

DEPRESSION AND ANXIETY STATUS IN KANSAS

2006 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.

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Executive Summary

Depression and anxiety are considered leading causes of mental health disorders. They are associated with increase risk of morbidity, mortality and poor quality of life. Healthy People 2010 and its corollary Healthy Kansans 2010 plans provide comprehensive 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.

The Kansas Department of Health and Environment (KDHE) and the Kansas State Mental Health Authority (KSMHA), which is administered by the Department of Social and Rehabilitation Services, recognized the need to assess the burden of depression and anxiety in Kansas. Both agencies expressed keen interest in understanding the mental health profile of Kansas's residents.

The KDHE and KSMHA collaborated in 2006 to develop a mental health profile for Kansas. KDHE collected and analyzed data on depression and anxiety utilizing the 2006 Kansas Behavioral Risk Factor Surveillance System (BRFSS). This report provides comprehensive review of the status of depression and anxiety among Kansas's residents. The Kansas Behavioral Risk Factor Surveillance System Survey is an ongoing population-based telephone survey of non-institutionalized adults aged 18 years and older. Better understanding of the burden of depression and anxiety will assist KDHE, KSMHA and key stakeholders in identifying gaps and developing effective and targeted preventive services for mental illnesses.

Survey results indicate that, in Kansas, an estimated 292,000 (14.2%) adults have ever been diagnosed with depression and nearly 143,000 (6.9%) are currently depressed. Similarly, an estimated 205,000 (9.9%) adult Kansans have ever been diagnosed with anxiety.

About one in five females had ever been diagnosed with depression as compared to one in ten males. The prevalence of ever receiving a diagnosis of depression was higher among adults who had lower annual household income (< \$15,000) and in adults who were unemployed or unable to work as compared to adults with higher annual household income (>= \$50,000) and employed. The prevalence of ever receiving a diagnosis of depression was also high among adults who were divorced or separated as compared to adults who were married.

Being diagnosed with depression was also high among current cigarette smokers, and among adults with current asthma. One in four adults who rated their health as fair or poor had ever been diagnosed with depression as compared to one in twenty five 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 said they could not because of the cost, also said they had depression. Diagnosis of depression was also higher among adults living with disability as compared to adults living without disability.

About one in nine females were currently depressed as compared to one in twenty males. The prevalence of current depression was higher among adults who had lower annual household income (< \$15,000) and in adults who were unable to work as compared to adults with higher annual household income (>= \$50,000) and were employed. 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 or were high school graduate as compared to adults who were college graduate.

Current depression was also high among current cigarette smokers, among adults with current asthma and with stroke. 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 five adults who rated their health as fair or poor had current depression as compared to one in twenty five who rated their health as excellent, very good or good. One in four adults who needed to see a doctor in the past twelve months but could not because of the cost had current depression. Current depression was also higher among adults living with disability as compared to adults living without disability.

About one in eight females had ever been diagnosed with anxiety as compared to one in fourteen males. The prevalence of ever receiving diagnosis of anxiety was higher among adults who had lower annual household income (< \$15,000) and in adults who were homemaker or student and unable to work as compared to adults with higher annual household income (\geq \$50,000) and were employed. The prevalence of ever receiving diagnosis of anxiety was also high among adults who were divorced or separated and were never married as compared to adults who were married.

The percentage of ever being diagnosed with anxiety was also high among adults with current asthma. One in six 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 said they could not because of the cost, also said they had anxiety. Diagnosis of anxiety was also higher among adults living with disability as compared to adults living without disability.

Introduction

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

Depression is one of the leading mental health disorders.² It affects about 20.9 million or 9.6% of the United States population aged 18 years or older in a given year.³ It is associated with increase 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 as in 2002, an estimated \$83 billion were spent on direct and indirect cost in the United States.⁵ One of the ten leading health indicators addressed by Healthy People 2010 that is a major public health concern is to increase 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

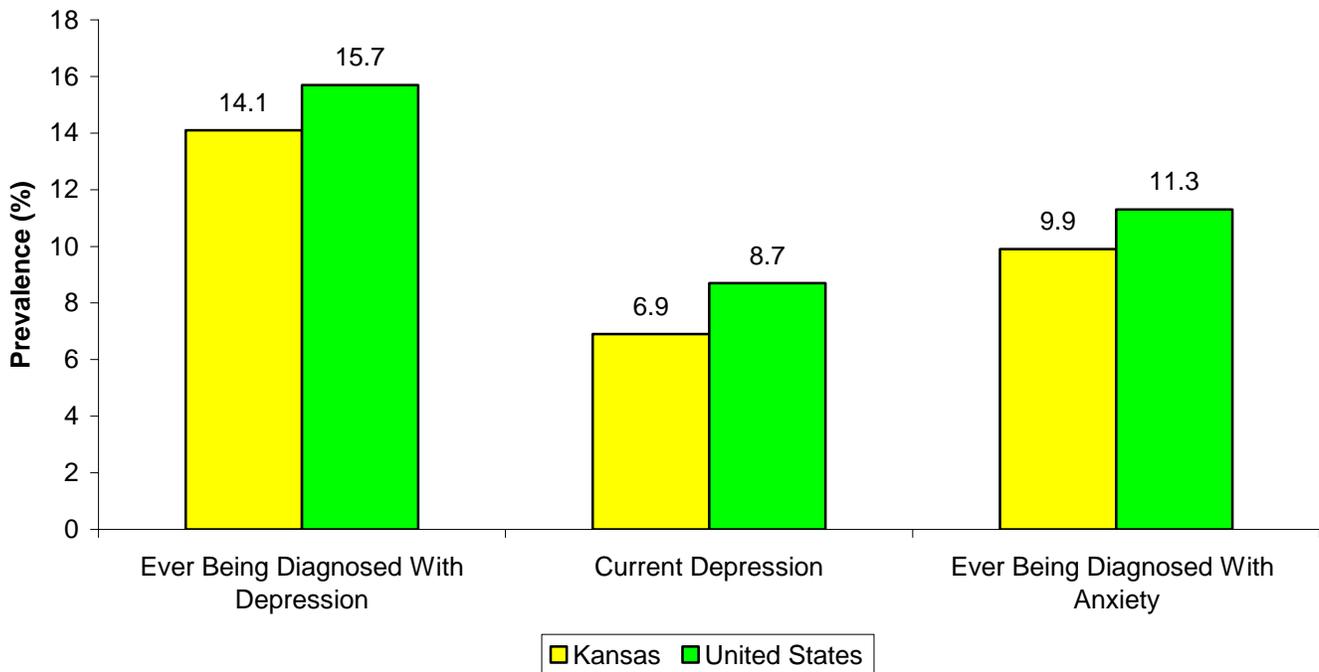
Anxiety disorders are considered the most prevalent mental disorder among adults in the United States.^{3, 7} In a given year, an estimated 40 million or 18.1% of adults are affected with an anxiety disorder.^{3, 7} An estimated 50% of American adults diagnosed with major depression are also diagnosed 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 2006, it is estimated that 14.1% adult Kansans aged 18 years and older had ever been diagnosed with depression, 6.9% had current depression and 9.9% had ever been diagnosed with anxiety as shown in figure 1.

Figure 1

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



Source: 2006 Kansas Behavioral Risk Factor Surveillance System, 2006 Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

The status of Ever Being Diagnosed with Depression in Kansas

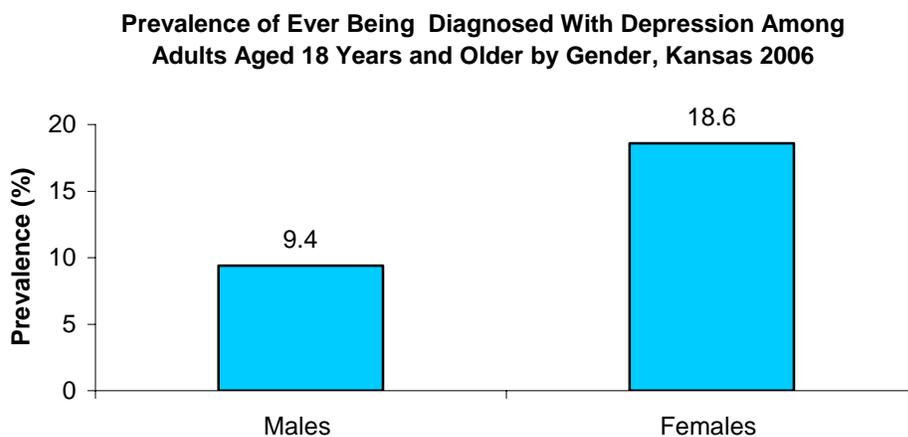
The 2006 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if a healthcare provider ever told them that they have a depressive disorder (including depression, major depression, dysthymia, or minor depression). This question was used to analyze and report results of the data for lifetime or ever being diagnosed with depression.

In Kansas, according to the 2006 Behavioral Risk Factor Surveillance System, an estimated **292,126 (14.1%)** adults aged 18 years and older had ever been diagnosed with depression.

Sociodemographic Profile of Depression

The prevalence of ever being diagnosed with depression was nearly two times higher among females as compared to males. One in five (18.6% [95% CI: 16.6%-20.6%]) adult females reported ever being diagnosed with depression as compared to one in ten (9.4% [95% CI: 7.5%-11.4%]) adult males (Figure 2). The prevalence of ever being diagnosed with depression appeared to be higher in adults aged 18-24 years (18.4% [95% CI: 11.7%-25.2%]) as compared to adults aged 65 years and older (8.4% [95% CI: 6.7%-10.1%]) as shown in table 1.

Figure 2



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

There was no statistical difference in the prevalence of ever being diagnosed with depression among adult non-Hispanic Whites and adult non-Hispanic African Americans as shown in table 1. However, the prevalence of ever being diagnosed with depression varies by ethnicity. Non-Hispanics (14.6% [95% CI: 13.2%-16.1%]) had higher prevalence of ever been diagnosed with depression as compared to Hispanics (7.6% [95% CI: 4.3%-10.9%]) as shown in table 1.

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 26.7% (95% CI: 20.4%-33.0%) among adults with an annual household income of less than \$15,000 as compared to 10.9% (95% CI: 9.3%-12.6%) among adults with an annual household income greater than \$50,000 (Figure 3). Among adults who were unemployed or unable to work, the prevalence of ever being diagnosed with depression was 29.9% (95% CI: 16.5%-43.2%) and 47.7% (95% CI: 38.7%-56.7%) respectively as compared to 12.1% (95% CI: 10.5%-13.7%) among adults who were employed (figure 4).

