

Relationships between serious psychological distress and the use of health services in the United States: findings from the Behavioral Risk Factor Surveillance System

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Abstract

Objective: To determine rates of access to and use of health services among adults with Serious Psychological Distress (SPD).

Methods: Adults ≥ 18 years in the 2007 BRFSS were stratified based on the presence of SPD, assessed by scores ≥ 13 using the Kessler-6 tool ($N = 199,209$). Access to and use of general and mental health services were compared for those with scores < 13 and those ≥ 13 using Chi-square analyses and logistic regression models.

Results: Less than half of all adults with SPD indicated receiving mental health treatment. Persons < 65 years and having SPD were significantly less likely to have access to any type of health insurance (0.59 O.R., 0.51–0.68 95% C.I.) compared to persons < 65 years without SPD.

Conclusions: These results present a situation which could potentially lead to increased use of emergency departments for possible non-emergent services. Less than half of adults with SPD were receiving mental health treatment and most, regardless of their SPD score, were receiving routine health checkups; presenting an opportunity to identify and treat many mental health issues in the primary care setting.

Keywords: Serious psychological distress – Access to care – Utilization of services – Mental health – Health services – Depression.

Introduction

The World Health Organization reports that depression is the leading cause of disability around the world and is the fourth leading contributor to the global burden of disease.¹ In the United States, mental illness has been cited as the second leading cause of disease burden for the country.² Around the world, needs for mental health care are not being met because of a lack of mental health systems.³ As the rates of depression rise around the world, the subsequent strain on the various affected health care systems will rise as well.

Depression has been found to be a predictor of increased use of health services in numerous studies. In a five-nation European study examining the use and cost of health services by adults with depressive or adjustment disorders, severity of depression, perceived health status, social functioning, and level of social support were found to be significant predictors of the use of health services. These individual participant factors provided greater explanatory power for the use of health services than did national differences in the health care delivery systems.⁴ In another study of Scandinavian HMO participants, persons identified with major depression had higher use of health services and costs than those without depression. In this study, it was also found that depressive patients had higher comorbidity compared to nondepressive patients, which might be partially responsible for the higher cost.⁵ Furthermore, in a recent case-controlled study in Italy of primary care clinic patients, those patients who made a greater than average frequency of attendance for primary care visits also had a greater likelihood of having medical-psychiatric comorbidity compared to patients who were considered

to have average clinic attendance.⁶ Even with the increased use of general health services among those with depression, underlying depressive symptoms are not being treated. In a recent study from Finland, perceived disability and comorbidity were found to be the greatest influencing factors for use of mental health services by subjects with depressive and anxiety disorders. However, only about one-half of those suffering from severe and comorbid disorders used available mental health services.⁷

Depression has also been shown to be a costly disease in terms of economic burden to health care systems. One of the most recent estimates of the total cost of depression in the United States is by Greenberg and colleagues.⁸ This work shows an approximate total cost of \$83 billion from depression-related illnesses in 2000, with 31 % of these costs being directly related to treatment and 62 % being related to lost productivity in the workplace. In 2004, estimates for the cost of depression in Europe were 118 billion euros.⁹ Work conducted in Taiwan has suggested that during 2000–2003, rates of depression in the country increased from 3.5 % to 6.0 %, and that the cost of treatment for depression has increased as well over the same time period.¹⁰ Another study from Taiwan showed that while the cost and prevalence of depression increased continuously over the period 2000–2002, the percentage of patients receiving treatment were 1.5 % in 2000, 2.3 % in 2001, and 2.0 % in 2002.¹¹ Early detection and appropriate treatment of depression has been suggested as a means to reduce the significant burden of the disease on our society in terms of both family stress and economic cost.¹²

