Mental Illness and Stigma Status in Kansas

2009 Kansas Behavioral Risk factor Surveillance System

Kansas BRFSS
Bureau of Health Promotion
Kansas Department of Health and Environment
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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

Serious mental illnesses include major depression, schizophrenia, bipolar disorder, obsessive compulsive disorder, panic disorder, eating disorder, post traumatic stress disorder, mood disorder, autism spectrum disorders and borderline personality disorder. An estimated 26.2 percent of Americans ages 18 and older, about one in four adults, suffer from a diagnosable mental disorder in a given year. Among these adults about 6 percent, or 1 in 17 suffer from a serious mental illness. Nearly half (45 percent) of those with any mental disorder meet criteria for 2 or more disorders, with severity strongly related to co-morbidity. Major mental disorders cost the nation at least $193.2 billion annually in lost earnings alone. Substance Abuse and Mental Health Services Administration (SAMHSA) estimated that in 2003, $100 billion was spent on the treatment of mental disorders in the United States.

The Kansas Department of Health and Environment (KDHE) recognizes the need to assess the status of mental health of Kansans. The Mental Illness and Stigma module comprised of 10 questions was included in the 2007 and 2009 Kansas Behavioral Risk Factor Surveillance System (BRFSS) surveys for this purpose. Kansas BRFSS is an annual population-based random digit dial telephone survey, tracking health conditions and risk behaviors of non-institutionalized adults ages 18 years and older, residing in a private residence with a landline telephone. This report provides detailed analysis of mental illness status in Kansas using 2009 Kansas BRFSS data.

As per the responses to the Mental Illness and Stigma module questions, respondents were categorized into two categories, with or without Serious Psychological Distress (SPD). SPD is a nonspecific measure of psychological distress that has been psychometrically validated and shown to be able to distinguish cases from non-cases. SPD is determined using Kessler 6 (K6) scale that is widely used nationally and internationally in epidemiological studies and surveys assessing mental illness. Another measure of mental illness is Frequent Mental Distress (FMD). FMD is calculated by number of days reported as mental health not good in past 30 days by respondents and categorized as positive for 14 or more days. Measures such as SPD, FMD and severity of mental illness were examined and interpreted in this report.

According to 2009 Kansas BRFSS, 2.5% of the adults 18 years and older had SPD and 8.6% of the adults 18 years and older had FMD. The analysis on severity of mental illness categorized respondents into three categories. Results showed that

2.5% of the adults were probable cases of serious mental illness (also described earlier as SPD), 6.6% of the adults were probable cases of mild-moderate illness and 90.9% were probable non-cases.

Mental illnesses can affect persons of any age, gender, race, ethnicity, or income although disparities were observed among different population subgroups. About 1 in 15 adults (6.7%) with less than high school education had SPD as compared to about 1 in 100 adults (0.9%) with college or higher education had SPD. Prevalence of SPD decreased consistently with an increase in annual household income. Adults with annual household income less than $15,000 had significantly higher prevalence of SPD (13.4%) as compared to adults with annual household income more than $15,000 income.

Prevalence of SPD was significantly higher among current smokers (7%) as compared to non-smokers (1.5%). Adults who did not participate in leisure time physical activity had significantly higher prevalence (5.6%) as compared to adults who participated (1.6%). Prevalence of SPD among adults with chronic health conditions such as diabetes (4.8%), arthritis (4.6%), hypertension (3.8%), asthma (6.4%), and stroke (6.3%) was significantly higher as compared to their counterparts without the disease.

Adults who did not have health insurance or coverage had significantly higher prevalence of SPD (5.5%) as compared to adults who had health insurance or coverage (2.1%). Prevalence of SPD was significantly higher among adults who could not see a doctor because of cost (10.1%) as compared to adults for whom medical cost was not a barrier to see a doctor (1.5%).

Early identification and treatment is of vital importance in mental illnesses. But due to stigma that is associated with mental illnesses, nearly two-thirds of all people with diagnosable mental disorders do not seek treatment. Module on Mental Illness and Stigma included two questions that assess the attitude from Kansas adults regarding this issue. These two questions asked respondents their agreement level on the statement “Treatment can help people with mental illness lead normal lives” and “People are generally caring and sympathetic to people with mental illness”. Opinions from the respondents were analyzed across various population subgroups. Results described in the report showed that agreement level to the above statements differ by socio-demographic factors, status on SPD and treatment received for mental illness.

Introduction

Mental health and mental illness may be considered as points on a continuum. Mental health refers to the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and cope with adversity. Mental health is essential to personal well-being, family and interpersonal relationships, and contribution to community or society.[1] Mental illness refers to all of the diagnosable mental disorders collectively.[3] In the U.S., mental disorders are diagnosed based on the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV).[2] Mental disorders are characterized by abnormalities in cognition, emotion or mood, or the highest integrative aspects of behavior, such as social interactions or planning of future activities.[3] Mental illnesses are medical conditions that disrupt a person's thinking, feeling, mood, ability to relate to others, and daily functioning.[4] Serious mental illnesses include major depression, schizophrenia, bipolar disorder, obsessive compulsive disorder, panic disorder, eating disorder, post traumatic stress disorder, mood disorder, autism spectrum disorders and borderline personality disorder.[4, 5]

Healthy People 2010 included mental health as a leading health indicator.[6] Healthy People 2020's proposed objectives also include mental health and mental disorders.[7] Healthy Kansans 2010 (HK 2010) is a set of recommendations and strategies to address leading health issues in Kansas.[8] HK 2010 also adopted mental health as one of ten leading health indicators to monitor the health status of Kansans.[8]

The burden of mental illness on health and productivity in the United States and throughout the world has long been underestimated.[9] Mental disorders are common in the United States and internationally. An estimated 26.2 percent of Americans ages 18 and older, about one in four adults, suffer from a diagnosable mental disorder in a given year. When applied to the 2004 U.S. Census residential population estimate for ages 18 and older, this figure translates to 57.7 million people. Even though mental disorders are widespread in the population, the main burden of illness is concentrated in a much smaller proportion — about 6 percent, or 1 in 17 — who suffer from a serious mental illness. In addition, mental disorders are the leading cause of disability in the U.S. for ages 15-44 years. Many people suffer from more than one mental disorder at a given time. Nearly half (45 percent) of persons with any mental disorder meet criteria for 2 or more disorders, with severity strongly related to co-morbidity.[9]

Major mental disorders cost the nation at least $193.2 billion annually in lost earnings alone.[10, 11] Unlike other medical disorders, the costs of mental disorders are more "indirect" than "direct."[18] Direct costs associated with mental disorders like medication, clinic visits, and hospitalization are relatively easy to quantify, but they reveal only a small portion of the economic burden these illnesses place on society. Indirect costs like lost earnings likely account for enormous expenses, but they are very challenging to define and estimate.[10] A nationally representative study showed that respondents with serious mental illness had 12-month earnings averaging $16,306 less than other respondents without serious mental illness.[11] Substance Abuse and Mental Health Services Administration (SAMHSA) estimated that in 2003, $100 billion was spent on the treatment of mental disorders in the United States.[12] Out-of-pocket spending for MH grew annually by 7.2 percent from 1993 to 2003.[12]

Although recovery from mental illness is possible, nearly two-thirds of all people with diagnosable mental disorders do not seek treatment.[13] Stigma surrounding the receipt of mental health treatment is among the many barriers that discourage people from seeking treatment.[13] Stigmatization of people with mental disorders is manifested by bias, distrust, stereotyping, fear, embarrassment, anger, and/or avoidance. Stigma leads others to avoid living, socializing or working with or employing people with mental disorders. It reduces patients' access to resources and opportunities.

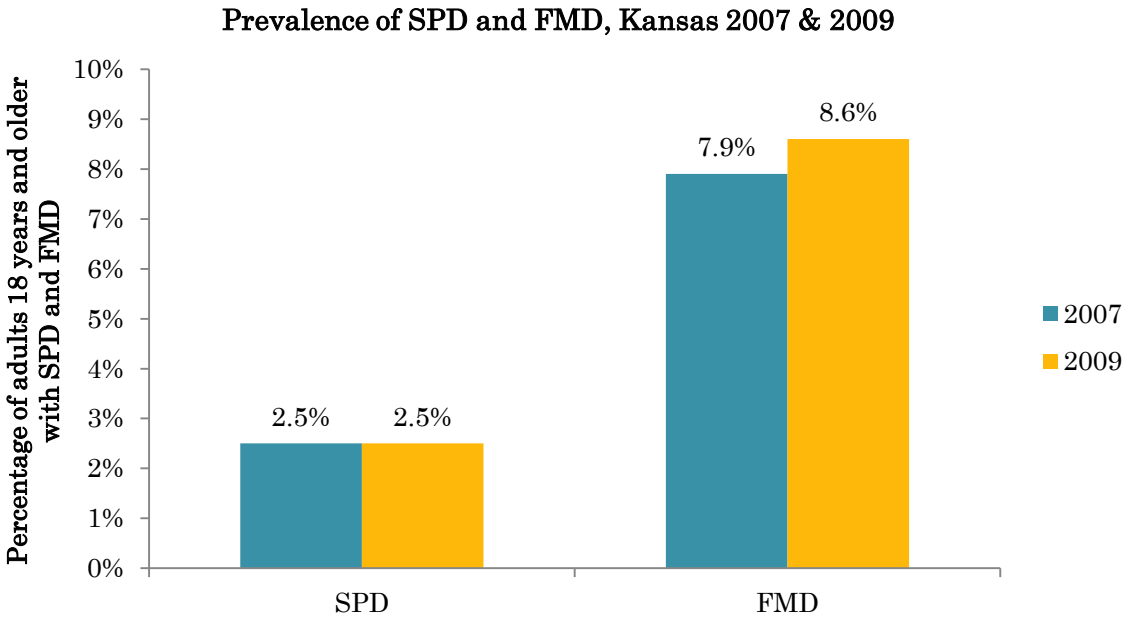
Serious Psychological Distress (SPD) is a nonspecific measure of psychological distress that has been psychometrically validated and shown to be able to distinguish community DSM-IV cases from noncases.[14, 15, 16, 17] SPD is determined using Kessler 6 (K6) scale. This scale is widely used nationally and internationally in epidemiological studies and surveys assessing mental illness. Another measure of mental illness is Frequent Mental Distress (FMD). FMD is calculated by number of days reported as mental health was not good in past 30 days by respondents and categorized as positive for 14 or more days.

The Kansas Behavioral Risk Factor Surveillance System (BRFSS)[19] is an annual population-based random digit dial telephone survey, tracking health conditions and risk behaviors of non-institutionalized adults ages 18 years and older, residing in a private residence with a landline telephone. 2009 Kansas BRFSS module on Mental Illness and Stigma included six questions of K6 scale in addition to 4 other questions to provide state level estimates of Serious Psychological Distress (SPD). Kansas BRFSS included this module in 2007 for the first time providing the

statewide baseline estimates for mental illness. In addition to SPD, estimates for Frequent Mental Distress (FMD) were also estimated using 2009 Kansas BRFSS data.

According to 2007 Kansas BRFSS, among adults 18 years and older, prevalence of SPD was 2.5% [95% CI: %2.0- 3.2%] and prevalence of FMD was 7.4% [95% CI: 6.4%- 8.4%].

According to 2009 Kansas BRFSS, among adults 18 years and older, prevalence of SPD was 2.5% [95% CI: 2.0%- 3.0%] and prevalence of FMD was 8.6% [95% CI: 8.1%- 9.2%].



Source: 2007 & 2009 Kansas Behavioral Risk Factor Surveillance System

Status of Serious Psychological Distress (SPD) in Kansas

The 2009 Kansas BRFSS module on Mental Health and Stigma included a total of 10 questions. The first 6 questions, also referred as K6 scale, asked respondents how often they felt 'nervous,' 'restless,' 'hopeless,' 'worthless,' 'depressed', or that 'everything was an effort' during the past 30 days. Each response was scored from 0 (none of time) to 4 (all the time) and summed to produce a total score (0 to 24). A score of 13 or above was defined as Serious Psychological Distress (SPD) positive. The K6 scale was developed by Dr. Ronald C. Kessler, Professor in Department of Health Care Policy at Harvard Medical School.[20] More information on the tool is available on http://www.hcp.med.harvard.edu/ncs/ftpdir/k6/K6+self%20admin-3-05-%20FINAL.pdf

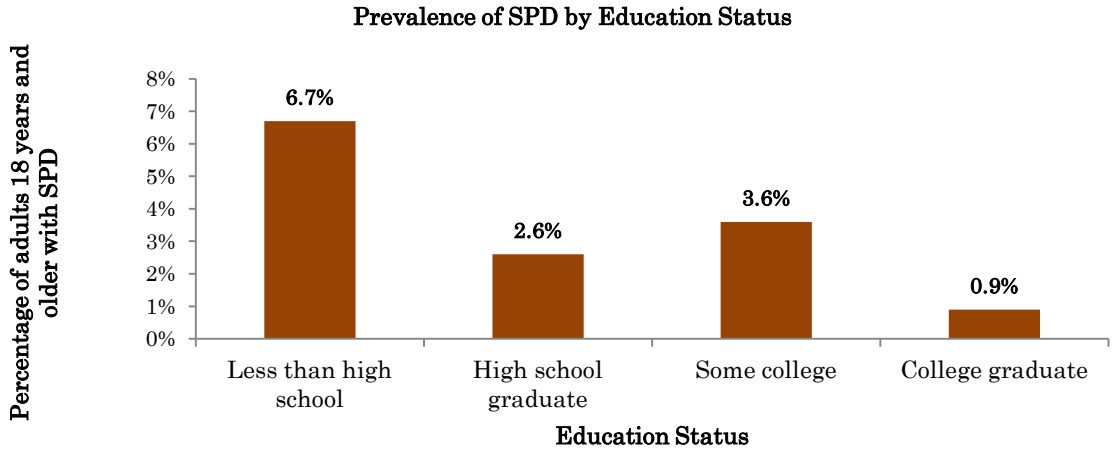
Method to score individual response

Response	Points
None of the time	0
A little of the time	1
Some of the time	2
Most of the time	3
All of the time	4

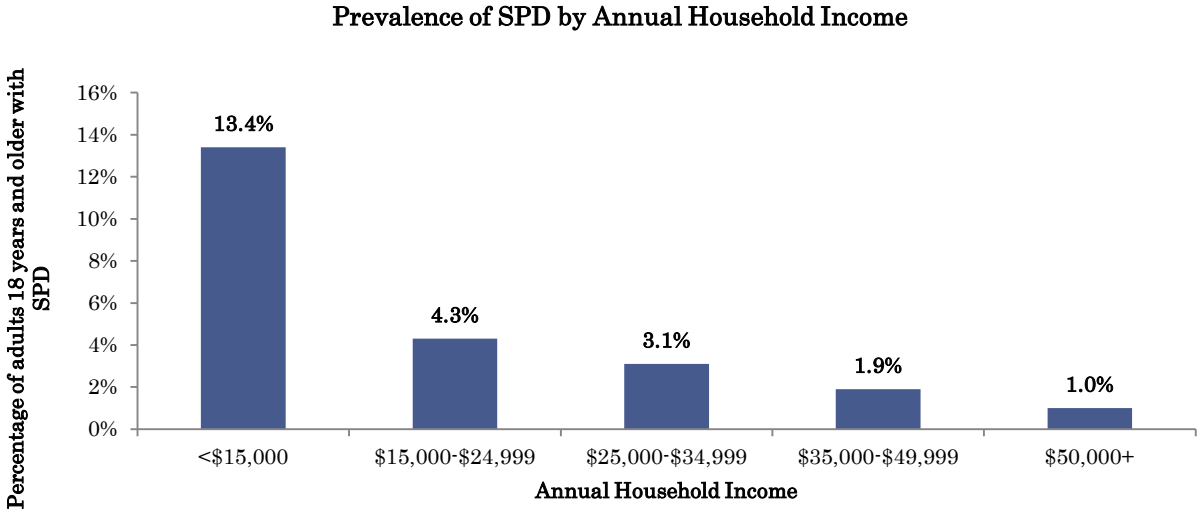
Following this definition of SPD, 2009 Kansas BRFSS data showed that an estimated 52,845 (2.5%) Kansans aged 18 years and older had SPD.

