

Published in final edited form as:

Depress Anxiety. 2010 April ; 27(4): 381–389. doi:10.1002/da.20622.

Clinical and Subthreshold Panic Disorder

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Background

Panic disorder (PD) is a severe anxiety disorder that affects more than 6 million Americans. [1] It is characterized by the presence of recurrent unexpected panic attacks and a persistent worry about future panic attacks and their consequences. The lifetime prevalence of PD ranges from 1 – 3% in the general population, and 3.0 – 8.3% of patients in clinical settings meet criteria for current PD. [2-4] Psychiatric comorbidity and work impairment are common among PD patients, and although they are rarely diagnosed with severe medical conditions, their health-care service utilization is high.

PSYCHIATRIC COMORBIDITIES IN PD

PD frequently coexists with other psychiatric disorders with as many as 80% of individuals with PD having a comorbid psychiatric diagnosis.[5] Major depressive disorder (MDD) is the most common comorbid psychiatric condition affecting between 32 and 70% of individuals with PD,[1,2,6] and recent reports suggest that half of those diagnosed with MDD will experience a panic attack in their lifetime.[2] Studies show that other anxiety disorders, bipolar disorder, and psychosis also frequently co-occur with PD.[7-9] Nearly 42% of patients with PD had comorbid generalized anxiety disorder,[9] and bipolar disorder was eight times more common among patients with panic attacks compared to those without such attacks.[8] Patients with PD also are more likely to have alcohol or substance abuse problems.[9,10]

Suicide attempts are more prevalent in comorbid PD and depression than in either condition alone. The National Comorbidity Survey (NCS) noted that the prevalence of suicide attempts was 5.2% for PD cases, 16% for depressed individuals, and 25% for persons with both conditions.[11] Another study noted an increased risk of suicide attempts among PD sufferers (7% of PD patients compared to 1% of those without a psychiatric disorder).[7]

EMPLOYMENT STATUS, WORK PRODUCTIVITY, AND DISABILITY

A wide range of evidence suggests that PD is associated with a decrease in quality of life and impairment in several domains of functioning including work. Rates of unemployment in PD populations are approximately 25%, and one study noted that only 57% of PD sufferers were employed on a full-time basis.[12,13] In another sample, 14 of 30 patients were unemployed, 11 had at some time either quit or lost their jobs due to emotional

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distress, and 13 reported that they were completely unable to work for 1 month or more.[14] PD is also associated with missed work days among those who do work. It is estimated that people with untreated PD miss an average of 12 working days per year compared to 5.2 days missed by the general US population.[15] Studies report that 44% of respondents with PD missed one or more workdays due to emotional reasons over a 3-month period compared to only 2% of subjects without any mental health disorders and that those with PD were 27 times more likely than those in the general population to have a work loss day due to emotional circumstances.[16] Other studies indicate that individuals with PD averaged 1–2 work loss days and 3–5 work cutback days per month,[17,18] and that 52% of those with PD reported work impairment, with an average of five impairment days in the previous month.[19]

Due to impairments in employment functioning, individuals with PD experience relatively high rates of welfare and disability compensation.[20] One study found that persons with PD were 3.3 times more likely to receive disability payments than those without the disorder.[21] In another study that measured financial dependency, 27% of people with PD received welfare.[22]

DIRECT COSTS OF PD

PD patients utilize health-care services at higher rates than any other psychiatric disorder, and PD visits are associated with high costs. PD is associated with increased laboratory medical care costs, high utilization of medical ambulatory services, and excessive visits to the emergency room.[21] PD often is treated in an emergent setting; 57% of PD patients initially seek treatment at a hospital emergency department,[23] and of those patients, 49% continue to use the ER for additional treatment. Approximately 35% of patients with PD visit their general family practitioner and continue to receive treatment with their primary physician instead of seeking treatment from a mental health specialist. Approximately 19% of PD patients, with inadequate information on their disorder, are initially seen at a nonprofessional site, and 13% of these patients continue treatment at these sites.[24] PD frequently is unrecognized and the symptoms mimic a variety of dangerous medical conditions; therefore, patients often are given a variety of expensive tests to rule out physical abnormalities (e.g., echocardiogram, \$350; Holter monitoring, \$200; treadmill testing, \$150).[25] PD patients also frequently present with chest pain, which leads to emergency treatment including angiography.