One measure of depression used in large population-based studies is psychological distress. Psychological distress refers to the presence of the unpleasant subjective states and symptoms of affective disorders, depression, and anxiety, and is measured using self report check lists that produce scores by adding up the answers to the various questions. This condition exists on a continuous dimension.¹³ A strong association between serious psychological distress (SPD), Kessler-6 (K6) score ≥ 13 , and a current CIDI (Composite International Diagnostic Interview) diagnosis of anxiety and affective disorders has been found.¹⁴ Recent data from the National Health Interview Survey (NHIS), conducted by the National Center for Health Statistics (NCHS), reported that the crude 30-day prevalence rate of SPD in the United States was 2.7 % with the highest prevalence being in middle-aged adults and in women.¹⁵

In this study, we set out to determine the rates of access to and use of health care services among persons with SPD in the United States and to determine if differences in these health care services measures existed between persons with and without SPD.

Methods

Data for this study were taken from the 2007 Behavioral Risk Factor Surveillance System (BRFSS) survey. The BRFSS is an ongoing, state-based, landline telephone survey that collects information on health risk behaviors, preventive health practices, and access to and use of health care services primarily related to chronic conditions among adults aged 18-years-old and older. In 2007, a total of 430,912 participants from all 50 U.S. states, plus Guam, Puerto Rico, and the U.S. Virgin Islands, responded to this survey. The median response rate of this survey was 50.6 % and the median cooperation rate for this survey, defined as the proportion of people interviewed of all eligible people who were actually contacted, was 72.1 %.¹⁶

The main predictor variable used in these analyses was SPD, which was measured by scoring a series of six questions in the BRFSS known as the Kessler-6. This scale asks respondents about six manifestations of psychological distress using the following questions, “Now I am going to ask you some questions about how you have been feeling during the past 30 days. About how often during the past 30 days did you feel: 1. nervous? 2. hopeless? 3. restless or fidgety? 4. so depressed that nothing could cheer you up? 5. that everything was an effort? 6. worthless?” Respondents could answer, “All of the time,” “Most of the time,” “Some of the time,” “A little of the time,” or “None of the time” to each of the questions. Scoring for each of these questions ranged between 0 and 4 points, according to the increased frequency of the problem. This method provided an individual score for each question, which could then be summed for a total score ranging from 0 to 24. Consistent with the scoring guidelines provided by the developers¹⁷ persons with K6 scores ≥ 13 were classified as having SPD. In this survey, the Kessler-6 module was used in 35 states, the District of Columbia, and Puerto Rico.

Three health services outcomes were examined in this study. The first was possession of health insurance coverage. The question asked to determine this outcome was, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?” Survey participants could respond “Yes,” “No,” “Don’t Know/Not Sure,” or could refuse to answer this question. The second outcome was for the person currently receiving treatment for a mental health or emotional problem. The question to determine this outcome was, “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?” Persons asked this question could respond either “Yes,” “No,” “Don’t Know/Not Sure,” or refuse to answer. The third outcome was length of time since the last rou-

Table 1. Description of Population by serious psychological distress, N = 199,209*.

	SPD: K6 ≥ 13	No SPD: K6 < 13	
	n = 7,986	n = 191,223	
	(% est., % S.E.)	(% est., % S.E.)	p
Average age in years	44.5, (0.4)	46.0, (0.1)	<.01
% female	56.5%, (1.3 %)	51.3%, (0.3 %)	<.01
% white	58.6%, (1.3 %)	69.6%, (0.3v%)	<.01
% with college education or greater	13.8%, (1.0 %)	35.4%, (0.2 %)	<.01
% married	42.7%, (1.3 %)	63.0%, (0.3 %)	<.01
% employed	33.9%, (1.3 %)	62.7%, (0.2 %)	<.01
Source: 2007 Behavioral Risk Factor Surveillance System			
* (% estimate, % Standard Error)			

tine health check-up. This outcome was determined by asking “About how long has it been since you last visited a doctor for a routine checkup? [A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.]” Respondents to this question could choose “Within the past year”, “Within the past 2 years”, “Within the past 5 years”, “Five or more years ago”, “Never”, “Don’t know/ Not Sure” or could refuse to answer.