SPD Prevalence in Socio-demographic Subgroups

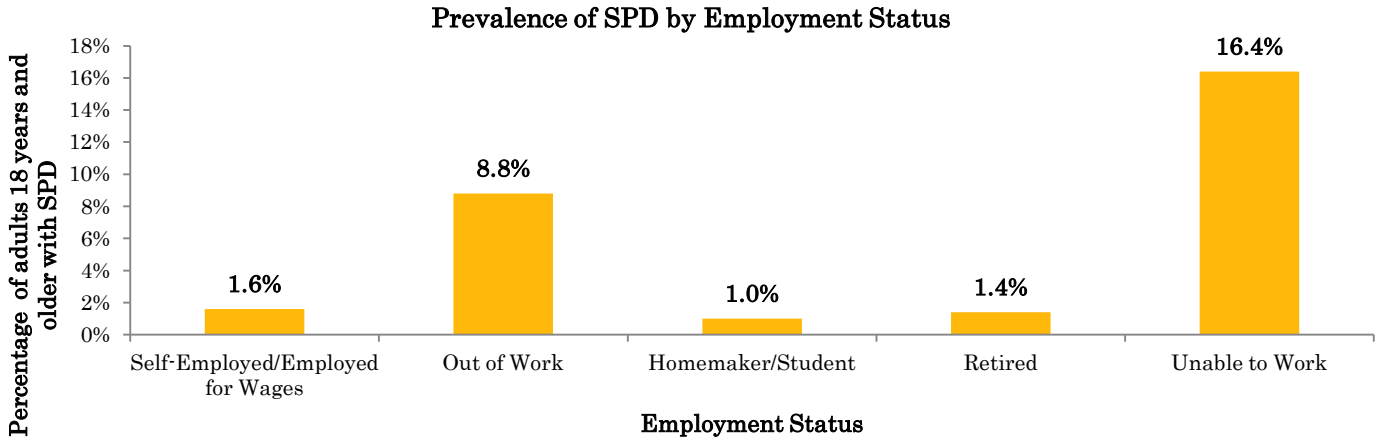
Prevalence of serious psychological distress was significantly higher among adults who had less than high school education as compared to those who were college graduates. About 1 in 15 (6.7%, 95% CI: 3.6%, 9.7%) individuals with less than high school education reported SPD as compared to 1 in 111 (0.9%, 95% CI: 0.5%, 1.3%) college graduates.



The prevalence of SPD was significantly higher (13.4%, 95% CI: 9.0%, 17.9%) among individuals with annual household income less than $15,000 as compared to individuals with annual household income of $15,000- $24,999 (4.3%, 95% CI: 2.8%, 5.9%), $25,000- $34,999 (3.1%, 95% CI: 1.5%, 4.8%), $35,000- $49,999 (1.9%, 95% CI: 0.9%, 2.9%), and equal to or more than $50,000 (1.0%, 95% CI: 0.5%, 1.4%).



Prevalence of SPD was examined in different categories of employment status. Individuals who were unable to work had the highest prevalence (16.4%, 95% CI: 12.3%, 20.6%). It was statistically significant when compared to adults who were self employed or employed for wages (1.6%, 95% CI: 1.1%, 2.1%); retired (1.4%, 95% CI: 0.9%, 1.9%); and homemaker or student (1.0%, 95% CI: 0.3%, 1.8%).



Prevalence of SPD was examined in different categories of marital status. Divorced or separated individuals had higher prevalence (7.3%, 95% CI: 4.8%, 9.7%) as compared to married or members of unmarried couple (1.7%, 95% CI: 1.2%, 2.1%) and never married individuals (2.9%, 95% CI: 1.3%, 4.4%)

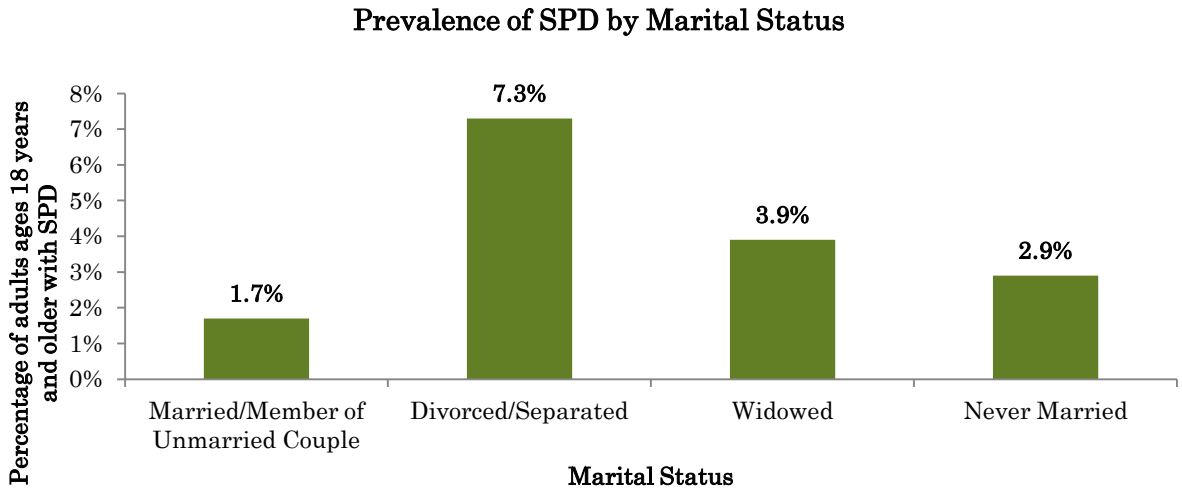


Table 1. Prevalence of serious psychological distress (SPD) among adults aged 18 years and older by socio-demographic characteristics, Kansas 2009

Socio-demographic Characteristics	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Gender Groups						
Male	65	2.1	1.4, 2.7	3204	97.9	97.3, 98.6
Female	149	2.9	2.3, 3.6	5199	97.1	96.4, 97.7
Age Groups						
18-24 years	5	3.4	0.4, 6.4	205	96.6	93.6, 99.6
25-34 years	24	3.2	1.7, 4.6	699	96.8	95.4, 98.3
35-44 years	30	2.2	1.3, 3.1	1109	97.8	96.9, 98.7
45-54 years	53	2.5	1.8, 3.3	1806	97.5	96.7, 98.2
55-64 years	48	2.4	1.6, 3.1	1868	97.6	96.9, 98.4
65 years and above	54	1.7	1.2, 2.3	2716	98.3	97.7, 98.8
Race Groups						
White only	173	2.2	1.8, 2.7	7587	97.8	97.3, 98.2
African American only	17	6.0	1.6, 10.5	319	94.0	89.5, 98.4
Other races only*	13	3.2	1.0, 5.5	344	96.8	94.5, 99.0
Multi-racial	10	5.4	1.6, 9.2	120	94.6	90.8, 98.4
Ethnicity Groups						
Hispanic	11	2.4	0.7, 4.0	309	97.6	96.0, 99.3
Non- Hispanic	203	2.5	2.0, 3.0	8083	97.5	97.0, 98.0
Education Status						
Less than high school	41	6.7	3.6, 9.7	465	93.3	90.3, 96.4
High school graduate/ GED	67	2.6	1.8, 3.4	2455	97.4	96.6, 98.2
Some college	75	3.6	2.5, 4.7	2419	96.4	95.3, 97.5
College graduate	31	0.9	0.5, 1.3	3056	99.1	98.7, 99.5

Socio-demographic Characteristics	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Annual Household Income Levels						
< $15,000	64	13.4	9.0, 17.9	522	86.6	82.1, 91.0
$15,000- $24,999	53	4.3	2.8, 5.9	1183	95.7	94.1, 97.2
$25,000- $34,999	26	3.1	1.5, 4.8	1007	96.9	95.2, 98.5
$35,000- $49,999	20	1.9	0.9, 2.9	1258	98.1	97.1, 99.1
≥ $50,000	29	1.0	0.5, 1.4	3498	99.0	98.6, 99.5
Employment Status						
Self-employed / Employed for wages	69	1.6	1.1, 2.1	4671	98.4	97.9, 98.9
Out of work	25	8.8	4.6, 13.1	333	91.2	86.9, 95.4
Homemaker / Student	9	1.0	0.3, 1.8	629	99.0	98.2, 99.7
Retired	38	1.4	0.9, 1.9	2393	98.6	98.1, 99.1
Unable to work	71	16.4	12.3, 20.6	363	83.6	79.4, 87.7
Marital Status						
Married / Member of Unmarried Couple	78	1.7	1.2, 2.1	5238	98.3	97.9, 98.8
Divorced / Separated	68	7.3	4.8, 9.7	1211	92.7	90.3, 95.2
Widowed	42	3.9	2.6, 5.2	1193	96.1	94.8, 97.4
Never married	26	2.9	1.3, 4.4	741	97.1	95.6, 98.7

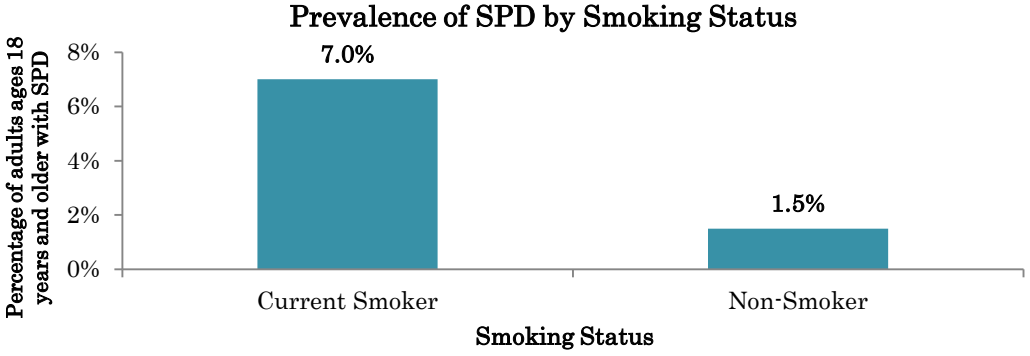
All analyses exclude unknowns and refused responses among all 9,103 adult respondents.
*Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native or member of any race other than Whites and African Americans.

There was no statistical difference in the prevalence of SPD among adults in various age groups, gender groups, race groups and ethnicity groups as shown in the table 1.

Health Risk Behaviors and SPD

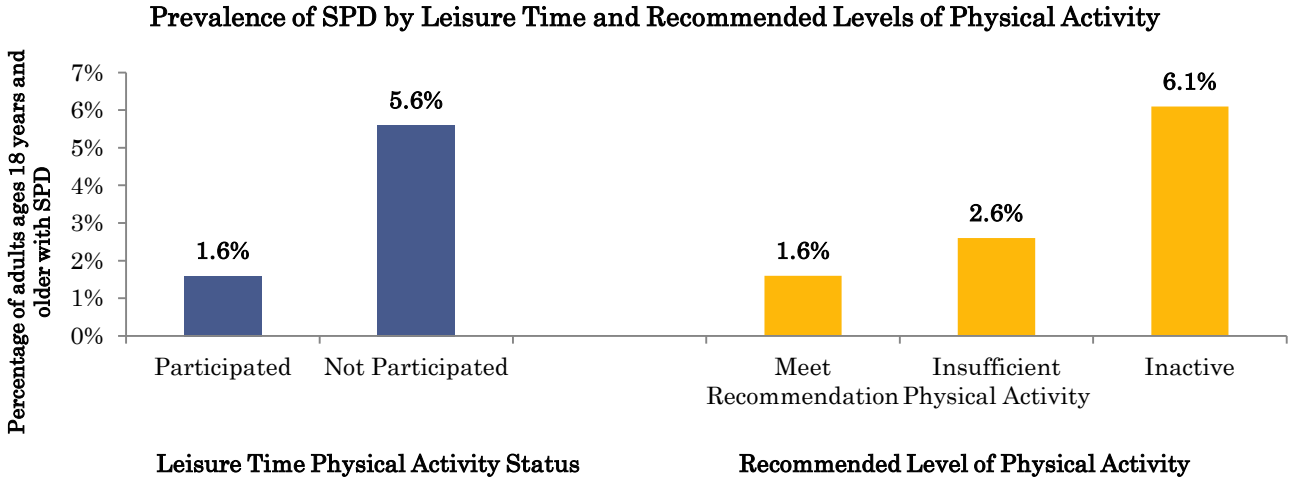
A few risk factors related to health behavior like weight status, smoking, binge drinking, heavy drinking and exercise were studied in relation to SPD prevalence.