The direct costs of PD treatment increase significantly over time. Although the annual cost of treatment 1 year before diagnosis is \$29,158, the cost of treatment 1 year after diagnosis is \$46,256. PD patients can offset the increase in direct costs with a significant decrease in indirect costs, thanks to proper screening and care for their anxiety.[26,27] The indirect costs of PD treatment decreases from \$65,643 to \$13,883 annually because proper treatment results in other benefits such as increased attendance at work.[28]

STUDY PURPOSE

Although psychiatric comorbidities among panic sufferers are relatively well documented, subthreshold panic has only started to undergo the same scrutiny. Several studies have described the prevalence and impact of subthreshold panic,[16,20,25,29,30-37] and a few have investigated the presence of comorbidities in people with subthreshold panic.[38-40] Additionally, some studies have noted that panic may be a precursor of more severe psychopathology.[8,28,41-43] The purpose of this study is to add to the accumulating evidence of significant comorbidity and disability associated with subthreshold PD. Work productivity and health-care utilization (e.g., primary care visits, specialty care visits, emergency visits, cost of care) among subjects with PD as well as subjects with varying

degrees of subthreshold panic was also examined. This study is unique in that it utilizes a very large population-based sample of over 900 individuals, oversampled for people with lower SES and those who use primary care for the treatment of their mental disorder. This study, in addition to other samples, calls to provide better recognition and care for people in these populations.

METHODS

STUDY DESIGN

The data for this study is drawn from Healthcare for Communities (HCC), a national household telephone survey funded by the Robert Wood Johnson Foundation and completed from 1997–1998. The HCC survey respondents were selected from participants in the nationally representative Community Tracking Study (CTS). The HCC sample was a stratified random sample of 14,985 CTS adult respondents. The final sample included 9,585 adults (64% response rate). HCC oversampled individuals with low incomes (family income below \$20,000), those who used specialty mental health services during the preceding year, and those who reported high psychological distress (measured using items from the Short-Form Health Survey).[44] The data are representative of the noninstitutionalized United States adult population after weighting for both the sampling design and survey nonresponse.[8]

PARTICIPANTS

Study participants averaged 46.9717.2 years old, and approximately half were male (47.3%). Seventy-three percent of participants were white, 12% were Black, 10% were Latino, and 6% were other ethnicities. Fifteen percent of participants had not completed high school, 34% had completed high school, and 51% had at least some college education. Most participants (95.7%) had either part-time or full-time employment, and the average household income was 49456±50955.

MEASURES

Assessment of PD and levels of subthreshold panic—PD was assessed using screening items from the shortform version of the Composite International Diagnostic Interview (CIDI)[27] and supplemented with questions about functional limitations. To reduce potential false-positives, a PD diagnosis required limitation in social or role functioning using the following items from the SF-12[45]: During the past 4 weeks, have you accomplished less than you would like as a result of any emotional problems?; During the past 4 weeks, did you not do work or other activities as carefully as usual as a result of any emotional problems such as feeling depressed or anxious?; and During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities like visiting with friends, relatives, etc.? and the following items from the Sickness Impact Profile[46]: I am going out less to visit people, and I am doing fewer social activities with groups of people. The respondents were asked to indicate whether the statements were definitely true, mostly true, mostly false, or definitely false about you. Thus, HCC used a relatively conservative definition of PD. The 12-item RAND short form (SF-12), a commonly used measure of health-related quality of life and the physical health and mental health component summary scores of this instrument were used to assess functioning and wellbeing for both mental and physical health.[47] Diagnoses are based on DSM-III-R criteria.[28] It should be noted that this type of survey is not an equivalent of a diagnostic interview and all diagnoses mentioned should be treated as probable. For simplicity, we will use diagnosis of “PD” rather than “probable PD” throughout this article. Nevertheless, it has been demonstrated that short-form measures have excellent sensitivity and specificity relative to the full CIDI diagnoses, with concordance of 90–100%.[48]

