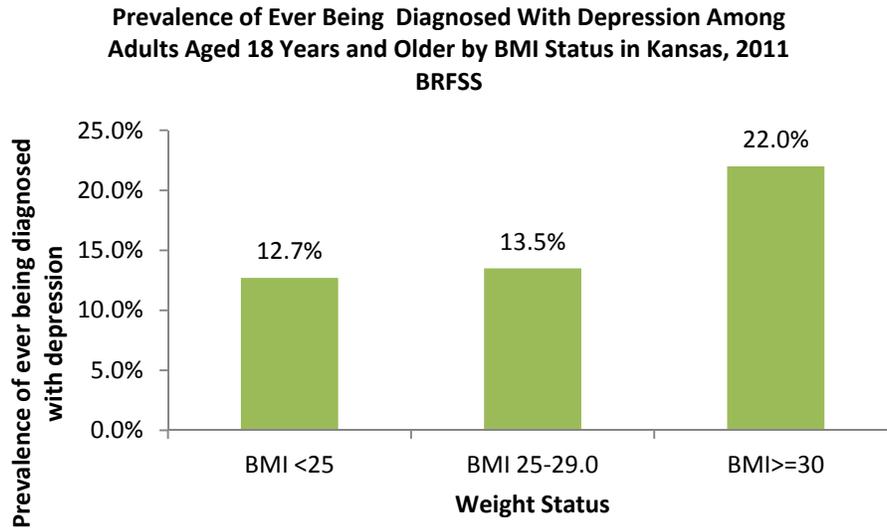
The prevalence of ever being diagnosed with depression was higher in adults aged 25-64 years age categories as compared to those who were in 65 years and older age category as shown in Figure 7 and Table 2.

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

Adverse Health Behaviors and Depression

The prevalence of ever being diagnosed with depression was higher among adults who were obese (22.0% [95% CI: 20.6%-23.3%]) as compared to those with underweight or normal weight status (12.7% [95% CI 11.7%-13.8%]) as shown in figure 8.

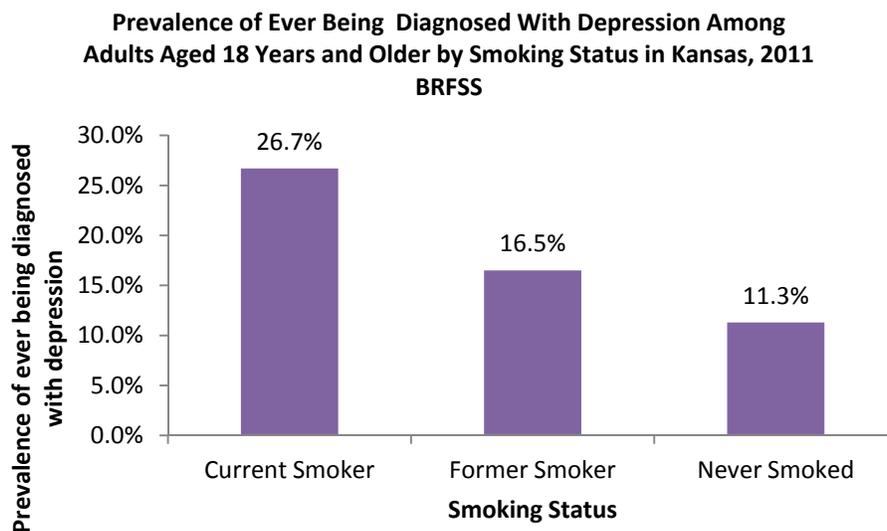
Figure 8



Source: 2011 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 (26.7% [95% CI: 24.9%-28.6%]) as compared to never smokers (11.3% [95% CI: 10.6%-12.1%]) as shown in figure 9.

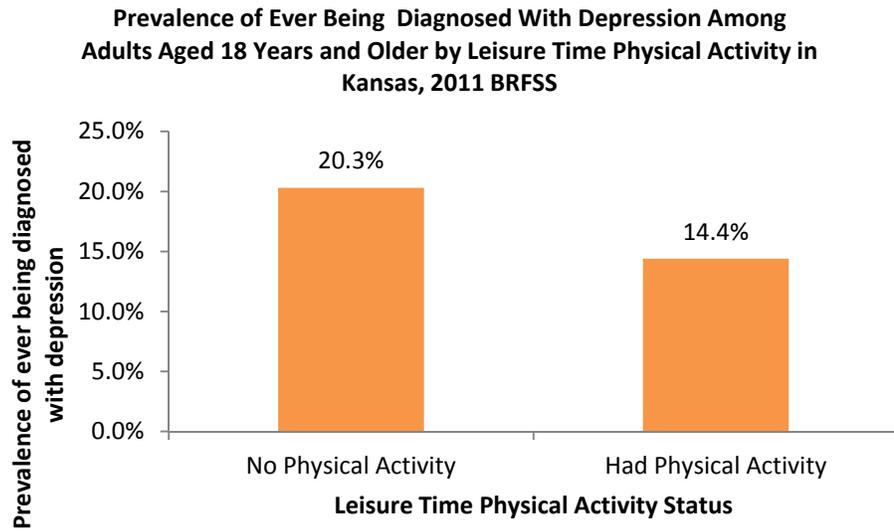
Figure 9



Source: 2011 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 (20.3% [95% CI: 18.9%-21.7%]) compared to adults who participate in any physical activity or exercise (14.4% [95% CI: 13.6%-15.1%]) as shown in figure 10.

Figure 10



Source: 2011 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, 2011 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)	869	12.70	11.7-12.8	5,849	87.30	86.2-88.3
Overweight (body mass index 25.0-29.9 kg/m ²)	995	13.50	12.5-14.5	5,940	86.50	85.5-87.5
Obese (body mass index ≥ 30.0 kg/m ²)	1,303	22.00	20.6-23.3	4,586	78.00	76.7-79.4
Smoking status						
Current smoker	983	26.70	24.9-28.6	2,542	73.30	71.4-75.1
Former smoker	942	16.50	15.3-17.7	4,562	83.50	82.3-84.7
Never smoker	1,422	11.30	10.3-12.1	10,086	88.70	87.9-89.4
Physical Activity						
Yes	2,115	14.40	13.6-15.1	12,363	85.60	84.9-86.4
No	1,192	20.30	18.9-21.7	4,523	79.70	78.3-81.1

Among all 20,630 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

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, 2011 BRFSS

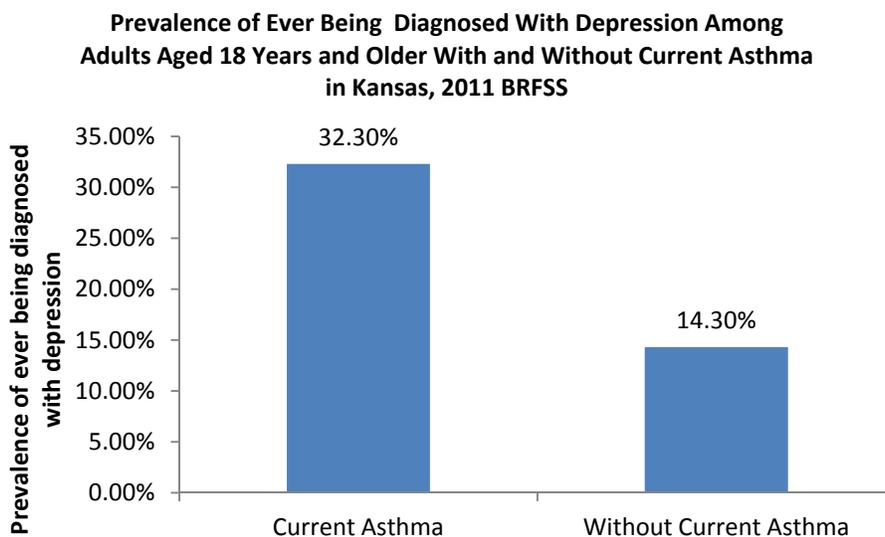
	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Binge drinking						
No	2,871	16.0	15.3-16.7	14,707	84.0	83.3-84.7
Yes	380	15.9	14.1-17.8	1,890	84.1	82.2-85.9
Heavy drinking						
No	3,108	16.0	15.3-16.7	15,888	84.0	83.3-84.7
Yes	142	16.3	13.2-19.4	677	83.7	80.6-86.8

Among all 20,630 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Chronic Diseases and Depression

The prevalence of ever being diagnosed with depression was higher among adults with current asthma (32.3% [95% CI: 29.4%-35.2%]) as compared to adults without current asthma (14.3% [95% CI: 13.6%-14.9%]) as shown in figure 11.

Figure 11



Source: 2011 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 2011

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	2,757	14.3	13.6-14.9	16,064	85.7	85.1-86.4
Yes	577	32.3	29.4-35.2	1,125	67.7	64.8-70.6
Diabetes						
Yes	572	23.2	21.1-25.3	2,007	76.8	74.7-78.9
No	2,785	15.1	14.4-15.8	15,245	84.9	84.2-85.6
Coronary Heart Disease						
Yes	299	25.0	21.8-28.2	1,030	75.0	71.8-78.2
No	3,012	15.4	14.7-16.0	16,100	84.6	84.0-85.3
Stroke						
Yes	231	30.5	26.2-34.9	593	69.5	65.1-73.8
No	3,117	15.4	14.8-16.1	16,647	84.6	83.9-85.2

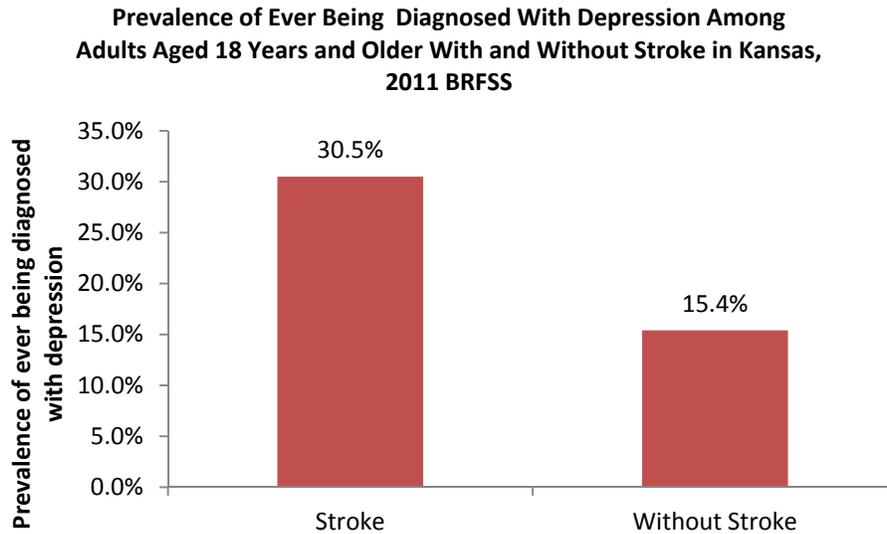
Among all 20,630 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Among adults who had a stroke, the prevalence of ever being diagnosed with depression was higher (30.5% [95% CI: 26.2%-34.9%]) as compared to adults who did not have a stroke (15.4% [95% CI: 14.8%-16.1%]) as shown in figure 12.

Among adults who had diabetes, the prevalence of ever being diagnosed with depression was higher (23.2% [95% CI: 21.1%-25.3%]) as compared to adults who did not have diabetes (15.1% [95% CI: 14.4%-15.8%]) as shown in table 5.

Among adults who had coronary heart disease, the prevalence of ever being diagnosed with depression was higher (25.0% [95% CI: 21.8%-28.2%]) as compared to adults who did not have coronary heart disease (15.4% [95% CI: 14.7%-16.0%]). (Table 5)

Figure 12.

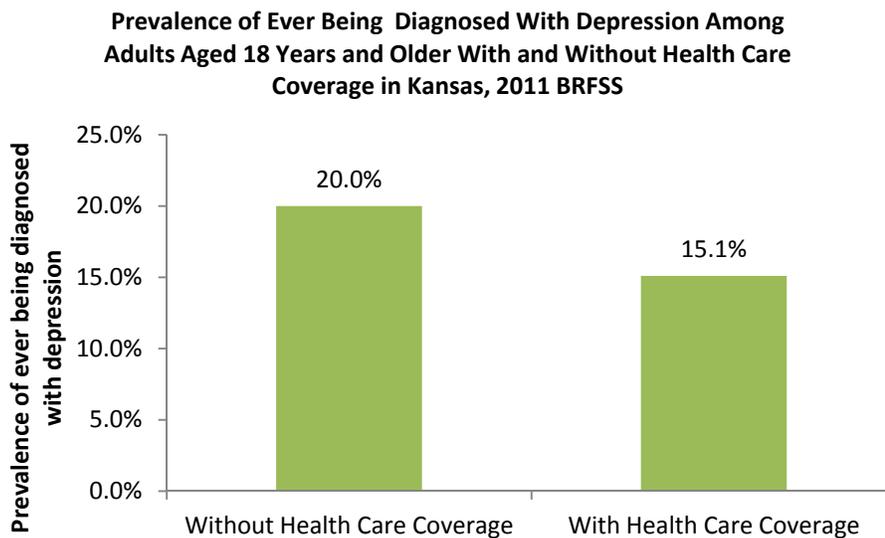


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Health Care Access and Depression

The prevalence of ever being diagnosed with depression was higher among adults without any health care coverage (20.0% [95% CI: 17.9%-22.0%]) as compared to adults with some kind of health care coverage (15.1% [95% CI: 14.5%-15.8%]) 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.