Higher prevalence of SPD was observed in current smokers (7.0%, 95% CI: 5.1%, 9.0%) as compared to non smokers (1.5%, 95% CI: 1.1%, 1.8%).



Prevalence of SPD was higher among individuals who did not participate in any physical activity or exercise other than their regular job (leisure time physical activity) (5.6%, 95% CI: 4.2%, 6.9%) as compared to those who participated in leisure time physical activity (1.6%, 95% CI: 1.2%, 2.1%).

Prevalence of SPD was higher among individuals who were inactive (6.1%, 95% CI: 4.2%, 7.9%) as compared to those who participated in recommended level of physical activity (1.6%, 95% CI: 1.2%, 2.1%) and those who participated in insufficient physical activity (2.6%, 95% CI: 1.7%, 3.4%)



There was no statistical difference in the prevalence of SPD among weight status, binge drinkers and heavy alcohol drinkers.

Table 2. Prevalence of serious psychological distress among adults aged 18 years and older by health risk behaviors, Kansas 2009

Health Behaviors	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Smoking Status						
Current smoker	93	7.0	5.1, 9.0	1255	93.0	91.0, 94.9
Never smoker	119	1.5	1.1, 1.8	7118	98.5	98.2, 98.9
Weight Status						
Normal / Underweight (BMI<25)	62	2.1	1.3, 2.9	2730	97.9	97.1, 98.7
Overweight (≥ 25 BMI <30)	65	2.2	1.4, 3.0	2952	97.8	97.0, 98.6
Obese (BMI ≥ 30)	78	3.4	2.4, 4.3	2386	96.6	95.7, 97.6
Leisure Time Physical Activity						
Participate	97	1.6	1.2, 2.1	6345	98.4	97.9, 98.8
Do not participate	117	5.6	4.2, 6.9	2051	94.4	93.1, 95.8
Recommended Level of Physical Activity						
Meet Recommendation	58	1.6	1.1, 2.1	3714	98.4	97.9, 98.9
Insufficient Physical Activity	74	2.6	1.7, 3.4	3225	97.4	96.6, 98.3
Inactive	76	6.1	4.2, 7.9	1198	93.9	92.1, 95.8
Binge Drinking Status*						
Binge Drinker	17	1.9	0.7, 3.0	833	98.1	97.0, 99.3
Not Binge Drinker	196	2.6	2.1, 3.1	7514	97.4	96.9, 97.9
Heavy Drinking Status						
Heavy Drinker	8	2.6	0.3, 4.9	313	97.4	95.1, 99.7
Not Heavy Drinker	203	2.5	2.0, 3.0	7976	97.5	97.0, 98.0

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

*Binge drinking: Males having five or more drinks on one occasion, females having four or more drinks on one occasion.

*Heavy drinking, Males having an average of more than two drinks per day , females having an average of one drink per day during the past 30 days.

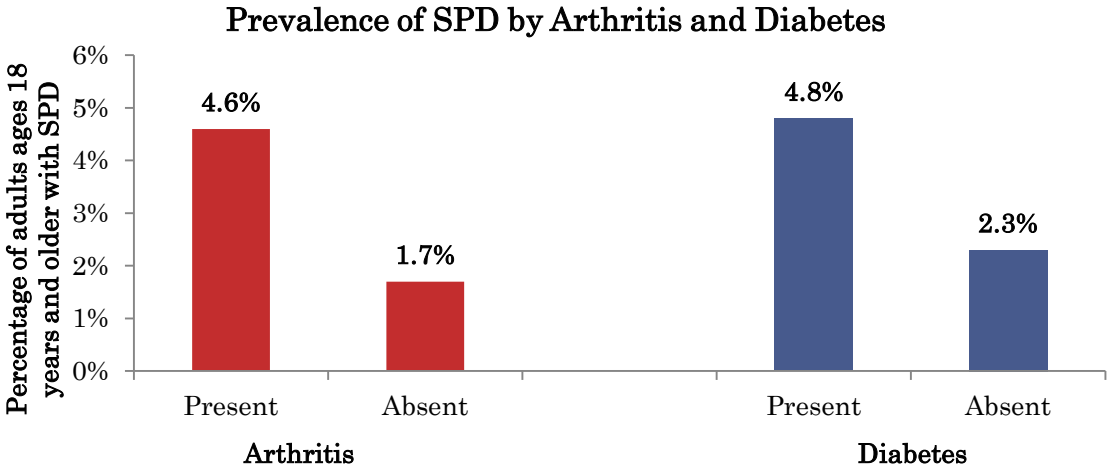
* Leisure time physical activity is defined as any physical activities or exercises, other than a regular job, such as running, calisthenics, golf, gardening, or walking for exercise.

* Recommended level of physical activity is defined as moderate physical activity for at least 30 minutes per day for at least 5 days a week OR vigorous physical activity for at least 20 minutes per day for at least 3 days a week.

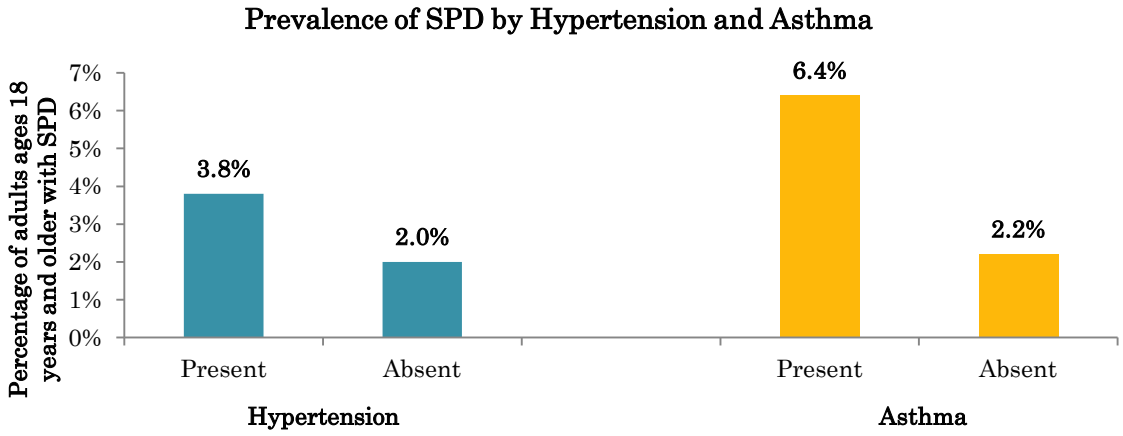
Chronic Diseases and SPD

Strong association was seen between prevalence of SPD and chronic diseases.

Higher prevalence of SPD was seen among individuals with arthritis (4.6%, 95% CI: 3.5%, 5.7%) as compared to adults without arthritis (1.7%, 95% CI: 1.2%, 2.2%). Adults with diabetes had higher prevalence of SPD (4.8%, 95% CI: 3.2%, 6.3%) as compared to adults without diabetes (2.3%, 95% CI: 1.8%, 2.8%).



Higher prevalence of SPD was seen among individuals with hypertension (3.8%, 95% CI: 2.9%, 4.7%) as compared to adults without hypertension (2.0%, 95% CI: 1.4%, 2.5%). Adults with current asthma had higher prevalence of SPD (6.4%, 95% CI: 3.6%, 9.1%) as compared to adults without current asthma (2.2%, 95% CI: 1.7%, 2.6%).



About 1 in 19 (5.4%, 95% CI: 2.9%, 7.9%) individuals with coronary heart disease (CHD) had SPD as compared to 1 in 45 (2.4%, 95% CI: 1.9%, 2.8%) of those who did not have coronary heart disease.

Prevalence of SPD was higher among individuals who had experienced a stroke (6.3%, 95% CI: 3.4%, 9.1%) as compared to those who did not have a stroke (2.4%, 95% CI: 1.9%, 2.9%).

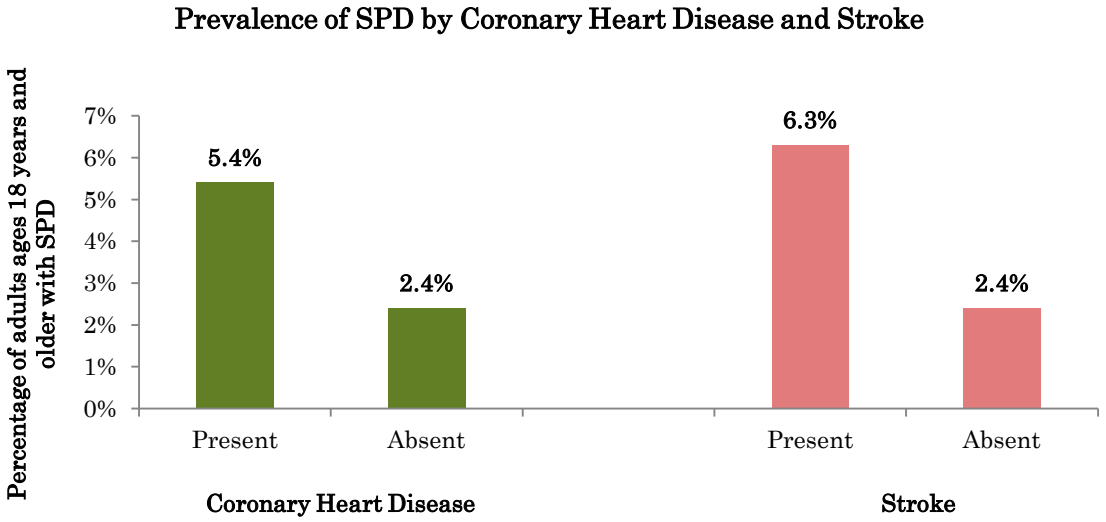


Table 3. Prevalence of serious psychological distress among adults aged 18 years and older by chronic diseases, Kansas 2009

Chronic Diseases	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Arthritis Status						
Present	121	4.6	3.5, 5.7	2801	95.4	94.3, 96.5
Absent	90	1.7	1.2, 2.2	5569	98.3	97.8, 98.8
Diabetes Status						
Present	49	4.8	3.2, 6.3	971	95.2	93.7, 96.8
Absent	165	2.3	1.8, 2.8	7430	97.7	97.2, 98.2
Current Asthma Status						
Present	39	6.4	3.6, 9.1	590	93.6	90.9, 96.4
Absent	172	2.2	1.7, 2.6	7763	97.8	97.4, 98.3

Chronic Diseases	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Hypertension Status						
Present	113	3.8	2.9, 4.7	3219	96.2	95.3, 97.1
Absent	101	2.0	1.4, 2.5	5174	98.0	97.5, 98.6
Coronary Heart Disease						
Present	25	5.4	2.9, 7.9	450	94.6	92.1, 97.1
Absent	186	2.4	1.9, 2.8	7900	97.6	97.2, 98.1
Stroke						
Present	23	6.3	3.4, 9.1	307	93.7	90.9, 96.6
Absent	189	2.4	1.9, 2.9	8080	97.6	97.1, 98.1

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

Health Care Access and SPD

Three components were assessed about health care access; having health insurance or coverage, having a personal doctor or health care provider; and medical cost.

Higher prevalence of SPD was observed among adults without health insurance or coverage (5.5%, 95% CI: 3.4%, 7.5%) as compared to those who had health insurance or coverage (2.1%, 95% CI: 1.7%, 2.6%).

Prevalence of SPD was almost 7 times higher among individuals who could not see a doctor because of cost (10.1%, 95% CI: 7.2%, 13.0%) as compared to their counterparts (1.5%, 95% CI: 1.2%, 1.9%).

There was no statistically significant difference between adults who had one or more personal doctors or health care providers as compared to adults who did not have a personal doctor.

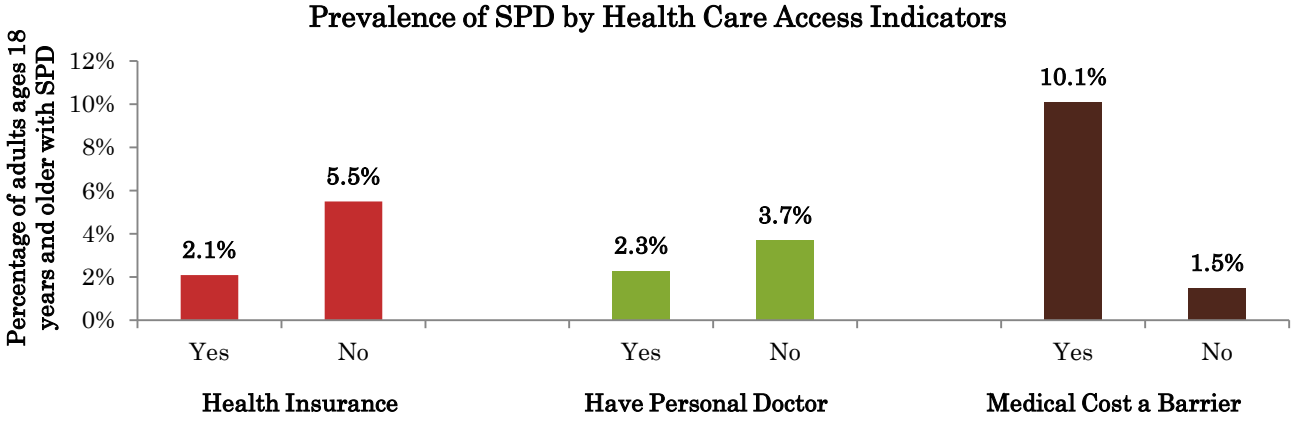


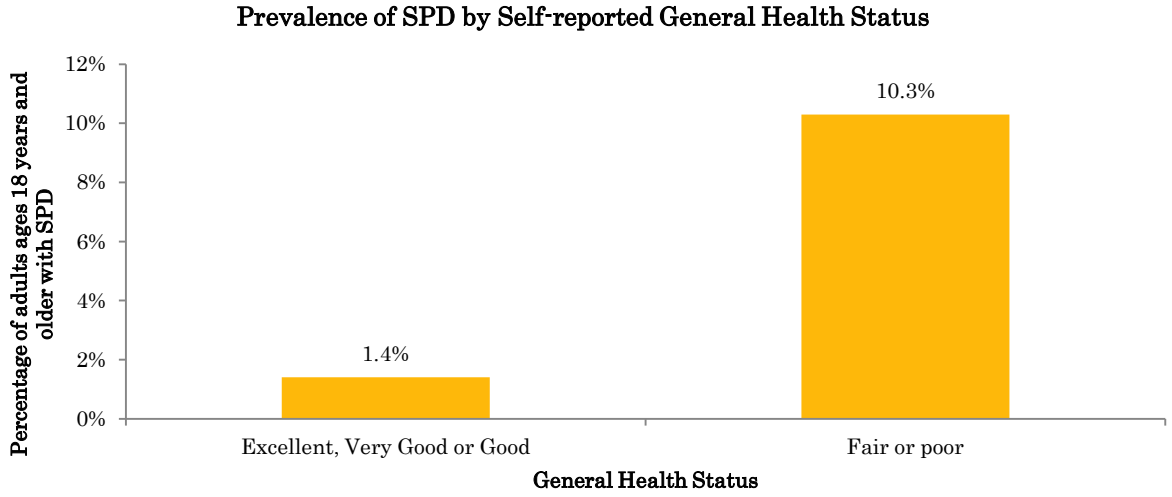
Table 4. Prevalence of serious psychological distress among adults aged 18 years and older by health care access Indicators, Kansas 2009

