Healthcare Access among Adults with Frequent Mental Distress

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Abstract:

Objective: Mental health plays a central role in the well-being of individuals. Understanding the factors that influence mental wellness is critical in order to develop effective policy that addresses the burden of mental illness in society. The objective of this study is to identify a possible relationship between healthcare access and the presence of mental distress in individuals.

Methods: Logistic regression was performed using cross sectional data from a CDC developed nationwide behavioral health surveillance program (BRFSS, 2013-4). Odds ratios were estimated using frequent mental distress as the outcome of interest while adjusting for confounding variables such as smoking, binge drinking, obesity, etc. Six models were estimated utilizing our hypothesized variables of interest.

Results: The calculated adjusted odds ratios (AOR) and confidence intervals (CI) demonstrated a positive correlation between certain variables measuring access to healthcare and the reporting of frequent mental distress, agreeing with the hypothesis. Those variables were financial cost preventing access to medical care (AOR [2], CI [1.9-2.1]) as well as a span of more than 2 years having elapsed since a routine medical checkup by a healthcare provider (AOR [1.1], CI [1.1-1.2]). The opposite effect was demonstrated in individuals who had no insurance coverage (AOR [.8], CI [.7-.9]), which was contrary to the hypothesis.

Conclusion: After adjusting for confounding variables, a strong relationship exists between individuals who are not able to see a physician due to cost, and the presence of frequent mental distress. Frequent mental distress is also increased in individuals who have not had a routine medical checkup with a physician in the last 2 years.

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Introduction

Background:

Mental health is an issue that is becoming more and more prominent in national discussion and media. From healthcare reform to personal safety and security, being able to identify and treat individuals facing mental distress or disease has become an important priority as a society. Mental health has a complex relationship with other aspects of well-being. Medical literature has established multiple risk factors that correlate with mental distress. Physical illness has been established as one of the strongest risk factors for mental distress and depression, and the same is true vice versa, with depression being a risk factor for physical illness. Studies over the last few decades have increasingly solidified the strong link between mental and physical health. The National Comorbidity Survey Replication (NCS-R) study in 2003 showed that 34 million Americans had comorbid mental and medical conditions within a 12 month period, representing a staggering 11.7% of the population.[1] No less shocking is the effect that this link has on an individual. A study in 2015 drawn from a Medicaid population determined that individuals with schizophrenia had a standardized mortality ratio of 3.3 from natural causes of death compared to the general population, with a mean amount of life lost per death being 28.5 years.[2] A loss of thirty years of life is often associated with cancer or congenital defects as opposed to mental illness. There is some evidence to suggest that the relationship between mental illness and chronic medical conditions is bidirectional.[2] According to Watson, "there is also emerging evidence that the distress, symptom burden, and functional impairment and physiologic changes associated with chronic medical disorders often worsen the course of affective illness." [2] The bidirectionality also stems from the fact that mental illness has shown to lead to an increased mortality in various diseases, including cardiovascular disease, lung cancer, COPD, influenza, and pneumonia.[3]

Physical illness is not the only risk factor related to mental distress. Substance abuse has a high level of co-occurrence with individuals suffering from mental distress. Morisano et al[4] put forth several possible explanations to explain this relationship, one of which included overlapping genetic vulnerabilities based on heritability studies. Another explanation was the possibility of a

biological feedback loop present in humans that positively reinforces substance abuse. The National Institute on Drug Abuse further suggests that many suffering from mental disorders "may abuse drugs as a form of self-medication...to lessen the symptoms of the disease and improve cognition".[5] Yet another established corollary to mental distress is socioeconomic status. A 2012 study using data collected from Arizona residents showed that frequent mental distress is significantly higher in households with an income of less than $25,000 per year compared to higher incomes.[6] Other factors that have been previously correlated to mental distress include female gender, lower education level, and lack of employment.[7]

The purpose of this study, however, is to explore another possible factor correlating with frequent mental distress: access to healthcare. To accomplish this analysis, data will be used from a nationwide survey conducted by the Centers for Disease Control and Prevention (CDC), the BRFSS (Behavioral Risk Factor Surveillance System).[8] With over 400,000 participants, the BRFSS represents that largest annual telephone survey in the world.[9]