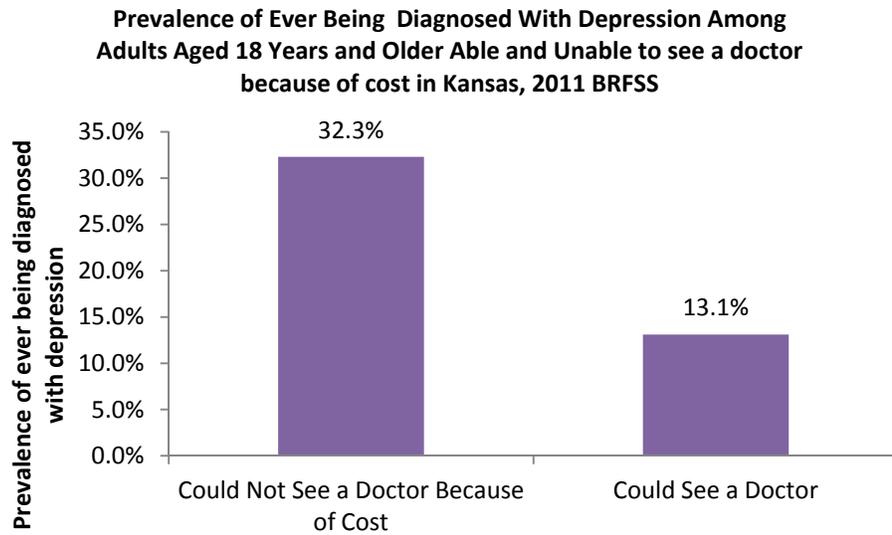


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 (32.2% [95% CI: 29.9%-34.8%]) as compared to adults who could see a doctor with cost not being a barrier for seeking health care (13.1% [95% CI: 12.5%-13.7%]), (figure 14).

Figure 14.



Source: 2011 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 2011

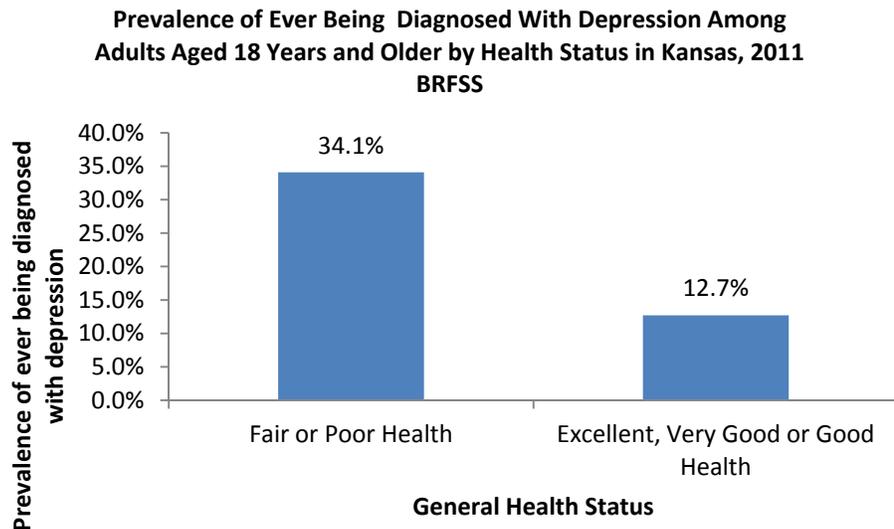
Health Care Access Status	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Health care coverage						
Yes	2,879	15.1	14.5-15.8	15,505	84.9	84.2-85.6
No	479	20.0	17.9-22.0	1,718	80.0	78.0-82.1
Personal health care provider						
Yes	2,983	16.3	15.6-17.0	15,018	83.7	83.0-84.4
No	375	14.2	12.5-15.9	2,222	85.8	84.1-87.5
Could not see doctor because of cost						
Yes	771	32.3	29.9-34.8	1,550	67.7	65.2-70.1
No	2,580	13.1	12.5-13.7	15,685	86.9	86.3-87.5

Among all 20,630 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Self-rated Health and Depression

The prevalence of ever being diagnosed with depression was higher among adults (34.1% [95% CI: 32.0%-36.2%]) who rated their health as fair or poor as compared to adults (12.7% [95% CI: 12.0%-13.3%]) who rated their health as excellent, very good or good as shown in figure 15.

Figure 15.

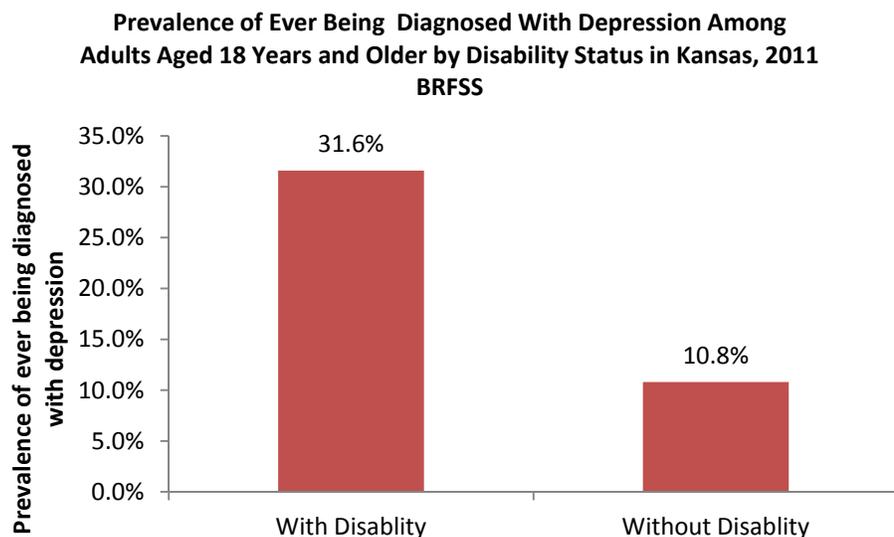


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 (31.6% [95% CI: 30.0%-33.2%]) as compared to adults living without disability (10.8% [95% CI: 10.2%-11.5%]) as shown in figure 16.

Figure 16



Source: 2011 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 2011, these eight questions were asked from 8,529 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 7,545 respondents who responded to all eight questions.

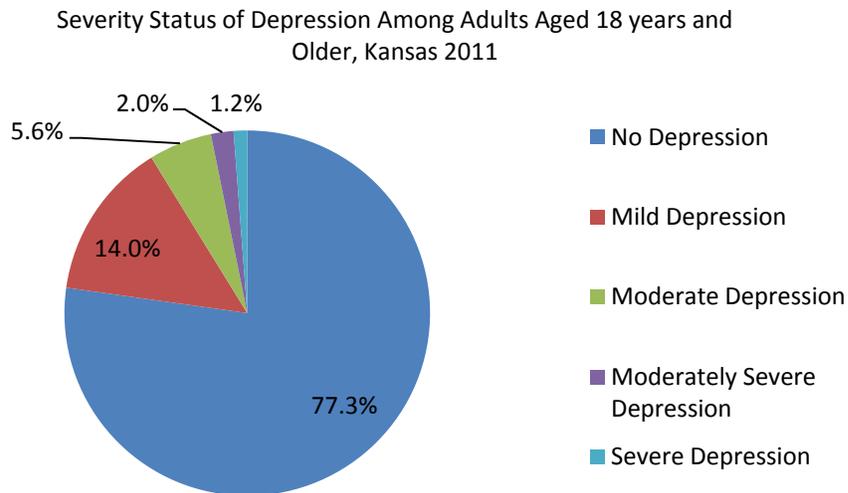
Depression status by depressive symptoms severity score

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 2011, 15.9% 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 22.8% 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



Source: 2011 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 2011

Characteristic	No depression		Mild depression		Moderate depression		Moderately severe depression		Severe depression	
	Frequency (n)	Weighted percentage (95% CI)	Frequency (n)	Weighted percentage (95% CI)	Frequency (n)	Weighted percentage (95% CI)	Frequency (n)	Weighted percentage (95% CI)	Frequency (n)	Weighted percentage (95% CI)
Gender										
Males	2352	81.1 (78.5-83.7)	334	12.1 (9.8-14.4)	98	4.2 (2.9-5.6)	47	1.7 (1.1-2.3)	16	0.9 (0.3-1.5)
Females	3611	73.5 (71.2-75.8)	701	15.7 (13.9-17.6)	233	6.9 (5.4-8.4)	104	2.4 (1.8-3.0)	49	1.4 (0.9-1.9)
Health care coverage										
Yes	5575	78.6 (76.9-80.4)	943	13.7 (12.2-15.1)	283	4.9 (3.9-5.9)	122	1.7 (1.3-2.1)	52	1.0 (0.6-1.5)
No	380	68.9 (62.7-75.1)	91	15.7 (10.8-20.7)	48	9.6 (5.7-13.5)	29	3.9 (2.1-5.7)	13	1.9 (0.7-3.2)
Personal health care provider										
Yes	5474	77.6 (75.9-79.4)	936	13.7 (12.2-15.2)	299	5.2 (4.3-6.1)	143	2.2 (1.8-2.7)	57	1.2 (0.7-1.7)
No	481	75.6 (69.3-81.2)	99	15.2 (10.5-19.9)	32	7.6 (3.3-11.8)	8	1.0 (0.1-1.9)	8	0.9 (0.2-1.6)

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Status of Current Depression in Kansas

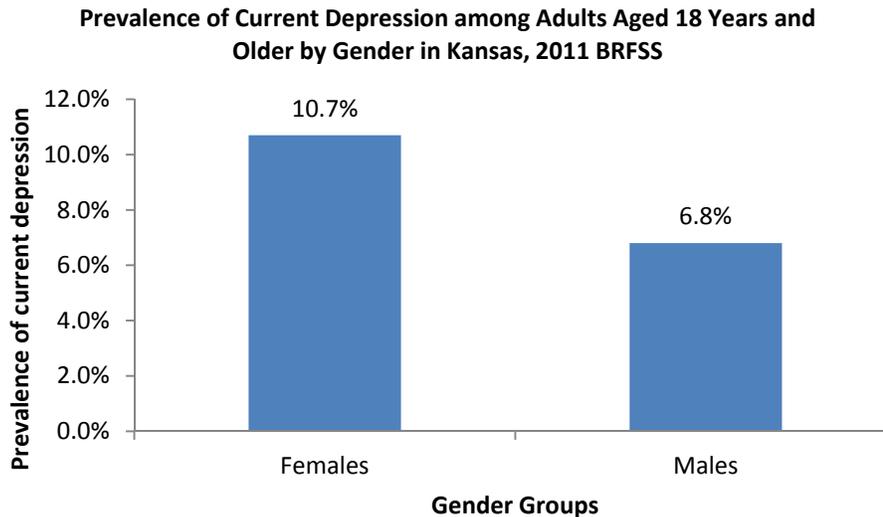
The depression severity scale that was created to determine the severity of depression was dichotomized into total score of < 10 or \geq 10 points. Current depression was defined as a score of \geq 10 points on the depressive symptoms severity score.

In 2011, about one in twelve (8.8% [95% CI: 7.6%-9.9%]) adults aged 18 years and older had current depression. This accounts for an estimated 188,940 adult Kansans who had current depression.

Sociodemographic Profile of Adults With Current Depression

The prevalence of current depression was higher among adult females (10.7% [95% 9.0%-12.4%]) as compared to adult males (6.8% [95% CI: 5.2%-8.4%]) as shown in figure 17.

