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PANIC DISORDER AND SUICIDAL IDEATION IN PRIMARY CARE

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Abstract

The purpose of this study was to ascertain whether panic disorder (PD) and suicidal ideation are associated in an inner-city primary care clinic and whether this association remains significant after controlling for commonly co-occurring psychiatric disorders. We surveyed 2,043 patients attending a primary care clinic using the Primary Care Evaluation of Mental Disorders (PRIME-MD) Patient Health Questionnaire, a screening instrument that yields provisional diagnoses of selected psychiatric disorders. We estimated the prevalence of current suicidal ideation and of common psychiatric disorders including panic disorder and major depression. A provisional diagnosis of current PD was received by 127 patients (6.2%). After adjusting for potential confounders (age, gender, major depressive disorder [MDD], generalized anxiety disorder, and substance use disorders), patients with PD were about twice as likely to present with current suicidal ideation, as compared to those without PD (adjusted odds ratio [AOR] = 1.84; 95% confidence interval [CI]: 1.06–3.18; $P = .03$). After adjusting for PD and the above-mentioned potential confounders, patients with MDD had a sevenfold increase in the odds of suicidal ideation, as compared to those without MDD (AOR = 7.00; 95% CI: 4.42–11.08; $P < .0001$). Primary care patients with PD are at high risk for suicidal ideation, and patients with PD and co-occurring MDD are at especially high risk. PD patients in primary care thus should be assessed routinely for suicidal ideation and depression.

Keywords

depression; major depressive disorder; primary care; panic disorder; suicide; suicidal ideation; minority populations

INTRODUCTION

An association between panic and suicidal ideation has been reported in adult [Weissman et al., 1989] and adolescent [Pilowsky et al., 1999] community samples. Data from the Epidemiologic Catchment Area (ECA) study demonstrate that panic disorder (PD), as compared to other psychiatric disorders, is associated with an increased risk of suicidal

ideation and suicide attempts [Weissman et al., 1989]. More recent epidemiological data further suggest that major depression, alcohol dependence, and cocaine use are associated with both an increased risk of suicide attempts and of panic disorder [Anthony et al., 1989; Petronis et al., 1990]. When estimating associations between PD and suicidal ideation, the presence of major depression and substance use disorders thus should be considered.

Although an association between PD and suicidal ideation has been reported in community samples [Pilowsky et al., 1999; Weissman et al., 1989], most studies that use psychiatric samples (i.e., treatment-seeking adults recruited in psychiatric clinics and hospitals) do not find a statistically significant association independent of comorbid mental disorders [e.g., Beck et al., 1992; Friedman et al., 1993; Warshaw et al., 2000]. For example, Warshaw et al. [2000] reported that there was no association between PD and suicidal ideation after controlling for common comorbid psychiatric disorders ($n = 498$). The discrepancy between community and psychiatric samples may reflect differences in sample size. Typically, psychiatric samples are smaller than community samples are and may not provide sufficient statistical power to detect smaller effects. This is important given the low prevalence of PD. The past year and past month prevalence of panic disorder in the general population in the US is 2.3% and 3.5%, respectively [Kessler et al., 1994]. Additionally, the rate of suicidal ideation among patients with PD is likely to be higher in psychiatric than in community samples.

Even though several studies have focused on PD in primary care settings [e.g., Birchall et al., 2000; Katon et al., 1986; Zaubler and Katon, 1998], the association between PD and suicidal ideation in these settings has received scant attention. It is important to study PD in primary care because patients with PD are often first seen in primary care clinics or emergency rooms, and many do not receive specialized psychiatric care [Katon et al., 2002]. We recently demonstrated an association between PD and suicidal ideation in an urban primary care practice [Goodwin et al., 2001]. The prevalence of current suicidal ideation among patients with PD without comorbid major depressive disorder (MDD) was 11.4%, and these patients were about three times more likely to report current suicidal ideation than those without PD or MDD were, after controlling for substance use disorders and demographic factors (adjusted odds ratio [AOR] = 3.2; 95% confidence interval [CI]: 1.1–9.2).

The present investigation sought to extend the previous findings. We draw on two samples from the same practice, including the sample used in the previous brief report, and a new sample assessed since then ($n = 2,043$). We hypothesized that primary care patients with current PD would be more likely to present with suicidal ideation than would those without PD. With the greater statistical power to detect smaller effects that a larger sample provides, we expected that this difference would remain significant after controlling for comorbid conditions commonly associated with PD (e.g., MDD, substance use disorders). In the current study, we were able to control for disorders (e.g., generalized anxiety disorder) that were not considered in the previous brief report [Goodwin et al., 2001] and to estimate odds of suicidal ideation among patients with PD after controlling for the most common co-occurring psychiatric disorders.