The CDC defines Frequent Mental Distress (FMD) as "having 14 or more mentally unhealthy days as measured by the CDC Healthy Days question". The question referred to in the definition is: "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?". The 14 day period is used because clinically, similar markers are used for the diagnosis of depression or anxiety disorders.[10] It is difficult to overstate the importance of identifying FMD and its causes. The prevalence of FMD nationwide has increased from 8.4% in 1993 to 10.1% in 2001.[11] Understanding the factors that influence FMD will lead to planning and developing solutions to remove the burden it presents to society.

To determine the relationship between healthcare access and FMD, the responses to the following questions that are routinely asked on the BRFSS will be analyzed. (1) Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service? (2) Was there a time in the past 12 months when you needed to see a doctor but could not because of cost? (3) About how long has it been since you last visited a doctor for a routine checkup?

Significance: Healthcare and general well-being is at the center of our ability to function as human beings. Increasing recognition of a patient's subjective state of well-being is being established in medical education, as opposed to solely relying on objective markers such as laboratory values.[12] Conditions such as mental distress can prevent individuals from being able to fully function and seek routine medical care. This can complicate care, since the nature of chronic diseases is that they become worse when untreated over time. For example, untreated chronic kidney disease over time can have devastating systemic effects to the entire cardiovascular system. This understanding can be seen through the current shift of focus in global healthcare; more attention is being given towards preventative care for the entire population over a long term as opposed to only acute management in times of crisis. The importance of identifying FMD cannot be understated. The USPSTF has passed published recommendations in the last few years emphasizing the importance of assessing the mental health of patients, specifically in regards to suicide risk and depression.[13] In 2014 the U.S. Congress passed the Clay Hunt Suicide Prevention for American Veterans Act, which among many objectives, aimed to improve access to mental health care for veterans.[14] The topic and significance of mental healthcare in the United States today is without a doubt in the spotlight.

Research Questions:

1. Do patients with a lack of insurance have an increased amount of frequent mental distress compared to patients with insurance?

2. Are patients who are unable to see a healthcare provider due to cost more likely to have frequent mental distress?

3. Is there a correlation between the length of time last seeing a provider for a checkup and frequent mental distress?

Materials and Methods

Data and Sample

The Behavior Risk Factor Surveillance System (BRFSS) is a large annual, random-digital-dialed telephone survey conducted in all 50 states, the District of Columbia, and US territories coordinated by the Centers for Disease Control and Prevention (CDC) for non-institutionalized US civilian population (age ≥ 18 years).[15] Despite the fact that it is self-reported, more than 400,000 adults complete the survey annually, making the BRFSS the largest telephone survey in the world and BRFSS data have been verified as being of high quality and very reliable.[16, 17] Beginning 2011, BRFSS data contains data from cell-phone and landline and a detailed description of the BRFSS survey design, data collection, and full-text questionnaires can be found at http://www.cdc.gov/brfss/annual_data/annual_2013.html. We utilized publicly available 2013 U.S. data with a total sample (n) of 491,773 observations with a median landline response rate of 49.6% and a median cell phone response rate of 37.8%. Studies that use de-identified, publicly available data do not require CDC Institutional Review Board approval.

Measures

Our primary outcome variable of interest was frequent mental distress (FMD). Respondents are asked, "*Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?*" FMD is calculated for respondents who report 14 or more days of not having good mental health[14] and has been clinically validated and is consistent with the diagnostic criteria for major depressive disorder specified by the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition.[18, 19, 20, 21]

Our independent measures were: lack of health insurance, medical cost, and routine check-up. BRFSS measures lack of health insurance as simple dichotomy of "Yes" or "No" to responses on "*Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?*" Similarly, medical cost is also recorded as a "Yes" or "No" to responses on "*Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?*" Finally, routine check-

up in the BRFSS is measured as "*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.]*," with responses choices "within the past year (anytime less than 12 months ago);" "within past 2 years (1 year but less than 2 years ago);" "within past 5 years (2 years but less than 5 years ago);" "5 or more years ago;" "don't know/not sure;" "never;" and "refused. We dichotomized this measure as "within the past 2 years" and "2 or more years." BRFSS also captures several chronic health conditions by asking respondents, "*Has a doctor, nurse, or other health professional EVER told you that you had any of the following?*" with response choices "yes," "no," and "not sure." All response choices of either "don't know/not sure," or "refused" were excluded.