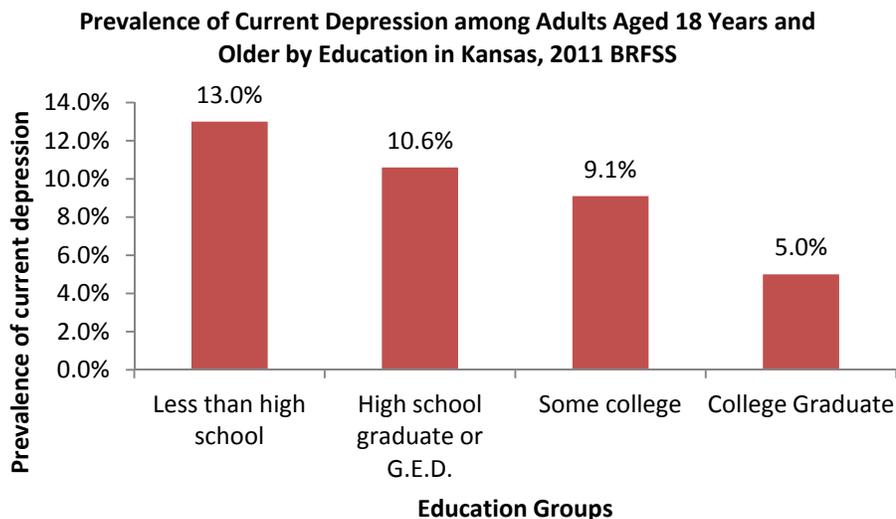
Figure 17



Source: 2011 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 13.0% (95% CI: 8.1%-18.0%) as compared to adults that were college graduate 5.0% (95% CI: 3.7%-6.4%) as shown in figure 18.

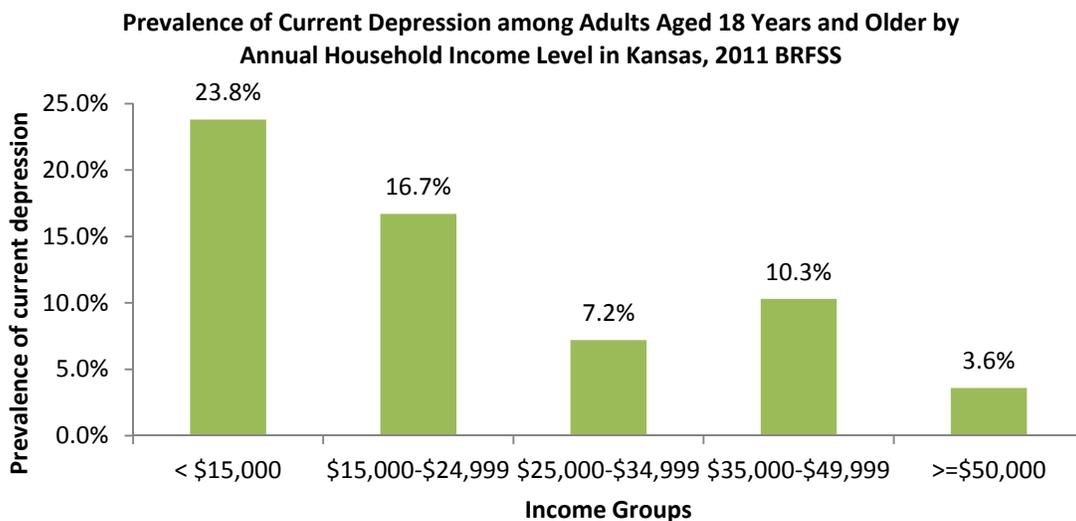
Figure 18



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

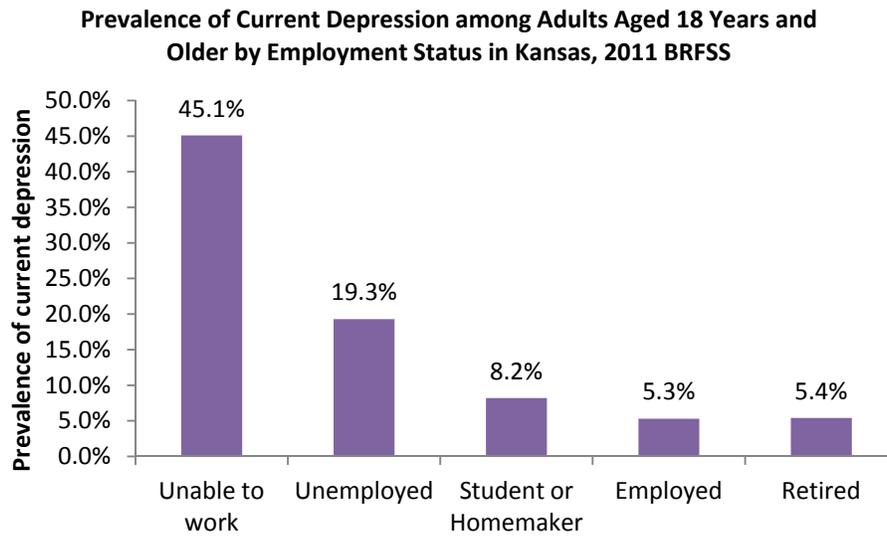
The prevalence of current depression appeared to be associated with lower socioeconomic status. The prevalence of current depression was higher among adults with low levels of annual household income and among individuals that were unable to work. The prevalence of current depression was 23.8% (95% CI: 17.3%-30.4%) among adults with an annual household income of less than \$15,000 as compared to adults with an annual household income of \$50,000 and higher (figure 19). Among adults who were unable to work, the prevalence of current depression was 45.1% (95% CI: 38.8%-51.5%) as compared to 5.3% (95% CI: 4.0%-6.5%) of adults who were employed (figure 20).

Figure 19



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

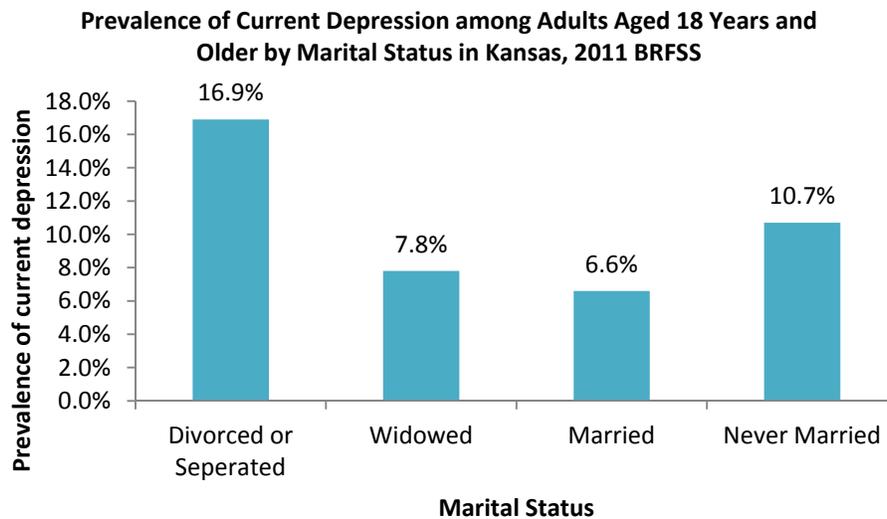
Figure 20



Source: 2011 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 (16.9% [95% CI: 13.4%-20.4%]) as compared to adults who were married (6.6% [95% CI 5.5%-7.6%]) as shown in figure 21.

Figure 21



Source: 2011 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 2011

Sociodemographic Characteristics	Frequency (n)	Current Depression	
		Weighted Percentage %	95% Confidence Interval
Gender			
Males	161	6.8	5.2-8.4
Females	386	10.7	9.0-12.4
Education			
Less than high school	57	13.0	8.1-18.0
High school graduate or G.E.D	172	10.6	8.0-13.1
Some college	181	9.1	7.1-11.1
College graduate	137	5.0	3.7-6.3
Annual household income			
< \$ 15,000	116	23.8	17.3-30.4
\$15,000 - \$24,999	120	16.7	12.5-20.8
\$25,000 - \$34,999	58	7.2	4.7-9.7
\$35,000 - \$49,999	84	10.3	6.4-14.2
>= \$50,000	110	3.6	2.7-4.6
Employment status			
Employed for wages / Self-employed	159	5.3	4.0-6.5
Out of work (unemployed)	57	19.3	11.6-27.0
Homemaker / Student	38	8.2	4.2-12.1
Retired	124	5.4	4.4-6.5
Unable to work	169	45.1	38.8-51.5
Marital status			
Married / Member of Unmarried Couple	258	6.6	5.5-7.6
Divorced / Separated	146	16.9	13.4-20.4
Widowed	78	7.8	5.7-9.8
Never married	63	10.7	6.8-14.6
Population Density (5 Level)*			
Frontier	38	9.5	5.8-13.1
Rural	56	7.8	4.3-11.2
Densely-settled rural	102	8.5	6.1-10.8
Semi-urban	72	7.3	5.1-9.4
Urban	279	9.5	7.7-11.3
Population Density (2 Level)*			
Rural	196	8.4	6.6-10.2
Urban	351	9.0	7.5-10.5

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

*See the definition of regions based on population density on page 64

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 2011

Sociodemographic Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage %	95% Confidence Interval
Age groups			
18-24 years	12	8.7	3.5-14.0
25-34 years	38	9.4	6.0-12.7
35-44 years	78	10.8	8.0-13.6
45-54 years	138	9.3	7.6-11.1
55-64 years	156	9.6	7.9-11.3
65 years and above	125	4.7	3.8-5.6
Race and Ethnicity (Age-Adjusted[€])			
Non-Hispanic Whites only	460	8.1	7.0-9.3
Non-Hispanic African Americans only	40	15.4	8.8-22.1
Non-Hispanic Other race* only	13	11.5	3.6-19.4
Non-Hispanic Multiracial	12	12.0	4.7-19.2
Hispanic	20	13.0	4.1-13.7
Ethnicity (Age-Adjusted[€])			
Hispanic	20	8.7	7.6-9.9
Non-Hispanic	526	8.9	4.1-13.7

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

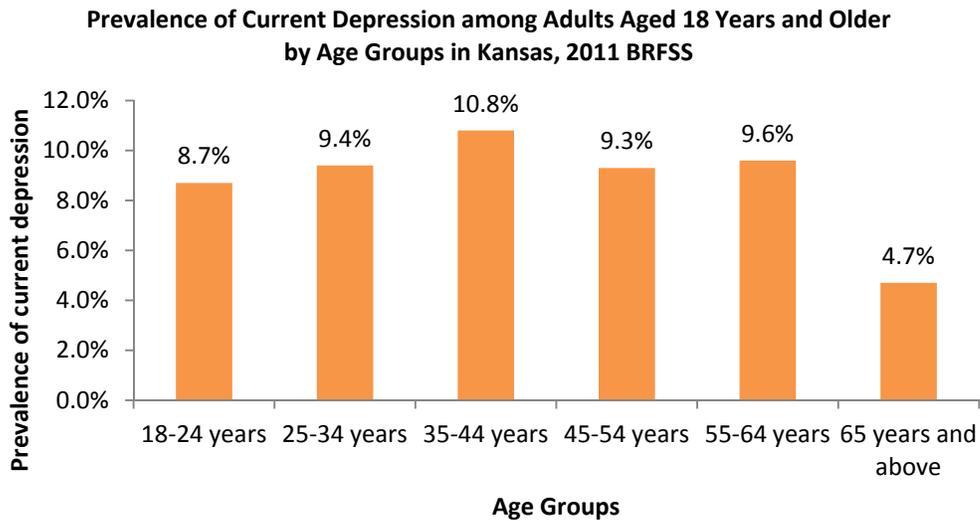
*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

[€]Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.

The prevalence of current depression was higher in adults aged 35-44 years (10.8% [95% CI: 8.0%-13.6%]) and adults aged 45-54 years (9.3% [95% CI: 7.6%-11.1%]) as compared to adults aged 65 years and older (4.7% [95% CI: 3.8%-5.6%]) as shown in Figure 22 and Table 9.

There was no statistical difference in the prevalence of current depression among race and ethnicity groups after age-adjustment (table 9).