PATIENTS AND METHODS

Two systematic samples of consecutive adult patients seeking primary care were approached in the clinic waiting room of a New York City primary care practice described in detail elsewhere [Olfson et al., 2000] serving a predominantly Latino population. Eligible patients were aged 18 to 70 years, had made at least one prior visit to the practice, were fluent in English or Spanish, and were scheduled for an appointment with their primary care

physician. Informed consent was obtained from all participating subjects after the nature of the procedures was explained.

The first sample was interviewed in 1998–1999. Of 1,264 patients eligible to participate, 1,005 (80%) gave informed consent and completed the survey. The second sample was interviewed in 2001–2003. Of 1,347 patients eligible to participate, 1,157 (86%) gave informed consent and completed the survey. Both samples were predominantly Hispanic (75% and 82%, respectively), of middle age (mean [*sd*] age: 53.2 [12.2] years and 51.0 [12.2] years, respectively) and low income (44% and 40% with annual incomes below \$6,000, respectively), and composed predominantly of individuals born outside the US (73% and 80%, respectively).

For the current analyses, we combined the samples from both surveys. In cases where the same patients participated in both surveys ($n = 119$), we retained data only from the first survey. The combined sample included 2,043 unique patients, and their demographic information is shown in Table 1.

The prevalence of psychiatric symptoms and disorders was ascertained with the Primary Care Evaluation of Mental Disorders (PRIME-MD) Patient Health Questionnaire (Diagnostic and Statistical Manual of Mental Disorders [DSM]-IV version), known as the PHQ. The PHQ is a screening instrument developed for use in primary care, which yields provisional diagnoses of selected psychiatric disorders [Spitzer et al., 1994, 1999]. We used the algorithms set forth by Spitzer et al. to generate these diagnoses. Patients who responded positively to a screen question (“In the last 4 weeks, have you had an anxiety attack—suddenly feeling fear or panic?”), reported more than one panic attack, with the attacks having a sudden onset (“Do some of these attacks come suddenly out of the blue—that is in situations where you don’t expect them?”), experienced distress associated with the attacks, and reported at least 4 of 11 symptoms of panic attacks, received a panic disorder diagnosis. Current suicidal ideation was considered present when patients reported having been bothered by “thoughts that you would be better off dead or thoughts of hurting yourself in some way” in the preceding 2 weeks.

The sensitivity and specificity of the PHQ was estimated by comparing diagnoses made using the PHQ to those made by mental health professionals who completed a semistructured interview [Spitzer et al., 1994]. The sensitivity and specificity exceeded 50% and 90%, respectively, for most psychiatric disorders. For panic disorder, the sensitivity and specificity were 57% and 99%, respectively, and for major depression, 57% and 98%, respectively.

DATA ANALYSIS

Logistic regression analysis was used to compare the odds of suicidal ideation between patients with PD as compared to those without PD, controlling for demographic factors (age and gender) and the following comorbid psychiatric disorders: MDD, generalized anxiety disorder, and substance use disorders. Similarly, the odds of suicidal ideation were compared between patients with MDD and those without MDD, controlling for PD and the above-mentioned potential confounders. We also compared the odds of suicidal ideation between patients with comorbid PD/MDD and those with (1) PD only, (2) MDD only, and (3) neither PD nor MDD. To attenuate the overlap between suicidal ideation and MDD, which has suicidal ideation as a criterion, we repeated all analyses using a restricted definition of MDD. The restricted criteria for MDD excluded suicidal ideation as a symptom criterion.

RESULTS

Demographic data for the combined sample are shown in Table 1. Patients were predominantly low-income, Hispanic, middle-aged individuals (mean [*sd*] = 51.7 [12.3] years), and most were female (76.2%).

A provisional diagnosis of current PD was received by 127 patients (6.2%) and of MDD by 384 (18.8%). Most patients with PD received other diagnoses, including MDD (55.9%), generalized anxiety disorder (50.4%), alcohol use disorder (11.2%), and drug use disorder (6.5%). The rate of substance use disorder (i.e., either alcohol or drug use disorder) was 13.8% (data not shown).