Figure 3

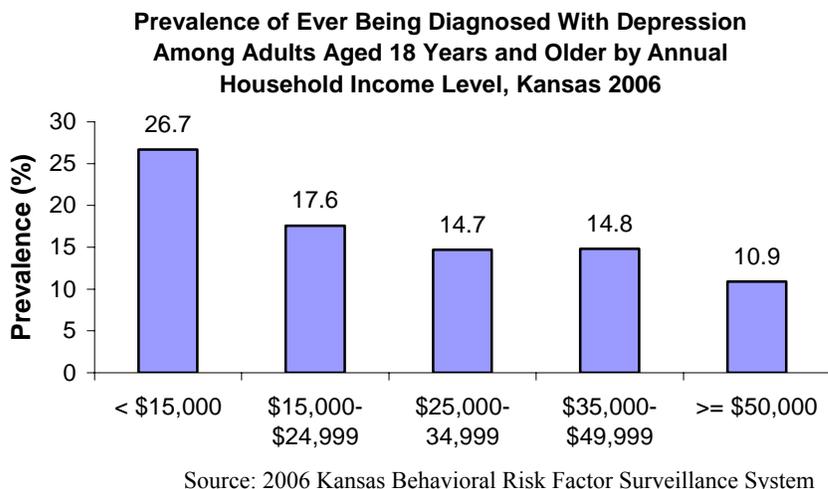
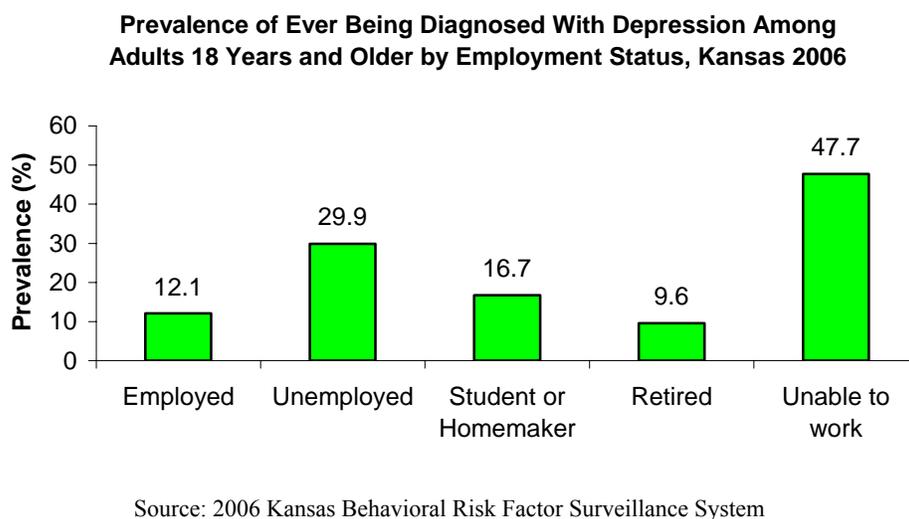


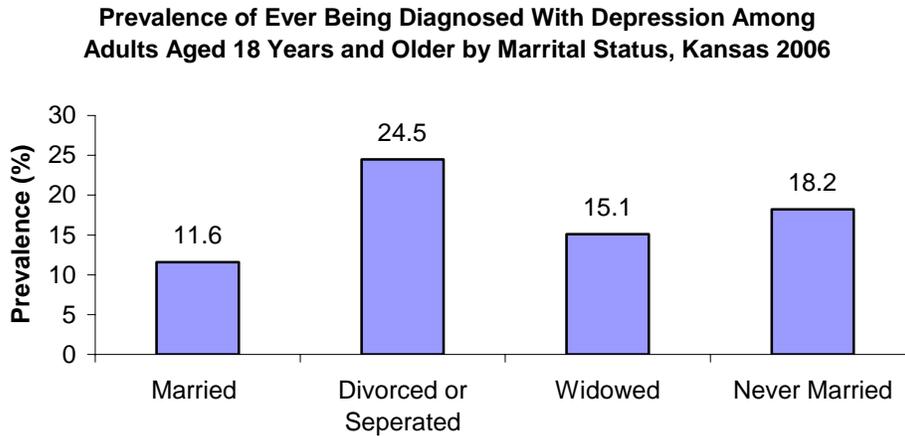
Figure 4



The prevalence of ever being diagnosed with depression was higher among adults who were divorced or separated (24.5% [95% CI: 20.6%-28.3%]) as compared to adults who were married (11.6% [95% CI 10.3%-12.9%]) as shown in figure 5. There was no statistical difference in the

prevalence of ever being diagnosed with depression among adults with different educational levels (table 1).

Figure 5



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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

Table 1. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by sociodemographic characteristics, Kansas 2006

Sociodemographic Characteristics	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	629	14.1	12.7-15.5	3480	85.9	84.5-87.3
Age groups						
18-24 years	30	18.4	11.7-25.2	133	81.6	74.8-88.4
25-34 years	60	10.8	7.9-13.6	410	89.3	86.4-92.1
35-44 years	120	15.4	12.5-18.2	579	84.7	81.8-87.5
45-54 years	163	16.1	13.5-18.6	713	83.9	81.4-86.5
55-64 years	147	16.6	13.9-19.4	621	83.4	80.6-86.1
65 years and above	105	8.4	6.7-10.1	1003	91.6	89.9-93.3
Gender						
Males	147	9.4	7.5-11.4	1426	90.6	88.6-92.5
Females	482	18.6	16.6-20.6	2054	81.4	79.4-83.4
Race						
Non-Hispanic Whites	560	14.7	13.1-16.2	3077	85.3	83.8-86.9
Non-Hispanic African	18	11.8	4.7-18.9	115	88.2	81.1-95.4

Americans						
Other races*	10	12.8	3.6-22.0	70	87.2	78.0-96.4
More than one race	12	22.0	7.8-36.5	29	78.0	63.5-92.4
Ethnicity						
Hispanic	26	7.6	4.3-10.9	183	92.4	89.1-95.7
Non-Hispanic	603	14.6	13.2-16.1	3293	85.4	83.9-86.8
Education						
Less than high school	62	17.4	10.7-24.0	270	82.7	76.0-89.3
High school graduate or G.E.D	163	13.0	10.5-15.5	1060	87.0	84.6-89.5
Some college	195	16.8	13.8-19.8	923	83.2	80.2-86.2
College graduate	209	12.2	10.4-14.1	1222	87.8	85.9-89.6
Annual household income						
< \$ 15,000	85	26.7	20.4-33.0	223	73.3	67.0-79.6
\$15,000 - \$24,999	116	17.6	13.7-21.6	506	82.4	78.4-86.4
\$25,000 - \$34,999	77	14.7	10.4-19.0	442	85.3	81.0-89.6
\$35,000 - \$49,999	103	14.8	11.3-18.4	554	85.2	81.6-88.7
>= \$50,000	190	10.9	9.2-12.6	1350	89.1	87.4-90.8
Employment status						
Employed for wages / Self-employed	356	12.1	10.5-13.7	2139	87.9	86.3-89.5
Out of work (unemployed)	24	29.9	16.5-43.2	71	70.1	56.7-83.5
Homemaker / Student	49	16.6	10.9-22.4	271	83.4	77.6-89.1
Retired	110	9.6	7.8-11.5	907	90.4	88.5-92.2
Unable to work	88	47.7	38.7-56.7	88	52.3	43.3-61.3
Marital status						
Married / Member of Unmarried Couple	314	11.6	10.3-13.0	2208	88.4	87.1-89.7
Divorced / Separated	165	24.5	20.6-28.3	465	75.5	71.7-79.4
Widowed	82	15.1	11.9-18.4	444	84.9	81.6-88.2
Never married	67	18.2	12.5-24.0	357	81.8	76.0-87.5
Population Density						
Frontier	30	12.2	7.7-16.7	171	87.8	83.3-92.3
Rural	66	10.8	7.8-13.8	460	89.2	86.2-92.2
Densely-settled rural	112	18.6	14.3-22.9	544	81.4	77.1-85.7
Semi-urban	105	12.9	9.3-16.4	689	87.1	83.6-90.7
Urban	314	14.2	12.2-16.1	1611	85.9	84.0-87.8

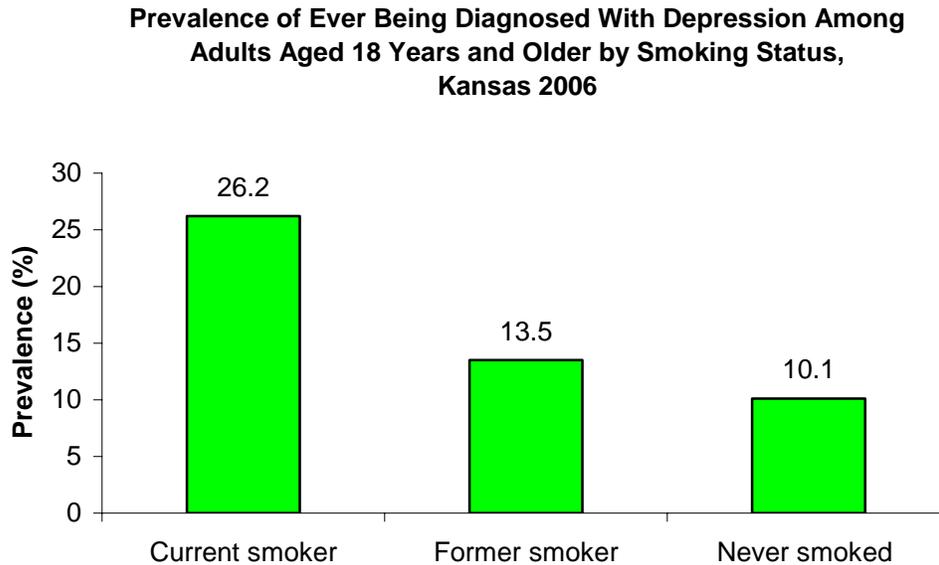
Among all 4,201 adult respondents excluding unknowns and refusals

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

Adverse Health Behaviors and Depression

Higher prevalence of ever being diagnosed with depression was seen among current cigarette smokers (26.2% [95% CI: 21.9%-30.4%]) as compared to non-smokers (10.1% [95% CI: 8.5%-11.7%]) as shown in figure 6.

Figure 6



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

There was no statistical difference in the prevalence of ever being diagnosed with depression among adults by their weight status, 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. The prevalence of ever being diagnosed with depression was statistically similar among adults who participated in any physical activity or exercise other than their regular job compared to adults who did not participate in any physical activity or exercise (table 2).