Figure 22

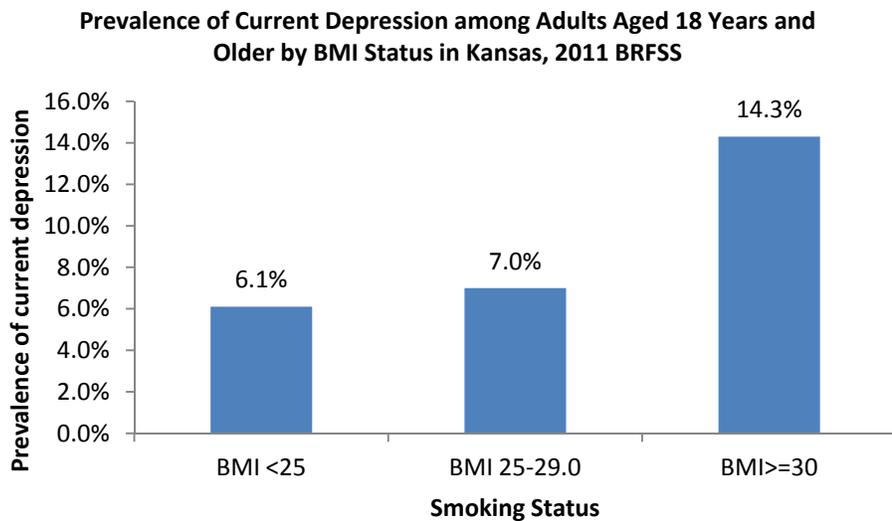


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Adverse Health Behaviors and Current Depression

The prevalence of current depression was higher among adults who were obese (14.3% [95% CI: 11.6%-17.0%]) as compared to adults that were overweight (7.0% [95% CI: 5.2%-8.7%]) and adults that were normal or underweight (6.1% [95% CI: 4.3%-8.0%]) as shown in figure 23.

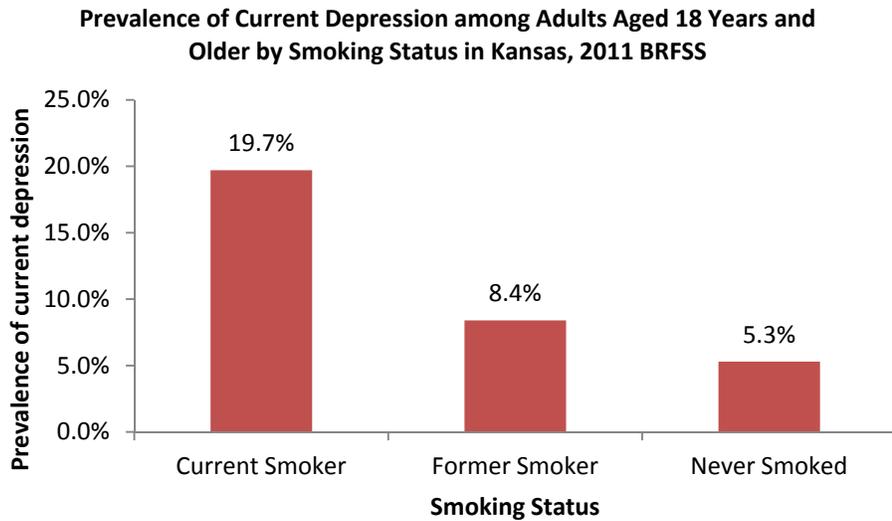
Figure 23



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Higher prevalence of current depression was seen among current cigarette smokers (19.7% [95% CI: 15.5%-23.9%]) as compared to non-smokers (5.3% [95% CI: 4.1%-6.5%]) and former smokers (8.4% [95% CI: 6.6%-10.3%]) as shown in figure 24.

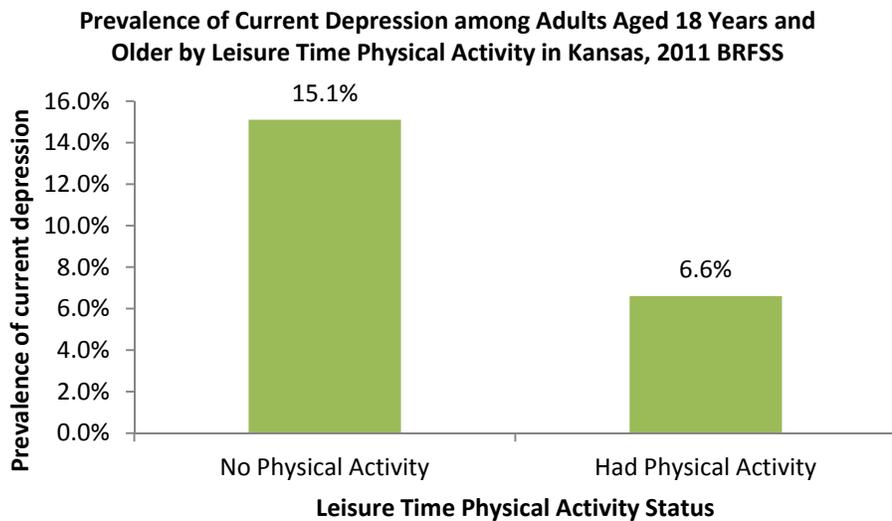
Figure 24



Source: 2011 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 (15.1% [95% CI: 12.4%-17.9%]) as compared to adults who participated in any leisure time physical activity or exercise (6.6% [95% CI: 5.4%-7.8%]) as shown in figure 25.

Figure 25



Source: 2011 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 2011

Adverse Health Behavior Characteristics	Frequency (n)	Current Depression	
		Weighted Percentage (%)	95% Confidence Interval
Weight Status			
Normal or underweight (body mass index < 25.0 kg/m ²)	118	6.1	4.3-8.0
Overweight (body mass index 25.0-29.9 kg/m ²)	153	7.0	5.2-8.7
Obese (body mass index ≥ 30.0 kg/m ²)	242	14.3	11.6-17.0
Smoking status			
Current smoker	180	19.7	15.6-23.9
Former smoker	155	8.4	6.6-10.3
Never smoker	210	5.3	4.1-6.5
Exercise			
Yes	278	6.6	5.4-7.8
No	267	15.1	12.4-17.9

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

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	Frequency (n)	Current Depression	
		Weighted Percentage (%)	95% Confidence Interval
Binge drinking			
No	486	8.1	7.1-9.2
Yes	57	12.2	7.6-16.8
Heavy drinking			
No	522	8.8	7.6-9.9
Yes	22	10.5	3.3-17.6

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

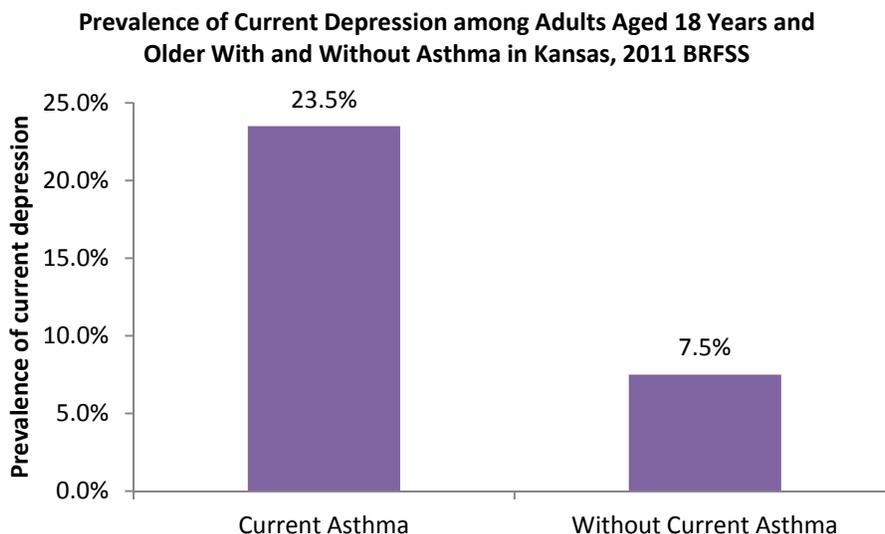
There was no statistical difference in the prevalence of current depression among binge drinkers (defined as males having five or more drinks or females having four or more drinks on one occasion) and non-binge drinkers of alcohol and among heavy drinkers (defined as adult men having

more than two drinks per day and adult women having more than one drink per day) and non heavy drinkers of alcohol (Table 11).

Chronic Diseases and Current Depression

The prevalence of current depression was higher among adults with current asthma (23.5% [95% CI: 17.2%-29.7%]) as compared to adults without current asthma (7.5% [95% CI: 6.4%-8.6%]) as shown in figure 26.

Figure 26



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of current depression was higher among adults with diabetes (17.7% [95% CI: 13.8%-21.7%]) as compared to adults without diabetes (7.9% [95% CI: 6.9%-9.1%]) as shown in table 12.

The prevalence of current depression was higher among adults who had coronary heart disease (22.9% [95% CI: 17.2%-28.6%]) as compared to adults who did not have coronary heart disease (8.1% [95% CI: 6.9%-9.3%]) as shown in table 12.

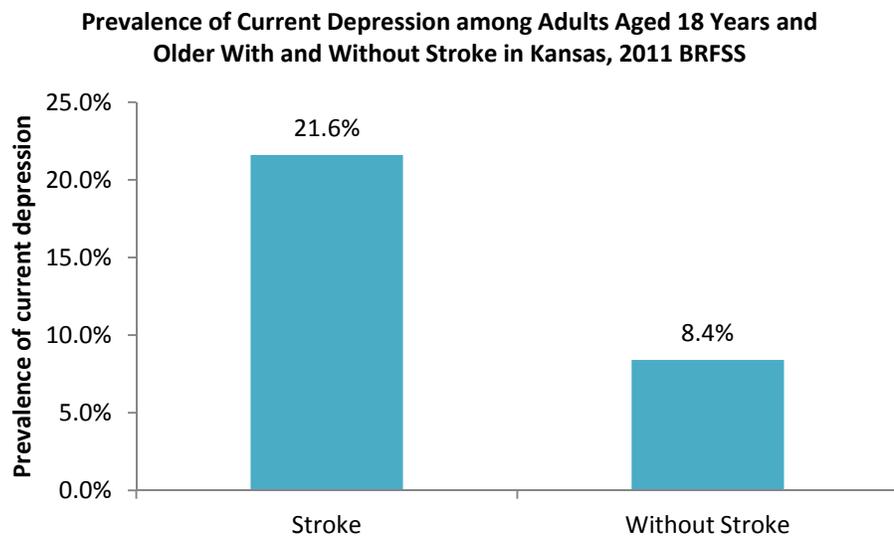
Table 12. Prevalence of current depression among adults aged 18 years and older by chronic disease status, Kansas 2011

Chronic Disease	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Current Asthma			
No	432	7.5	6.4-8.6
Yes	114	23.5	17.2-29.7
Diabetes			
Yes	126	17.7	13.8-21.7
No	421	7.9	6.7-9.1
Coronary Heart Disease			
Yes	78	22.9	17.2-28.6
No	460	8.1	6.9-9.3
Stroke			
Yes	46	21.6	13.6-29.7
No	498	8.4	7.2-9.6

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2010

The prevalence of current depression was higher among adults who had a stroke (21.6% [95% CI: 13.6%-29.7%]) as compared to adults without stroke (8.4% [95% CI: 7.2%-9.6%]) as shown in figure 27.

Figure 27

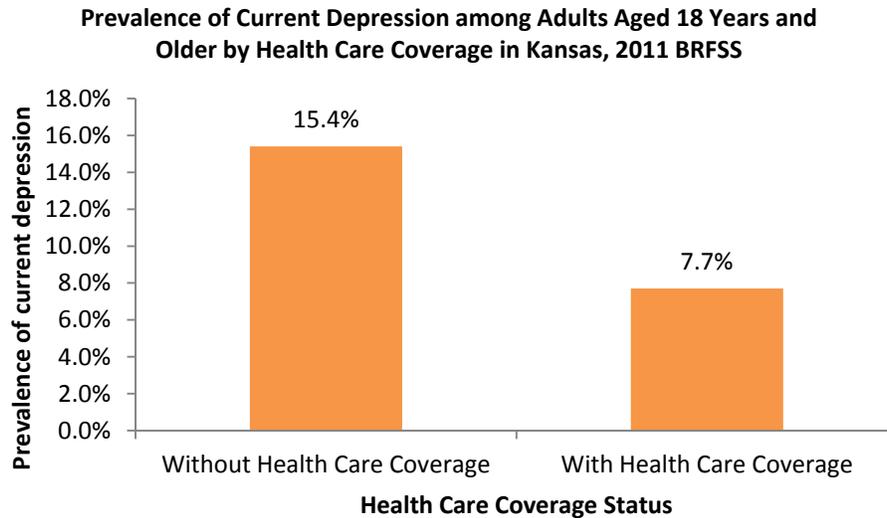


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Health Care Access and Current Depression

Higher prevalence of current depression was seen among adults without health care coverage (15.4% [95% CI:10.9%-19.8%]) as compared to adults with health care coverage (7.7% [95% CI: 6.6%-8.8%]) as shown in figure 28.