As shown in Table 2, approximately one fifth of patients with MDD and one fifth of patients with PD presented with current suicidal ideation. When we restricted the diagnostic criteria for MDD to individuals who met criteria for MDD even without considering suicidal ideation as a symptom criterion, 17.5% of patients with MDD presented with suicidal ideation.

In total, 6.1% of study patients had current suicidal ideation. Among patients with both PD and MDD ($n = 71$), 20 (28.2%) reported suicidal ideation. Among patients with PD but no MDD ($n = 56$), 5 (8.9%) reported suicidal ideation, as compared to 2.4% of patients with neither condition (See Table 2). Current suicidal ideation was also reported by a substantial proportion of patients with generalized anxiety disorder ($n = 252$; suicidal ideation = 47, 18.7%), alcohol use disorder ($n = 136$; suicidal ideation = 19, 14.0%), and drug use disorder ($n = 52$; suicidal ideation = 7, 13.5%; data not shown).

As shown in Table 2, after adjusting for potential confounders (age, gender, MDD, generalized anxiety disorder, and substance use disorders), patients with PD were about twice as likely to present with current suicidal ideation as compared to those without PD (AOR = 1.84; 95% CI: 1.06–3.18; $P = .0298$; see Table 2). After adjusting for PD and the above mentioned potential confounders, patients with MDD had a sevenfold increase in the odds of suicidal ideation as compared to those without MDD (AOR = 7.00; 95% CI: 4.42–11.08; $P < .0001$), and nearly a fourfold increase when we narrowed the criteria for MDD by diagnosing only patients who met diagnostic criteria even without the suicidal ideation symptom criterion (AOR = 3.70; 95% CI: 2.33–5.87; $P < .0001$).

Patients with PD and MDD had a significantly higher odds of suicidal ideation than did patients with PD and no MDD (OR = 3.39; 95% CI: 1.03–11.19; $P = .0448$). When we restricted the diagnosis of MDD as described above, however, the difference was not statistically significant ($P = .1142$). Patients with both conditions did not have a significantly higher odds of suicidal ideation than did patients with MDD and no PD (OR = 1.64; 95% CI: 0.99–3.05, $P = .1165$).

Because there were two waves of data collection (1998–1999 and 2001–2003), we analyzed the data separately for each wave. Findings were similar in both waves except for estimates of the odds of suicidal ideation in patients with both PD and MDD, as compared to those with PD and no MDD. This association was significant in the first wave and in the overall study (as shown in Table 2), but not in the second wave. This is not surprising because there were only three patients with both conditions (PD and MDD) who reported suicidal ideation in the second wave. Estimates of suicidal ideation using the restricted and highly conservative definition of MDD (MDD-R) varied considerably from the first to the second wave. Again, there were few patients in some cells.

DISCUSSION

The rate of current suicidal ideation in this sample, 6.1%, is in the range (2–9%) reported in other primary care samples [Goodwin et al., 2003; Olfson et al., 1996; Zimmerman et al., 1995]. Suicidal ideation often precedes suicide attempts and deserves more attention in community and general medical settings [Kuo et al., 2001]. The prevalence of current panic disorder in this study (6.2%) was higher than the past year prevalence in the general population [2.3%; Kessler et al., 1994]. Previous studies have also found a higher prevalence of PD in primary care than in the general community. For example, in one primary care sample ($n = 1,000$), approximately 5% of patients met PRIME-MD criteria for current PD [Spitzer et al., 1994]. An earlier primary care study ($n = 195$) reported a current prevalence of PD of 6.7% using DSM-III criteria [Katon et al., 1986]. Because the symptoms of PD mimic many medical conditions and trigger health care utilization, the higher prevalence of PD in primary care than in community samples is likely due to a high use of medical services by adults with PD [Katon et al., 2002].

We found that about one fifth of patients with PD report current suicidal ideation. Is the association of PD with suicidal ideation explained by co-occurring psychiatric disorders? Patients with current PD were about twice as likely as those without PD were to report current suicidal ideation, even after controlling for commonly co-occurring psychiatric disorders and potential demographic confounders. The co-occurring conditions considered in this study thus do not seem to account fully for the risk of suicidal ideation among PD patients. The association between PD and suicidal ideation reported here parallels the previously reported ECA findings [Weissman et al., 1989] and previously reported findings in a community sample of adolescents [Pilowsky et al., 1999]. Because those studies used lifetime diagnoses, it was not clear whether both panic and suicidal ideation occurred at the same time. The use of current diagnoses and current suicidal ideation in this study strengthens the link between PD and suicidal ideation. We did not, however, assess for the presence of personality disorders. Had we also assessed and controlled for personality disorders, the association between PD and suicidal ideation might have been attenuated.