Table 2. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2006

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
Total	629	14.1	12.7-15.5	3480	85.9	84.5-87.3
Weight Status						
Normal or underweight	203	13.9	11.4-16.4	1246	86.1	83.6-88.6

(body mass index < 25.0 kg/m ²)						
Overweight (body mass index 25.0-29.9 kg/m ²)	180	12.6	10.2-15.0	1209	87.4	85.0-89.8
Obese (body mass index ≥ 30.0 kg/m ²)	217	16.4	13.9-18.9	892	83.6	81.1-86.1
Smoking status						
Current smoker	214	26.2	21.9-30.4	578	73.8	69.6-78.1
Former smoker	159	13.5	11.1-15.9	923	86.5	84.1-88.9
Never smoker	255	10.1	8.5-11.7	1965	89.9	88.3-91.5
Binge drinking						
Yes	63	12.4	8.5-16.4	373	87.6	83.6-91.5
No	559	14.6	13.1-16.1	3047	85.4	83.9-86.9
Heavy drinking						
Yes	27	21.9	11.3-32.4	104	78.1	67.6-88.7
No	596	14.0	12.6-15.4	3315	86.0	84.6-87.4
Exercise						
Yes	436	13.5	11.8-15.1	2638	86.5	84.9-88.2
No	193	16.4	13.8-19.1	839	83.6	80.9-86.2

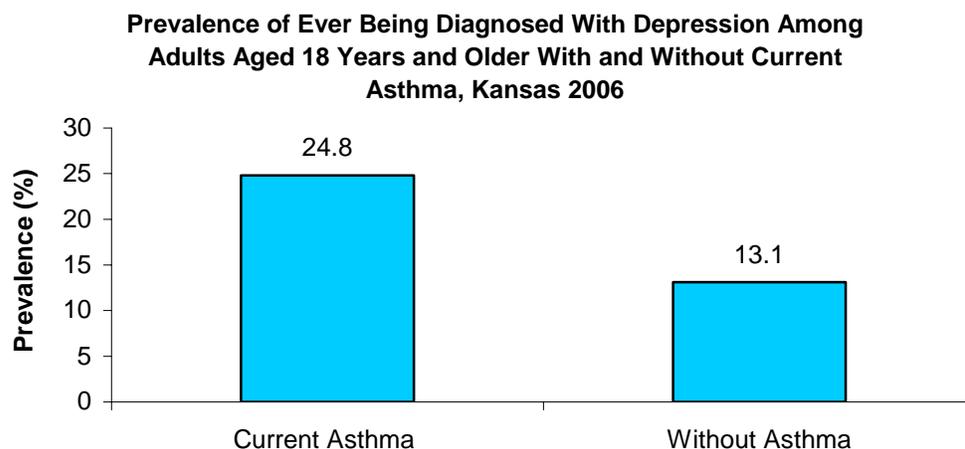
Among all 4,201 adult respondents excluding unknowns and refusals

Chronic Diseases and Depression

The prevalence of ever being diagnosed with depression was higher among adults with current asthma (24.8% [95% CI: 19.2%-30.3%]) as compared to adults without current asthma (13.1% [95% CI: 11.7%-14.5%]) as shown in figure 7.

There was no statistical difference in the prevalence of ever being diagnosed with depression among adults with and without diagnosed diabetes, coronary heart disease and stroke (table 3).

Figure 7



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

Table 3. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by chronic disease status, Kansas 2006

Chronic Disease Status	Ever Being Diagnosed with Depression			No Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	629	14.1	12.7-15.5	3480	85.9	84.5-87.3
Asthma						
Yes	100	24.8	17.9-26.9	276	75.2	69.7-80.8
No	528	13.1	11.7-14.5	3187	86.9	85.5-88.3
Diabetes						
Yes	60	14.5	10.5-18.5	304	85.5	81.5-89.5
No	569	14.1	12.6-15.6	3173	85.9	84.4-87.4
Coronary Heart Disease						
Yes	53	20.1	14.4-25.7	191	80.0	74.3-85.6
No	564	13.7	12.3-15.2	3262	86.3	84.8-87.7
Stroke						
Yes	25	16.0	9.5-22.4	129	84.0	77.6-90.5
No	602	14.1	12.6-15.5	3342	85.9	84.5-87.4

Among all 4,201 adult respondents excluding unknowns and refusals

Health Care Access and Depression

There was no statistical difference in the prevalence of ever receiving a diagnosis of depression among adults Kansans with and without having health care coverage and with or without a personal health care provider as shown in table 4.

Medical Cost and Depression

The prevalence of ever receiving a diagnosis of depression was higher among adults (27.6% [95%CI: 21.5%-33.7%]) who needed to see a doctor in the past twelve months but could not because of the cost (table 4).

Table 4. Prevalence of ever being diagnosed with depression among adults aged 18 years and older by health care access status, Kansas 2006

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
Total	629	14.1	12.7-15.5	3480	85.9	84.5-87.3
Health care coverage						
Yes	557	14.0	12.6-15.4	3147	86.0	84.6-87.4
No	72	15.8	10.4-21.2	325	84.2	78.8-89.6

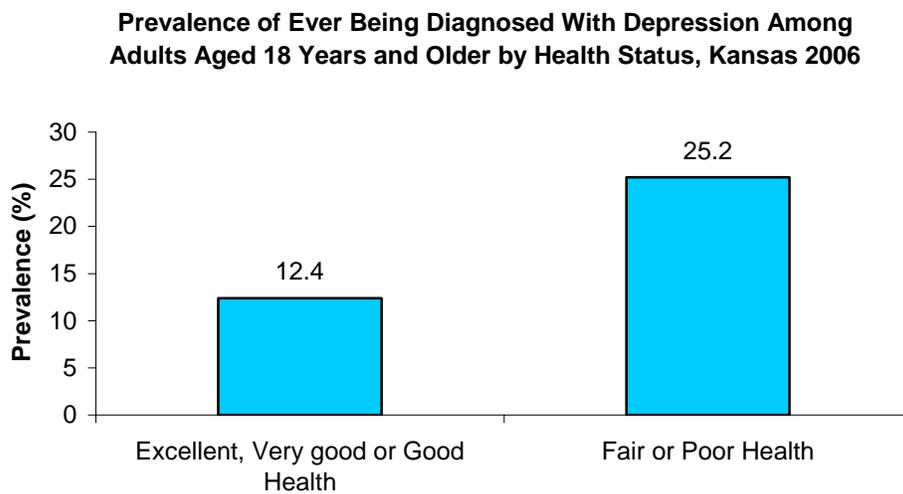
Personal health care provider						
Yes	563	14.4	12.9-15.9	3079	85.6	84.1-87.1
No	65	12.8	8.8-16.7	395	87.2	83.3-91.2
Could not see doctor because of cost						
Yes	119	27.6	21.5-33.7	281	72.4	66.3-78.5
No	507	12.5	11.1-13.8	3195	87.6	86.2-88.9

Among all 4,201 adult respondents excluding unknowns and refusals

Self-rated Health and Depression

The prevalence of ever being diagnosed with depression was higher among adults (25.2% [95% CI: 21.0%-29.4%]) who rated their health as fair or poor as compared to adults (12.4% [95% CI: 10.9%-13.8%]) who rated their health as excellent, very good or good as shown in figure 8.

Figure 8

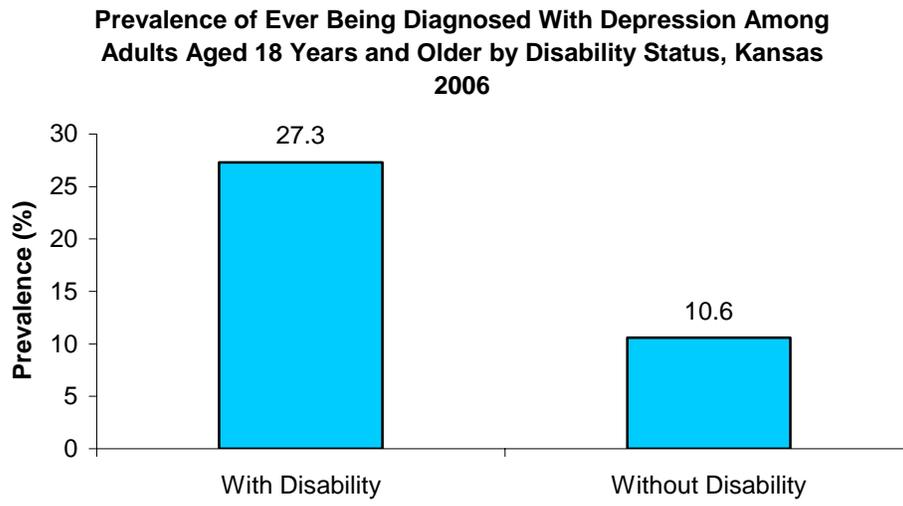


Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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 two times higher among adults living with disability (27.3% [95% CI: 23.7%-30.8%]) as compared to adults living without disability (10.6% [95% CI: 9.1%-12.0%]) as shown in figure 9.

Figure 9



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

Depression by 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/).

These eight questions asked from 4,201 BRFSS respondents about their interest or pleasure in doing things, felt depress or hopeless, trouble falling asleep or staying asleep or sleeping too much, felt tired or had little energy, had poor appetite or ate too much, felt bad about themselves or were a failure or let down for themselves or let the family down, trouble concentrating on things and moved so slowly that other people have noted or being so 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.

The depression severity score was calculated for 3,797 respondents who responded to all eight questions.

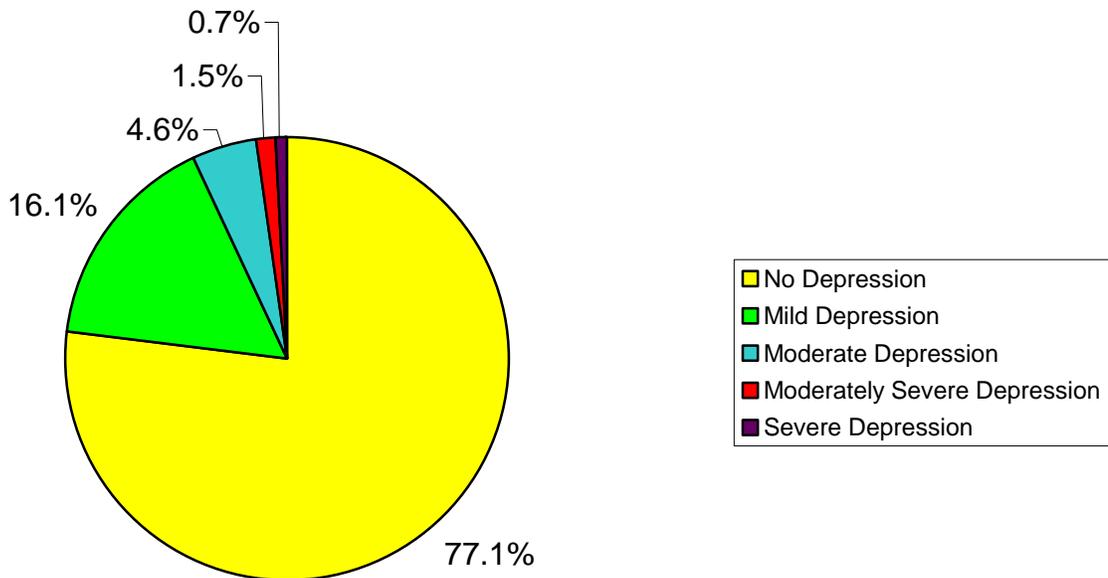
Depression status by depressive symptoms severity score

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 above-mentioned method showed that one in six (16.1% [95% CI: 14.6%-17.6%]) adults aged 18 years and older had mild depression, while about one in twenty (4.6% [95% CI: 3.7%-5.6%]) adults had moderate depression (figure 10). The prevalence of moderately severe and severe depression was 1.5% (95% CI: 1.1%-2.0%) and 0.7% (95% CI: 0.4-1.0%) respectively (figure 10). About three in four (77.1% [95% CI: 75.3%-78.7%]) adults had no depression.