A total of 203,096 survey respondents had valid responses for the six SPD questions. The sample was further limited to survey respondents who had complete data for the three health services questions and responses of “Don’t know/Not sure,” or those who refused to answer these questions were removed from the analyses. This brought the total sample size to N = 199,209. The exclusion of 3,887 survey respondents, due to missing health services data, represented less than 2 % of the total sample population. This number was considered negligible and further analyses showed that no bias existed in the distribution of SPD scores among this group of survey respondents.

The study population was stratified into two groups; those with serious psychological distress and those without. Estimates of demographic characteristics including age, race, sex, education, marital status, and employment status were made for these two groups. Age was calculated in years and provided as an average for the two groups. Sex was presented as percent female. Race was presented as percent white. Education was stratified into those completing college or greater and those with less than a college degree. Marital status was defined as either being part of a married couple or those who were not, including persons indicating that they were in an unmarried relationship, separated, divorced, widowed, or single. Employment status was categorized into two groups. The first group included persons who indicated that they were “employed for wages” or “self-employed.” The second em-

ployment group included those who were currently out of work, including homemakers, students, retirees, and those who indicated that they were unable to work. Differences between the two groups for these characteristics were tested using Chi-square analyses.

The total sample was stratified by age for the subsequent analyses testing the associations between serious psychological distress and the access to and use of health services because of the enrollment of most persons in Medicare at the age of 65. Therefore, two sub-samples, including those 18–64 years of age (n = 145,041) and those 65 years of age and older (n = 54,168) were examined.

The relationship between serious psychological distress and the three health services outcomes were first tested using Chi-square analyses. These differences were tested at an alpha = 0.05. To further test these relationships in a multivariate environment, logistic regression models were used for the three outcomes. Age, race, sex, education, employment status and marital status were included as covariates in the first model in which the presence of health insurance was the outcome. The next two models independently examining differences in the receipt of mental health treatment and the receipt of routine care within the past 5 years also included the aforementioned demographic characteristics as covariates as well as the possession of any type of health insurance. Odds ratios and 95 % confidence intervals were calculated for these three models. All analyses were conducted using SUDAAN to account for the complex sampling design of the survey.¹⁸

Results

From the sample of 199,209 survey participants in this study, a total of 7,986 (3.9 %) persons were categorized as having a serious psychological disorder (SPD). These persons were found

Age 18–64 years	SPD: K6 ≥ 13	No SPD K6 < 13	p
	n = 6,646	n = 138,395	
	% est. (% S.E.)	% est. (% S.E.)	
Any health insurance	67.6%, (1.4%)	83.6%, (0.24%)	<.01
Mental health treatment	46.8%, (1.3%)	9.3%, (0.1%)	<.01
Routine check-up within past 5 years	86.6%, (1.0%)	90.9%, (0.2%)	<.01
Age 65 years and older	SPD: K6 ≥ 13	No SPD: K6 < 13	p
	n = 1,340	n = 52,828	
	% est. (% S.E.)	% est. (% S.E.)	
Any health insurance	97.3%, (0.7%)	98.3%, (0.1%)	0.13
Mental health treatment	42.6%, (0.2%)	8.6%, (0.2%)	<.01
Routine check-up within past 5 years	95.5%, (1.3%)	96.7%, (0.1%)	0.36

Table 2. Access to and use of health services by serious psychological distress*.

Source: 2007 Behavioral Risk Factor Surveillance System

* (% estimate, % Standard Error)

to be significantly different from the balance of the study population in all demographic characteristics used in this study. On average, persons with serious psychological disorder were 1.5 years younger than their study counterparts without SPD. The population with SPD was comprised of a greater percentage of females (56.5 % vs. 51.3 %) and a smaller proportion of white persons (58.6 % vs. 69.6 %) as compared to the population without SPD. The population with SPD had smaller proportions of persons who had completed college (13.8 % vs. 35.4 %), who were married (42.7 % vs. 63.0 %) and who were employed (33.9 % vs. 62.7 %) (Table 1).