The current findings contrast with some earlier reports of patient samples. For example, Warshaw et al. [2000] studied suicidal behavior among psychiatric patients with PD ($n = 498$) and concluded that PD was not associated with suicidal behavior in the absence of comorbid conditions. Although the present study and the ECA study [Weissman et al., 1989] used large samples ($n > 2,000$) that provide sufficient statistical power to detect modest effect sizes, most prior studies based in psychiatric settings used smaller samples [e.g., Warshaw et al., 2000; $n = 498$]. With the exception of our previous report [Goodwin et al., 2001], most reports dealing with PD in primary care settings [e.g., Birchall et al., 2000; Katon et al., 1986] did not deal with the impact of co-occurring psychiatric disorders on suicidal ideation.

Additionally, studies vary in the type of assessments used, including assessments of personality disorders in some studies [e.g., Warshaw et al., 2000] but not in the present study. Lastly, the characteristics of PD in psychiatric and primary care samples may differ, i.e., a greater number or greater severity of psychiatric comorbid conditions are likely to be found in psychiatric than in primary care samples, and community samples are likely to have the least comorbidity.

Most PD patients had co-occurring psychiatric conditions and MDD greatly increased the odds of suicidal ideation. Not surprisingly, over one quarter (28.2%) of patients with co-occurring PD and MDD reported suicidal ideation, and the proportion with suicidal ideation remained largely unchanged after restricting the diagnosis of MDD to patients meeting

criteria for MDD even without considering suicidal ideation as a symptom criterion. Patients with both conditions (MDD and PD) were over three times more likely to report suicidal ideation than were patients with PD and no MDD. This is important from a clinical viewpoint because when PD patients become depressed their risk for suicidal ideation may increase, thus warranting a reassessment of their suicide risk. Are patients with both conditions at higher risk for suicidal ideation than those with MDD alone? There was no significant increase of suicidal ideation among patients with both conditions as compared to that with MDD alone. Because the risk of suicidal ideation among patients with MDD compared to those without MDD was seven times higher after controlling for PD and other common comorbidities, it is not surprising that PD did not add to the already high risk for suicidal ideation.

The sample we studied had very low incomes, lived in the inner city, and severity of PD among poor patients is known to be greater than among more affluent patients [Roy-Byrne et al., 2003]. Furthermore, most patients were either unemployed (17%) or disabled (46%), and unemployment or disability may have contributed to the increased prevalence of suicidal ideation. The ability to generalize to other primary care settings that cater to more prosperous, higher functioning, or non-minority populations may therefore be limited.

LIMITATIONS

This is a cross-sectional study. Causal inferences therefore are not warranted and we were unable to ascertain the temporal sequence of PD and MDD onset in comorbid patients. Although research supports the diagnostic validity of the PRIME-MD in primary care [Spitzer et al., 1999], the use of a diagnostic interview rather than a screening instrument might have yielded different results. Furthermore, the sensitivity of PHQ diagnoses, 57% in the case of PD and MDD is suboptimal. The PHQ therefore may have failed to identify some MDD and PD cases. Because the specificity is excellent for both disorders, it is unlikely that those identified as not suffering from these disorders were indeed cases of PD or MDD.

There were two waves of data collection separated by a significant period of time. Secular changes in the prevalence of disorders or their correlates represent a potential limitation to this study. Even after combining data from the two waves, some of the subgroup analyses included a small number of patients and may have been statistically insignificant due to lack of statistical power.

Several mental disorders, such as personality disorders, and life events that have been associated with suicidality, e.g., early childhood abuse [Ystgaard et al., 2004], were not assessed and may account partially for the observed association between PD and suicidal ideation. In some clinical studies, for example, patients with PD and borderline personality disorder were at significantly higher risk of suicidal behavior than were PD patients with panic disorder alone [e.g., Warshaw et al., 2000]. Lastly, generalizability to other primary care settings is limited for reasons discussed above.

CLINICAL IMPLICATIONS

Patients with PD are at high risk for suicidal ideation, regardless of whether the suicidal ideation is due to PD itself or to co-occurring conditions. PD patients thus should be assessed routinely for suicidal ideation and depression. Patients with PD and comorbid MDD are at especially high risk. Because PD patients are often seen in primary care, emergency, and psychiatric settings, physicians and mental health professionals working in these settings should be aware of the potential for suicidal ideation and suicide attempts in these patients.