Seven categories of PD and panic were defined: (1) ranging from no lifetime history of panic symptoms, (2) lifetime panic attack in a life-threatening situation, (3) one lifetime panic attack in a non-life threatening situation, (4) more than one lifetime panic attack in a non-life-threatening situation, (5) panic attack in lifetime but not in the past year, (6) panic attack in the past year, and (7), a PD in the past year. Each participant was assigned to the highest category for which criteria was met (as defined above). These categories, however, are not hierarchical. Hence, level of panic is a categorical variable. If an individual responded with a “Don’t Know” or “Refused” to a particular screening question, the individual was placed into a group based on other known data. For example, if a respondent confirmed that he had an attack in a non-life-threatening situation but did not recall if the attacks happened more than once, then he would be assumed to be in the “one anxiety attack in non-life-threatening situation” group.

Comorbid mental health and substance abuse disorders—As with PD, all diagnoses attained should be treated as probable disorders given that a full diagnostic interview was not completed. Past-year mental disorders, which included major depression, dysthymia, and generalized anxiety disorder were identified with the use of a short-form version of the CIDI.[27] Respondents who reported that they had been diagnosed with schizophrenia or a schizoaffective disorder, or had ever been hospitalized due to psychotic symptoms, were identified as having a psychotic disorder. Mania was defined as an affirmative response to the question, “Has there ever been a period of at least 4 days when you were so happy or excited that you got into trouble, or your family or friends worried about it, or a doctor said you were manic?” The Alcohol Use Disorders Identification Test (AUDIT: WHO, 1992) was used to assess for alcohol use and abuse, and drug abuse was assessed with a screener described by Rost and colleagues (1993).[49] Suicidality was defined as an affirmative answer to one of two questions that asked about suicidal thoughts in the previous 12 months. In the HCC survey, suicidality questions were restricted to those respondents who passed the initial depression-screening question (i.e., feeling sad, blue, or depressed for at least 2 weeks in a row during the previous 12 months).

Employment and work productivity variables analyzed—Work variables included work status, inability to work for health reasons (among respondents who worked fewer than 40 hr per week), self-reported disability status, working days missed in the past 30 days (among respondents who work for pay), and working days missed due to physical/mental health or substance abuse in the past 30 days (among respondents who work for pay).

Health-care utilization—Data was collected regarding mental health and substance abuse (MHSA) treatment utilization including office visits, emergency room visits, hospitalizations and cost of care. Treatment received in primary care settings was also assessed.

STATISTICAL ANALYSES

For categorical variables, the relative prevalence of each dependent variable for each category of clinical and subthreshold panic was assessed using odds ratios (ORs). Individuals who had no history of panic symptoms served as the comparison group. Results were adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. For continuous variables, a weighted t-test was performed comparing each group to the group that had no history of panic symptoms. As the HCC methods involve cluster sampling, all results were weighted to the general United States population and SUDAAN 8.00 and were used to account for the complex sample design. All statistical analyses were performed using SAS 8.02 and SUDAAN 8.0.0.

RESULTS

The estimated prevalence of current PD in the general population was 3.44% ($n = 491$). Although the majority of subjects did not report panic symptoms of any kind (60%), 40% experienced some symptoms in their lifetime. Results of panic stratification are presented in Table 1.

Results of logistic regressions predicting psychiatric comorbidities and alcohol and drug problems are presented in Tables 2 and 3. Across all the comorbid conditions examined, the odds of having a particular psychiatric comorbidity are substantially higher for individuals with past-year PD as compared to those with no history of panic symptoms (the ORs range from 3.22 for suicidality to 35.66 for psychosis). The individuals with sub threshold panic symptoms are also significantly more likely to have one of the psychiatric comorbidities although the ORs are not as large. For many comparisons, the odds of the particular psychiatric comorbidity decreased with each level of subthreshold panic but remained significant compared to patients without panic symptoms. For example, subjects with past-year PD were about 10 times more likely to have comorbid depression. The strength of the association decreased but remained statistically significant when considering respondents with a panic attack in the previous year ($OR = 3.31$) or during their lifetime ($OR = 2.57$). Depression was almost twice as common among subjects with lower-level panic symptoms and anxious attacks in nonthreatening situations compared subjects without such a history ($OR = 1.54$ – 1.93). Readers are referred to Tables 2 and 3 for a summary of the adjusted ORs for specific psychiatric and substance use conditions.