Figure 10

Severity Status of Depression Among Adults Aged 18 Years and Older, Kansas 2006



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

The prevalence of mild depression appeared to be higher in females. About one in five (19.1% [95% CI: 17.0%-21.2%]) adult females had mild depression as compared to 13.0% (95% CI: 10.9%-15.0%) adult males. There was no statistical difference in the prevalence of moderate, moderately severe and severe depression among males and females (table 5).

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 5).

Table 5. Severity of depression severity among adults aged 18 years and older by selected characteristics, Kansas 2006

Characteristic	No depression	Mild depression	Moderate depression	Moderately severe depression	Severe depression
	Frequency (n) Weighted percentage (%) 95% CI				
Total	2916 77.0 75.3-78.7	619 16.1 14.6-17.6	178 4.6 3.7-5.6	61 1.5 1.1-2.0	25 0.7 0.4-1.0
Gender					
Males	1197 82.2 79.7-84.6	200 13.0 10.9-15.0	46 3.4 1.9-4.8	15 1.0 0.5-1.6	5 0.5 0.02-0.9
Females	1719 72.1 69.7-74.4	419 19.1 17.0-21.2	130 5.8 4.6-7.1	46 2.0 1.3-2.8	20 1.0 0.5-1.4
Health care coverage					
Yes	2673 78.6 76.9-80.3	552 15.6 14.3-17.2	136 3.8 3.0-4.6	50 1.3 0.9-1.8	16 0.5 0.2-0.8
No	238 66.5 59.7-73.4	66 18.7 13.1-24.2	39 9.2 4.5-14.0	11 3.8 0.8-5.7	9 2.3 0.6-4.0
Personal health care provider					
Yes	2586 76.5 74.7-78.4	554 16.4 14.8-17.9	153 4.8 3.7-5.9	54 1.6 1.1-2.2	21 0.7 0.3-1.0
No	327 79.5 74.7-84.4	65 14.9 10.5-19.4	22 3.4 1.8-5.0	7 1.1 0.2-2.1	4 1.0 0.0-2.1

Among 3,797 adult respondents excluding unknowns and refusals

Status of Current Depression in Kansas

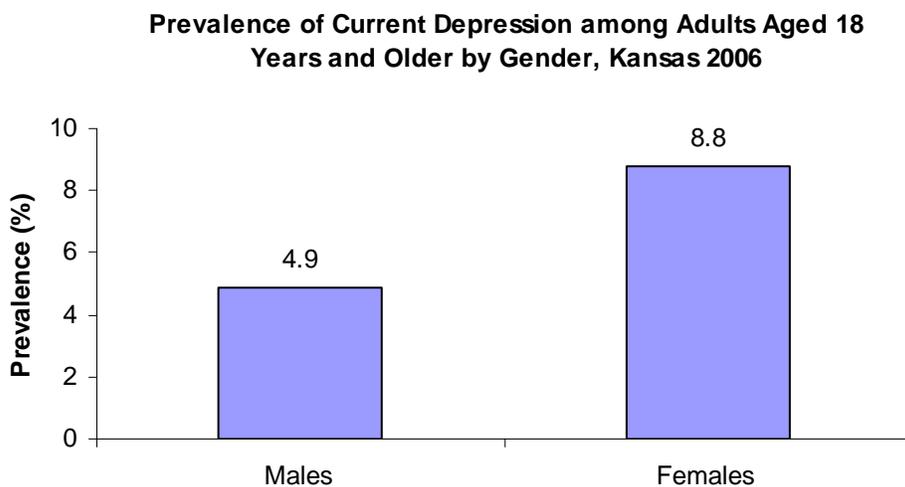
The depression severity scale that was created to determine the severity of depression was dichotomized into total score of < 10 or ≥ 10 points. Current depression was defined as a score of ≥ 10 points on the depressive symptoms severity score.

In 2006, about one in fourteen (6.9% [95% CI: 5.8%-8.0%]) adults aged 18 years and older had current depression. This accounts for an estimated 143,000 adult Kansans who had current depression.

Sociodemographic Profile of Current Depression

The prevalence of current depression was higher among adult females (8.8% [95% 7.3%-10.3%]) as compared to adult males (4.9% [95% CI: 3.2%-6.5%]) as shown in figure 10. There was no statistical difference in the prevalence of current depression by different age groups, and by race and ethnicity groups (table 6).

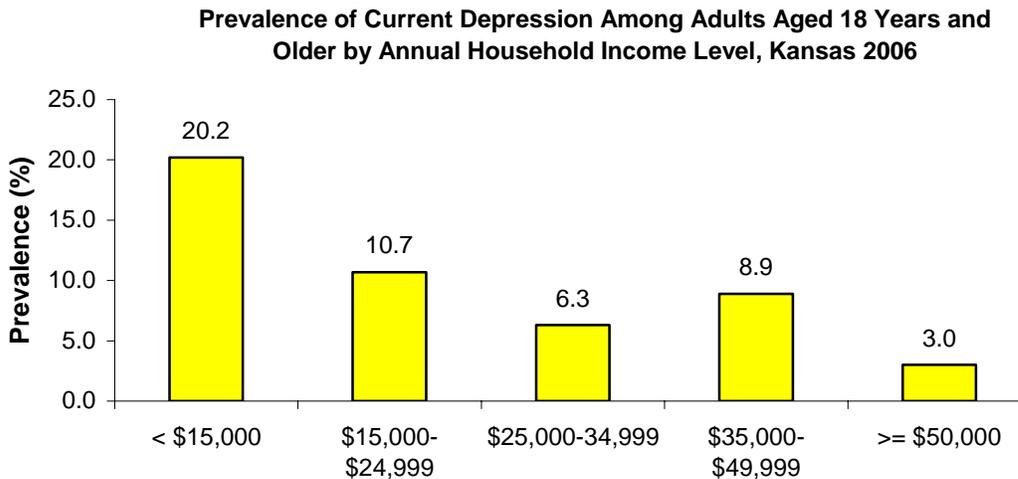
Figure 10



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

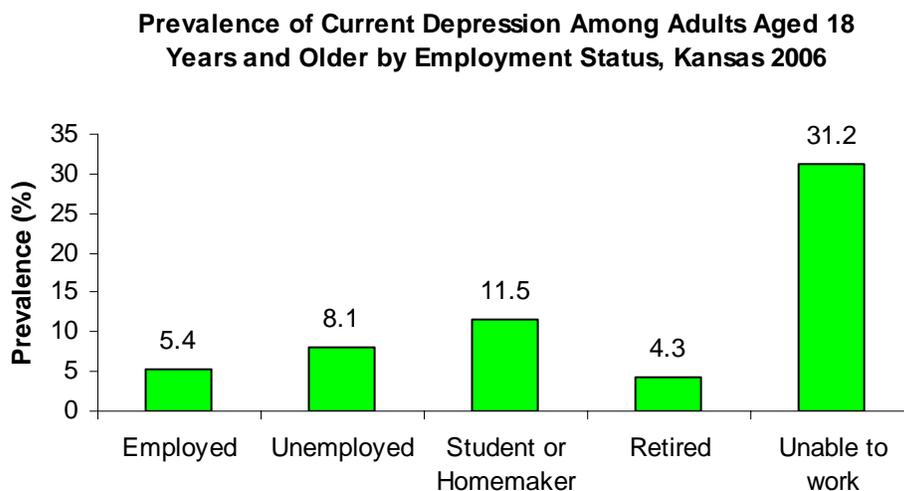
The prevalence of current depression appeared to be associated with lower socioeconomic status. The prevalence of current depression was higher among adults with low levels of annual household income and among individuals that were unable to work. The prevalence of current depression was 20.2% (95% CI: 14.0%-26.4%) among adults with an annual household income of less than \$15,000 as compared to 3.0% (95% CI: 2.1%-4.0%) among adults with an annual household income greater than \$50,000 (figure 11). Among adults who were unable to work, the prevalence of current depression was 31.2% (95% CI: 22.3%-40.1%) as compared to 5.4% (95% CI: 4.2%-6.7%) among adults who were employed (figure 12).

Figure 11



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

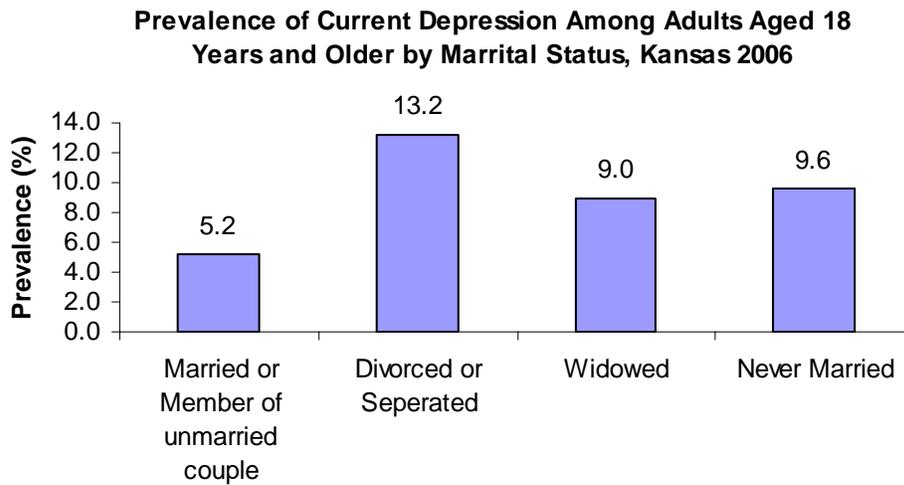
Figure 12



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

The prevalence of current depression was higher among adults who were divorced or separated (13.2% [95% CI: 9.9%-16.6%]) as compared to adults who were married (5.2% [95% CI 4.1%-6.3%]) as shown in figure 13. The prevalence of current depression was higher among adults who had less than high school education or were high school graduate as compared to adults who were college graduate (table 6).

Figure 13



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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 (table 6).