Some clinically relevant confounder variables available in the BRFSS, such as ever diagnosed with diabetes, ever diagnosed with asthma, ever diagnosed with coronary heart disease, obesity, and ever diagnosed with a depressive disorder that require active management were included, apart from risk behaviors such as current smoker and binge drinking and demographic variables gender, age, education, income, and race and ethnicity.

We estimated the prevalence rates and estimated 95% confidence intervals (CI) for selected covariates and then performed bivariate analyses for our hypothesized predictors: lack of health insurance, medical cost, routine medical check-up using Rao-Scott chi-square test to account for complex survey design and utilized $p < 0.01$ for significance due to large sample size. After assessing bivariate relationship we estimated crude odds ratios (COR) and adjusted odds ratio (AOR) with 95% CI using logistic regressions that accounted for the complex survey design. All analysis was performed using SAS 9.4 (SAS Institute, Inc., Cary, NC).

Results

Table 1 presents the prevalence estimates and characteristics of the U.S. respondents 18 and older who reported frequent mental distress. Of the 491,773 adult respondents 18 and older, approximately, 12% (95% CI: 11.7 – 12.1) of the U.S. respondents reported having experienced FMD. The hypothesized predictors i.e., no health insurance (17.3%; 95%CI; 17.1-17.6), medical cost (15.9%; 95%CI: 15.7-16.1), and routine check-up (17.7%; 95%CI; 17.5-17.7) were similarly distributed. The prevalence rates for smoking, binge drinking, being overweight and/or obese, having been diagnosed with asthma, diabetes, coronary heart disease, and having been diagnosed with depressive disorder varied considerably among the U.S. population. Majority of respondents were females (51.4%), in the 45-64 year age-range (34.5%), had attended a college of technical school (30.8%), had income over $50,000 (43.1%) and were likely to be non-Hispanic Whites (64.3%).

Table 1: Prevalence estimates and characteristics of U.S. respondents with Frequent Mental Distress (FMD)

Variable	Sample size (n = 491,773)	Percent (95% CI)
Outcome variable		
Reporting Frequent Mental Distress	52,761	11.9 (11.7-12.1)
Predictors		
No health insurance	55,242	17.3 (17.1-17.6)
Medical cost	60,104	15.9 (15.7-16.1)
Routine check-up more than two years ago	71,899	17.7 (17.4-17.9)
Confounders		
Current smoker	76,612	18.1 (17.9-18.4)
Binge drinking	58,831	16.5 (16.3-16.7)
Overweight or Obese (BMI kg/m^2≥25.0-29.9)	301,795	63.8 (63.5-64.1)
Asthma	67,174	14.1 (13.9-14.3)
Diabetes	62,345	10.3 (10.1-10.4)
Coronary heart disease	29,048	4.2 (4.1-4.3)
Depressive disorder	95,776	17.7 (17.5-17.9)
Demographics		
Gender		
Male	201,275	48.6 (48.3-48.9)
Female	290,498	51.4 (51.1-51.7)
Age		
18-24 years	27,188	13 (12.8-13.3)
25-34 years	50,154	17.2 (17-17.5)
35-44 years	60,371	16.6 (16.4-16.9)
45-64 years	193,178	34.5 (34.2-34.8)
65 or more years	160,882	18.6 (18.4-18.8)
Education		
Less Than High School	42,132	15.2 (14.9-15.4)
High School Graduate/GED	142,953	28.5 (28.3-28.8)
Attended college or technical school	134,242	30.8 (30.5-31.1)
College or technical school graduate	170,173	25.5 (25.3-25.7)
Income		
<$20,000	87,055	21.9 (21.6-22.2)
$20,000-$49,999	152,107	34.7 (34.4-35)
$50,000+	181,220	43.4 (43.1-43.7)
Race and Ethnicity		
Non-Hispanic White	376,451	64.3 (64-64.6)
Hispanics	37,054	16.5 (16.3-16.8)