Adjusted ORs for employment and work productivity are presented in Table 4. Respondents with past-year PD were about half as likely to be currently working or to have worked in the previous 12 months compared to those without a history of panic symptoms (adjusted $OR = 0.56$, 95% $CI = 0.42$ – 0.75). This relationship, however, did not hold for subthreshold levels of panic. Although those who had experienced a panic attack in a life-threatening situation were also less likely to be employed ($OR = 0.86$), those who had experienced a panic attack in a non-life-threatening situation and those who had a panic attack in the past year were more likely to be employed ($OR = 1.48$ and 1.63 , respectively). Individuals who met criteria for past-year PD were more than twice as likely to report work impairment due to health reasons ($OR = 2.61$, 95% $CI = 1.59$ – 4.27) and to report self-described disability ($OR = 2.16$, 95% $CI = 1.38$ – 3.40) compared to those without a history of panic symptoms. Work impairment due to health reasons was also higher in respondents with life time panic attacks who did not meet full criteria for PD ($OR = 1.59$, 95% $CI = 1.04$, 2.45).

t-tests were conducted to compare those who had varying levels of panic symptoms to those who had no history of panic symptoms on two work variables: working days missed in the past 30 days and working days missed due to physical/mental health or substance abuse in the past 30 days (see Table 5). Respondents with past-year PD reported a greater number of working days missed in the past 30 days and working days missed due to physical/mental health or substance abuse in the past 30 days. There was also a trend for individuals who had a panic attack in a nonlife-threatening situation to miss a greater number of working days in the past 30 days ($P=.052$).

Adjusted ORs for MHSA treatment variables are presented in Table 6. In general, the odds of this particular utilization variable decreased with each level of subthreshold panic but remained significant compared to patients without panic symptoms. For example, patients with past-year PD were 38 times more likely to have an emergency MHSA visit in the previous year compared to patients without any history of panic (adjusted $OR = 38.30$, 95% $CI = 10.95$, 133.90). Similarly, non-PD respondents who had experienced a panic attack in

the previous year were about 27 times more likely to seek emergent treatment. In addition, participants with subthreshold symptoms had increased odds of obtaining MHSA treatment through physician office visits and hospitalizations.

Adjusted ORs for primary care treatment variables and overall effective mental health counseling are presented in Table 7. Results indicate that patients with subthreshold PD and those meeting full criteria of PD were more likely to seek primary care treatment, have their primary care physician refer them to a mental health/substance abuse specialist, and receive psychiatric medication from their primary care physician. These groups also were more likely to receive adequate mental health counseling.

Table 8 presents the results for intensity and costs of service utilization. For the most part, only respondents meeting criteria for past-year PD were significantly different from patients without any panic history. For example, respondents meeting criteria for past-year PD had more visits to a mental health provider than individuals without panic symptoms ($P=0.03$ for 12 months, $P=0.04$ for 6 months), and they also spent more money on health care in general (0.01). Respondents with subthreshold panic for the most part did not significantly differ from healthy individuals in terms of these aspects of health-care utilization with one exception; individuals who had experienced a lifetime anxiety attack in a non-life-threatening situation reported significantly higher ER utilization than respondents without a history of panic ($P<0.001$).