Table 6. Prevalence of current depression among adults aged 18 years and older by sociodemographic characteristics, Kansas 2006

Sociodemographic Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Total	262	6.9	5.8-8.0
Age groups			
18-24 years	15	9.9	4.4-15.5
25-34 years	37	7.3	4.8-9.7
35-44 years	54	7.3	5.2-9.4
45-54 years	63	6.5	4.8-8.2
55-64 years	52	6.5	4.6-8.3
65 years and above	40	4.0	2.7-5.3
Gender			
Males	66	4.9	3.2-6.5
Females	196	8.8	7.3-10.3
Race			
Non-Hispanic Whites	209	6.4	5.3-7.6
Non-Hispanic African Americans	17	11.5	5.2-17.9
Other races*	9	12.0	2.7-21.2
More than one race	6	14.3	1.4-27.2

Ethnicity			
Hispanic	18	6.9	3.1-10.7
Non-Hispanic	244	6.9	5.7-8.0
Education			
Less than high school	34	12.3	5.4-19.2
High school graduate or G.E.D	86	8.4	6.3-10.6
Some college	70	7.1	5.0-9.2
College graduate	72	4.2	3.1-5.3
Annual household income			
< \$ 15,000	51	20.2	14.0-26.4
\$15,000 - \$24,999	61	10.7	7.4-13.9
\$25,000 - \$34,999	32	6.3	3.9-8.8
\$35,000 - \$49,999	46	8.9	5.8-12.1
>= \$50,000	49	3.0	2.1-4.0
Employment status			
Employed for wages / Self-employed	136	5.4	4.2-6.7
Out of work (unemployed)	13	8.1	3.2-13.0
Homemaker / Student	26	11.5	6.4-16.7
Retired	41	4.3	2.9-5.7
Unable to work	46	31.1	22.3-40.0
Marital status			
Married / Member of Unmarried Couple	119	5.2	4.1-6.3
Divorced / Separated	70	13.2	9.9-16.6
Widowed	35	9.0	5.9-12.1
Never married	38	9.6	5.1-14.1
Population Density			
Frontier	8	4.7	1.3-8.2
Rural	35	7.1	4.2-10.1
Densely-settled rural	43	6.6	4.3-8.8
Semi-urban	51	8.3	4.8-11.7
Urban	124	6.5	5.0-7.9

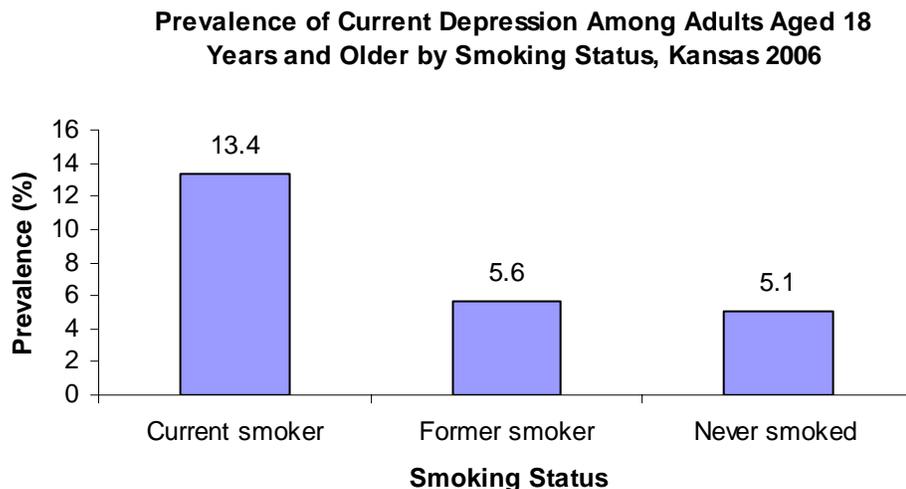
Among 3,797 adult respondents excluding unknowns and refusals

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

Adverse Health Behaviors and Current Depression

Higher prevalence of current depression was seen among current cigarette smokers (13.4% [95% CI: 9.8%-17.0%]) as compared non-smokers (5.1% [95% CI: 3.9%-6.4%]) as shown in figure 14.

Figure 14



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

There was no statistical difference in the prevalence of current depression among adults in various categories of weight status, 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. However, these results should be interpreted with caution due to small numbers.

The prevalence of current depression was higher among adults who did not participate in any physical activity or exercise other than their regular job as compared to adults who participated in any physical activity or exercise (table 7).

Table 7. Prevalence of current depression among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2006

Adverse Health Behavior Characteristics	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Total	262	6.9	5.8-8.0
Weight Status			
Normal or underweight (body mass index < 25.0 kg/m ²)	73	5.8	4.1-7.6
Overweight (body mass index 25.0-29.9 kg/m ²)	68	5.9	3.9-8.0

Obese (body mass index \geq 30.0 kg/m ²)	110	9.3	7.3-11.3
Smoking status			
Current smoker	100	13.4	9.8-17.1
Former smoker	55	5.6	3.7-7.4
Never smoker	107	5.1	3.9-6.4
Binge drinking			
Yes	28	5.7	3.1-8.2
No	231	7.0	5.8-8.2
Heavy drinking			
Yes	9	4.3	1.2-7.5
No	250	6.9	5.8-8.1
Exercise			
Yes	146	5.7	4.4-7.0
No	116	11.1	8.8-13.4

Among 3,797 adult respondents excluding unknowns and refusals

Chronic Diseases and Current Depression

The prevalence of current depression was higher among adults with current asthma (12.8% [95% CI: 9.0%-16.6%]) as compared to adults without current asthma (6.3% [95% CI: 5.1%-7.4%]) as shown in figure 15.

The prevalence of current depression appeared to be higher among adults who had a stroke (18.9% [95% CI: 11.1%-26.6%]) as compared to adults without stroke (6.6% [95% CI: 5.5%-7.7%]) as shown in figure 16.

There was no statistical difference in the prevalence of current depression among adults with and without diagnosed diabetes and coronary heart disease (table 8).

Figure 15

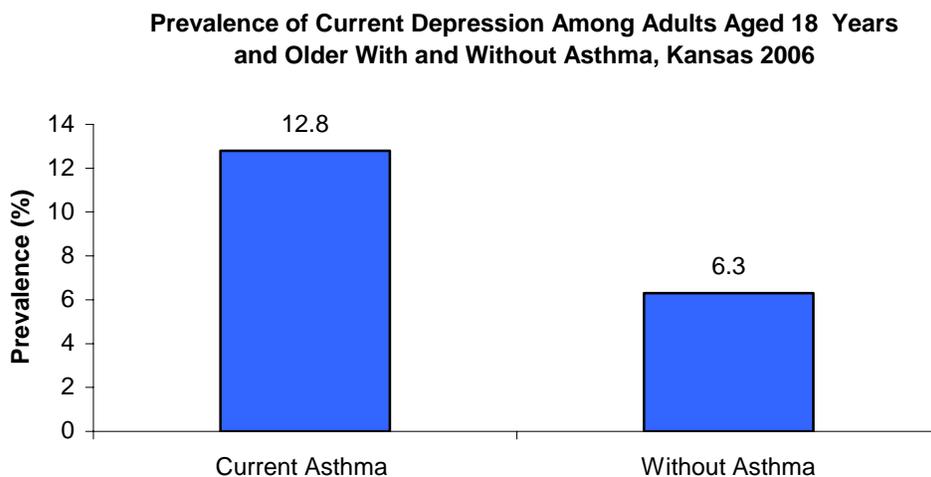
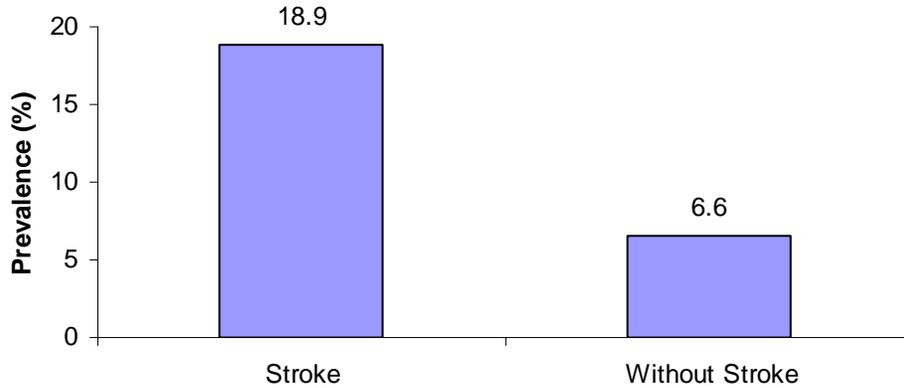


Figure 16

Prevalence of Current Depression Among Adults Aged 18 Years and Older With and Without Stroke, Kansas 2006



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

Table 8. Prevalence of current depression among adults aged 18 years and older by chronic disease status, Kansas 2006

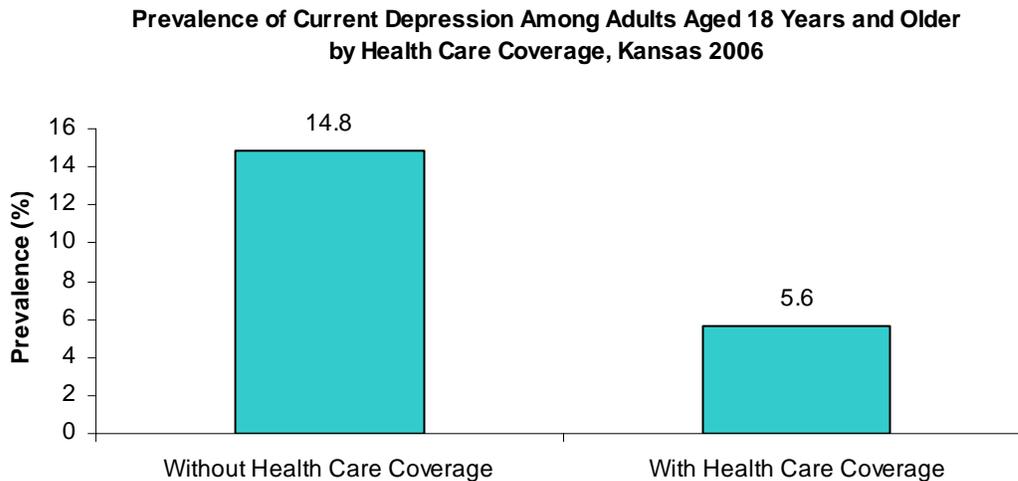
Chronic Disease	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Total	262	6.9	5.8-8.0
Current Asthma			
Yes	53	12.8	9.0-16.6
No	207	6.3	5.1-7.4
Diabetes			
Yes	33	10.0	6.2-13.8
No	228	6.6	5.5-7.8
Coronary Heart Disease			
Yes	28	12.0	7.3-16.6
No	230	6.6	5.5-7.8
Stroke			
Yes	22	18.9	11.1-26.6
No	240	6.6	5.5-7.7

Among 3,797 adult respondents excluding unknowns and refusals

Health Care Access and Current Depression

Higher prevalence of current depression was seen among adults without health care coverage (14.8% [95% CI: 9.4%-20.2%]) as compared to adults with health care coverage (5.6% [95% CI: 4.7%-6.6%]) as shown in figure 17.