Variable	Sample size (n = 491,773)	Percent (95% CI)
African American/Blacks	39,151	11.6 (11.4-11.8)
American Indian or Alaska Native	7,683	1 (1-1.1)
Asians	9,510	4.6 (4.4-4.8)
Native Hawaiian or Pacific Islander	1,546	0.2 (0.2-0.2)
Other race including multi-racial	11,823	1.7 (1.7-1.8)

Note: Sample size is unweighted

Percentages and 95% CI were calculated using sampling weights

Figures 1 to 3 display percent of adults in the U.S. 18 and older reporting FMD with our hypothesized predictors. It is evident that those reported FMD were more likely to have no insurance (16.5% vs 11.0%), about three times likely to have not seen a doctor due to cost (25.8% vs. 9.3%), and more likely to have not had a routine checkup (14.1% vs. 11.4%).

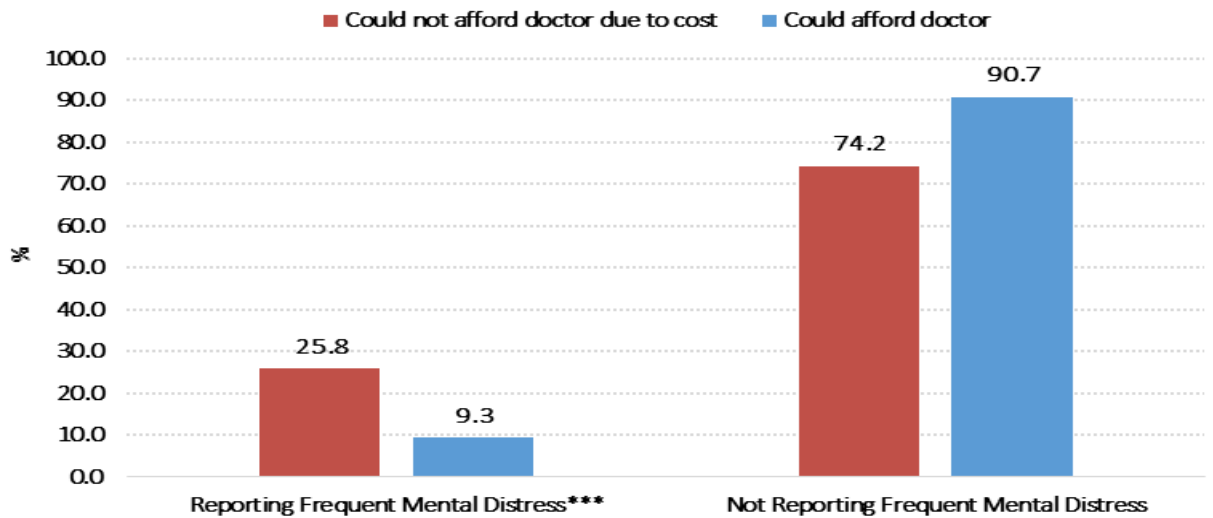Figure 1. Percent of adults in the U.S. reporting frequent mental distress[1] with and without insurance,[2] 2013
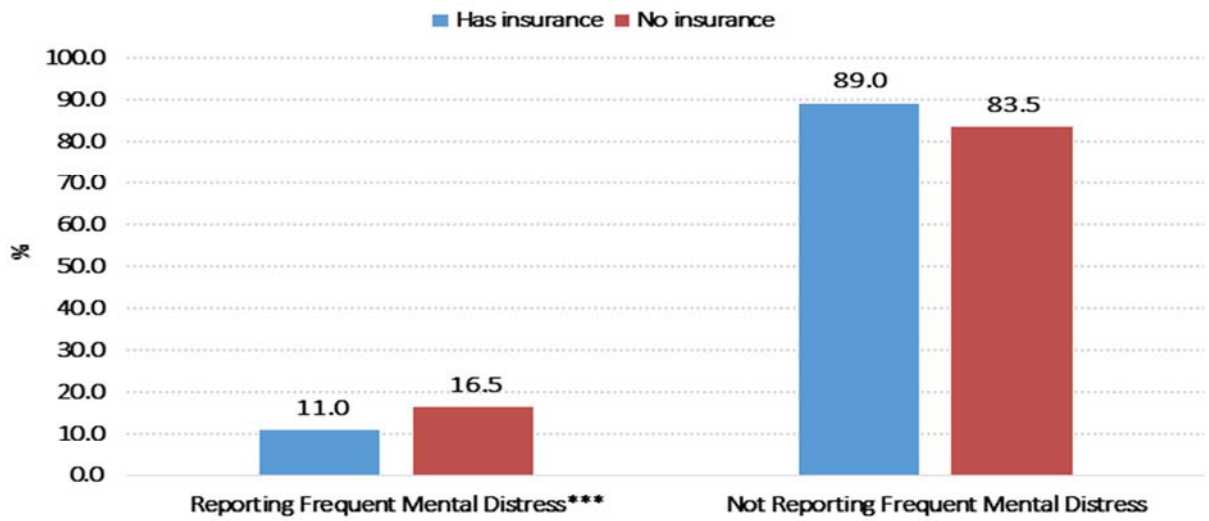
Source: US BRFSS 2013
***p < 0.0001
[1]Frequent Mental Distress (>=14 days): Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
[2]Insurance: Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?