DISCUSSION

Results indicated that respondents with both PD and subthreshold PD experienced higher odds of psychiatric comorbidities. Subthreshold panic increased the odds for all of the psychiatric conditions analyzed with the exception of suicidality. The most impressive findings included the increased odds of comorbid psychosis, manic behavior, and drug abuse, although these results were somewhat expected. At least one other study indicated an increased prevalence of PD among patients with bipolar disorder.[8] Similarly, several studies point toward an association between psychotic states (especially psychotic depression) and panic.[8,46] However, the connection between subthreshold panic symptoms and those comorbidities had not been well established in the scientific literature. The connection between increased drug abuse and panic may reflect a complex interaction between panic and drug use in which patients use drugs to self-medicate; alternatively, patients may develop a disorder as a sequelae of drug ingestion or withdrawal. Alcohol risks were in agreement with previously reported studies.[2,9-11] Our finding that 3.44% of the general population met criteria for PD is in agreement with the previously published findings, such as the Epidemiological Catchment Area study (1.5%) and the NCS (3.5%). [1,2]

The increased odds of depression, dysthymia, and suicidality are consistent with previously reported findings.[7,48] It should be noted, however, that suicidality was only assessed among individuals who screened positive for depression, and therefore, may be under identified. Other researchers have published similar findings regarding the increased risk of suicidal thoughts and suicide attempts among individuals with PD.[7,48] The data also indicated that depressed participants with a lifetime history of PD but not past-year PD were at increased odds of having suicidal thoughts.

Consistent with prior studies, employment status was significantly compromised in patients meeting full criteria for PD.[19] Compared to those without a history of panic symptoms, those with PD were half as likely to be employed, over twice as likely to be disabled, and over 2.5 times likely to experience work impairment due to health reasons. They also missed

more days of work than subjects with no panic symptoms. These trends, however, were generally not observed in subthreshold panic groups, possibly indicating that only people with PDs and not with subthreshold PD are more likely to miss work. However, the variables used in this study may not be sensitive enough to determine the impact of subthreshold panic on employment. Previous research indicated that PD patients have significantly more reduced working hours than people without PD,[19] but the present project did not assess reduced working hours. Nevertheless, this study serves as another confirmation of the important impact of PD on employment and disability while showing that people suffering from an occasional panic attack may continue working without a significant impact. Future studies utilizing cut workdays may clarify the impact of the subthreshold PD on productivity and disability.

In agreement with prior literature, this study confirms the high treatment utilization and costs associated with a PD diagnosis. The study also indicates that subthreshold panic is not a benign condition as incremental increases in likelihood of treatment utilization were observed at greater panic levels. Just answering positively to a screening question regarding the presence of panic attack increases risk for treatment utilization. However, only in diagnosable PD does intensity of mental health utilization increase. This may indicate poor recognition of subthreshold panic symptoms by individuals and their physicians or may be a result of physicians' reluctance to refer patients to mental health professionals until their symptoms reach full criteria. This may occur because patients' complaints are more prominent requiring more urgent management, and primary care physicians are unable to treat them effectively.[5,21,24] Overall the study underlines the importance of the panic condition even in subthreshold form. Presence of panic attacks in the lifetime may represent a marker of the patients who are somatically inclined and require more medical attention. This question requires further investigation because early recognition of those patients and early referral for an appropriate psychological intervention may lead to improvement in their condition and subsequent decreases in health-care costs and disability.

Our study has several methodological issues. First, as this is a cross-sectional study that did not assess for the onset of symptoms or disorders, and therefore, we cannot discern temporal ordering of the disorders or whether they occurred concurrently. Second, the questionnaire was designed to screen rather than diagnose PD or subthreshold symptoms. Therefore, only estimates of PD and subthreshold states can be derived. However, the questionnaire was based on the CIDI, an instrument that has been used in other surveys and shows high correlation with clinical diagnosis.[48,50,51] Finally no corrections were made for multiples tests. Overall, the study clearly indicates that subthreshold panic is a significant condition associated with higher psychiatric comorbidity, increased alcohol and drug use, and suicidality and that physicians need to pay increased attention to the presence of panic symptoms in their patients.

Acknowledgments

The authors disclose the following financial relationship within the past 3 years: Robert Wood Johnson Foundation; Contract number: 038273; Contract grant sponsor: National Institute of Mental Health; Contract grant number: P30 MH068639; Contract grant sponsor: Merck and Co. Inc.; Saban Family Foundation.