Figure 17



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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 9.

Medical Cost and Current Depression

The prevalence of current depression was higher among adults (24.1% [95%CI: 17.9%-30.3%]) who needed to see a doctor in the past twelve months but could not because of the cost (table 9).

Table 9. Prevalence of current depression among adults aged 18 years and older by health care access status, Kansas 2006

Health Care Access Status	Current Depression		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Total	262	6.9	5.8-8.0
Health care coverage			
Yes	202	5.6	4.7-6.6
No	59	14.8	9.4-20.2
Personal health care			

provider			
Yes	228	7.1	5.9-8.4
No	33	5.5	3.4-7.7
Could not see doctor because of cost			
Yes	91	24.1	17.9-30.3
No	170	4.8	3.8-5.6

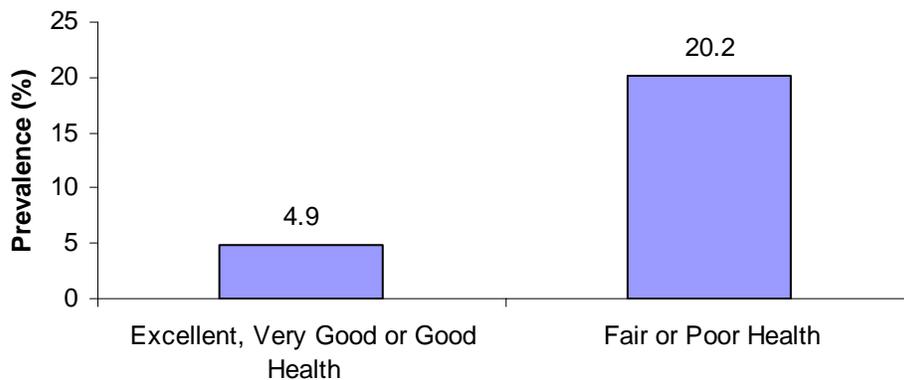
Among 3,797 adult respondents excluding unknowns and refusals

Self-rated Health and Current Depression

The prevalence of current depression was higher among adults (20.2% [95% CI: 16.2%-24.2%]) who rated their health as fair or poor as compared to adults (4.9% [95% CI: 3.8%-6.0%]) who rated their health as excellent, very good or good as shown in figure 18.

Figure 18

Prevalence of Current Depression Among Adults Aged 18 Years and Older by Health Status, Kansas 2006

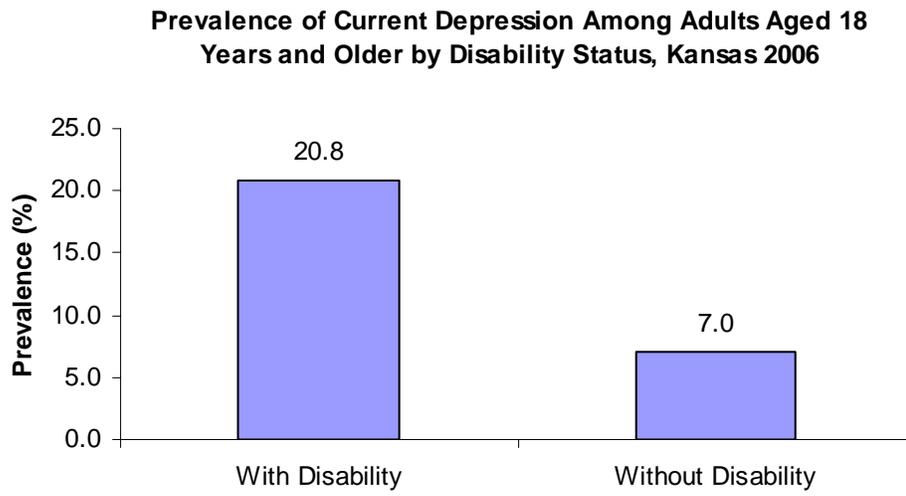


Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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 three times higher among adults living with disability (18.5% [95% CI: 15.3%-21.7%]) as compared to adults living without disability (4.0% [95% CI: 2.9%-5.1%]) as shown in figure 19.

Figure 19.



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

The Status of Ever Being Diagnosed with Anxiety in Kansas

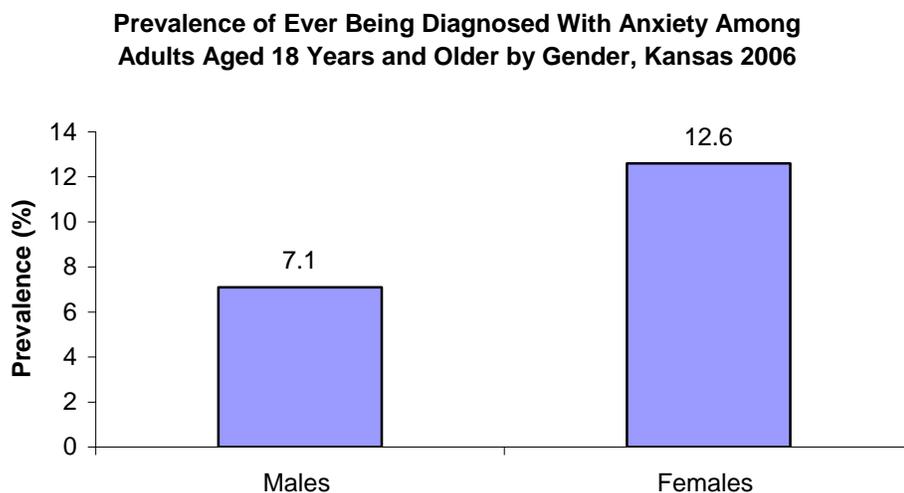
The 2006 Behavioral Risk Factor Surveillance System module on anxiety and depression included a question that asked the respondents if healthcare provider ever told them that they had an anxiety disorder (including acute stress disorder, anxiety, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder). This question was used to analyze and report the results of the data for lifetime or ever being diagnosed with anxiety.

In Kansas, according to the 2006 Behavioral Risk Factor Surveillance System Survey, an estimated **205,326 (9.9%)** adults aged 18 years and older had ever been diagnosed with anxiety.

Sociodemographic Profile of Anxiety

The prevalence of ever being diagnosed with anxiety was higher among females as one in eight (12.6% [95% CI: 10.9%-14.4%]) adult women reported ever being diagnosed with anxiety as compared to one in fourteen (7.1% [95% CI: 5.5%-8.7%]) males (figure 20). The prevalence of ever being diagnosed with anxiety appeared to be higher in adults aged 18-24 years (15.2% [95% CI: 9.5%-21.0%]) as compared to adults aged 65 years and older (6.8% [95% CI: 5.3%-8.3%]) as shown in table 10.

Figure 20



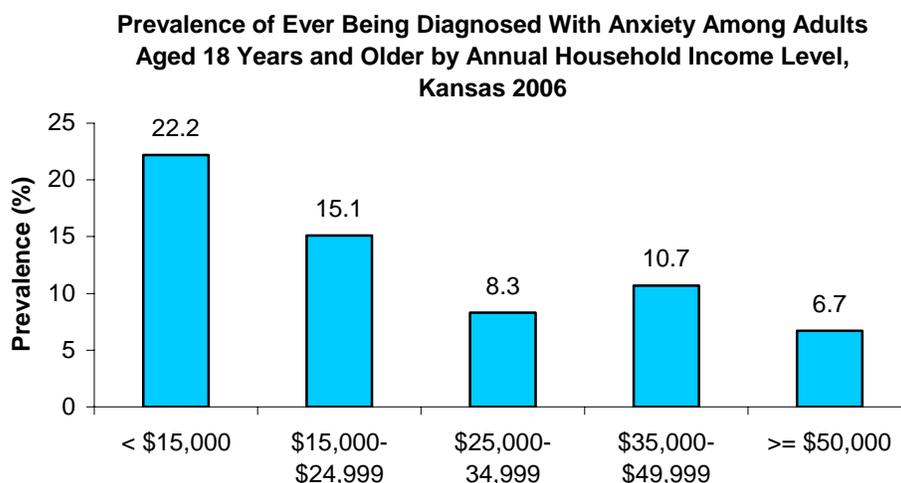
Source: 2006 Kansas Behavioral Risk Factor Surveillance System

There was no statistical difference in the prevalence of ever being diagnosed with anxiety by race and ethnicity as shown in table 10.

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

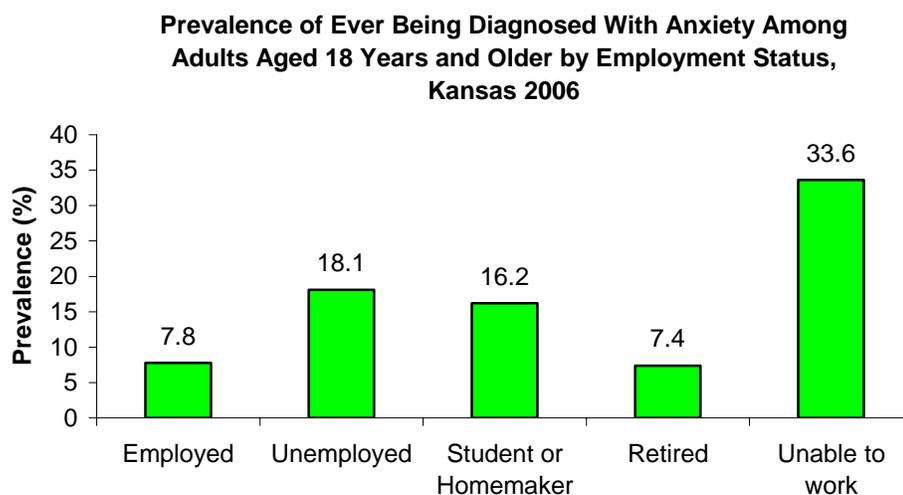
with lower annual household income and among individuals that were student or homemaker and unable to work. The prevalence of ever being diagnosed with anxiety was 22.2% (95% CI: 15.8%-28.6%) among adults with an annual household income of less than \$15,000 as compared to 6.7% (95% CI: 5.3%-8.2%) among adults with an annual household income greater than \$50,000 (figure 21). Among adults who were student or homemaker and unable to work, the prevalence of ever being diagnosed with anxiety was 16.2% (95% CI: 10.2%-22.2%) and 33.6% (95% CI: 25.2%-42.0%) respectively as compared to 7.8% (95% CI: 6.5%-9.0%) in adults who were employed (figure 22).