Figure 2 Percent of adults in the U.S. reporting frequent mental distress1 who could and could not see a doctor because of cost,2 2013

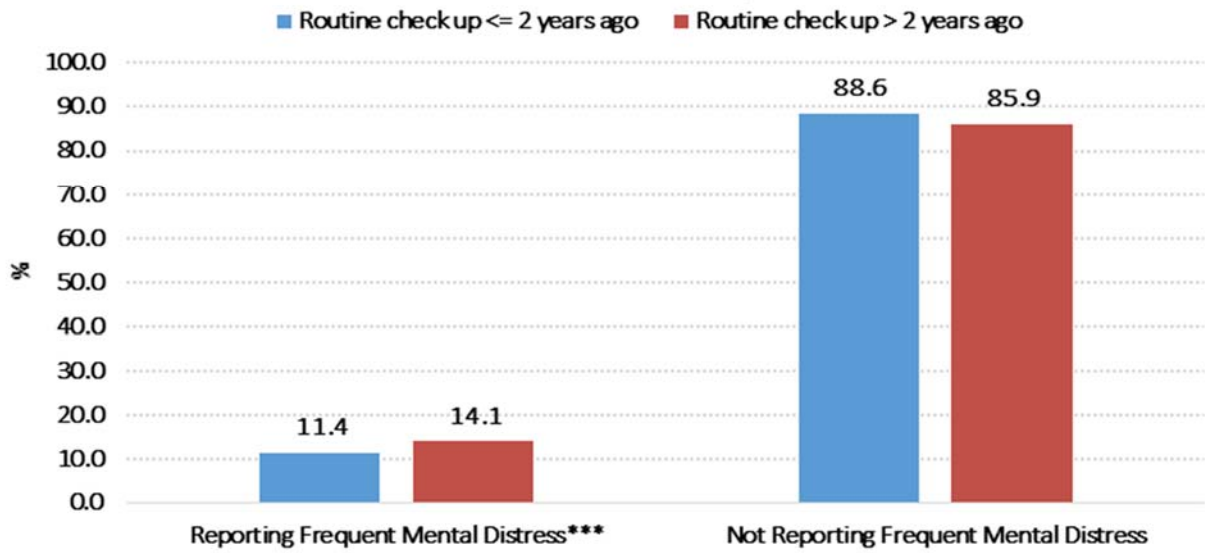Source: US BRFSS 2013

***p < 0.0001

[1]Frequent Mental Distress (>=14 days): Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