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Table 1

Results of stratification of HCC respondents into different levels of panic and subthreshold panic (n=9533)*

	N (%)	Weighted %
Panic Disorder in Previous 12 Months	491 (5.15)	3.44
Panic Attack in Previous 12 Months	258 (2.71)	1.96
Panic Attack in Lifetime but Not Previous 12 Months	709 (7.44)	5.72
More Than One Anxious Attack in Non-Life-Threatening Situation	367 (3.85)	3.25
Only One Anxious Attack in Non-Life-Threatening Situation	979 (10.27)	9.30
Anxious Attack in Life-Threatening Situation	1505 (15.79)	16.33
No History of Panic Symptoms of Any Kind (referent)	5224 (54.80)	60.01

* 52 respondents were unclassified due to missing data.

Table 2

Adjusted odds ratios for mood disorders, generalized anxiety, and psychosis

	Depression		Dysthymia		Psychosis		GAD		Suicidality		Manic Behavior	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Panic Disorder in Previous 12 Months	10.21	(7.77, 13.41)	6.64	(4.61, 9.57)	35.66	(21.95, 57.94)	10.31	(6.58, 16.17)	3.22	(2.26, 4.59)	14.25	(6.29, 32.30)
Panic Attack in Previous 12 Months	3.31	(2.06, 5.30)	1.25	(0.62, 2.51)	12.16	(2.88, 51.45)	10.92	(6.49, 18.37)	1.85	(0.81, 4.25)	4.65	(1.46, 14.86)
Panic Attack in Lifetime but Not Previous 12 Months	2.57	(1.96, 3.37)	1.63	(1.04, 2.57)	20.82	(9.93, 43.66)	2.75	(1.83, 4.12)	1.76	(1.09, 2.84)	5.42	(1.99, 14.74)
More Than One Anxious Attack in Non-Life-Threatening Situation	1.87	(1.26, 2.78)	2.52	(1.43, 4.45)	23.45	(9.74, 56.44)	2.83	(1.50, 5.32)	1.59	(0.62, 4.06)	5.77	(2.19, 15.24)
Only One Anxious Attack in Non-Life-Threatening Situation	1.93	(1.48, 2.53)	1.90	(1.23, 2.92)	7.08	(2.96, 16.96)	3.74	(2.46, 5.69)	0.98	(0.55, 1.76)	2.74	(0.92, 8.20)
Anxious Attack in Life-Threatening Situation	1.54	(1.18, 2.00)	1.41	(1.03, 1.94)	3.99	(1.48, 10.72)	1.70	(1.19, 2.43)	1.14	(0.67, 1.96)	1.60	(0.79, 3.25)
No History of Panic Symptoms of Any Kind (referent)	---		---		---		---		---		---	

OR is weighted and adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. Data in **bold** had statistically significant odds ratios

Table 3

Adjusted odds ratios for alcohol and drug problems

	Alcohol Problem		Drug Problem		Alcohol or Drug Problem	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Panic Disorder in Previous 12 Months	2.16	(1.40, 3.34)	11.79	(5.96, 23.30)	3.22	(2.13, 4.89)
Panic Attack in Previous 12 Months	2.29	(1.31, 4.02)	2.28	(0.87, 5.94)	2.25	(1.32, 3.84)
Panic Attack in Lifetime but Not Previous 12 Months	2.29	(1.49, 3.53)	5.21	(3.02, 8.99)	2.73	(1.89, 3.95)
More Than One Anxious Attack in Non-Life-Threatening Situation	1.93	(1.21, 3.08)	3.30	(1.74, 6.27)	2.20	(1.46, 3.33)
Only One Anxious Attack in Non-Life-Threatening Situation	1.42	(0.99, 2.04)	3.44	(1.91, 6.18)	1.72	(1.21, 2.44)
Anxious Attack in Life-Threatening Situation	1.30	(0.95, 1.79)	1.80	(0.92, 3.54)	1.29	(0.94, 1.77)
No History of Panic Symptoms of Any Kind (referent)	---	---	---	---	---	---

OR is weighted and adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. OR in **bold** are statistically significant.