Figure 28



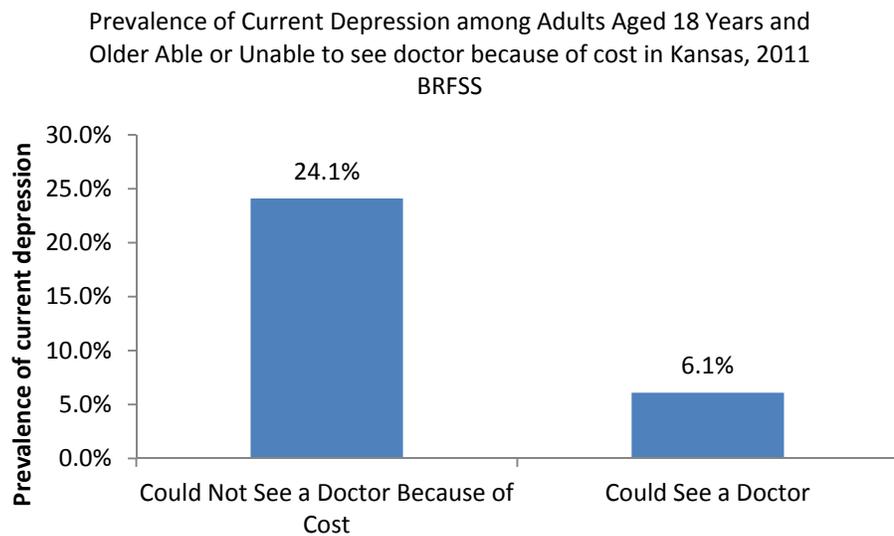
Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 (24.1% [95%CI: 18.8%-29.4%]) 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 a doctor without cost being a barrier to seek health care (6.2% [95%CI: 5.2%-7.2%]) as shown in figure 29.

Figure 29



Source: 2011 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 2011

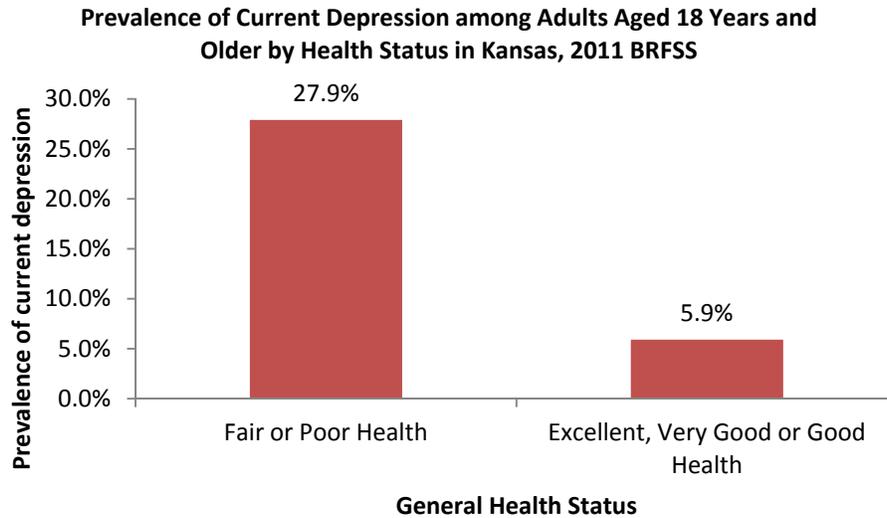
Health Care Access Status	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Health care coverage			
Yes	457	7.7	6.6-8.8
No	90	15.4	10.9-19.8
Personal health care provider			
Yes	499	8.7	7.6-9.8
No	48	9.5	5.2-13.9
Could not see doctor because of cost			
Yes	167	24.1	18.8-29.4
No	379	6.2	5.2-7.2

Among 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Self-rated Health and Current Depression

The prevalence of current depression was higher among adults (27.9% [95% CI: 24.0%-31.7%]) who rated their health as fair or poor as compared to adults (5.9% [95% CI: 4.7%-7.1%]) who rated their health as excellent, very good or good as shown in figure 30.

Figure 30

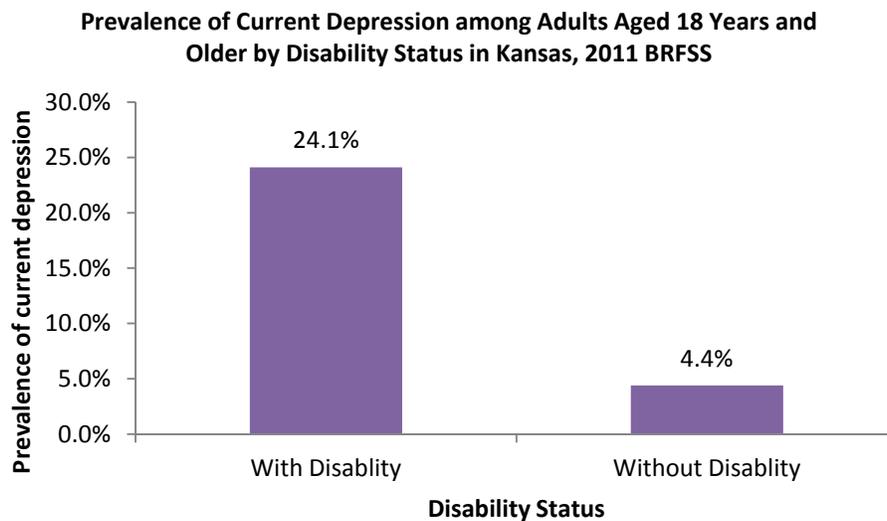


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 (24.1% [95% CI: 20.9%-27.3%]) as compared to adults living without a disability (4.4% [95% CI: 3.3%-5.4%]) as shown in figure 31.

Figure 31



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

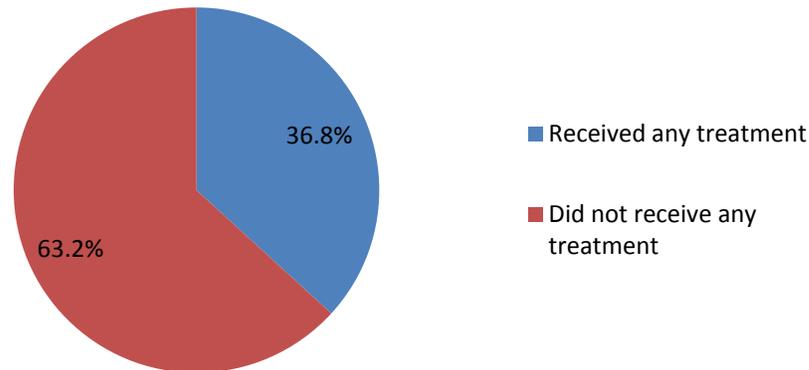
Depression Treatment

One of the objectives addressing mental health issues recommended by the Healthy People 2020 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 2020 target for the adults aged 18 years and older with recognized depression episodes to receive treatment is 75.1 %.

In 2011, 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 2011



Source: 2011 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 2011

	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	25	26.5	15.0-38.0	52	73.5	62.0-85.0
35-44 years	61	44.3	34.1-54.4	64	55.7	45.6-65.9
45-54 years	122	46.6	38.8-54.4	124	53.4	45.6-61.2
55-64 years	117	41.0	34.1-47.9	141	59.0	52.1-65.9
65 years and above	77	30.0	23.9-36.1	187	70.0	63.9-76.1
Gender						
Males	94	28.0	20.2-35.8	183	72.0	64.2-79.8
Females	308	44.2	38.4-50.1	385	55.8	49.9-61.6
Race (Age-Adjusted [€])						
Whites only	357	37.3	32.4-42.4	505	62.6	57.6-67.7
African Americans only	19	33.8	19.2-48.3	31	66.2	51.6-80.8
Ethnicity (Age-Adjusted [€])						
Hispanic	12	37.1	32.3-42.0	17	62.9	58.0-67.7
Non-Hispanic	390	36.9	22.0-51.8	551	63.1	48.2-78.0
Education						
Less than high school	20	23.6	10.5-36.6	50	76.5	63.4-89.5
High school graduate or G.E.D	121	35.1	25.9-44.3	178	64.9	55.7-74.1
Some college	138	41.0	32.6-49.4	185	59.0	50.6-67.4
College graduate	123	41.5	32.9-50.0	154	58.5	32.9-50.0
Annual household income						
< \$ 15,000	73	34.1	22.6-45.5	75	65.9	54.5-77.4
\$15,000 - \$24,999	72	30.7	20.8-40.6	118	69.3	59.4-79.2
\$25,000 - \$34,999	42	32.5	19.2-45.7	68	67.5	54.3-80.8
\$35,000 - \$49,999	53	37.7	24.7-50.7	80	62.3	49.3-75.3
>= \$50,000	121	44.0	35.8-52.3	156	56.0	47.7-64.2
Marital status						
Married / Member of Unmarried Couple	204	41.2	35.1-47.2	277	58.8	52.8-64.9
Divorced / Separated	99	42.6	33.0-52.2	96	57.4	47.8-67.0
Widowed	61	32.5	24.6-40.3	134	67.5	59.7-75.4
Never married	37	26.4	13.2-39.6	60	73.6	60.4-86.8

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

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

Non-Hispanic 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

[€]Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.

The prevalence of receiving treatment was higher among adult females (44.2% [95% 38.4%-50.1%]) as compared to adult males (30.0% [95% CI: 20.2%-35.8%]) as shown in table 14.

There was no statistical difference in the prevalence of receiving treatment among adult Kansans with depressive symptoms by age, 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: they had denial that they needs treatment (39.6%), they did not feel the need or felt that their symptoms were not severe enough (31.3%); and they could not afford treatment (17.5%) 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	Weighted Percentage (%)
Did not feel need/not severe enough for treatment	31.3
Could not afford/cost/too expensive	17.5
Just did not seek treatment	15.4
Illness or death of family member or friend	11.7
Fear/apprehension/nervousness/ dislike going	5.2
Denial that needs treatment	4
Work related situation or stress	3.6
Hours are not convenient	2
Other physical ailments	1.5
Do not have/know a health provider	1.3
Other situations preventing seeking treatment	1.3
Doctor did not address problem	1.3
Do not want to take prescribed medications	1.1
Social support (Religious/Family/Friend)	1.1
Lack transportation/too far away	0.6
Side effects of medication	0.4
Provider will not accept my insurance, including Medicaid	0.3
Already received treatment/counseling	0.2
Previous treatment did not work	0.2

The Status of Ever Being Diagnosed with Anxiety in Kansas

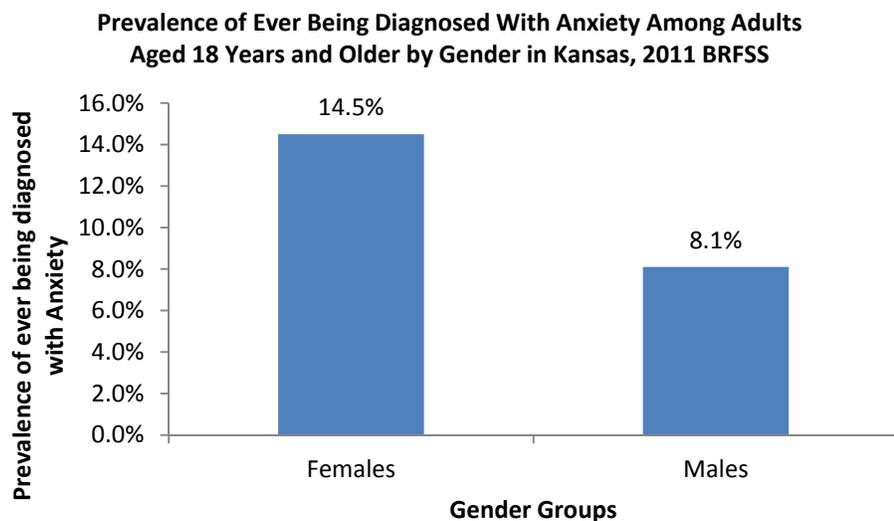
The 2011 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if a healthcare provider ever told them that they had an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder). These data from this question were analyzed 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 2011 Behavioral Risk Factor Surveillance System Survey, an estimated 242,616 (11.3%) adults aged 18 years and older had ever been diagnosed with anxiety.

Sociodemographic Profile of Adults With Anxiety

In 2011, the prevalence of ever being diagnosed with anxiety was higher among females as one in seven (14.5% [95% CI: 12.7%-16.3%]) females were ever being diagnosed with anxiety as compared to one in twelve (8.1% [95% CI: 6.4%-9.8%]) males (figure 33).