CONCLUSION

We found that about one of every sixteen patients (6.1%) attending a primary care clinic reported current suicidal ideation. About one fifth of subjects with current PD presented with current suicidal ideation, and PD subjects were twice as likely to report current suicidal ideation as compared to primary care patients without PD, even after controlling for common co-occurring psychiatric disorders, including MDD. Future research should assess the extent to which personality disorders contribute to suicidal ideation in primary care patients in general and among those with PD in particular. Patients with personality disorders may need more extensive treatment than do those with PD alone to remain at low risk for suicide attempts.

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TABLE 1

Demographic characteristics of 2,043 primary care patients attending the AIM^{*}

Characteristic	Value
Age (years), mean (<i>sd</i>)	51.7 (12.3)
Years in the US	29.5 (16.4)
Female, <i>n</i> (%)	1,550 (76.2)
Immigrant ^a , <i>n</i> (%)	485 (23.8)
Marital status, <i>n</i> (%)	
Married/cohabitating	588 (28.8)
Separated/divorced	861 (42.2)
Widowed	198 (9.7)
Never married	393 (19.3)
Ethnicity, <i>n</i> (%)	
Hispanic	1,605 (78.6)
Black, non-Hispanic	345 (16.9)
White, non-Hispanic, and other	93 (4.6)
Education, <i>n</i> (%)	
Up to 8th grade	791 (39.0)
9th to 11th grade	364 (17.9)
High school graduate	438 (21.6)
Some college	300 (14.8)
Four or more years of college	137 (6.8)
Annual household income, <i>n</i> (%)	
<\$6,000	843 (41.7)
\$6,000–11,999	784 (38.8)
\$12,000–17,999	207 (10.3)
\$18,000–36,000	134 (6.6)
\$36,000	52 (2.6)
Work status ^b , <i>n</i> (%)	
Employed	328 (16.1)
Unemployed	340 (16.6)
Disabled	935 (45.8)
Retired	225 (11.0)
Homemaker	347 (17.0)
Student	63 (3.1)

* Variable *n* due to missing data. Missing data as follows: years in the US, 21; immigrant status, 8; marital status, 3; education, 13; and household income, 23.

^a Defined as not born in the US.

^b Categories are not mutually exclusive

TABLE 2

Current prevalence and adjusted odds of suicidal ideation among primary care clinic attendees^{*}

Diagnosis ^a	<i>n</i>	Suicidal ideation ^b <i>n</i> (%)	Adjusted OR (95% CI) ^c	<i>P</i>
PD				
Yes	127	25 (19.7)	1.84 (1.06–3.18)	.0298
No	1,898	97 (5.11)		
MDD				
Yes	397	80 (20.2)	7.00 (4.42–11.08)	<.0001
No	1,632	43 (2.63)		
MDD-Restricted ^d				
Yes	384	67 (17.5)	3.70 (2.33–5.87)	<.0001
No	1645	56 (3.4)		
Panic and MDD				
Both	71	20 (28.2)	8.04 (3.26–19.83)	<.0001
Neither	1,572	38 (2.4)		
Both	71	20 (28.2)	3.39 (1.03–11.19)	.0448
PD, no MDD	56	5 (8.9)		
Both	71	20 (28.2)	1.64 (0.88–3.05)	.1165
MDD, no PD	325	59 (18.2)		
Panic and MDD-R ^d				
Both	70	19 (27.1)	4.12 (1.76–9.67)	.0011
Neither	1,584	50 (3.2)		
Both	70	19 (27.1)	2.51 (0.80–7.84)	.1142
PD, no MDD-R	57	6 (10.5)		
Both	70	19 (27.1)	1.86 (0.98–3.54)	.0586
MDD-R, no PD	313	47 (15.0)		

^{*}Total *n* = 2,043. Variable *n* due to missing data. PD, panic disorder; MDD, major depressive disorder.

^aProvisional diagnoses, from the PRIME-MD patient health questionnaire.

^bSuicidal ideation and MDD in the last 2 weeks; generalized anxiety disorder and PD in the last 4 weeks; and alcohol and drug use disorder in the past 12 months.

^cAll odds ratios (ORs) adjusted for age, gender, generalized anxiety disorder, and alcohol or drug use disorder. PD also adjusted for MDD. MDD also adjusted for PD.

^dRestricted to individuals who meet criteria for MDD even without considering suicidal ideation as a symptom criterion.