Table 4

Adjusted odds ratios for employment and work productivity variables*

	Employed	Inability to Work Due to Health Reasons	Self-described as Disabled
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Panic Disorder in Previous 12 Months	0.56 (0.42, 0.75)	2.61 (1.59, 4.27)	2.16 (1.38, 3.40)
Panic Attack in Previous 12 Months	1.63 (1.24, 2.14)	1.50 (0.81, 2.78)	1.30 (0.52, 3.23)
Panic Attack in Lifetime but Not Previous 12 Months	1.16 (0.87, 1.56)	1.59 (1.04, 2.45)	1.35 (0.88, 2.08)
More Than One Anxious Attack in Non-Life-Threatening Situation	1.01 (0.72, 1.41)	1.19 (0.70, 2.03)	1.19 (0.72, 1.98)
Only One Anxious Attack in Non-Life-Threatening Situation	1.48 (1.20, 1.83)	1.33 (0.90, 1.96)	1.33 (0.90, 1.96)
Anxious Attack in Life-Threatening Situation	0.86 (0.76, 0.98)	1.24 (0.97, 1.59)	1.24 (0.97, 1.59)
No History of Panic Symptoms of Any Kind (referent)	---	---	---

OR is weighted and adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. OR in **bold** are statistically significant.

Table 5

Working days missed in past 30 days

	Number of working days missed in past 30 days				Number of working days missed due to physical/mental health or substance use in past 30 days			
	Mean	SE	T Test	P Value	Mean	SE	T Test	P Value
Panic Disorder in Previous 12 Months	3.41	0.78	-2.07	0.0469	3.95	1.02	-2.16	0.0386
Panic Attack in Previous 12 Months	2.04	0.42	-0.66	0.5120	1.39	0.57	0.46	0.6486
Panic Attack in Lifetime but Not Previous 12 Months	2.25	0.32	-1.49	0.1466	1.78	0.25	-0.48	0.6343
More Than One Anxious Attack in Non-Life-Threatening Situation	2.67	0.66	-1.34	0.1892	1.74	0.48	-0.20	0.8446
Only One Anxious Attack in Non-Life-Threatening Situation	2.29	0.24	-2.02	0.0522	1.78	0.27	-0.43	0.6666
Anxious Attack in Life-Threatening Situation	1.84	0.16	-0.43	0.6713	1.38	0.16	1.10	0.2813
No History of Panic Symptoms of Any Kind (referent)	1.76	0.10	---	---	1.64	0.18	---	---

Table 6

Adjusted odds ratios for mental health and substance abuse (MHSA) treatment

Level of Panic	Any MHSA Treatment in Past 12 Months		Office Visit for MHSA in Past 12 Months		ED Visit for MHSA in Past 12 Months		Hospitalization for MHSA in Past 12 Months		Hospitalization for MHSA in Lifetime	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Panic Disorder	9.17	(6.29, 13.37)	10.80	(7.15, 16.33)	38.30	(10.95, 133.90)	16.87	(6.61, 43.07)	7.79	(5.30, 11.46)
Panic Attack in Previous 12 Months	5.32	(3.27, 8.66)	6.05	(3.58, 10.22)	27.12	(2.84, 258.69)	5.21	(0.87, 31.31)	3.91	(2.10, 7.28)
Panic Attack in Lifetime	4.33	(3.10, 6.05)	4.39	(3.14, 6.15)	6.36	(1.24, 32.52)	6.34	(1.87, 21.44)	5.80	(3.88, 8.67)
More Than One Anxious Attack in Non-life-threatening Situation	3.34	(2.26, 4.95)	3.82	(2.49, 5.87)	26.21	(5.87, 117.00)	10.21	(2.94, 35.45)	5.17	(2.90, 9.20)
Anxious Attack in Non-life-threatening Situation	2.87	(2.01, 4.10)	3.32	(2.32, 4.73)	14.02	(2.47, 79.47)	5.72	(1.34, 24.51)	3.59	(2.27, 5.67)
Anxious Attack in Any Situation	1.66	(1.17, 2.34)	2.00	(1.40, 2.88)	2.61	(0.65, 10.46)	6.20	(2.61, 14.73)	2.55	(1.77, 3.67)
No History of Panic Symptoms of Any Kind (referent)	---	---	---	---	---	---	---	---	---	---

OR is weighted and adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. OR in **bold** are statistically significant.