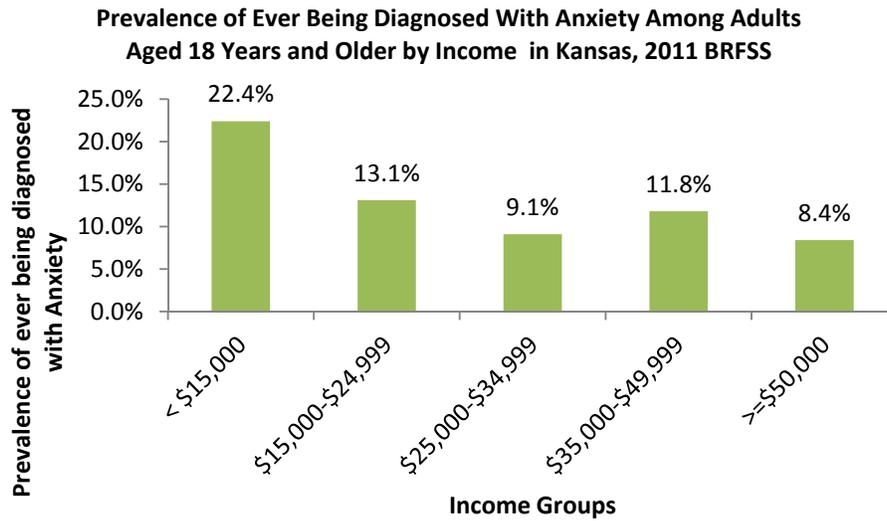
Figure 33



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

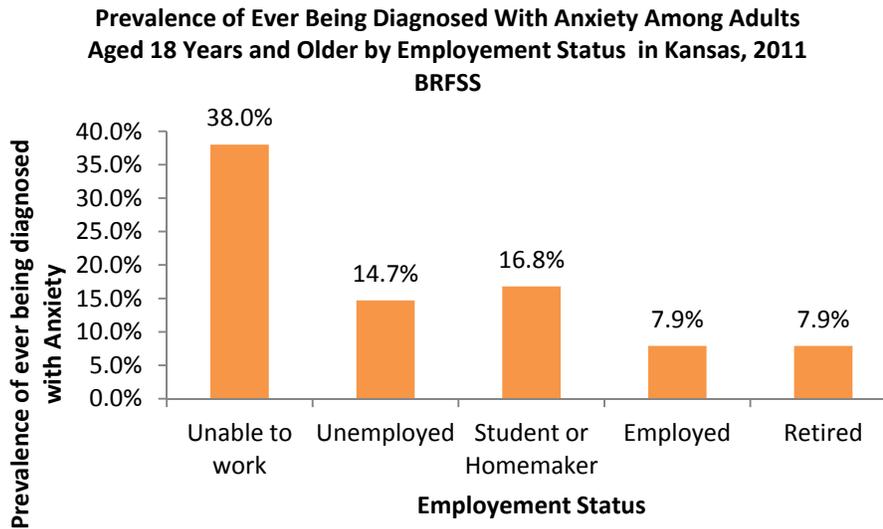
The prevalence of ever being diagnosed with anxiety appeared to be associated with lower socioeconomic status. Higher prevalence of ever being diagnosed with anxiety was seen among adults with lower annual household income and among individuals that were unable to work. The prevalence of ever being diagnosed with anxiety was 22.4% (95% CI: 17.1%-27.8%) among adults with an annual household income of less than \$15,000 as compared to 8.4% (95% CI: 6.9%-9.8%) 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 38.0% (95% CI: 31.9%-44.0%) as compared to 7.9% (95% CI: 6.6 %-9.2%) in adults who were employed (figure 35).

Figure 34



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Figure 35

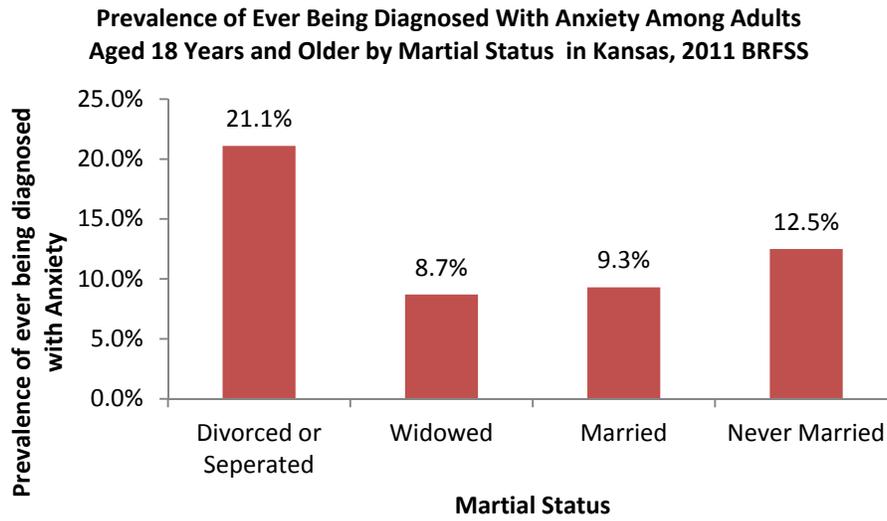


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

The prevalence of ever being diagnosed with anxiety was higher among adults who were divorced or separated (21.1% [95% CI: 17.4%-24.9%]) as compared to adults who were married (9.3% [95% CI 8.1%-10.4%]) 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: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

There was no statistical difference in the prevalence of ever being diagnosed with anxiety 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 16. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by sociodemographic characteristics, Kansas 2011

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	218	8.1	6.4-9.8	2,832	91.9	90.2-93.6
Females	607	14.5	12.7-16.3	4,529	85.5	83.7-87.3
Education						
Less than high school	59	15.4	9.8-21.0	407	84.6	79.0-90.0
High school graduate or G.E.D	242	11.2	9.0-13.4	2,058	88.8	86.6-91.0
Some college	266	12.4	10.1-14.8	2,074	87.6	85.2-90.0
College graduate	258	8.6	7.2-9.9	2,813	91.4	90.1-99.2
Annual household income						
< \$ 15,000	132	22.4	17.1-27.8	457	77.6	72.2-82.9
\$15,000 - \$24,999	131	13.1	9.8-16.5	1,030	86.9	83.5-90.2
\$25,000 - \$34,999	96	9.1	6.6-11.6	838	90.9	88.4-93.4
\$35,000 - \$49,999	117	11.8	7.9-15.6	1,074	88.2	84.4-92.1
>= \$50,000	244	8.4	6.9-9.8	2,919	91.6	90.2-93.1
Employment status						
Employed for wages / Self-employed	304	7.9	6.6-9.2	3,624	92.1	90.8-93.4
Out of work (unemployed)	65	14.7	9.5-19.9	273	85.3	80.1-90.5
Homemaker / Student	70	16.8	10.7-22.8	510	83.2	77.2-89.3
Retired	225	7.9	6.7-9.0	2,629	92.1	91.0-93.3
Unable to work	159	38	31.9-44.0	316	62	56.0-68.1
Marital status						
Married / Member of Unmarried Couple	427	9.3	8.1-10.4	4,555	90.7	89.6-91.9
Divorced / Separated	201	21.1	17.4-24.9	943	78.9	75.1-82.6
Widowed	110	8.7	6.8-10.5	1,288	91.3	89.5-93.2
Never married	84	12.5	8.2-16.7	567	87.5	83.3-91.8
Population Density (5 Level)*						
Frontier	38	11.3	5.4-17.2	451	88.7	82.8-94.6
Rural	90	8.5	6.1-11.0	1,040	91.5	89.0-93.9
Densely-settled rural	117	9.9	6.5-13.3	1,163	90.1	86.7-93.5
Semi-urban	128	12	9.0-15.0	1,059	88	85.0-91.0
Urban	452	12.4	10.5-14.2	3,648	87.6	85.8-89.5
Population Density (2 Level)*						
Rural	245	9.7	7.6-11.8	2,654	90.3	88.2-92.4
Urban	580	12.3	10.7-13.8	4,707	87.7	86.2-89.3

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

*See the definition of regions based on population density on page 64

€Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.

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, 2011 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	17	11.5	56.0-17.5	115	88.5	82.5-94.4
25-34 years	58	12.4	8.8-16.0	389	87.6	84.0-91.2
35-44 years	111	13.2	11.0-15.9	773	86.8	84.1-89.5
45-54 years	193	13.0	11.0-15.1	1,350	87.0	84.9-89.0
55-64 years	211	10.4	8.8-12.0	1,836	89.6	88.0-91.2
65 years and above	235	7.6	6.5-8.6	2,898	92.4	91.4-93.5
Race and Ethnicity (Age-Adjusted [€])						
Non-Hispanic Whites only	740	11.9	10.5-13.3	6,596	88.1	86.7-89.5
Non-Hispanic African Americans only	21	9.8	4.1-15.6	270	90.2	84.4-95.9
Non-Hispanic Other race* only	25	7.5	3.6-11.3	130	92.5	88.7-96.4
Non-Hispanic Multiracial only	20	12.4	4.2-20.6	95	87.6	79.4-95.9
Hispanic	13	9.2	4.6-13.8	248	90.8	86.2-95.4
Ethnicity (Age-Adjusted [€])						
Hispanic	25	11.7	10.4-13.0	248	88.3	87.1-90.0
Non-Hispanic	798	9.2	4.6-13.8	7,101	90.8	86.2-95.4

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

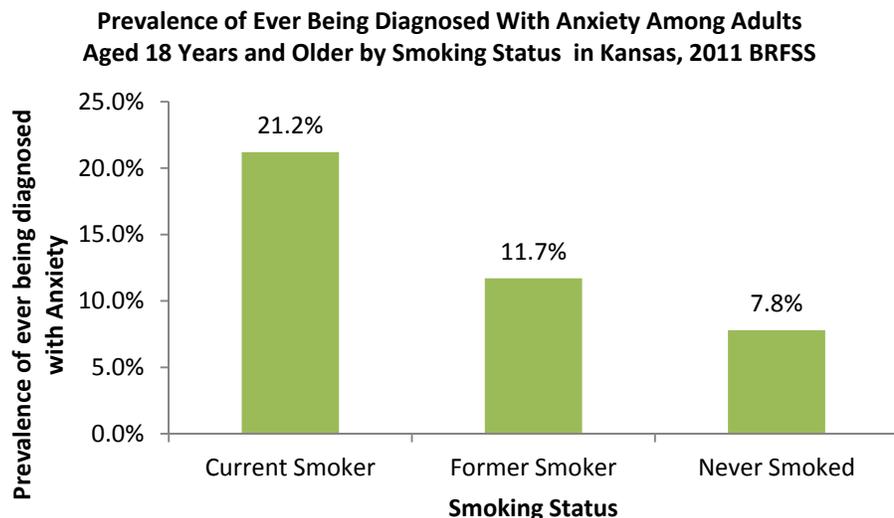
*Other race include Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans

[€]Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.

Adverse Health Behaviors and Anxiety

Higher prevalence of ever being diagnosed with anxiety was seen among current cigarette smokers (21.2% [95% CI: 17.4%-25.0%]) as compared to non-smokers (7.8% [95% CI: 6.3%-9.2%]) and former cigarette smokers (11.7% [95% CI: 9.4%-14.1%]) as shown in figure 38.

Figure 38



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

There was no statistical difference in the prevalence of ever being diagnosed with anxiety among categories of BMI status and leisure time physical activity status as shown in table 18.

Table 18. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2011

Adverse Health Behavior Characteristics	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage	95% Confidence	Frequency (n)	Weighted Percentage	95% Confidence
Weight Status						
Normal or underweight (body mass index < 25.0 kg/m ²)	248	11.1	8.6-13.6	2,372	88.9	86.4-91.4
Overweight (body mass index 25.0-29.9 kg/m ²)	252	10.1	8.2-12.0	2,584	89.9	88.0-91.2
Obese (body mass index ≥ 30.0 kg/m ²)	283	12.7	10.7-14.7	2,043	87.3	85.3-89.3
Smoking status						
Current smoker	223	21.2	17.4-25.0	930	78.8	75.0-82.6
Former smoker	243	11.7	9.4-14.1	2,087	88.3	85.9-90.6
Never smoker	355	7.8	6.3-9.2	4,311	92.2	90.8-93.7
Physical Activity						
Yes	543	10.8	9.3-12.2	5,329	89.2	86.8-90.7
No	281	13.0	10.8-15.3	2,023	87.0	84.7-89.2

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

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. (table 19)

Table 19. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by binge and heavy drinking categories in Kansas, 2011 BRFSS

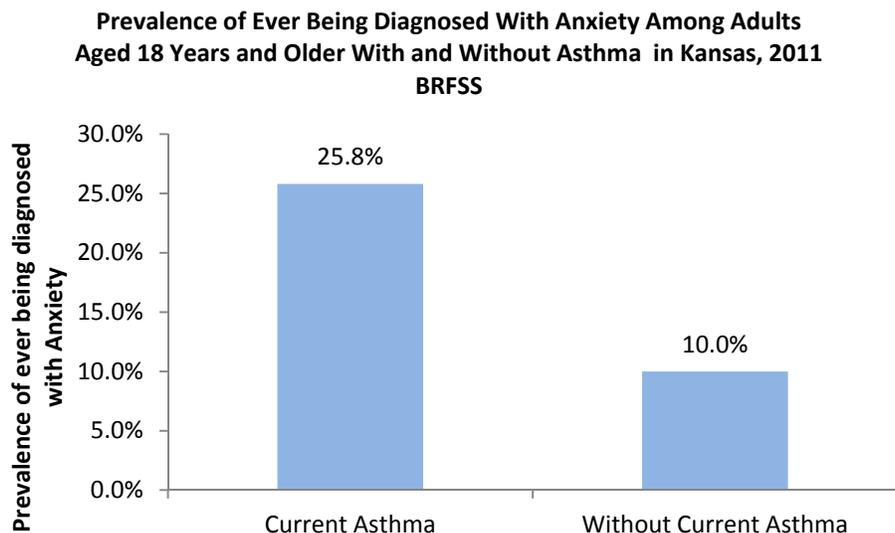
	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage	95% Confidence	Frequency (n)	Weighted Percentage	95% Confidence
Binge drinking						
No	732	11.0	9.7-12.2	6,635	89.0	87.8-90.3
Yes	87	13.6	9.3-17.9	660	86.4	82.1-90.7
Heavy drinking						
No	427	9.9	8.8-11	3,571	90.1	89-91.2
Yes	17	15.9	6.2-25.7	93	84.1	74.3-93.8

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Chronic Diseases and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults with current asthma (25.8% [95% CI: 19.3%-32.3%]) as compared to adults without current asthma (10.0% [95% CI: 8.8%-11.2%]) as shown in figure 39.