When comparing levels of serious psychological distress based on the three health services outcomes, Chi-square tests demonstrated significant differences for all three measures among persons 18–64 years of age and only one measure for persons 65 years of age and older. Persons with SPD had a smaller proportion of their respondents reporting having access to any type of health insurance compared to those without SPD (67.6 % vs. 83.6 %). Persons 18–64 years of age with elevated SPD scores had a substantially greater proportion of their respondents indicating that they were receiving medication or treatment from a health professional for an emotional problem (46.8 % vs. 9.3 %) and had a smaller proportion of their respondents indicating that they had a routine health checkup within the past five years (86.6 % vs. 90.9 %). Among persons 65 years of age and older, the only significant difference between the two SPD groups was for the receipt of treatment for an emotional problem. Those with an elevated SPD score

had a significantly greater proportion of their respondents indicating that they were receiving this care (42.6 % vs. 8.6 %) compared to persons with lower SPD scores (Table 2).

After controlling for mitigating factors in adjusted logistic regression models, two of the three health services outcomes were found to be significantly different for the two SPD groups among persons 18–64 years of age. One of the three health services outcomes was found to be significantly different for the two SPD groups among persons 65 years of age and older. Persons 18–64 years of age with an SPD score of 13 or higher were nearly half as likely to have had any type of health insurance compared to those with lower SPD scores (0.59 O.R., 0.51–0.68 95 % C.I.). Persons 18–64 years of age with an elevated SPD score were nearly nine times more likely to have been receiving medication or treatment from a health professional for an emotional problem (8.56 O.R., 7.64–9.60 95 % C.I.) compared to their counterparts with lower SPD scores. Persons 65 years of age and older with SPD scores 13 or higher were nearly eight times more likely to be receiving medication or treatment from a health professional for an emotional problem (7.77 O.R., 6.15–9.81 95 % C.I.) compared to their counterparts with lower SPD scores. Among persons 65 years of age and older, there were no significant differences between the two SPD groups for having access to some type of health insurance. There were also no significant differences between the two SPD groups in having received a routine health check-up within the past 5 years for either age group (Table 3).

Table 3. Adjusted logistic regression models for access to and receipt of health services.

Model 1. Odds of having any type of health insurance*		
	Age 18–64 years, n = 145,041	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	0.59	0.51–0.68
No SPD: K6 < 13	Reference	Reference
	Age 65 years and older, n = 54,168	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	0.81	0.46–1.41
No SPD: K6 < 13	Reference	Reference
Model 2. Odds of receiving mental health treatment**		
	Age 18–64 years, n = 145,041	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	8.56	7.64–9.60
No SPD: K6 < 13	Reference	Reference
	Age 65 years and older, n = 54,168	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	7.77	6.15–9.81
No SPD: K6 < 13	Reference	Reference
Model 3. Odds of receiving a routine check-up within past 5 years**		
	Age 18–64 years, n = 145,041	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	1.02	0.86–1.22
No SPD: K6 < 13	Reference	Reference
	Age 65 years and older, n = 54,168	
	O.R.	95 % C.I.
SPD: K6 ≥ 13	1.16	0.77–1.75
No SPD: K6 < 13	Reference	Reference

Source: 2007 Behavioral Risk Factor Surveillance System

* Controlling for age, race, sex, education, employment status and marital status

** Controlling for age, race, sex, education, employment status, marital status and health insurance coverage

Discussion

Results from these analyses highlight three important issues for persons with serious psychological distress, which could have a significant impact on the U.S. health care system. The first is that among persons aged 18–64 years, those with SPD scores of 13 or higher are less likely than persons with lower SPD scores to have access to any type of health insurance. Second, persons with SPD scores of 13 or higher, regardless of age, have a significantly greater likelihood of receiving medication or treatment from a health professional for an

emotional problem, but are using these services at a relatively low rate. Finally, among adults of all ages, those with SPD scores of 13 or higher have no different likelihood of having received a routine health checkup within the past 5 years.