Table 7
Adjusted odds ratios for primary care treatment variables and overall effective mental health counseling

Level of Panic	Primary Care Visit in Past 12 Months	Primary Care Referral to MHSA Specialist	Primary Care Prescribed MHSA Medication	Primary Care Spent 5+ Minutes on MHSA Counseling	Patient Received Effective Mental Health Counseling
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Panic Disorder	1.92 (1.31, 2.54)	10.27 (5.88, 17.93)	7.75 (5.25, 11.44)	8.06 (5.80, 11.19)	10.31 (7.16, 14.83)
Panic Attack in Previous 12 Months	1.77 (1.16, 2.69)	3.66 (1.96, 6.83)	4.78 (2.97, 7.69)	3.27 (2.07, 5.15)	5.89 (3.67, 9.46)
Panic Attack in Lifetime	1.52 (1.09, 2.13)	2.71 (1.57, 4.68)	4.53 (1.98, 10.34)	3.83 (1.78, 8.24)	3.58 (2.52, 5.09)
More Than One Anxious Attack in Non-life-threatening Situation	1.19 (0.81, 1.76)	4.17 (2.46, 7.07)	4.37 (2.73, 6.98)	3.18 (2.06, 4.91)	3.63 (2.34, 5.64)
Anxious Attack in Non-life-threatening Situation	1.36 (1.08, 1.71)	2.61 (1.40, 4.84)	2.68 (1.76, 4.08)	2.66 (1.82, 3.89)	2.89 (2.04, 4.08)
Anxious Attack in Any Situation	1.09 (0.89, 1.34)	1.28 (0.76, 2.16)	1.53 (1.04, 2.27)	1.57 (0.99, 2.49)	1.54 (1.04, 2.28)
No History of Panic Symptoms of Any Kind (referent)	---	---	---	---	---

OR is weighted and adjusted for age, gender, race, education, overall mental health, and overall physical health using logistic regression. OR in **bold** are statistically significant.

Table 8

T tests and p values for continuous healthcare utilization variables

Level of Panic	Days of ER care for MHSA treatment in past 12 months		Days of ER care for MHSA treatment in past 6 months		Number of visits to a MH care provider in past 12 months		Number of visits to a MH care provider in past 6 months		Amount of money spent on overall medical care in past 12 months		Amount of money spent on own mental health and substance abuse care in past 12 months	
	T test	P value	T test	P value	T test	P value	T test	P value	T test	P value	T test	P value
Panic Disorder	-2.43	0.0208	1.52	0.1372	-2.35	0.0252	-2.13	0.0408	-2.58	0.0146	-1.76	0.0872
Panic Attack in Previous 12 Months	3.93	0.0004	1.26	0.2180	-0.26	0.7989	-1.13	0.2655	-1.72	0.0955	0.17	0.8659
Panic Attack in Lifetime	-1.32	0.1967	1.40	0.1721	-1.58	0.1229	-0.49	0.6301	-1.02	0.3142	-1.11	0.2748
More Than One Anxious Attack in Non- life-threatening Situation	-0.60	0.5554	0.01	0.9953	-2.02	0.0521	-1.98	0.0560	-1.44	0.1607	-1.32	0.1955
Anxious Attack in Non- life-threatening Situation	3.93	0.0004	1.46	0.1535	-0.25	0.8066	0.16	0.8746	-0.39	0.7018	0.08	0.9403
Anxious Attack in Any Situation	-1.71	0.0976	-0.28	0.7821	1.01	0.3207	0.61	0.5434	-0.34	0.7330	-1.35	0.1874
No History of Panic Symptoms of Any Kind (referent)	---	---	---	---	---	---	---	---	---	---	---	---