Figure 39



Source: 2011 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 2011

Chronic Disease	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage	95% Confidence	Frequency (n)	Weighted Percentage	95% Confidence
Asthma						
No	679	10.0	8.8-11.2	6847	90.0	88.8-91.2
Yes	140	25.8	19.3-32.2	482	74.2	67.8-80.7
Diabetes						
Yes	135	13.4	10.5-16.3	994	86.6	83.7-89.5
No	688	11.1	9.8-12.5	6363	88.9	87.5-90.2
Coronary Heart Disease						
Yes	88	21.3	16.0-26.6	505	78.7	73.4-84.0
No	720	10.8	9.6-12.1	6786	89.2	87.9-90.4
Stroke						
Yes	55	20.6	13.6-27.7	303	79.4	72.3-86.4
No	766	11.0	9.8-12.3	7043	89.0	87.7-90.2

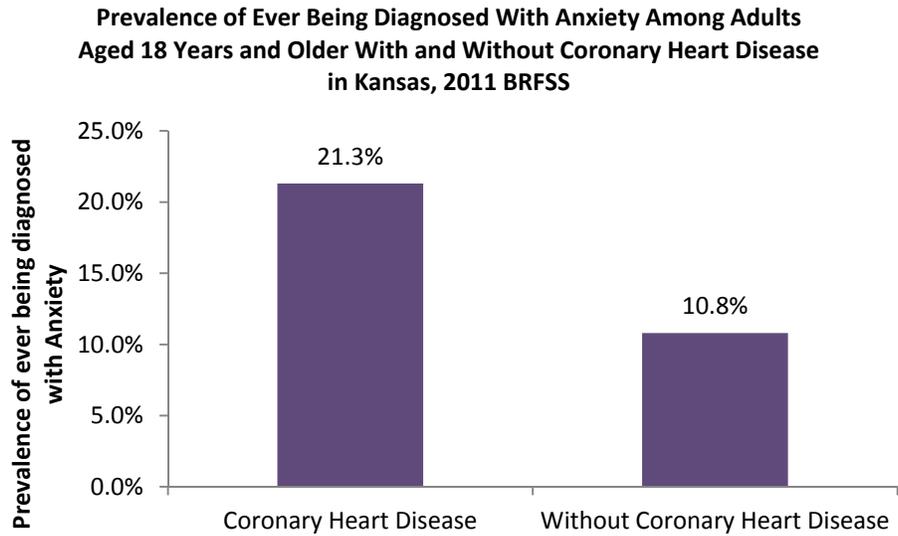
Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

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 (21.3% [95% CI: 16.0%-26.6%]) as compared to adults without coronary heart disease (10.8% [95% CI: 9.6%-12.1%]) as shown in figure 40 and table 20.

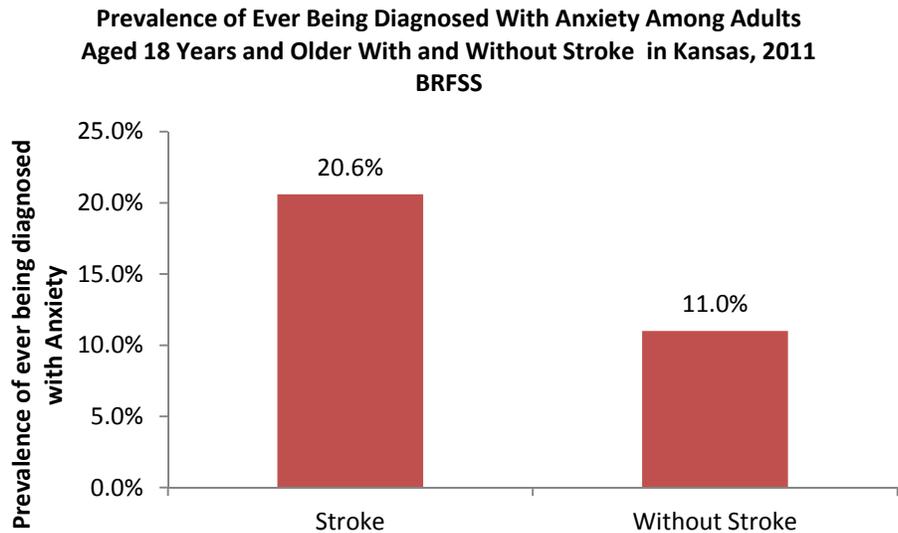
Higher prevalence of ever being diagnosed with anxiety was seen among adults with stroke (20.6% [95% CI: 13.6%-27.7%]) as compared to adults without stroke (11.0% [95% CI: 9.8%-12.3%]) as shown in figure 41 and table 20.

Figure 40



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Figure 41



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

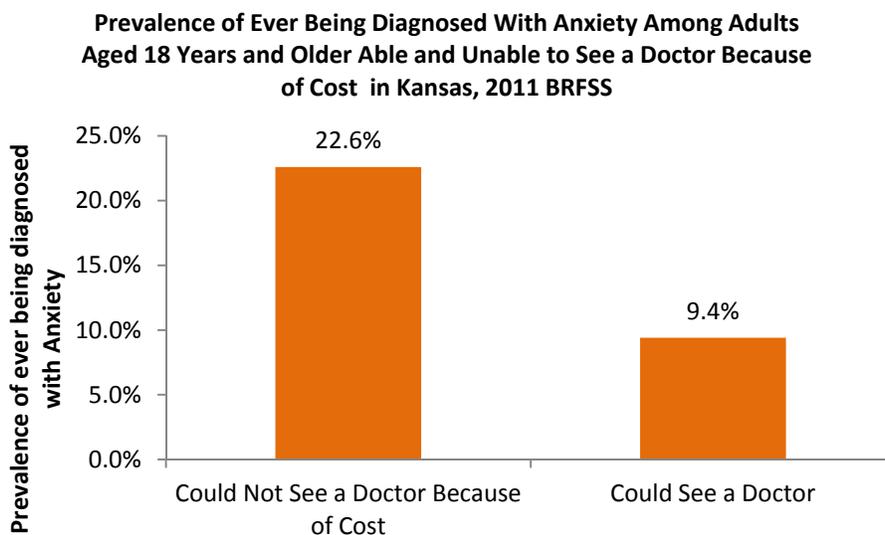
Health Care Access and Anxiety

There was no statistical difference in the prevalence of being diagnosed with 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 being diagnosed with anxiety was higher among adults (22.6% [95%CI: 17.5%-27.3%]) 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 the doctor (9.4% [95%CI: 8.2%-10.5%]) as shown in figure 42.

Figure 42



Source: 2011 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 2011

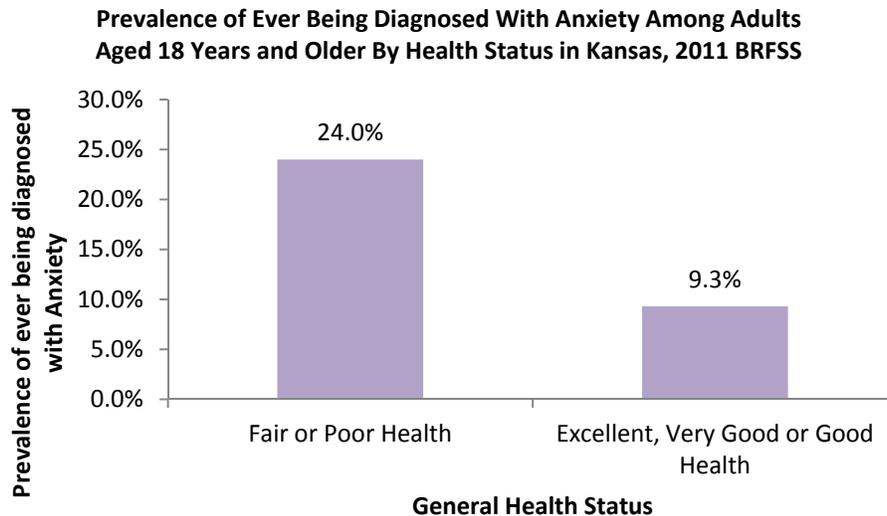
Health Care Access Status	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage	95% Confidence	Frequency (n)	Weighted Percentage	95% Confidence
Health care coverage						
Yes	748	10.9	9.7-12.1	6,822	89.1	87.9-90.3
No	77	14.7	9.8-19.4	527	85.3	80.5-90.2
Personal health care provider						
Yes	770	11.8	10.5-13.2	6,727	88.2	86.8-89.5
No	55	8.7	5.5-12.0	623	91.3	88.0-94.5
Could not see doctor because of cost						
Yes	154	22.6	17.5-27.7	589	77.4	72.3-82.5
No	664	9.4	8.2-10.5	6,766	90.6	89.5-91.8

Among all 7,545 adult respondents excluding unknowns and refusals in Kansas, BRFSS 2011

Self-rated Health and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults (24.0% [95% CI: 20.5%-27.4%]) who rated their health as fair or poor as compared to adults (9.3% [95% CI: 7.9%-10.6%]) who rated their health as excellent, very good or good as shown in figure 43.

Figure 43

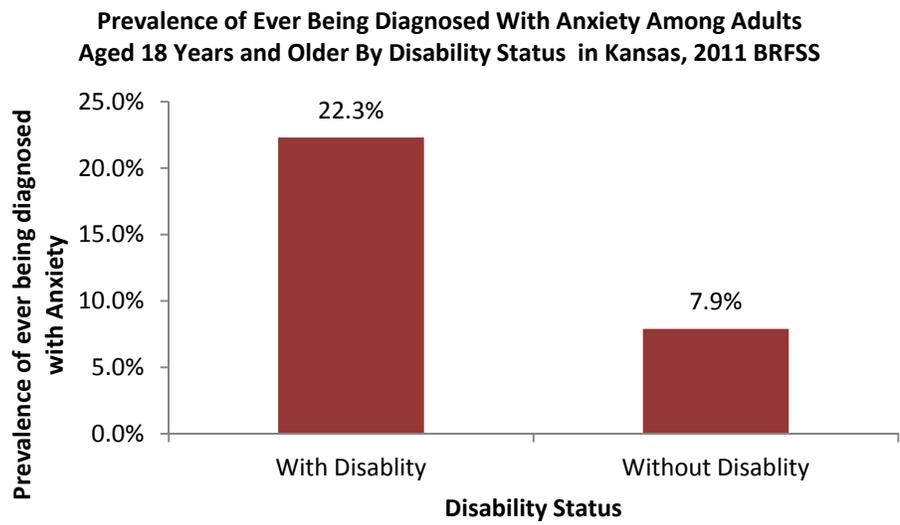


Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

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 (22.3% [95% CI: 19.6%-25.0%]) as compared to adults without a disability (7.9% [95% CI: 6.5%-9.2%]) as shown in figure 44.

Figure 44



Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Technical Notes

METHODOLOGY

Sampling

In 2011, the CDC advised all states and territories to implement a dual frame sampling methodology for BRFSS survey and to include both: adults 18 years and older living in private residences with landline telephone service; and adults 18 years and older living in private residences with cellular telephone only service. The states were advised to target at least 20 percent of their total sample of complete interviews to be from cellular telephone only service households. This change in sampling methodology of the BRFSS is made to address the impact of growing number of households with cellular telephone only service and differences in the demographic profile of the people who live in cellular telephone only service households and to maintain representativeness, coverage, and validity of BRFSS data.