Health Care Access	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Health Insurance Status						
Have health insurance / coverage	169	2.1	1.7, 2.6	7692	97.9	97.4, 98.3
Did not have health insurance / coverage	45	5.5	3.4, 7.5	697	94.5	92.5, 96.6
Personal Doctor (one or more)						
Have personal doctor	183	2.3	1.9, 2.8	7578	97.7	97.2, 98.1
Did not have personal doctor	30	3.7	1.8, 5.6	817	96.3	94.4, 98.2
Could not see doctor because of cost						
Yes	84	10.1	7.2, 13.0	722	89.9	87.0, 92.8
No	128	1.5	1.2, 1.9	7673	98.5	98.1, 98.8

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

Self-reported Health Status and SPD

In 2009 Kansas BRFSS, the perception regarding general health status was assessed.



The prevalence of SPD was almost 7 times higher among people who rated their general health as fair or poor (10.3%, 95% CI: 8.0%, 12.5%) as compared to those who rated their general health as excellent, very good or good (1.4%, 95% CI: 1.0%, 1.9%).

Table 5. Prevalence of serious psychological distress among adults aged 18 years and older by self- reported health status, Kansas 2009

Health Status	Serious Psychological Distress Present			Serious Psychological Distress Absent		
General Health Status	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Fair or Poor	132	10.3	8.0, 12.5	1172	89.7	87.5, 92.0
Excellent, very good or good	82	1.4	1.0, 1.9	7216	98.6	98.1, 99.0

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

Disability and SPD

In the 2009 Kansas BRFSS, adults living with a disability were defined as those who are limited in any way in any activities because of physical, mental, or emotional problems and/or have any health problem that requires use of special equipment, such as a cane, a wheelchair, a special bed, or a special telephone.

Prevalence of SPD was examined among adults living with a disability as compared to those living without a disability.

Higher prevalence of SPD was observed among people living with a disability (7.9%, 95% CI: 6.3%, 9.5%) as compared to people living without a disability (1.0%, 95% CI: 0.7%, 1.4%).

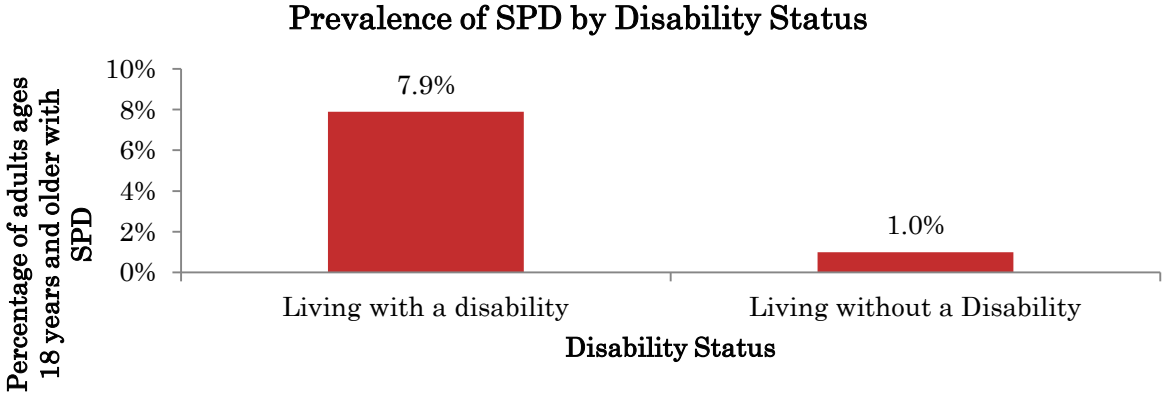
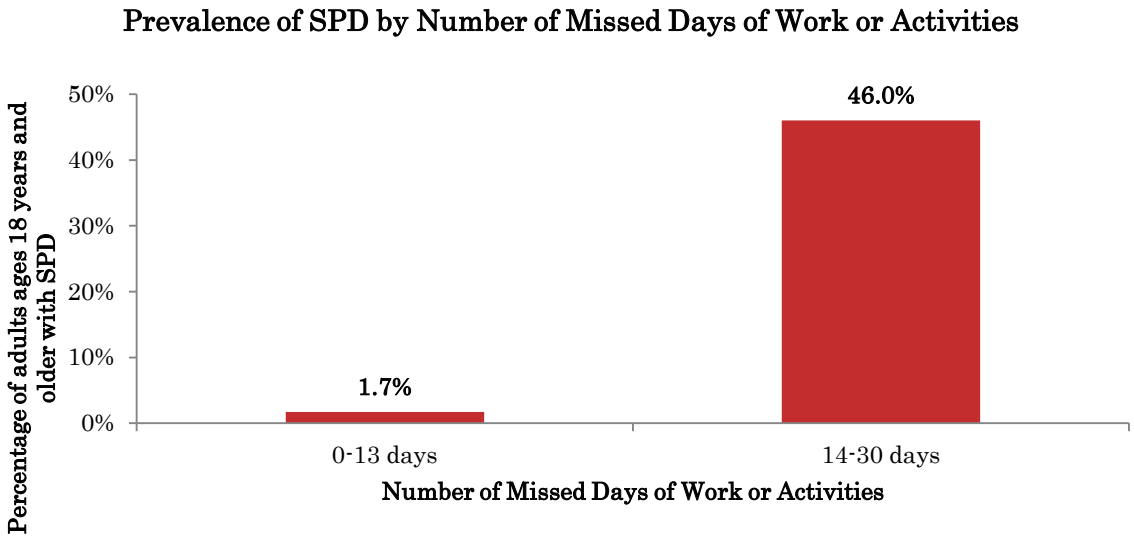


Table 6. Prevalence of serious psychological distress among adults aged 18 years and older living with or without a disability, Kansas 2009

Disability Status	Serious Psychological Distress Present			Serious Psychological Distress Absent		
	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval	Frequency (n)	Weighted Percentage (%)	95% Confidence Interval
Living with a disability	155	7.9	6.3, 9.5	2072	92.1	90.5, 93.7
Living without a disability	58	1.0	0.7, 1.4	6313	99.0	98.6, 99.3

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

Missed work days and SPD



Higher prevalence of SPD was observed among people who missed 14-30 days of work (46.0%, 95% CI: 34.6%, 57.4%) as compared to people who missed 0-13 days of work (1.7%, 95% CI: 1.3%, 2.1%).

Severity of Mental Illness in Kansas

In addition to categorizing Mental Illness as with SPD and without SPD using K6 scale, **severity of mental illness** was also measured by classifying respondents in 3 categories based on their total K6 scale score. Each response on first 6 questions (K6 scale) of the module was scored; 0 for 'none of the time', 1 for 'a little of the time', 2 for 'some of the time', 3 for 'most of the time' and 4 for 'all of the time'. Then the total score for each respondent was calculated by adding all 6 answers' points. Thus the total score ranged from 0 to 24.

Method to score individual response

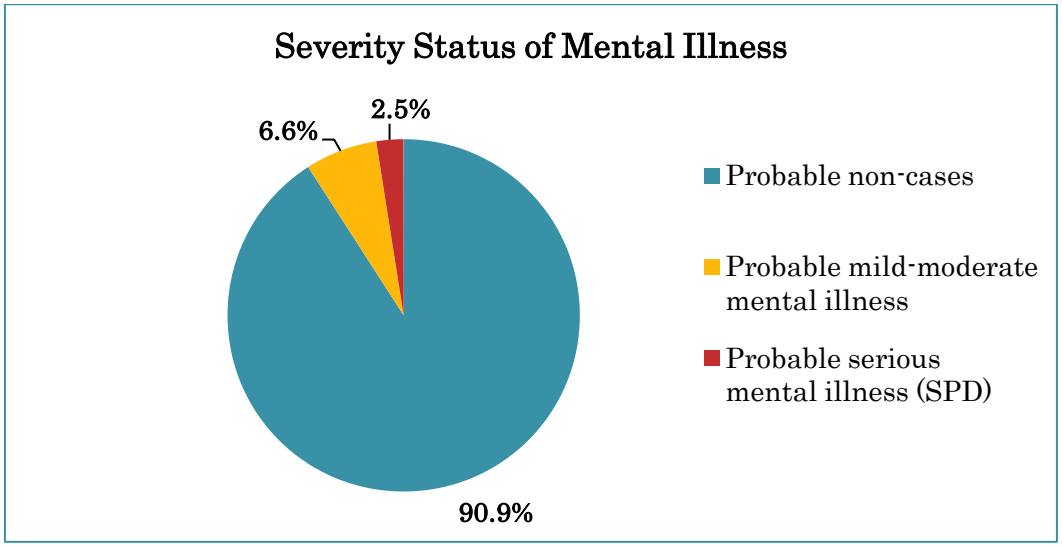
Response	Points
None of the time	0
A little of the time	1
Some of the time	2
Most of the time	3
All of the time	4

Persons with total scores of 0-7 were classified as probable non-cases, 8-12 as probable cases of mild-moderate mental illness and 13-24 as probable cases of serious mental illness (SPD).[21, 22, 23]

Method to determine severity status of mental illness

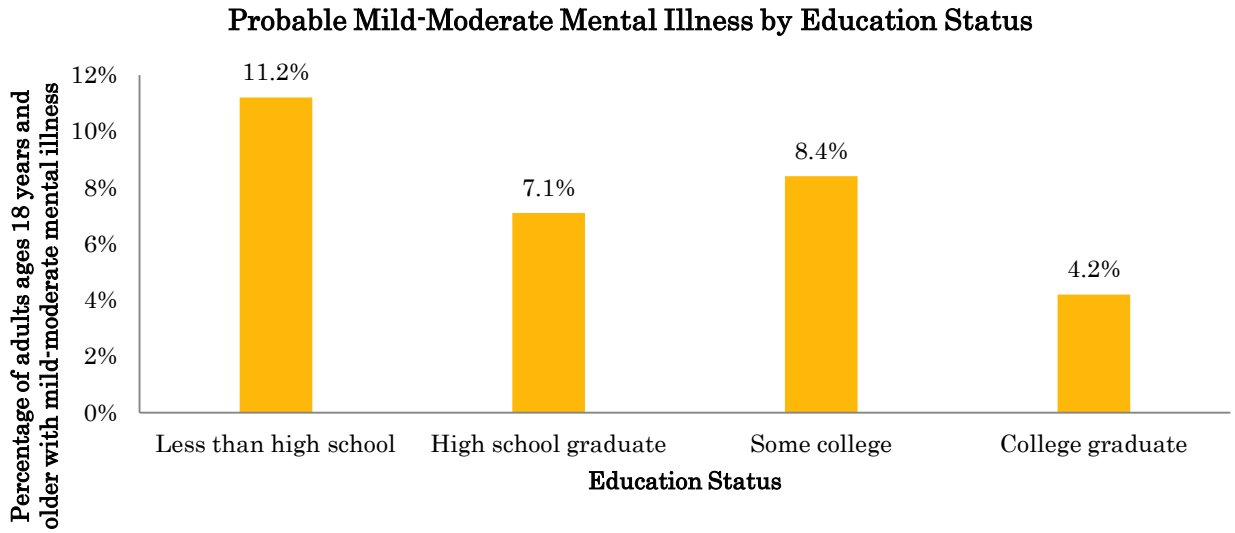
Total Points	Severity Status
0-7	Probable non-cases
8-12	Probable mild-moderate mental illness cases
13-24	Probable serious mental illness cases (also defined as SPD)

According to 2009 Kansas BRFSS, 2.5% of the adults were probable cases of serious mental illness (also described earlier as SPD), 6.6% of the adults were probable cases of mild-moderate illness and 90.9% were probable non-cases.