Figure 21



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

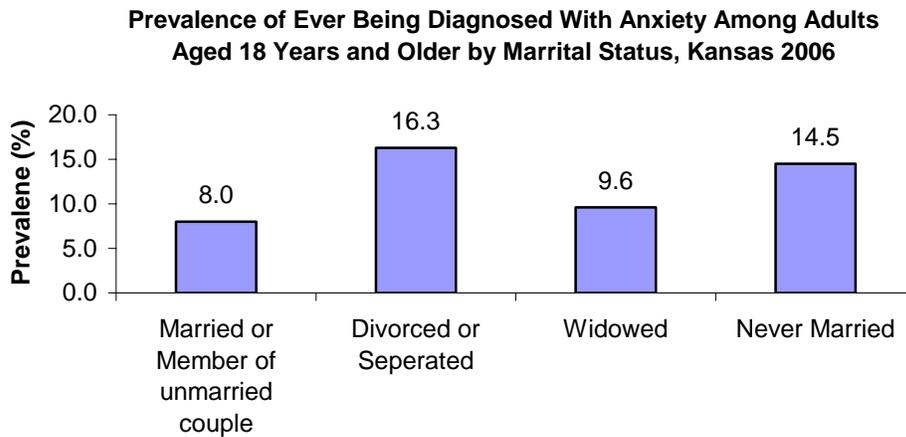
Figure 22



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

The prevalence of ever being diagnosed with anxiety was higher among adults who were divorced or separated (16.3% [95% CI: 12.8%-19.7%]) and never married (14.5% [95% CI: 9.8%-19.2%]) as compared to adults who were married (8.0% [95% CI 6.8%-9.2%]) as shown in figure 23. There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults with different educational levels (table 10).

Figure 23



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

There was no statistical difference in the prevalence of ever being diagnosed with anxiety in five geographic areas of the state classified on the basis of population density (table 10).

Table 10. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by sociodemographic characteristics, Kansas 2006

Sociodemographic Characteristics	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	423	9.9	8.7-11.1	3687	90.1	88.9-91.3
Age groups						
18-24 years	27	15.2	9.5-21.0	135	84.8	79.0-90.6
25-34 years	49	8.9	6.2-11.5	421	91.1	88.5-93.8
35-44 years	73	9.9	7.5-12.4	627	90.1	87.7-92.6
45-54 years	98	9.7	7.6-11.8	776	90.3	88.2-92.4
55-64 years	86	9.9	7.7-12.1	684	90.1	87.9-92.3
65 years and above	88	6.8	5.3-8.3	1022	93.2	91.7-94.7
Gender						
Males	113	7.1	5.5-8.7	1464	92.9	91.4-94.5
Females	310	12.6	10.9-14.4	2223	87.4	85.6-89.1

Race						
Non-Hispanic Whites	366	9.6	8.4-10.9	3272	90.4	89.1-91.6
Non-Hispanic African Americans	18	13.2	4.9-21.5	116	86.8	78.5-95.1
Other races	9	13.5	3.8-23.2	71	86.5	76.9-96.2
More then one race	10	26.4	8.7-44.1	31	73.6	55.9-91.3
Ethnicity						
Hispanic	18	7.7	3.4-12.0	190	92.3	88.0-96.6
Non-Hispanic	405	10.1	8.9-11.4	3493	89.9	88.7-91.1
Education						
Less than high school	50	11.5	7.2-15.7	283	88.5	84.3-92.8
High school graduate or G.E.D	120	10.6	8.3-13.0	1103	89.4	87.0-91.8
Some college	127	11.5	8.9-14.1	993	88.5	85.9-91.1
College graduate	125	7.7	6.1-9.2	1304	92.3	90.8-93.9
Annual household income						
< \$ 15,000	62	22.2	15.8-28.6	246	77.8	71.4-84.2
\$15,000 - \$24,999	85	15.1	11.1-19.1	538	84.9	80.9-88.9
\$25,000 - \$34,999	54	8.3	5.9-10.8	464	91.7	89.2-94.1
\$35,000 - \$49,999	59	10.7	7.2-14.2	598	89.3	85.8-92.8
>= \$50,000	110	6.7	5.3-8.2	1431	93.3	91.8-94.7
Employment status						
Employed for wages / Self-employed	212	7.8	6.5-9.0	2285	92.2	91.0-93.5
Out of work (unemployed)	19	18.1	7.8-28.5	76	81.9	71.5-92.2
Homemaker / Student	41	16.2	10.9-22.4	271	83.4	77.6-89.1
Retired	88	7.4	5.8-9.0	930	92.6	91.0-94.2
Unable to work	62	33.6	25.2-42.0	112	66.4	58.0-74.8
Marital status						
Married / Member of Unmarried Couple	207	8.0	6.8-9.2	2317	92.0	90.8-93.2
Divorced / Separated	102	16.3	12.8-19.7	527	83.7	80.3-87.2
Widowed	57	9.6	7.1-12.0	469	90.4	88.0-92.9
Never married	57	14.5	9.8-19.2	368	85.5	80.8-90.2
Population Density						
Frontier	14	5.7	2.6-8.8	188	94.3	91.2-97.5
Rural	46	8.5	5.5-11.3	479	91.6	88.7-94.4
Densely-settled rural	70	11.0	7.9-14.0	588	89.1	86.0-92.1
Semi-urban	72	9.6	6.8-12.4	721	90.4	87.6-93.2
Urban	220	10.5	8.7-12.3	1705	89.5	87.7-91.3

Among all 4,201 adult respondents excluding unknowns and refusals

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

Adverse Health Behaviors and Anxiety

Higher prevalence of ever being diagnosed with anxiety was seen among current cigarette smokers (15.0% [95% CI: 11.9%-18.1%]) as compared to non-smokers (7.5% [95% CI: 6.1%-9.0%]) as shown in table 11.

There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults by weight status, 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. The prevalence of ever being diagnosed with anxiety was statistically similar in adults who participated in any physical activity or exercise other than their regular job compared to adults who did not participate in any physical activity or exercise other than their regular job (table 11).

Table 11. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by adverse health behavior characteristics, Kansas 2006

Adverse Health Behavior Characteristics	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	423	9.9	8.7-11.1	3687	90.1	88.9-91.3
Weight Status						
Normal or underweight (body mass index < 25.0 kg/m ²)	154	11.1	8.8-13.4	1295	88.9	86.6-91.2
Overweight (body mass index 25.0-29.9 kg/m ²)	127	8.1	6.3-9.8	1267	91.9	90.2-93.7
Obese (body mass index ≥ 30.0 kg/m ²)	131	11.4	9.1-13.7	975	88.6	86.3-90.9
Smoking status						
Current smoker	132	15.0	11.9-18.1	662	85.0	81.9-88.1
Former smoker	110	11.1	8.4-13.7	972	88.9	86.3-91.6
Never smoker	178	7.5	6.1-9.0	2041	92.5	91.1-93.9
Binge drinking						
Yes	49	9.7	6.4-13.1	388	90.3	86.9-93.7
No	367	9.9	8.6-11.2	3238	90.1	88.8-91.4
Heavy Drinking						
Yes	19	14.5	6.7-22.7	112	85.3	77.4-93.3
No	397	9.7	8.5-10.9	3514	90.3	89.1-91.5
Exercise						
Yes	293	9.4	8.0-10.8	2782	90.6	89.2-92.0
No	130	11.8	9.3-14.3	902	88.2	85.7-90.7

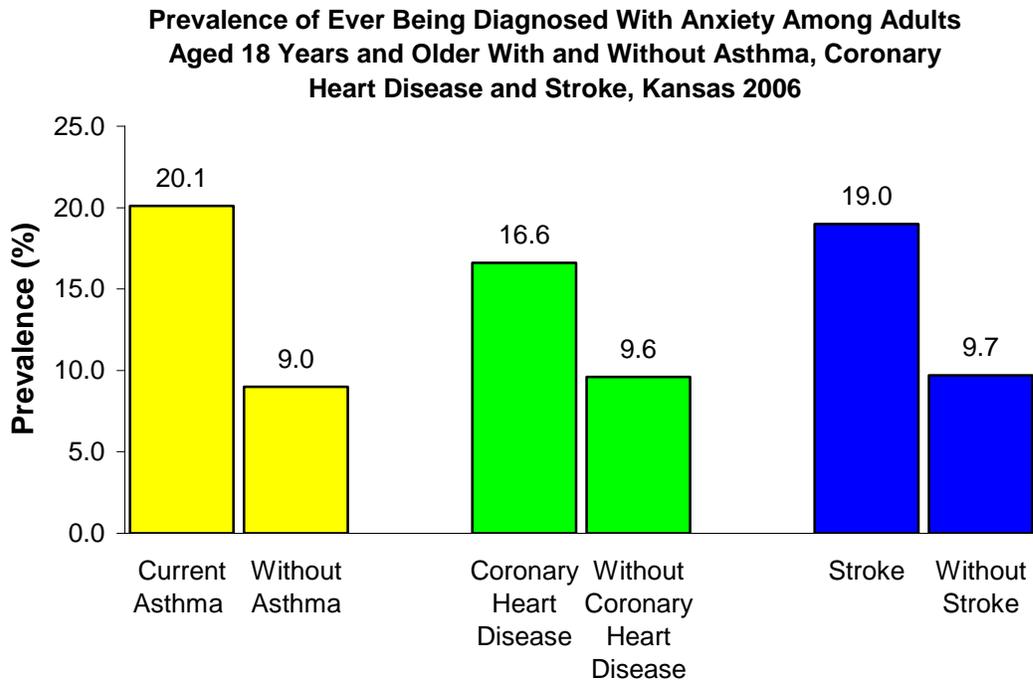
Among all 4,201 adult respondents excluding unknowns and refusals

Chronic Diseases and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults with current asthma (20.1% [95% CI: 15.1%-25.1%]) as compared to adults without current asthma (9.0% [95% CI: 7.7%-10.2%]), among adults with coronary heart disease (16.6% [95% CI: 11.5%-21.7%]) as compared to adults without coronary heart disease (9.6% [95% CI: 8.4%-10.9%]) and among adults with stroke (19.0% [95% CI: 12.1%-25.9%]) as compared to adults without stroke (9.7% [95% CI: 8.5%-10.9%]) as shown in figure 24.

There was no statistical difference in the prevalence of ever being diagnosed with anxiety among adults with and without diagnosed diabetes (table 12).

Figure 24



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

Table 12. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by chronic diseases, Kansas 2006

Chronic Disease	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	423	9.9	8.7-11.1	3687	90.1	88.9-91.3
Asthma						
Yes	78	20.1	15.1-25.1	298	79.9	74.9-84.9
No	344	9.0	7.7-10.2	3371	91.0	89.8-92.2
Diabetes						
Yes	43	10.4	7.0-13.8	321	89.6	86.2-93.0
No	380	9.9	8.6-11.2	3363	90.1	88.8-91.4
Coronary Heart Disease						
Yes	46	16.6	11.5-21.7	199	83.4	78.3-88.5
No	372	9.6	8.4-10.9	3454	90.4	89.2-91.6
Stroke						
Yes	30	19.0	12.1-25.9	124	81.0	74.1-87.9
No	391	9.7	8.5-10.9	3554	90.3	89.1-91.5

Among all 4,201 adult respondents excluding unknowns and refusals

Health Care Access and Anxiety

There was no statistical difference in the prevalence of ever receiving a diagnosis of anxiety among adult Kansans with and without having health care coverage and with and without a personal health care provider as shown in table 13.