It has been suggested that changes in the financing of mental health care in the United States have resulted in a significant increase in the number of psychiatric-related emergency department visits, thereby placing a greater burden on our health care system for costly emergency treatment.^{19,20} These findings may be explained by the lack of health insurance coverage among persons with mental health conditions, which forces these people into emergency departments in order to receive care.

Insurance coverage for mental health has been identified as one of the most important factors in determining if a person seeks care for their mental health issues.²¹ However, parity in mental health coverage has not been achieved; thereby creating an access problem for many people with mental health issues.²² Barry and colleagues have further noted that increasing parity for mental health, at least in the context of managed care, will not significantly increase total health care spending.²³ The findings of this study indicate a need for health insurance coverage among persons with serious psychological distress. However, data used in this study did not indicate the level of mental health coverage for persons indicating they had access to any type of health insurance. However, the mental health insurance literature indicates that parity in mental health is lacking.

Another issue highlighted by this study is that persons with SPD, K6 scores of 13 or higher were significantly more likely to receive mental health treatment compared to persons without SPD. This outcome was expected and demonstrates the increased demand that is placed on our health care system by those with mental health, psychological, and emotional issues. The results of this study show that treatment for emotional problems is higher among persons with elevated SPD levels. Although, when examining the estimates of persons with elevated SPD who were receiving treatment for emotional problems, less than half were doing so. This suggests that there is substantial room for improvement in ensuring that persons in need are receiving care.

There are many different reasons that people with mental health needs do not seek care. Thornicroft and colleagues have recently reviewed three potential problems for reduced use of mental health services, including ignorance, prejudice, and discrimination.²⁴ This review suggests that even with the increased amount of health information that is made available to the public, mental health literacy is still low. Furthermore, prejudice and discrimination against those with mental illness and the associated stigma still exists.²⁵ Therefore, these issues,

in addition to lack of mental health coverage, are significant barriers to seeking care that require attention by our medical and public health systems.

Another important issue that our data suggests is that persons with elevated SPD have no less likelihood of receiving routine health care than persons without SPD. This is good news and we see this situation as an opportunity for primary care providers to identify and treat depressive symptoms. Although past research has indicated that identifying depression in the primary care setting has not been optimal²⁶, improvements in both screening techniques^{27,28} and treatment²⁹ have been recently adopted in primary care and have helped in the identification and diagnosis of depression in this setting. Furthermore, Wolf and Hopko³⁰ conducted a contemporary review of treatment outcomes for psychosocial and pharmacological interventions in the primary care setting. They concluded that both treatment modalities are efficacious in treating depression in this setting. However, issues of time and training are still concerns for providing psychosocial treatments by physicians and nurses in the primary care setting. Therefore, further training for primary care physicians in identifying and treating depression is necessary and will be beneficial.

Several limitations should be considered when interpreting the findings from these analyses. The first limitation is the measurement of health insurance used in these analyses. The question used to measure this outcome is broad in its nature. Even if the respondent said that they had access to some type of health insurance coverage, the question does not specifically determine if mental health benefits are offered.

A second limitation is that this data is collected via telephone interview. Therefore, there is the possibility of self-report bias resulting in an under reporting of serious psychological distress. If this is the case, we believe that the problems of this disorder are of a greater magnitude and deserve even greater attention.

A third limitation of this study is that it is limited by its cross-sectional design. This design only points to associations between the access to and use of health services and serious psychological distress. However, this study does provide estimates on the use of health services by those with serious psychological distress and sets up future research in this field.

Despite these limitations, this study uses a relatively large sample size collected from 35 states and two territories in the United States, and points to several important topics for mental health treatment in the United States. Many mental illnesses, psychological problems, and emotional disorders are first diagnosed and treated by primary care physicians³¹ and our data show that a large proportion of persons with SPD levels are receiving routine health care. Therefore, we see this situation as an opportunity for the primary care community to identify patients requiring mental health treatment and to increase the quality of care that they provide to their patients who require mental health treatment and who might not have access to specific mental health benefits.

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers of Disease Control and Prevention.

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