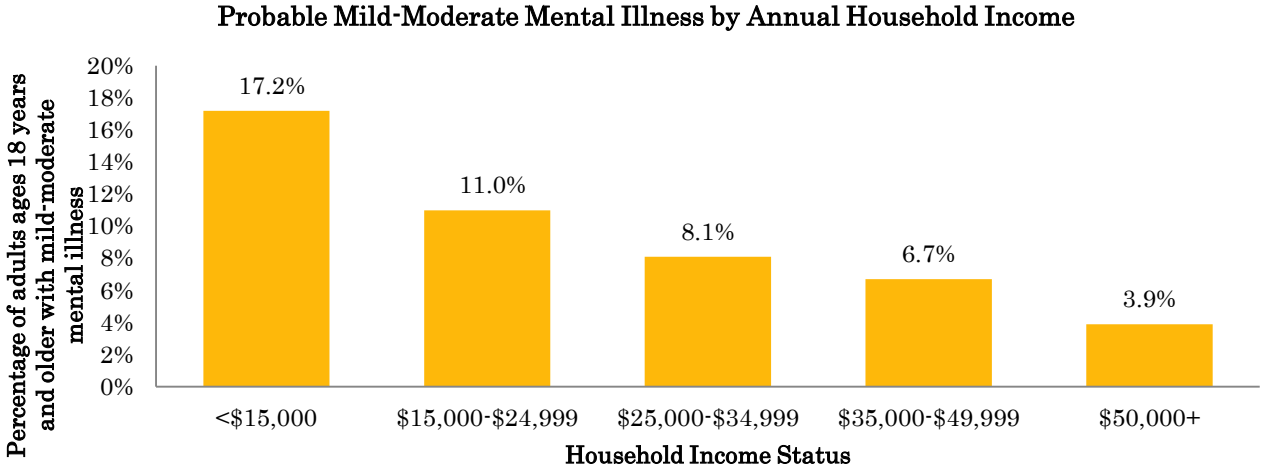


Prevalence of Mild-Moderate Mental Illness by Selected Variables

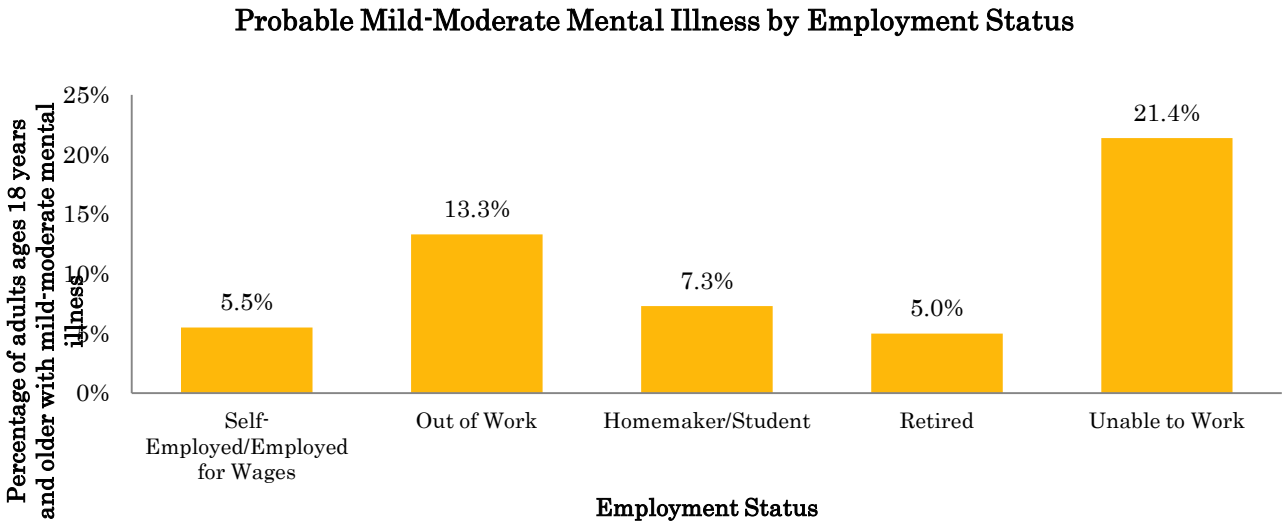
Detailed analysis for the probable mild-moderate mental illness was performed by selected variables.



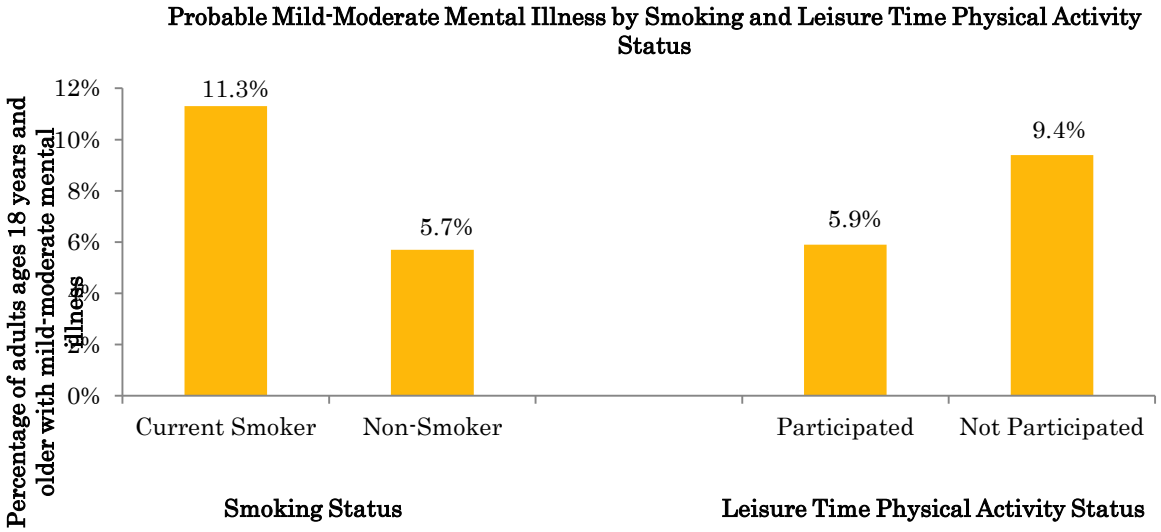
Prevalence of mild-moderate mental illness was higher among individuals with less than high school education (11.2%, 95% CI: 7.5%, 15.0%) as compared to individuals who were college graduate (4.2%, 95% CI: 3.3%, 5.1%).



The prevalence of mild-moderate mental illness was higher among individuals with annual household income less than $15,000 (17.2%, 95% CI: 12.6%, 21.7%) as compared to individuals with annual household income of $25,000- $34,999 (8.1%, 95% CI: 5.7%, 10.6%), $35,000- $49,999 (6.7%, 95% CI: 4.8%, 8.7%), and equal to or more than $50,000 (3.9%, 95% CI: 3.1%, 4.7%).

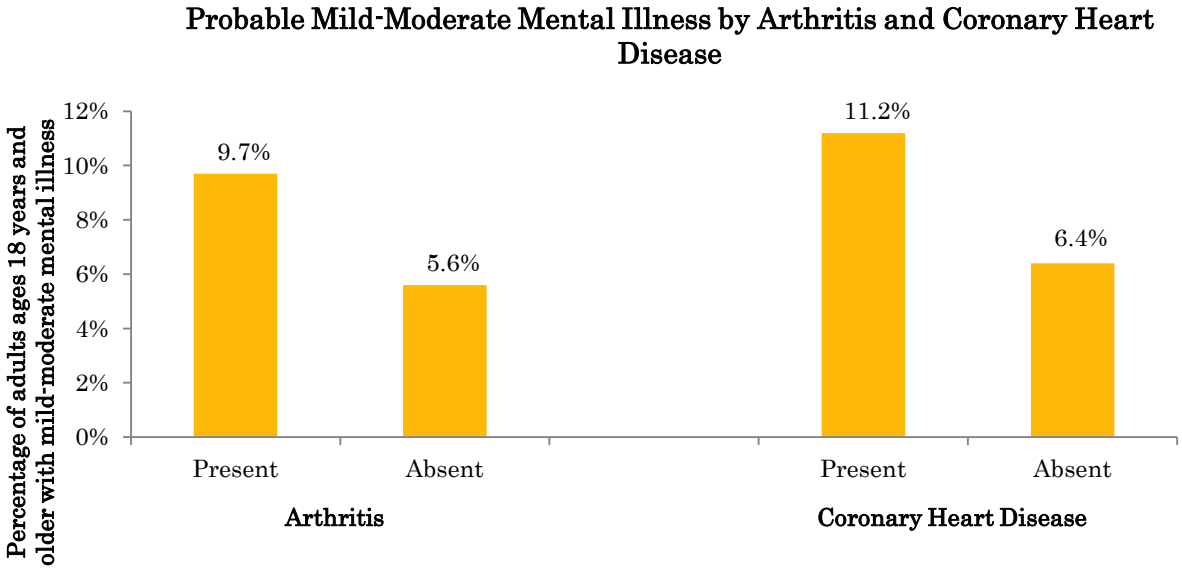


The prevalence of mild-moderate mental illness was examined in different categories of employment status. Individuals who were unable to work had the highest prevalence (21.4%, 95% CI: 16.7%, 26.1%). It was statistically significant when compared to adults who were self employed or employed for wages (5.5%, 95% CI: 4.6%, 6.4%); retired (5.0%, 95% CI: 4.1%, 5.9%); and homemaker or student (7.3%, 95% CI: 4.8%, 9.9%).



Prevalence of mild-moderate mental illness was higher among current smokers (11.3%, 95% CI: 9.1%, 13.5%) as compared to non smokers (5.7%, 95% CI: 5.0%, 6.4%). A similar result was seen for prevalence of SPD.

Exercise status showed a relationship to prevalence of mild-moderate mental illness. Higher prevalence of mild-moderate mental illness was observed among adults who did not participate in leisure time physical activity (5.9%, 95% CI: 5.1%, 6.7%) as compared to those who did participate in leisure time physical activity (9.4%, 95% CI: 7.8%, 11.0%). A similar result was seen for percentage of SPD.

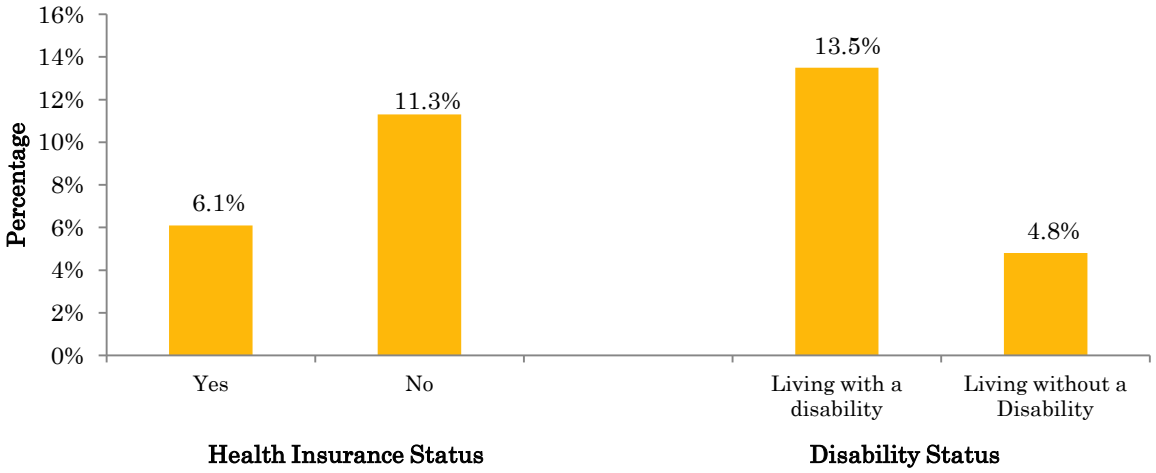


Higher prevalence of mild-moderate mental illness was seen among adults with chronic diseases.

Higher prevalence of mild-moderate mental illness was observed among adults with arthritis (9.7%, 95% CI: 8.3%, 11.2%) as compared to those who did not have arthritis (5.6%, 95% CI: 4.8%, 6.4%). Similar results were seen for prevalence of SPD.

Prevalence of mild-moderate mental illness was higher among adults with coronary heart disease (11.2%, 95% CI: 7.4%, 15.0%) as compared to adults without coronary heart disease (6.4%, 95% CI: 5.7%, 7.2%). A similar result was seen for prevalence of SPD.

Probable Mild-Moderate Mental Illness by Health Insurance and Disability Status



Higher prevalence of mild-moderate mental illness was observed among adults without health insurance or coverage (11.3%, 95% CI: 8.4%, 14.2%) as compared to those who had health insurance or coverage (6.1%, 95% CI: 5.4%, 6.8%). Similar results were seen for prevalence of SPD.

Prevalence of mild-moderate mental illness was higher among individuals living with a disability (13.5%, 95% CI: 11.7%, 15.4%) as compared to those living without a disability (4.8%, 95% CI: 4.1%, 5.6%). A similar result was seen for prevalence of SPD.

Estimates for probable non cases, probable mild-moderate illness and probable cases of serious mental illness (SPD) if mental illness among adults ages 18 years and older among socio-demographic, risk factors and chronic disease sub groups are summarized in Table 7.