[2]Medical Cost: Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

Table 3 presents unadjusted and adjusted odds ratios for hypothesized variables with 95% confidence intervals (CI). It is evident from the unadjusted model that the hypothesized predictors were all associated with FMD. For instance, having no insurance increased the odds of FMD by 1.6 times (or 60% more likely) as compared to those with insurance (COR= 1.6; 95%CI, 1.5-1.7). Similarly, those who could not visit a doctor due to medical cost were three times more likely to having reported FMD (COR = 3.4; 95%CI, 3.3-3.5) as compared to those who could visit a doctor. Finally, individuals were 30 percent more likely to report FMD (COR = 1.3; 95%CI, 1.2-1.3) if they had a routine check-up more than two years ago as compared to those who had a routine check within two years.

Figure 3. Percent of adults in the U.S. reporting frequent mental distress[1] who had or not had routine check up,[2] 2013

Legend: ■ Routine check up <= 2 years ago ■ Routine check up > 2 years ago

Reporting Frequent Mental Distress***: 11.4, 14.1

Not Reporting Frequent Mental Distress: 88.6, 85.9

Source: US BRFSS 2013
***p < 0.0001
[1]Frequent Mental Distress (>=14 days): Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
[2]Routine check up: 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.]

Our clinically relevant variables of obesity, asthma, diabetes, CHD, and depressive disorders were also associated with reporting FMD. In particular, those who were ever diagnosed with depressive disorder were almost eight times more likely to report FMD (COR = 8.3; 95%CI, 7.9-8.6) as compared to those without the diagnoses. Being overweight or obese increased the odds of reporting FMD by 10 percent (COR = 1.1; 95%CI, 1.1-1.2), and having ever been diagnosed with asthma increased the odds of reporting FMD by 100 percent (COR = 2.0; 95% CI, 2.0-2.1). Similarly, having ever been diagnosed with diabetes increased the likelihood of reporting FMD by 60 percent (COR = 1.6; 95%CI, 1.5-1.7), and having ever been diagnosed with CHD increased the likelihood of reporting FMD by 80 percent (COR = 1.8; 95%CI, 1.7-2.0). Being a current smoker increased the odds of reporting FMD by more than two times (COR = 2.6; 95%CI, 2.5-2.8), and binge drinking (i.e., 5 or more drinks for men or 4 or more drinks for women on an occasion) also increased the likelihood of reporting FMD by 20 percent (COR = 1.2; 95%CI, 1.1-1.2).

To assess the relationship between the hypothesized predictors, lack of insurance, medical cost, and routine medical checkup six logistic regression and a final model were estimated. Model 1 incorporated the hypothesized predictor of an individual with a lack of insurance, without including the variables of medical cost and a recent routine checkup. The covariates were also adjusted for. It was found that lack of insurance was not a predictor after adjusting for other covariates (AOR = 1.1; 95%CI, 1-1.1). Model 2 incorporated the hypothesized predictor medical cost without including a lack of insurance and routine checkup while still adjusting for other covariates. Medical cost was a significant predictor of FMD (AOR = 1.9; 95%CI, 1.8-2.0). In essence, those who could not visit the doctor due to medical cost were twice as likely to report FMD than those who could visit the doctor. Similarly, model 3 incorporated the hypothesized predictor of an individual having a recent routine checkup, without including the predictors of a lack of insurance and medical cost while adjusting for other covariates. It was found that those who had a routine checkup more than two of years ago were 20 percent more likely to report FMD (AOR = 1.2; 95%CI, 1.1-1.3) than those who had a routine checkup within two years suggesting that routine checkup was an independent predictor of FMD.