The dual frame sampling methodology for 2011 survey included two components: 1) Landline telephone service survey component; and 2) Cellular telephone only service component.

The landline telephone survey component of this dual frame sampling method remained identical to the sampling method for 2009 and 2010 surveys. It comprised of implementation of disproportionate stratified sampling methodology that included selection of landline telephone numbers within 10 geographic strata comprised of county grouping instead of random selection of telephone numbers from the entire state as a single geographic stratum. 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 that is drawn from each geographical stratum is based on population size within each geographical stratum, the confidence level and the margin of error. The landline telephone component sampling was designed to reach non-institutionalized adults ages 18 years and older living in the private residences in Kansas. As in previous years, this method of probability sampling involved assigning sets of one hundred telephone numbers with the same area code, prefix, and first two digits of the suffix and all possible combinations of the last two digits ("hundred blocks") into two strata. Those hundred blocks that have at least one known household number are designated high density (also called "one-plus blocks"); hundred blocks with no known household numbers are designated low density ("zero blocks"). The high density stratum is sampled at a rate 1.5 times higher than the low density stratum, resulting in greater efficiency.

The cellular telephone survey component of this dual frame sampling method included the sampling frame comprised of all 1000-series blocks dedicated to cellular devices serving the state with a nonzero chance of inclusion. The cellular telephone survey component sampling was designed to reach non-

institutionalized adults ages 18 years and older living in the private residences with cellular telephone only service in Kansas.

Sample Size

For 2011 Kansas BRFSS survey, the target total (combined landline and cell phone sample) sample size was about 19,200 complete interviews with a target of 16,000 complete interviews for the landline telephone survey component and 3,200 complete interviews for the cellular telephone survey component.

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.

Once BRFSS data are collected, statistical procedures are undertaken to make sure the estimates of health indicators generated by the analysis of survey data are representative of the population for each state and/or local area.

This weighting process of BRFSS data includes calculation of design weight as one of its components: 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.

Weighting process of BRFSS also involves adjustment for the distribution of the sample data so that it reflects more accurately the total population of the sampled area. The method used for this adjustment is called the post-stratification methods and was used through 2010.

Beginning with the 2011 dataset, the CDC has adopted a raking method in place of post stratification weighting procedure as the sole BRFSS statistical weighting method.

The new BRFSS weighting methodology is comprised of two components:

- ✓ Design Weight
- ✓ Raking Adjustment

Design Weight: Design Weight is calculated by using computational formula:

Design Weight = $_STRWT * (1/NUMPHON2) * NUMADULT$

- ✓ The stratum weight ($_STRWT$) is calculated using:
 - Number of available records (NRECSTR) and the number of records selected (NRECSEL) within each geographic strata ($_GEOSTR$) and density strata ($_DENSTR$);
 - Geographic strata (entire state, counties, census tracts, etc.); and
 - Density strata (1=listed numbers, 2=not listed numbers).

- Within each _GEOSTR * _DENSTR combination: The stratum weight (_STRWT) is calculated from the average of the NRECSTR and the sum of all sample records used to produce the NRECSEL.

The computational formula for stratum weight:

$$\text{STRWT} = \text{NRECSTR} / \text{NRECSEL}$$

- ✓ 1/ NUMPHON2 is the inverse of the number of residential telephone numbers in the respondent's household.
- ✓ NUMADULT is the number of adults 18 years and older in the respondent's household.

Final Weight is calculated for analysis of survey data to generate estimates for health indicators that are representative of the general population.

The computational formula for Final weight:

$$\text{Final Weight} = \text{Design Weight} * \text{Raking Adjustment}$$

Raking adjustment: Raking adjusts estimates within each state by using:

- Telephone source,
- Detailed race and ethnicity,
- Regions within state,
- Education level,
- Marital status,
- Age group by gender,
- Gender by race and ethnicity,
- Age group by race and ethnicity, and
- Renter/homeowner status.

Raking is completed by adjusting for one demographic variable (or dimension) at a time. For example, when weighting by age and gender, weights would first be adjusted for gender groups, then those estimates would be adjusted by age groups. This procedure would continue in an iterative process until all group proportions in the sample approach those of the population, or after 75 iterations.

Weighted data analysis techniques are used to analyze BRFSS survey to generate population based estimates of health indicators. The Final weight variable is used in these analyses.

Weight Trimming in Raking

Weight trimming is used to increase the value of extremely low weights and decrease the value of extremely high weights. The objective of weight trimming is to reduce errors in the outcome estimates caused by unusually high or low weights in some categories.

Data Reliability

Telephone interviewing has been demonstrated to be a reliable method for collecting behavioral risk data and can cost three to four times less than other interviewing methods such as mail-in interviews or face-to-face interviews. The BRFSS methodology has been utilized and evaluated by the CDC and other participating states since 1984. Content of survey questions, questionnaire design, data collection procedures, surveying techniques, and editing procedures have been thoroughly evaluated to maintain overall data quality and to lessen the potential for bias within the population sample.

RESPONSE RATE

The CASRO (Council of American Survey Research Organizations) response rate is used as a measure of quality of data. The 2011 Kansas BRFSS achieved a rate of 58.2% 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.

DATA ANALYSIS

The weighted data analysis is conducted to estimate overall prevalence 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 on 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 prevalence estimates, 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. In addition, data analysis is also conducted using population density groups. The definition and designations of these groups are described below:

The weighted data analysis techniques applied for the analysis of 2011 survey data are same as in previous years. Adoption of new survey methodology for 2011 and subsequent years will not affect the analytical approach for BRFSS data analyses to generate estimates of the health indicators.

QUESTIONNAIRE DESIGN

The BRFSS survey conducted by all states 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 the states from a bank of CDC-supported modules, or each state designs its own modules (state-added modules). Kansas BRFSS use a split questionnaire design. It consists of the core section, which is asked of all respondents and then survey splits into two “branches” of optional modules/state-added modules. Once respondents have been asked the core questions, they will either be asked questions in questionnaire A (also called Part A) or questionnaire B (also called Part B) of the survey. Respondents will be randomly assigned to one of these two arms of the survey. Approximately half of the respondents receive questionnaire A and the remaining will 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

Analysis of split questionnaire:

The sample size for each split of the questionnaire is approximately half of the total sample size. As mentioned above, each respondent is randomly assigned to questionnaire A or to questionnaire B. The questions regarding certain conditions are included in the core section (e.g., asthma, disability, high blood pressures, etc.). State added questions and optional modules for these conditions are included on questionnaire A or questionnaire B. Therefore, these additional questions on a specific health condition are asked to the respondents who are assigned to that particular split questionnaire. This results in approximately half of the respondents who have a particular condition from the core section respond to additional questions on the specific condition.

Also, the number of adults with the specific health condition may vary on each question due to respondents terminating at various points in the survey. A split questionnaire was used for the 2011 survey.

TYPES OF QUESTIONS ON THE BRFSS

The BRFSS questionnaire is designed by the Centers for Disease Control and Prevention, state BRFSS Coordinators, and each individual state’s survey selection committee. The questionnaire has three components: core questions, optional modules, and state added questions.

- **Core questions** are asked by all states and include approximately 72 questions (though this may vary somewhat from year to year). The order the questions appear and the wording of the question is exactly the same in all states. Types of core questions include fixed, rotating, and emerging health issues.
 - Fixed core: contains questions that are asked every year. Fixed core topics include health status, health care access, healthy days, life satisfaction emotional satisfaction, disability, tobacco use, alcohol use, exercise, immunization, HIV/AIDS, diabetes, asthma, and cardiovascular disease. Total number of fixed core questions is 52.
 - Rotating core: contains questions asked every other year.
 - Odd years (2005, 2007, 2009, etc): fruits and vegetables, hypertension awareness, cholesterol awareness, arthritis burden, and physical activity. Total number of rotating core questions for odd years is 72.
 - Even years (2006, 2008, 2010, etc): women's health, prostate screening, colorectal cancer screening, oral health and injury. Total number of rotating core questions for even years is 74 for female respondents, and 72 for male respondents.
 - Emerging Health Issues: contains late breaking health issue questions. At the end of the survey year, these questions are evaluated to determine if they should be a part of the fixed core. Total number of questions for emerging health issues is four.
- **Optional Modules** include questions on a specific health topic. The CDC provides a pool of questions from which states may select. States have the option of adding these questions to their survey. The CDC's responsibilities regarding these questions include development of questions, cognitive testing, financial support to states to include these questions on their questionnaire, data management, limited analysis and quality control.
- **State-added questions** are based on public health needs of each state. State added questions include questions not available as supported optional modules in that year or emerging health issues that are specific to each state. Any modifications made to the CDC support modules available in that year make the module a state added module. The CDC has no responsibilities regarding these questions.

LIMITATIONS

Sampling

The BRFSS survey sampling methods are discussed in the methodology section. Sampling yields results which are an estimate of the true answer for the entire population. The higher the number of persons interviewed, the greater the precision of the estimate. When the data are subdivided to look at sub-populations (e.g., an age subgroup) these estimates will be less precise; if the number of persons interviewed was small because the subgroup represents a small fraction of the population (e.g., diabetics less than 30 years old), the estimate may become too uncertain to be of value. Because the survey is conducted by telephone, persons without telephones could not be reached. Since phone ownership is highly correlated to income, persons without a phone are more likely to have low incomes than persons with a telephone. This will potentially affect questions with responses that are highly dependent on income (e.g., health insurance) more than other questions. However, because phone ownership is high in Kansas (greater than 95%), it is unlikely that failing to reach these persons will substantially alter results.

From 2011 onwards, inclusion of cellular telephone only service (and cellular telephone mostly service) households in addition to landline telephone service households will further assist in maintaining the representativeness of the survey sample to the general population.

Questionnaire Administration

How a question is written and which questions preceded it in the questionnaire can influence responses in unpredictable ways. Not all the questions used in the survey have been tested to ensure that all persons understand the intended meaning. Those that come from modules created by the Centers for Disease Control and Prevention usually have been tested, while those in state modules may or may not have been tested, depending on the source of the question. Furthermore, not all questions are equally easy for respondents to answer. While it may be easy for a respondent to provide a personal opinion, it may be much harder to recall a past event (last mammogram) or provide factual information (household income).

Interviewers are trained and monitored to ensure that they administer the survey in a neutral voice and read the written question verbatim and without comment. Nonetheless, it is possible for the interviewer to bias the results through tone of voice or administration technique. Coding errors may also occur if the interviewer types in the wrong response to the question. In addition, the person being interviewed may alter his or her response to give the interviewer the most socially acceptable answer. This may be a problem especially for questions which may have a perceived stigma (e.g., HIV risk).

Response Rate

The bias from non-response cannot be removed and it is not possible to know if those who refused to respond would have answered the questions in approximately the same ways as those who responded.

Confounding and Causation

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 diabetes and employment status might show a greater prevalence of diabetes among persons who are retired than among persons who are employed. However, persons who are retired are expected to have a greater average age 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 heart disease and employment status was being confounded by age.)

Likewise, this report does not attempt to explain the causes of the health effects examined. For instance, BRFSS data might show a higher prevalence of heart disease among smokers, but one should not conclude from this that smoking causes heart disease. That smoking is indeed a causal factor for heart disease is apparent from a large body of scientific data, but 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, Chautauqua, Cheyenne, Clark, Comanche, Decatur, Edwards, Elk, Gove, Graham, Greeley, Greenwood, Hamilton, Hodgeman, Jewell, Kearny, Kiowa, Lane, Lincoln, Logan, Meade, Morton, Ness, Osborne, Rawlins, Rooks, Rush, Sheridan, Sherman, Smith, Stafford, Stanton, Trego, Wallace, Wichita
Rural	6 to <20 persons/square mile	Anderson, Brown, Clay, Cloud, Coffey, Ellsworth, Grant, Gray, Harper, Haskell, Jackson, Kingman, Linn, Marion, Marshall, Mitchell, Morris, Nemaha, Norton, Ottawa, Pawnee, Phillips, Pratt, Republic, Rice, Russell, Scott, 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, Lyon, McPherson, Neosho, Osage, Pottawatomie, Seward, Sumner
Semi-urban	40 to <150 persons/square mile	Butler, Crawford, Franklin, Geary, Harvey, Miami, Montgomery, Reno, Riley, Saline
Urban	150+ persons/square mile	Douglas, Johnson, Leavenworth, Sedgwick, Shawnee, Wyandotte

Based on 2010 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

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