Medical Cost and Anxiety

The prevalence of ever receiving a diagnosis of anxiety was higher among adults (21.7% [95%CI: 16.6%-26.8%]) who needed to see a doctor in the past twelve months but could not because of the cost (table 13).

Table 13. Prevalence of ever being diagnosed with anxiety among adults aged 18 years and older by health care access status, Kansas 2006

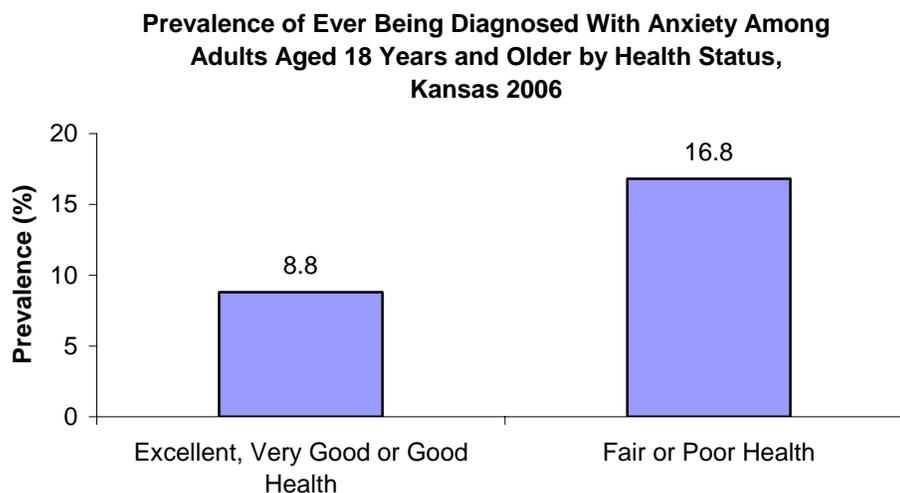
Health Care Access Status	Ever Being Diagnosed with Anxiety			No Anxiety		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage	95% Confidence Interval
Total	423	9.9	8.7-11.1	3687	90.1	88.9-91.3
Health care coverage						
Yes	370	9.7	8.5-11.0	3334	90.3	89.0-91.5
No	53	11.6	7.9-15.3	345	88.4	84.7-92.1
Personal health care provider						
Yes	381	10.2	8.9-11.5	3260	89.8	88.5-91.1
No	42	8.5	5.4-11.5	420	91.5	88.5-94.6
Could not see doctor because of cost						
Yes	87	21.7	16.6-26.8	313	78.3	73.2-83.4
No	335	8.5	7.3-9.7	3368	91.5	90.3-92.7

Among all 4,201 adult respondents excluding unknowns and refusals

Self-rated Health and Anxiety

The prevalence of ever being diagnosed with anxiety was higher among adults (16.8% [95% CI: 13.4%-20.2%]) who rated their health as fair or poor as compared to adults (8.8% [95% CI: 7.5%-10.1%]) who rated their health as excellent, very good or good as shown in figure 25.

Figure 25

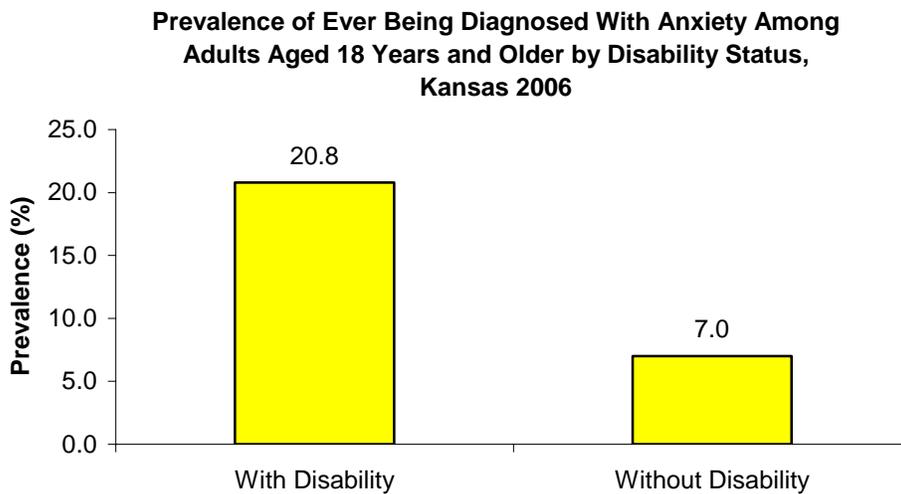


Source: 2006 Kansas Behavioral Risk Factor Surveillance System

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 disability (20.8% [95% CI: 17.6%-24.1%]) as compared to adults without disability (7.0% [95% CI: 5.8%-8.2%]) as shown in figure 26.

Figure 26



Source: 2006 Kansas Behavioral Risk Factor Surveillance System

Technical Notes

BRFSS Overview

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

The 2006 survey consisted of 162 questions and took on average about 17 minutes to complete. The 2006 Kansas BRFSS included: health status, healthy days health related quality of life, health care access, exercise, diabetes, oral health, cardiovascular disease prevalence, asthma, disability, tobacco use, demographics, veteran's status, alcohol consumption, immunization/adult influenza supplement, falls, seatbelt use, drinking and driving, women's health, prostate cancer screening, colorectal cancer screening, HIV/AIDS, emotional support and life satisfaction, random child selection, childhood asthma prevalence, asthma call back survey information, CDC optional module on diabetes, diabetes accessory, diabetes assessment, folic acid, folic acid awareness, pregnancy and smoking, other tobacco products, COPD, anxiety and depression, disability and quality of life and oral health.

Note: Questions on high blood pressure and high blood cholesterol were not asked in the 2006 Kansas BRFSS and were therefore not included in the analysis and reporting.

The overall goal of the BRFSS is to develop and maintain the capacity for conducting population-based health risk surveys in Kansas. BRFSS data are used for the following:

- Monitor the leading contributors to morbidity and premature death
- Track health status and assess trends
- Measure knowledge, attitudes, and opinions
- Program planning
 - Needs assessment
 - Development of goals and objectives
 - Identification of target groups
- Policy development
- Evaluation

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

For more information about the Kansas BRFSS, including past questionnaires and data results, please visit: <http://www.kdheks.gov/brfss/index.html>

Questionnaire Design

The survey consists of three sections:

- Core questions are asked by all states. The order the questions appear and the wording of the questions are fairly consistent across 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.
 - 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.
 - Even years (2006, 2008, 2010, etc): women’s health, prostate screening, colorectal cancer screening, oral health and injury.
 - 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.
- 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, and financial support to states to include these questions on the 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.

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

Sampling

The 2006 BRFSS was conducted using a disproportionate stratified sampling method. This method of probability sampling involved assigning sets of one hundred telephone numbers with the same area code, prefix and first two digits of suffix and all possible combinations of the last two digits (“hundred blocks”) into two strata. Those hundred blocks that have at least one known listed household number are designated high density (also called “one-plus block”); hundred blocks with no known listed household numbers are designated low density (“zero blocks”). The high-density stratum is sampled at a higher rate than the low-density stratum resulting in greater efficiency. Approximately the same number of households is called each month throughout the calendar year to reduce bias caused by seasonal variation of health risk behaviors.

Potential working telephone numbers were dialed during three separate calling periods (daytime, evening, and weekends) for a total of 15 call attempts before being replaced. Upon reaching a valid household number, one household member ages 18 years and older was randomly selected. If the selected respondent was not available, an appointment was made to call at a later time or date. Because respondents were selected at random and no identifying information was solicited, all responses to this survey were anonymous. In 2006, **8,304** residents of Kansas were interviewed.

Response Rate

The CASRO (Council of American Survey Research Organizations) response rate is used as a measure of quality of data. The 2006 Kansas BRFSS achieved a rate of survey 65.06% indicating highly reliable results. The CASRO formula is based on the number of interviews completed, the number of households reached, and the number of household 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 discern from caller ID.

Limitations

As with any research method, the BRFSS has limitations.

- BRFSS is conducted among non-institutionalized adults residing in the private residences with land lines for telephones, therefore it excludes individuals without telephone service, those on military bases, and individuals in institutions.
- All information is self reported which may introduce bias such as recall bias, reporting bias, etc.
- Due to the sampling and population rate, it is often difficult to obtain subpopulation data such as county level data or data on minorities.
- BRFSS is not ideal for low prevalence conditions.

Weighting Procedures

Weighting is a process by which the survey data are adjusted to account for unequal selection probability and response bias and to more accurately represent the population from which the sample was drawn (to generate population-based estimates for the states and counties). The response of each person interviewed were assigned a weight which accounted for the density stratum, the number of telephones in the household, the number of adults in the household, non-response, non-coverage of households without telephones and the demographic distribution of the sample.

Estimates

To account for sampling error and for the accuracy of the estimate, a 95% confidence interval is calculated. A confidence interval gives an estimated range of values, which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data. If independent samples are taken repeatedly from the same population, and a confidence interval

calculated for each sample, then certain percentage (confidence level) of the intervals will include the unknown population parameter.

Data results from the BRFSS survey are the estimate of actual population parameters. A 95% confidence interval is calculated for the estimate of an indicator obtained from the BRFSS sample, which is interpreted as we are 95% confident that the interval contains the true population value of the indicator. The smaller the range between the lower limit and upper limit of confidence interval, the more precise the estimated percentage is. In other words, the narrower the confidence interval, the better. The BRFSS data produces highly reliable estimates and the interpretation of data is based on the application of 95% confidence intervals.

Split Questionnaire

To accommodate increasing data needs, the Kansas BRFSS used a split questionnaire in 2006. CDC optional modules and state added questions are organized by topics into two sections: questionnaire A and questionnaire B. All 8,304 respondents answered questions from the core section. Then each telephone number was randomly assigned to questionnaire A and questionnaire B prior to being called. Approximately half of the respondents received questionnaire A and the remaining receive questionnaire B, (i.e. approximately 4,000 respondents for each questionnaire). The **anxiety and depression module** was included as the optional module in the questionnaire B that was answered by approximately 4,000 respondents.

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., diabetes, disability, asthma, 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 from respondents who are assigned to that particular split questionnaire. This resulted in approximately half of the respondents who were identified with a particular condition from the core section responding 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.

Population Density

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

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

Based on 2000 U.S. Census

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

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