Model 4, 5, and 6 incorporated adding and removing two of the hypothesized variables simultaneously to assess how the relationship changed. For instance, model 4 incorporated lack of insurance and routine checkup excluding medical cost as predictors after adjusting for other covariates. While lack of insurance did not predict FMD, the association of routine checkup was unaltered as evident from table 3. Similarly, when medical cost and routine checkup (model 5) were included as predictors while excluding lack of insurance as a predictor, it was found that routine medical checkup was not a significant predictor, while medical cost was still a significant predictor of FMD. Similarly, when lack of insurance and medical cost were included as predictors excluding routine checkup, it was found that while medical cost was a significant predictor and was in the hypothesized direction, respondents who indicated having no health insurance were 20 percent less likely to report FMD (AOR = 0.8; 95%CI, 0.8-0.9), contrary to the hypothesized direction after adjusting for other covariates. The final model demonstrated that individuals with decreased healthcare access as it relates to an inability to afford medical care (AOR = 2; 95%CI,1.9-2.1), as well as a lack of having seen a healthcare provider in the last 12 months routine visits to a provider are more likely to report frequent mental distress (AOR = 1.1; 95%CI 1.1-1.2). In contrast to the hypothesis, the final model indicated that a lack of insurance coverage decreased the likelihood of respondents reporting frequent mental distress (AOR = 0.8; 95%CI, 0.7-0.9). Examining the clinically relevant confounders and risk behaviors, it was found that being overweight and/or obese was not associated with FMD.

Table 2. Crude (COR) and Adjusted Odds Ratios (AOR) for U.S. adults 18 and older reporting FMD

Variables	Reporting Frequent Mental Distress (n = 491,773) among US adults 18 and older in 2013							
	Unadjusted Crude OR (95% CI)	Model 1 Adjusted OR (95% CI)[a]	Model 2 Adjusted OR 95% (CI)[b]	Model 3 Adjusted OR 95% (CI)[c]	Model 4 Adjusted OR (95% CI)[d]	Model 5 Adjusted OR (95% CI)[e]	Model 6 Adjusted OR 95% (CI)[f]	Final Model Adjusted OR 95% (CI)[d]
Predictors								
No health insurance	1.6 (1.5-1.7)	1.1 (1-1.1)	NA	NA	1 (0.9-1.1)	NA	0.8 (0.8-0.9)	0.8 (0.7-0.9)
Medical cost	3.4 (3.3-3.5)	NA	1.9 (1.8-2)	NA	NA	1.9 (1.8-2)	2 (1.9-2.2)	2 (1.9-2.1)
Routine check-up more than two years ago	1.3 (1.2-1.3)	NA	NA	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.1 (1-1.1)	NA	1.1 (1.1-1.2)
Confounders								
Current smoker	2.6 (2.5-2.8)	1.6 (1.5-1.7)	1.5 (1.4-1.6)	1.6 (1.5-1.6)	1.6 (1.5-1.6)	1.5 (1.4-1.6)	1.5 (1.4-1.6)	1.5 (1.4-1.6)
Binge drinking	1.2 (1.1-1.2)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)
Overweight or Obese (BMI kg/m^2≥25.0-29.9)	1.1 (1.1-1.2)	1 (0.9-1)	1 (0.9-1)	1 (0.9-1)	1 (0.9-1)	1 (0.9-1)	1 (0.9-1)	1 (0.9-1)
Asthma	2 (2-2.1)	1.3 (1.2-1.4)	1.3 (1.2-1.3)	1.3 (1.2-1.4)	1.3 (1.2-1.4)	1.3 (1.2-1.3)	1.2 (1.2-1.3)	1.2 (1.2-1.3)
Diabetes	1.6 (1.5-1.7)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	1.2 (1.1-1.3)
Coronary heart disease	1.8 (1.7-2)	1.5 (1.4-1.6)	1.5 (1.3-1.6)	1.5 (1.4-1.6)	1.5 (1.4-1.6)	1.5 (1.3-1.6)	1.5 (1.3-1.6)	1.4 (1.3-1.6)
Depressive disorder	8.3 (7.9-8.6)	6.5 (6.2-6.9)	6.3 (6-6.6)	6.6 (6.3-6.9)	6.6 (6.3-6.9)	6.3 (6-6.6)	6.2 (5.9-6.6)	6.3 (6-6.6)

Note: Except unadjusted model all models are adjusted odds ratios (OR) and 95% confidence intervals (CI) adjusting for gender, age, education, income, race and ethnicity.