Table 7. Severity of mental illness among adults aged 18 years and older by selected characteristics, Kansas 2009

Characteristic	Probable non-cases	Probable mild-moderate illness	Probable cases of SPD
	Frequency (n) Weighted % [95% CI]	Frequency (n) Weighted % [95% CI]	Frequency (n) Weighted % [95% CI]
Total	7834 90.9% [90.0, 91.7]	569 6.6% [5.9, 7.4]	214 2.5% [2.0, 3.0]
Education Status			
Less than high school	407 82.1% [77.5, 86.8]	58 11.2% [7.5, 15.0]	41 6.7% [3.6, 9.7]
High school graduate/ GED	2265 90.3% [88.8, 91.8]	190 7.1% [5.8, 8.4]	67 2.6% [1.8, 3.4]
Some college	2234 87.9% [86.1, 89.8]	185 8.5% [6.9, 10.0]	75 3.6% [2.5, 4.7]
College graduate	2921 94.9% [94.0, 95.9]	135 4.2% [3.3, 5.1]	31 0.9% [0.4, 1.3]
Annual Household Income Levels			
< $15,000	421 69.4% [63.6, 75.2]	101 17.2% [12.6, 21.7]	64 13.4% [9.0, 17.9]
$15,000- $24,999	1060 84.6% [81.8, 87.5]	123 11.0% [8.5, 13.6]	53 4.3% [2.8, 5.9]
$25,000- $34,999	940 88.7% [85.9, 91.6]	67 8.1% [5.7, 10.6]	26 3.1% [1.5, 4.8]
$35,000- $49,999	1186 91.4% [89.3, 93.5]	72 6.7% [4.8, 8.7]	20 1.9% [0.9, 2.9]
≥ $50,000	3355 95.1% [94.2, 96.0]	143 3.9% [3.1, 4.7]	29 1.0% [0.5, 1.4]
Employment Status			
Self-employed / Employed for wages	4432 92.9% [91.9, 93.9]	239 5.5% [4.6, 6.4]	69 1.6% [1.1, 2.1]
Out of work	277 77.8% [72.1, 83.5]	56 13.3% [9.1, 17.6]	25 8.9% [4.6, 13.1]
Homemaker / Student	585 91.7% [89.0, 94.3]	44 7.3% [4.8, 9.9]	9 1.1% [0.3, 1.8]
Retired	2262 93.6% [92.6, 94.7]	131 5.0% [4.1, 5.9]	38 1.4% [0.9, 1.9]

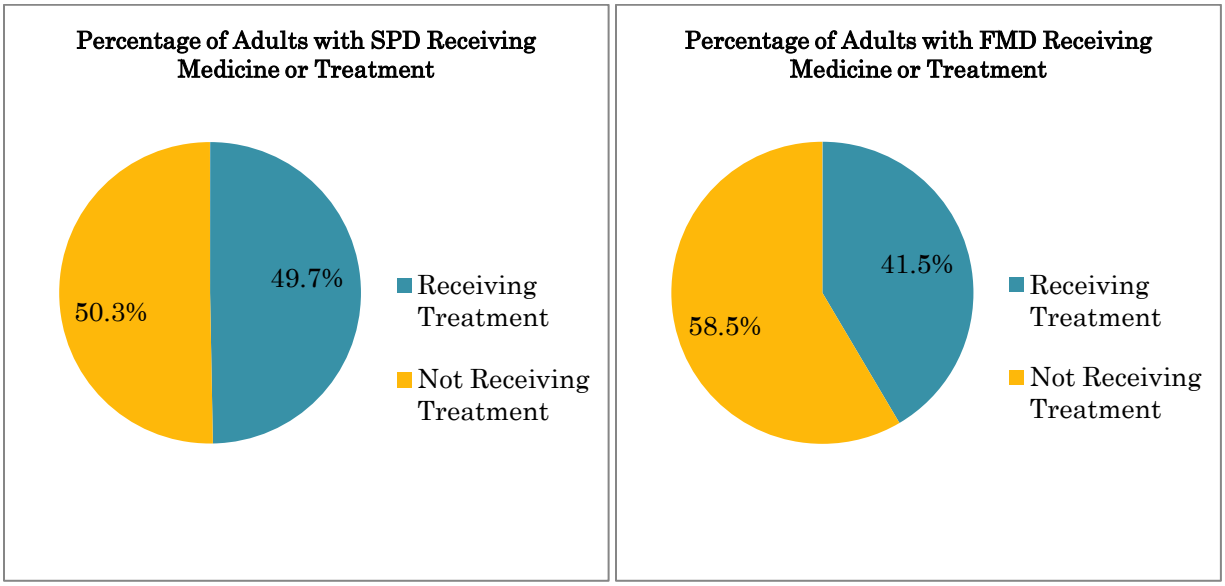
Characteristic	Probable non-cases	Probable mild-moderate illness	Probable cases of SPD
	Frequency (n) Weighted % [95% CI]	Frequency (n) Weighted % [95% CI]	Frequency (n) Weighted % [95% CI]
Unable to work	266 62.2% [56.6, 67.8]	97 21.4% [16.7, 26.1]	71 16.4% [12.3, 20.6]
Smoking Status			
Current smoker	1094 81.7% [79.0, 84.5]	161 11.3% [9.1, 13.5]	93 7.0% [5.1, 9.0]
Non-smoker	6712 92.8% [92.1, 93.6]	406 5.7% [5.0, 6.4]	119 1.5% [1.1, 1.8]
Exercise Status			
Participated	5994 92.5% [91.6, 93.4]	351 5.9% [5.1, 6.7]	97 1.6% [1.2, 2.1]
Did not participate	1833 85.0% [83.0, 87.0]	218 9.4% [7.8, 11.0]	117 5.6% [4.2, 6.9]
Coronary Heart Disease			
Present	400 83.4% [79.1, 87.8]	50 11.2% [7.4, 15.0]	25 5.4% [2.9, 7.9]
Absent	7391 91.2% [90.4, 92.1]	509 6.4% [5.7, 7.2]	186 2.4% [1.9, 2.9]
Arthritis			
Present	2535 85.7% [84.0, 87.4]	266 9.7% [8.3, 11.2]	121 4.6% [3.5, 5.7]
Absent	5273 92.7% [91.8, 93.6]	296 5.6% [4.8, 6.4]	90 1.7% [1.2, 2.2]
Health Insurance Status			
Have health insurance / coverage	7209 91.8% [91.0, 92.6]	483 6.1% [5.4, 6.8]	169 2.1% [1.7, 2.6]
Did not have health insurance / coverage	611 83.2% [79.8, 86.6]	86 11.3% [8.4, 14.2]	45 5.5% [3.4, 7.5]
Disability Status			
Living with a disability	1783 78.6% [76.3, 80.9]	289 13.5% [11.7, 15.4]	155 7.9% [6.3, 9.5]
Living without a disability	6038 94.2% [93.3, 95.0]	275 4.8% [4.1, 5.6]	58 1.0% [0.7, 1.4]

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

SPD, FMD and Medical Treatment

Most people diagnosed with a serious mental illness can experience relief from their symptoms by actively participating in an individual treatment plan.[24] The best treatments for serious mental illnesses today are highly effective; between 70 and 90 percent of individuals have significant reduction of symptoms and improved quality of life with a combination of pharmacological and psychosocial treatments and supports. Early identification and treatment is of vital importance in mental illnesses. With appropriate effective medication and a wide range of services tailored to their needs, most people who live with serious mental illnesses can significantly reduce the impact of their illness and find a satisfying measure of achievement and independence.[24]

The 2009 Kansas BRFSS assessed the percentage of adults who were taking medicine or receiving treatment from a doctor or other health professional for any type of mental health condition or emotional problem. The data were analyzed to assess the percentage of adults with SPD or FMD receiving medication or treatment among adults with SPD and FMD.



Less than half of the persons with SPD received medicine or treatment (49.7%, 95% CI: 40.2%, 59.2%).

Only 4 in 10 adults with FMD received medicine or treatment (41.5%, 95% CI: 36.6%, 46.3%).

Attitude towards Mental Illness and Stigma

Mental illnesses are highly associated with stigma. Stigma is a barrier and discourages individuals and their families from getting the help they need due to the fear of being discriminated against.[25]

The good news about mental illness is that recovery is possible.[4] With appropriate effective medication and services, most people who live with serious mental illnesses can significantly reduce the impact of their illness. But stigmatization of people with mental disorders has persisted throughout history. Due to stigma that is associated with mental illnesses, nearly two-thirds of all people with diagnosable mental disorders do not seek treatment.[13] While many of the legal rules that removed the reinforced discrimination associated with mental illnesses, public attitudes regarding mental illness continue to vary.[26]

2009 Kansas BRFSS assessed the attitude from Kansas adults regarding this issue. The opinions of the adults on the statements 'Treatment can help people with mental illness lead normal lives', and 'People are generally caring and sympathetic to people with mental illness' were assessed. The responses were than merged for 'Agree strongly' and 'Agree slightly' as 'Agree'; 'Disagree slightly' and 'Disagree strongly' as 'Disagree'. Both the questions were then analyzed across various population subgroups.

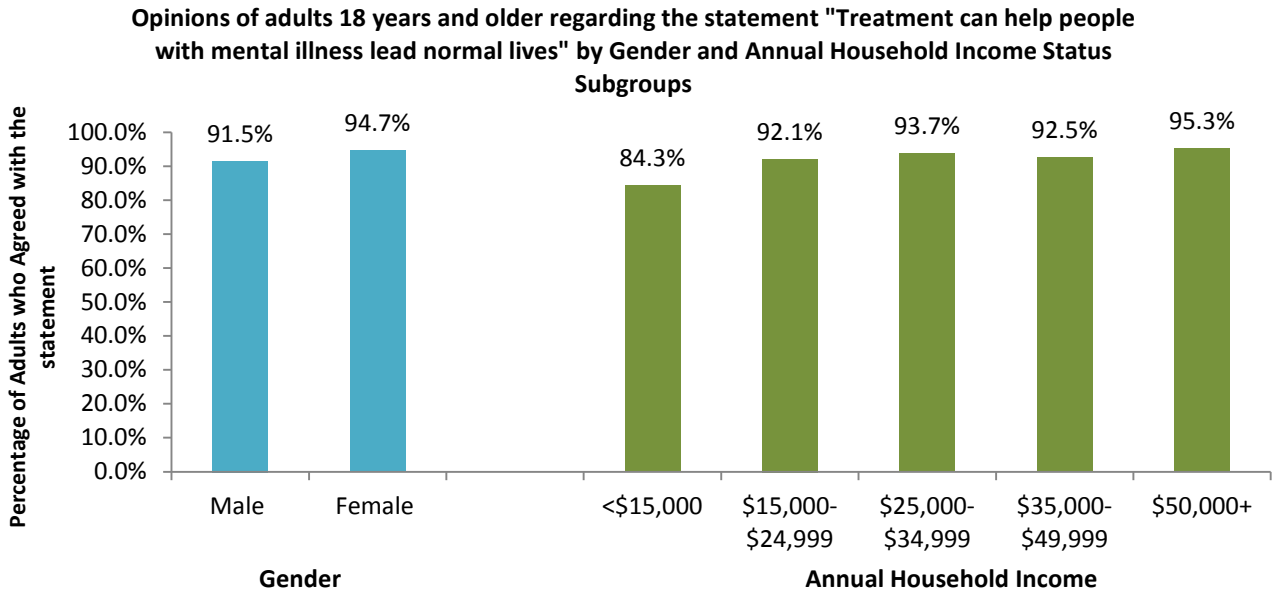
When asked about the opinions regarding the statement 'Treatment can help people with mental illness lead normal lives', 93.1% [95% CI: 92.4%, 93.8%] agreed with the statement, 3.4% [95% CI: 2.9%, 4.0%] neither agreed nor disagreed and 3.5% [95% CI: 3.0%, 4.0%] disagreed with the statement.

Results for the analysis for opinions regarding the statement 'Treatment can help people with mental illness lead normal lives' among various socio-demographic subgroups is shown in Table 8.

Table 8. Opinions of adults 18 years and older regarding the statement 'Treatment can help people with mental illness lead normal lives' by selected characteristics, Kansas 2009

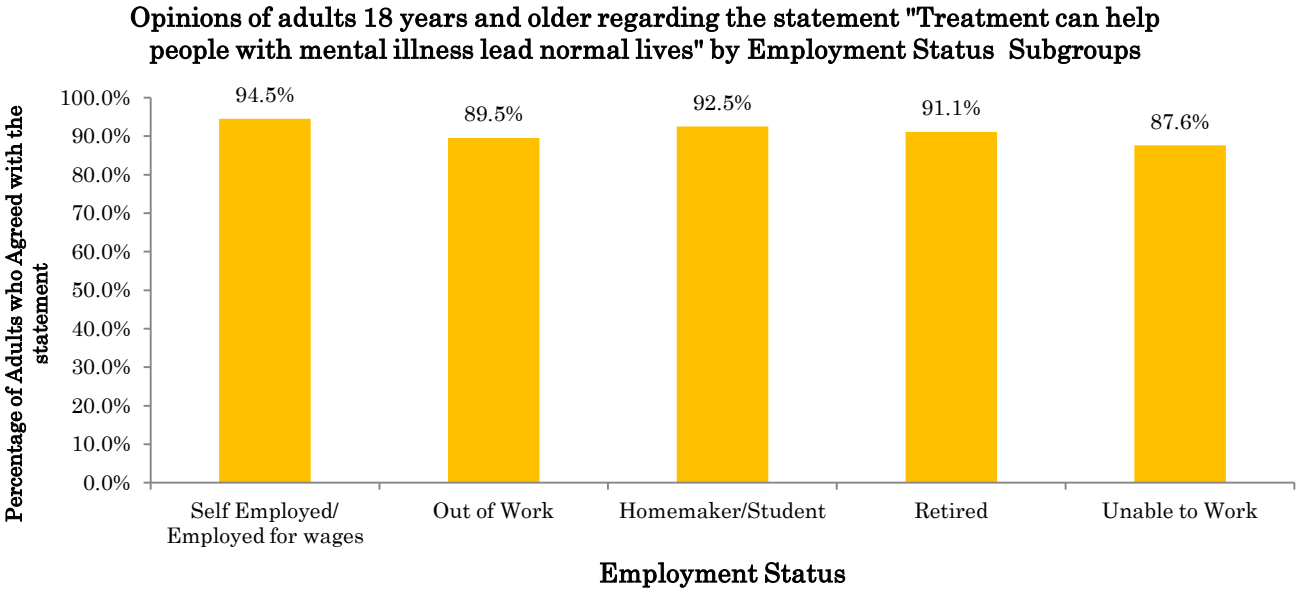
Characteristic	Agree	Neither agree nor disagree	Disagree
	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]
Total	7834 93.1% [92.4, 93.8]	295 3.4% [2.9, 4]	296 3.5% [3.0, 4.0]
Gender			
Male	2914 91.5% [90.2, 92.7]	130 4% [3.1, 4.9]	152 4.5% [3.6, 5.4]
Female	4920 94.7% [93.9, 95.4]	165 2.8% [2.3, 3.4]	144 2.5% [1.9, 3.1]
Annual Household Income Levels			
< $15,000	491 84.3% [79.1, 89.6]	29 6.2% [2.4, 9.9]	47 9.5% [5.4, 13.6]
$15,000- $24,999	1084 92.1% [90.1, 94]	49 3.6% [2.3, 4.9]	57 4.3% [2.9, 5.8]
$25,000- $34,999	935 93.7% [91.7, 95.7]	27 2.3% [1.3, 3.3]	35 4% [2.3, 5.7]
$35,000- $49,999	1183 92.5% [90.6, 94.4]	38 3.1% [1.9, 4.3]	51 4.4% [2.9, 5.9]
≥ $50,000	3320 95.3% [94.5, 96.2]	93 2.4% [1.8, 3]	72 2.2% [1.6, 2.9]
Employment Status			
Self-employed / Employed for wages	4424 94.5% [93.6, 95.3]	137 2.8% [2.3, 3.4]	120 2.7% [2.1, 3.3]
Out of work	322 89.5% [84.6, 94.4]	15 5.6% [1.9, 9.2]	14 5% [1.4, 8.5]
Homemaker / Student	573 92.5% [89.7, 95.4]	23 4.7% [2.1, 7.2]	19 2.8% [1.4, 4.2]
Retired	2125 91.1% [89.9, 92.4]	107 4.4% [3.5, 5.2]	105 4.5% [3.6, 5.5]
Unable to work	378 87.6% [83.4, 91.8]	12 2% [0.9, 3.2]	37 10.4% [6.3, 14.5]

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.