[a]Modeling no health insurance as a predictor excluding medical cost and routine check-up adjusting for gender, age, education, income, race and ethnicity.

[b]Modeling medical cost as a predictor excluding no health insurance and routine check-up adjusting for gender, age, education, income, race and ethnicity.

[c]Modeling routine check-up as a predictor excluding no health insurance and medical cost adjusting for gender, age, education, income, race and ethnicity.

[d]Modeling no health insurance and medical cost as predictors excluding routine check up adjusting for gender, age, education, income, race and ethnicity.

[e]Modeling no health insurance and routine check-up as predictors excluding medical cost adjusting for gender, age, education, income, race and ethnicity.

[f]Modeling medical cost and routine check-up as predictors excluding no health insurance adjusting for gender, age, education, income, race and ethnicity.

Discussion:

While both our hypothesized variables of interest (medical cost and routine medical checkup) predicted self-reported FMD, there are a few possible explanations as to why the lack of insurance did not concord with the hypothesis. One possibility is that there is effect modification (i.e., statistical interaction) of medical cost and lack of insurance as evidenced from model 5. It is also possible that there is an omitted variable bias that was not explored. Another possibility is the existence of collinearity between our predictor variables. This is more than likely, as a lack of insurance and the inability to see a doctor because of cost are representative of an overall lack of access to healthcare. This can lead to a specification bias, which would distort the relationship.

This study incorporated a nationally representative sample of U.S. adults 18 and older and assessed the relationship of healthcare access and frequent mental distress. Many of the previous studies dealing with the frequent mental distress aspect of the BRFSS data examined variables such as gender, socioeconomic status, and lifestyle behaviors. Very few of the previous studies that were examined for the purpose of this investigation were found to have thoroughly explored the co-occurrence of healthcare access and insurance coverage with mental distress, beyond simply identifying it as a corollary based on their results. In this study, several models were constructed with the predictor variables having been appropriately adjusted for and the confounders having been accounted for in order to determine whether a true correlation exists within out data. Given this statistical approach as well as the strength and robust nature of the dataset, our investigated predictors of insurance status and healthcare access were demonstrated to have a strong correlation with mental distress. As mentioned previously, identifying and investigating as many corollaries to mental distress as possible is critical in beginning to address the crisis of mental health in the U.S.

The limitations of this study include that the BRFSS data is cross-sectional, therefore causality cannot be attributed. In addition, BRFSS is a telephone survey and individuals without telephones (i.e., homeless) where mental illness is prevalent are excluded. Future research topics can further investigate the relationship between healthcare access and frequent mental distress, but use objective data from sources such as hospital discharge summaries as opposed

to self-reported data. More detailed information regarding the predictor variables can also be elicited from individuals. For example, in the BRFSS survey it is asked whether an individual had a routine checkup in the last 2 years, but does not ask about other forms of medical care an individual may have received such as an emergency department visit.

In conclusion, the study demonstrated the positive correlation that exists within the data between healthcare access and frequent mental distress. The importance of understanding a potential causality between insurance coverage and frequent mental distress cannot be understated. With the idea of expanding healthcare coverage being debated at the forefront of the current political scene, understanding the potential medical and mental impact of these decisions is important in making an informed decision. Given that major bodies such as the USPSTF recommending increased screening of mental health amongst the general population, more studies should be established to further determine other factors that influence frequent mental distress. In an ideal world scenario, the implications of this study would be immediately understood and acted upon. This would entail the promotion of more aggressive surveillance of individuals in society who do not have routine medical care. This surveillance could be in the form of a health questionnaire tied to essential governmental services. For example, it could be a survey that is filled out when an individual applies for a driver's license. This would enable better identification of at risk individuals. Being able to identify and address these risks would have a positive impact on decreasing mental distress in the general population.

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