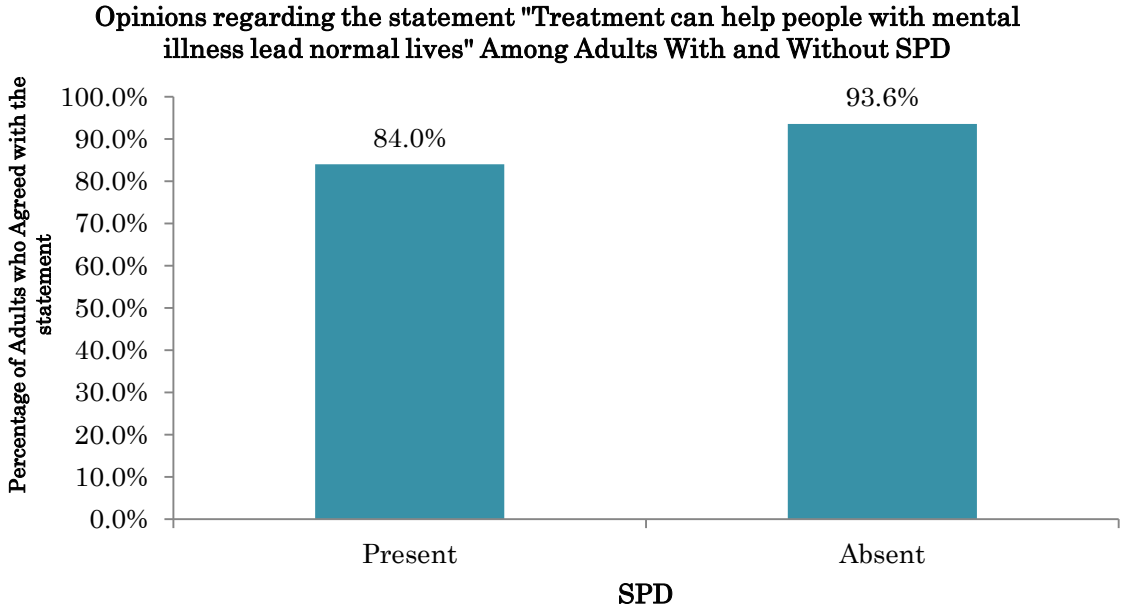
Education level made a significant difference on person's attitude with regard to whether treatment can help people with mental illness lead normal lives. A higher percent of people with annual household income equal to or more than $50,000 agreed (95.3%, 95% CI: 94.5%, 96.2%) with above statement as compared to people with annual household income less than $15,000 (84.3%, 95% CI: 79.1%, 89.6%).

A higher percentage of females agreed with the above statement (94.7%, 95% CI: 93.9%, 95.4%) as compared to males (91.5%, 95% CI: 90.2%, 92.7%).



A higher percentage of adults who were Self-employed/ Employed for wages agreed with the statement (94.5%, 95% CI: 93.6%, 95.3%) as compared to people who were unable to work (87.6%, 95% CI: 83.4%, 91.8%).

Analysis were also done to examine whether having SPD, FMD or those whose status on receiving treatment for mental illness have influence on the opinion on the statement "Treatment can help people with mental illness lead normal lives".



A higher percentage of adults without SPD agreed with the statement, 93.6% (95% CI: 92.9%, 94.3%) as compared to adults with SPD, 84.0% (95% CI: 76.5%, 91.5%).

No statistical difference was seen among adults with or without FMD and those who received or did not receive medicine or treatment with regard to agreement or disagreement to the statement 'Treatment can help people with mental illness lead normal lives'.

Table 9. Opinions of adults 18 years and older regarding the statement 'Treatment can help people with mental illness lead normal lives' by SPD, FMD, status of receiving medicine or treatment, Kansas 2009

Characteristic	Agree	Neither agree nor disagree	Disagree
	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]
Serious Psychological Distress (SPD)			
Present	174 84.0% [76.5, 91.5]	13 5.8% [1.9, 9.7]	18 10.2% [3.4, 17]
Absent	7548 93.6% [92.9, 94.3]	271 3.3% [2.7, 3.8]	261 3.2% [2.7, 3.7]
Frequent Mental Distress (FMD)			
Present	659 91.7% [88.9, 94.4]	29 2.9% [1.7, 4.2]	42 5.4% [2.9, 7.9]
Absent	7095 93.3% [92.6, 94.1]	262 3.4% [2.9, 4]	248 3.2% [2.7, 3.8]
Received medicine or treatment			
Yes	1016 94.3% [92.4, 96.3]	24 1.6% [0.9, 2.3]	46 4.1% [2.2, 5.9]
No	6796 93% [92.2, 93.7]	270 3.7% [3.1, 4.3]	249 3.4% [2.8, 3.9]

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.

The opinions of Kansas adults regarding the statement 'People are generally caring and sympathetic to people with mental illness' were also analyzed.

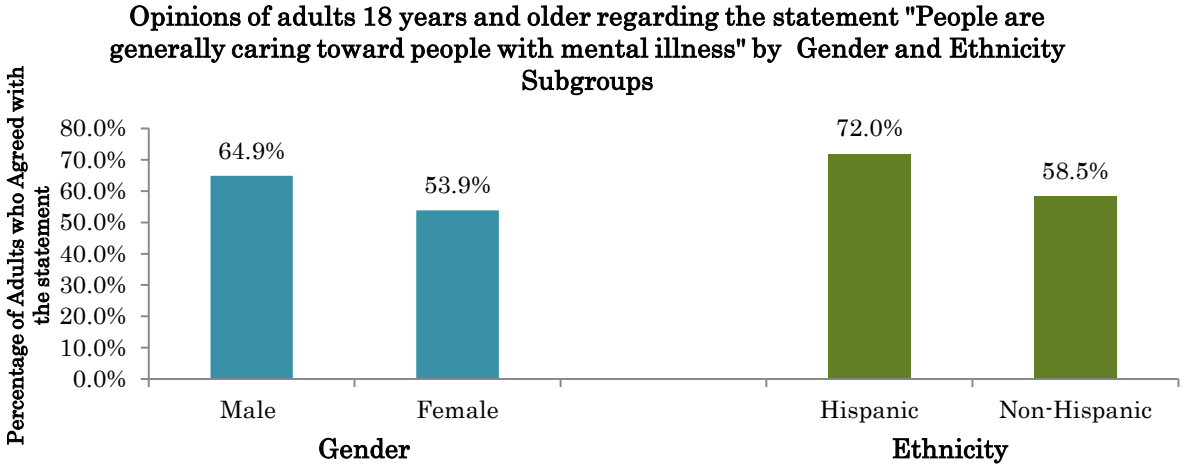
When asked about the opinions regarding the statement 'People are generally caring and sympathetic to people with mental illness', 59.3% [95% CI: 57.9%, 60.6%] agreed with the statement, 5.9% [95% CI: 5.3%, 6.6%] neither agreed nor disagreed and 34.8% [95% CI: 33.5%, 36.1%] disagreed with the statement.

Results for the analyses for the second attitude question across gender, education status, arthritis, and disability status are shown in Table 10.

Table 10. Opinions of adults 18 years and older regarding the statement 'People are generally caring toward people with mental illness' by selected characteristics, Kansas 2009

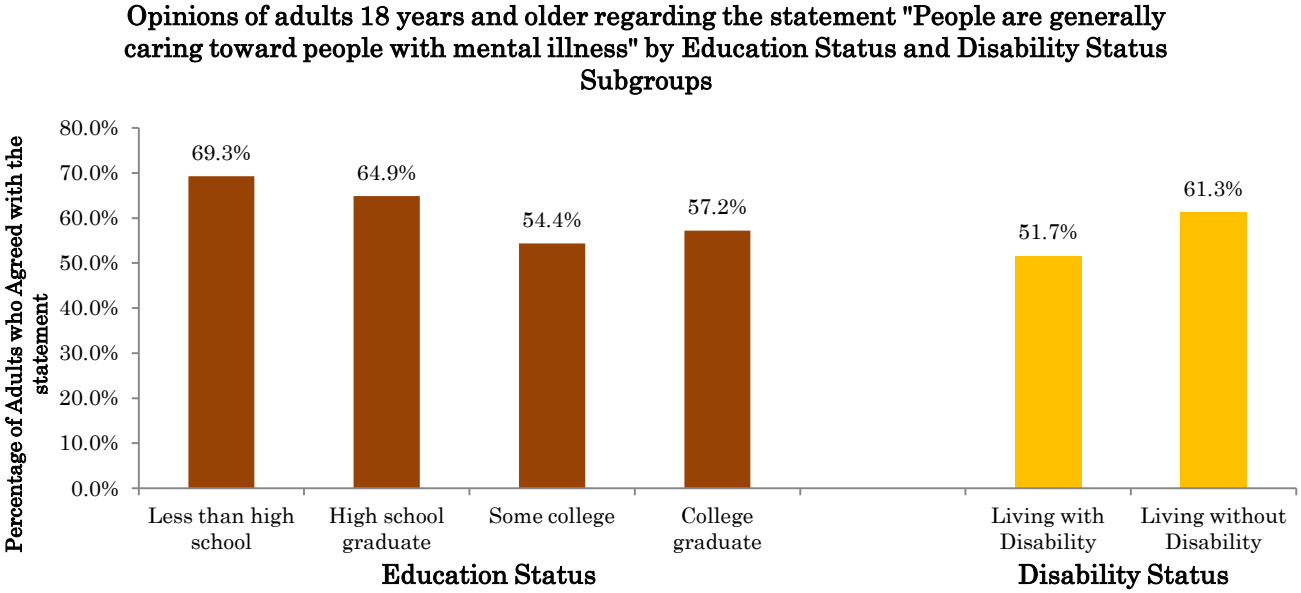
Characteristic	Agree	Neither agree nor disagree	Disagree
	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]
Total	4867 59.3% [57.9, 60.6]	520 5.9% [5.3, 6.6]	3040 34.8% [33.5, 36.1]
Gender Group			
Male	2060 64.9% [62.8, 67]	205 6.3% [5.2, 7.3]	949 28.9% [26.9, 30.8]
Female	2807 53.9% [52.1, 55.6]	315 5.6% [4.8, 6.4]	2091 40.5% [38.8, 42.2]
Ethnicity Groups			
Hispanic	221 72% [66, 78.1]	10 3.5% [0.6, 6.5]	88 24.4% [18.8, 30.1]
Non- Hispanic	4639 58.5% [57.1, 59.9]	508 6.1% [5.4, 6.7]	2948 35.4% [34.1, 36.8]
Education Status			
Less than high school	331 69.3% [63.9, 74.7]	29 3.3% [1.9, 4.8]	141 27.4% [22.1, 32.6]
High school graduate/ GED	1555 64.9% [62.3, 67.4]	152 6% [4.8, 7.3]	734 29.1% [26.7, 31.5]
Some college	1316 54.4% [51.8, 57]	167 6.7% [5.3, 8]	959 38.9% [36.4, 41.5]
College graduate	1659 57.2% [55, 59.4]	172 5.7% [4.7, 6.8]	1204 37.1% [35, 39.2]
Disability Status			
Living with a disability	1120 51.7% [48.9, 54.4]	130 4.7% [3.7, 5.7]	922 43.6% [40.9, 46.4]
Living without a disability	3739 61.3% [59.7, 62.8]	387 6.2% [5.4, 6.9]	2111 32.6% [31.1, 34.1]

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.



A higher percentage of males agreed with the statement 'People are generally caring toward people with mental illness' (64.9%, 95% CI: 62.8%, 67.0%) as compared to females (53.9%, 95% CI: 52.1%, 55.6%). Also, significantly more females disagreed with the statement.

A higher percentage of Hispanics (72.0%, 95% CI: 66.0%, 78.1%) agreed with the statement as compared to non Hispanics (58.5%, 95% CI: 57.1%, 59.9%).



Opinions toward this statement vary with regard to education status. A higher percentage of individuals with less than high school education (69.3%, 95% CI: 63.9%, 74.7%) agreed with the statement 'People are generally caring toward people

with mental illness' as compared to those with some college education (54.4%, 95% CI: 51.8%, 57.0%) or college graduates (57.2%, 95% CI: 55.0%, 59.4%).

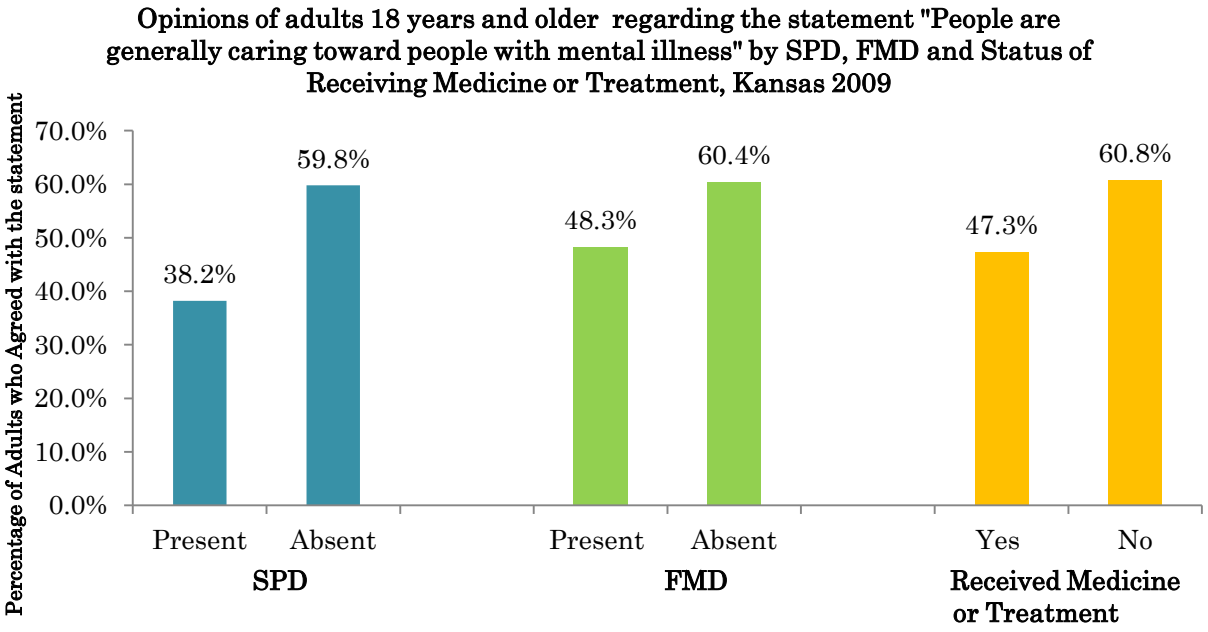
Disability status also showed a statistically significant difference in people's opinions. A higher percentage of individuals living without a disability agreed with the statement (61.3%, 95% CI: 59.7%, 62.8%) as compared to those living with a disability (51.7%, 95% CI: 48.9%, 54.4%).

Analyses were also done to examine whether having SPD, FMD or those receiving treatment for mental illness have influence on the opinion on the statement "People are generally caring and sympathetic to people with mental illness".

Table 11. Opinions of adults 18 years and older regarding the statement 'People are generally caring toward people with mental illness' by SPD, FMD, status of receiving medicine or treatment, Kansas 2009

Characteristic	Agree	Neither agree nor disagree	Disagree
	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]	Frequency (n) Weighted Percentage (%) [95% CI]
Serious Psychological Distress (SPD)			
Present	80 38.2% [28.8, 47.6]	11 5.4% [1.5, 9.3]	113 56.4% [46.9, 65.8]
Absent	4707 59.8% [58.4, 61.2]	495 5.9% [5.2, 6.6]	2884 34.3% [33, 35.6]
Frequent Mental Distress (FMD)			
Present	333 48.3% [43.3, 53.3]	35 3.9% [2.3, 5.5]	351 47.8% [42.8, 52.8]
Absent	4495 60.4% [58.9, 61.8]	477 6.1% [5.4, 6.8]	2648 33.5% [32.2, 34.9]
Received medicine or treatment			
Yes	510 47.3% [43.4, 51.2]	62 6.2% [4.1, 8.2]	505 46.5% [42.6, 50.4]
No	4345 60.8% [59.4, 62.3]	453 5.9% [5.2, 6.6]	2530 33.3% [31.9, 34.7]

All analyses exclude unknowns and refused responses among all 9,103 adult respondents.



A higher percentage of adults without SPD agreed with the statement, 59.8% (95% CI: 58.4%, 61.2%) as compared to people with SPD, 38.2% (95% CI: 28.8%, 47.6%). Significant difference was seen in the disagreement of the statement by SPD status. Significantly lower percentage of disagreement with the statement was observed among people without SPD as compared to people with SPD.

Presence or absence of FMD was also seen to affect people's opinion regarding 'people are generally caring toward people with mental illness'. A higher percentage of adults without FMD agreed with the statement, 60.4% (95% CI: 58.9%, 61.8%) as compared to adults with FMD, 48.3% (95% CI: 43.3%, 53.3%). Significant difference was seen in the disagreement of the statement by FMD status. Significantly lower percentage of disagreement was observed among people without FMD as compared to people with FMD.

A higher percentage of adults who did not receive medicine or treatment (60.8%, 95% C: 59.4%, 62.3%) agreed with the statement as compared to adults receiving medicine or treatment (47.3%, 95% CI: 43.4%, 51.2%). Significantly lower percentage of disagreement was observed among adults not receiving medicine or treatment as compared to adults receiving medicine or treatment.

Technical Notes

2009 Kansas 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 since 1992 Kansas has conducted the BRFSS survey annually.

The 2009 BRFSS questionnaire in its entirety included 192 questions. The survey interview took on an average about 19-20 minutes to complete. The 2009 Kansas BRFSS core section included questions on health status, healthy days-health related quality of life, health care access, sleep, exercise, diabetes, hypertension awareness, cholesterol awareness, cardiovascular disease prevalence, asthma, tobacco use, demographics, caregiver status, disability, alcohol consumption, Novel H1N1 Adult Immunization, Immunization, Pandemic Influenza, arthritis burden, fruit and vegetables, physical activity, HIV/AIDS, emotional support and life satisfaction, Cancer Survivors, ILI - Influenza Like Illness, High Risk/Health Care Worker, Random Child Selection, Novel H1N1 Childhood Immunization, Childhood Immunization, Childhood ILI - Influenza Like Illness, Childhood Asthma Prevalence, Asthma Call Back Survey Information, Arthritis Management, Arthritis Call Back Survey Information and Problem Gambling. 2009 BRFSS also included two sections on optional/state-added modules; part A and part B. Part A included modules on pre-diabetes, diabetes, diabetes assessment, actions to control high blood pressures, tobacco indicators, oral health and visual impairment and access to eye care. Part B included modules on inadequate sleep, mental illness and stigma, disability, tetanus diphtheria (adults), adult human papilloma virus (HPV), shingles, tetanus diphtheria (adolescents), child human papilloma virus (HPV) and social context.

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

monitor the leading contributors to morbidity and premature death, track health status and assess trends, measure knowledge, attitudes, and opinions, policy development, evaluation. It is also used in program planning in terms of needs assessment, development of goals and objectives and identification of target groups.

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

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

Questionnaire Design:

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

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

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

Advantages of a split questionnaire:

- Collect data on numerous topics within one data year

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

Disadvantages of a split questionnaire:

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

Mental Illness and Stigma Optional Module:

The module was included in part B of the questionnaire. Data for this module was collected from 9103 respondents.

Methodology:

Sampling

Beginning in 2009, the sampling method was modified by 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. This is a methodology that is commonly used to target collection for geographically identifiable subpopulations, for example people in rural areas. It also increases the accuracy of prevalence estimates for a small subpopulation. This modification in the sampling methodology of the 2009 and future Kansas BRFSS is made to address the need to collect adequate sample to provide local or county level data. These data are needed to determine priority health issues, to identify population subgroups at higher risk of illness, and to monitor the health status of local communities. This goal can be achieved by providing BRFSS data estimates at the individual county (counties with bigger population sizes) and/or regional level. 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.

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

Response Rate

The CASRO (Council of American Survey Research Organizations) response rate is used as a measure of quality of data. The 2009 Kansas BRFSS achieved a rate of 60.1% 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 detected from caller ID.

Weighting Procedure

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

or density stratification. This allows comparability of data. Additional facts about data weighting are as follows:

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

Sample Size:

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

Data Analysis:

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

Data analysis techniques applied for mental illness and stigma estimates are described in the text of this report.

Limitations:

Personal characteristics which are presented in this report are univariate (i.e., examine each risk factor in relationship to only one characteristic at a time); however, the complexity of health associations are not fully represented by examining single relationships. For example, an examination of serious

psychological distress and employment status might show a greater prevalence of serious psychological distress among persons who are unable to work than among persons who are employed. However, persons who are unable to work might be older than persons who are employed; consequently, this relationship might entirely disappear if we removed the effects of age. (If this were the case we would say that the relationship between serious psychological distress and employment status was being confounded by age.)

Likewise, this report does not attempt to explain the causes of the mental health disorder examined. For instance, BRFSS data might show a higher prevalence of serious psychological distress among smokers, but one should not conclude from this that smoking causes serious psychological distress. 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.

CDC Module 21: Mental Illness and Stigma

1. About how often during the past 30 days did you feel **nervous** — would you say **all** of the time, **most** of the time, **some** of the time, a **little** of the time, or **none** of the time?

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

2. During the past 30 days, about how often did you feel **hopeless** — **all** of the time, **most** of the time, **some** of the time, a **little** of the time, or **none** of the time?

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

3. During the past 30 days, about how often did you feel **restless or fidgety**? [IF NECESSARY: all, most, some, a little, or none of the time?]

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

4. During the past 30 days, about how often did you feel **so depressed** that nothing could cheer you up?

[IF NECESSARY: all, most, some, a little, or none of the time?]

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

5. During the past 30 days, about how often did you feel that **everything was an effort**? [IF NECESSARY: all, most, some, a little, or none of the time?]

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

6. During the past 30 days, about how often did you feel **worthless**? [IF NECESSARY: all, most, some, a little, or none of the time?]

1 All
2 Most
3 Some
4 A little
5 None
7 Don't know / Not sure
9 Refused

The next question asks if any type of mental health condition or emotional problem has recently kept you from doing your work or other usual activities.

7. During the past 30 days, for about how many days did a mental health condition or emotional problem **keep you from doing** your work or other usual activities?

_ _ Number of days
88 None
77 Don't know / Not sure
99 Refused

INTERVIEWER NOTE: If asked, "usual activities" includes housework, self-care, care giving, volunteer work, attending school, studies, or recreation.

8. Are you now taking medicine or receiving treatment from a doctor or other health professional for any type of mental health condition or emotional problem?

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

These next questions ask about peoples' attitudes toward mental illness and its treatment. How much do you **agree** or **disagree** with these statements about people with mental illness…

9. Treatment can help people with mental illness lead normal lives. Do you **agree** slightly or strongly, or **disagree** slightly or strongly?

Read only if necessary:
1 Agree strongly
2 Agree slightly
3 Neither agree nor disagree
4 Disagree slightly
5 Disagree strongly

[Do not read:]
7 Don't know / Not sure
9 Refused

10. People are generally caring and sympathetic to people with mental illness. Do you **agree** slightly or strongly, or **disagree** slightly or strongly?

Read only if necessary:
1 Agree strongly
2 Agree slightly
3 Neither agree nor disagree
4 Disagree slightly
5 Disagree strongly

[Do not read:]
7 Don't know / Not sure
9 Refused

INTERVIEWER NOTE: If asked for the purpose of Q9 or Q10: Answers to these questions will be used by health planners to help understand public attitudes about mental illness and its treatment and to help guide health education programs.

References

1. http://www.surgeongeneral.gov/library/mentalhealth/summary.html accessed on September 15, 2010.
2. http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml#Intro accessed on September 15, 2010.
3. http://www.surgeongeneral.gov/library/mentalhealth/chapter2/sec2.html accessed on September 19, 2010.
4. http://www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Mental_Illness/About_Mental_Illness.htm accessed on September 19, 2010
5. http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml accessed on September 19, 2010
6. http://www.healthypeople.gov/LHI/lhiwhat.htm accessed on September 22, 2010
7. http://www.healthypeople.gov/hp2020/Objectives/TopicArea.aspx?id=34&TopicArea=Mental+Health+and+Mental+Disorders accessed on September 22, 2010
8. http://healthykansans2010.org/KPHAFiles/Final%20Report%2011-7-06.pdf Healthy Kansas 2010 (Sept. 2006). Prepared by Kansas Department of Health and Environment.
9. http://www.nimh.nih.gov/health/topics/statistics/index.shtml accessed on October 22, 2010
10. http://www.nimh.nih.gov/science-news/2008/mental-disorders-cost-society-billions-in-unearned-income.shtml accessed on September 22, 2010
11. Kessler RC, Heeringa S, Lakoma MD, Petukhova M, Rupp AE, Schoenbaum M, Wang PS, Zaslavsky AM. Individual and societal effects of mental disorders on earnings in the United States: Results from the National Comorbidity Survey Replication. American Journal of Psychiatry 2008; 165: 703-711
12. Mark TL, Levit KR, Coffey RM, et al. National Expenditures for Mental Health Services and Substance Abuse Treatment, 1993–2003 SAMHSA Publication No. SMA 07-4227. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2007.
13. http://www.surgeongeneral.gov/library/mentalhealth/chapter1/sec1.html#mental_disorders accessed on September 29, 2010

14. Shih M, Hootman JM, Strine TW, Chapman DP, Brady TJ. Serious Psychological Distress in U.S. Adults with Arthritis. Journal of General Internal Medicine 2006; 21:1160–1166.
15. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychol Med. 2002; 32(6):959-76.
16. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. Arch Gen Psychiatry. 2003; 60:184–9.
17. Furukawa TA, Kessler RC, Slade T, Andrews G. The performance of the K6 and K10 screening scales for psychological distress in the Australian national survey of mental health and well-being. Psychol Med. 2003; 33:357–62
18. Thomas R. Insel. Assessing the Economic Costs of Serious Mental Illness. Editorials, American Journal of Psychiatry 2008, 165: 663-665
19. Kansas Behavioral Risk Factor Surveillance System 2009, Bureau of Health Promotion, Kansas Department of Health and Environment.
20. http://www.hcp.med.harvard.edu/ncs/k6_scales.php accessed on October 8, 2010
21. Hilton MF, Whiteford HA, Sheridan JS, Cleary CM, Chant DC, Wang PS, Kessler RC. The Prevalence of Psychological Distress in Employees and Associated Occupational Risk Factors. Journal of Occupational and Environmental Medicine, 2008; 50: 746–757.
22. Wang PS, Gruber MJ, Powers RE, Schoenbaum M, Speier AH, Wells KB, Kessler RC. Mental Health Service Use Among Hurricane Katrina Survivors in the Eight Months After the Disaster. Psychiatric Services, 2007; 58 (11):1403–1411.
23. Kessler RC et al. Mental Illness and Suicidality After Hurricane Katrina. Bulletin of the World Health Organization, 2006. Research Article ID: 06-033019.
24. http://www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Mental_Illness/About_Mental_Illness.htm accessed on October 25, 2010
25. Substance Abuse and Mental Health Services Administration. Accessed on June 27, 2011 from http://store.samhsa.gov/home
26. http://www.surgeongeneral.gov/library/mentalhealth/chapter7/sec1.html#stigma accessed on October 8, 2010