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Moderators and mediators among panic, agoraphobia symptoms, and suicidal ideation in patients with panic disorder

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Abstract

Objectives: The most important change of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-V*) is the use of dimensional approach to assess the severity of symptoms across different diagnosis. There are 2 purposes in this study: the first purpose was to identify the proportion of outpatients with panic disorder who have suicidal ideation. The second aim was to examine the relationships among panic, agoraphobic symptoms, and suicidal ideation in patients with panic disorder, adjusting by age, social support, and alcohol use.
Methods: Sixty patients with panic disorder were recruited from outpatient psychiatric clinics in southern Taiwan. Suicidal ideation in the preceding 2 weeks was measured. The Panic and Agoraphobic Symptoms Checklist, Social Support Scale, Questionnaire for Adverse Effects of Medication for Panic Disorder, and Social Status Rating Scale were used to understand the severity of panic and agoraphobia, social support, drug adverse effects, and social status. Significant variables from the univariate analysis were included in a forward regression model. Then, we used structural equation modeling to fit the model.
Results: We found that 31.7% of outpatients with panic disorder had had suicidal ideation in the preceding 2 weeks. Multiple regression analysis showed that younger age, current alcohol use, more severe panic symptoms, and less social support were associated with suicidal ideation. In addition, the structural equation model illustrated the recursive model from panic to agoraphobia and suicidal ideation. Agoraphobia had no association with suicidal ideation. Panic symptom was a mediator to suicidal ideation but not agoraphobic symptoms.
Conclusions: A high proportion of patients with panic disorder had suicidal ideation. We found that panic symptoms, social support, age, and alcohol use affected suicide and could be identified. The 3-level model from panic to agoraphobia revealed that panic was a predictor of agoraphobia and agoraphobia was not a predictor of panic. This verified the evolution of the diagnostic view of the *DSM*. Panic symptom was a mediator to suicidal ideation. With the dimensional model in *DSM-V*, panic symptoms can be used as a marker for greater morbidity and severity.

1. Introduction

It is a long-standing issue whether mental disorders are strict different diagnosis or a spectrum along dimensions. Following the frustrations and limitations encountered by the categorical model, the most important change of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-V*) is the dimensional models of classification. The dimensional model will help us evaluate the severity of different symptoms along with the core psychiatric disorders [1,2]. Panic disorder is a chronic illness associated with a high risk of poor marital relationships, high financial dependence, and poor physical and emotional health [3,4]. It may not be a predictor of major depression [5,6], but patients with panic disorders were found to have a high proportion of suicidality [7,8]. Whether panic disorder is a risk factor for suicide is still controversial. Some studies have revealed that anxiety disorder was found to be an independent risk factor for suicide [9-11]. Others showed that panic disorder may not be associated with an increased risk of suicide attempts, after controlling for comorbid conditions [12-14].

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Identifying the correlates of suicidal ideation is helpful in reminding clinical workers to further evaluate the possibility of suicidal risk and to implement intervention programs. Few studies have examined the correlation between suicide and the core symptoms of panic disorder. Overall anxiety symptoms, the level of anticipatory anxiety, and avoidance of bodily sensations are predictors for suicide in patients with panic disorder [15].

Current recommendations suggest that pharmacotherapy for patients with panic disorder should be continued for at least a year [16]. For example, antidepressants and benzodiazepines are advantageous in treating patients with anxiety disorders [17-21]. However, patients who receive antidepressants and benzodiazepine may experience adverse effects [16,22]. At present, little is known about the relationship between the adverse effects of pharmaceuticals and suicidal ideation in patients with panic disorder.

Social support has been found to be associated with well-being in patients with severe mental [23-25] and chronic medical illnesses [26,27]. However, the relationship between social support and suicidal ideation in patients with panic disorder is not clear.

The term *agoraphobia* was first used in 1871 to describe the condition of patients who were afraid to venture alone into public places [28]. In the *DSM-III*, agoraphobia is a separate phobic disorder and may or may not be accompanied with panic attacks [29]. After Klein's cogent argument [30], panic disorder was considered as a conditioned avoidance response to the aversive stimulus of spontaneous attacks. Panic disorder was considered as diagnostically primary with or without agoraphobia in the *DSM-III-R* [31]. Since then, many studies have been conducted to test the hypothesis. One study found that panic disorder with agoraphobia aggregated in families, but agoraphobia without panic disorder was not familial [32]; other studies had inconsistent findings [33]. Until today, the relationship between agoraphobia and panic is still controversial.

There are 2 purposes in this study: the first purpose was to identify the proportion of outpatients with panic disorder who have suicidal ideation. The second was to examine the multilevel relationships among suicidal ideation, panic, and agoraphobic symptoms in patients with panic disorder, with the potential confounding factors of sociodemographic characteristics, course of illness, perceived social support, adverse effects of medication, and substance use adjusted.

2. Methods

2.1. Participants

From July to December 2003, 65 patients with panic disorder were consecutively recruited from the outpatient psychiatric clinics at a medical center and a regional teaching hospital in southern Taiwan. Five patients (3 men and 2 women) refused to participate in this study. Altogether, 60 patients (30 men and 30 women) were successfully included in the study. A psychiatrist systematically assessed all patients to confirm the diagnosis of panic disorder using the structured Mini-International Neuropsychiatric Interview [34], based on the diagnostic schemes of the *DSM-IV* [35]. Among the 60 participants, 57 (95%) had received medication treatment for panic disorder in the preceding 2 weeks, including 36 (63.2%) who had received antidepressants and benzodiazepine, 8 (14.0%) who had received only antidepressants, and 13 (22.8%) who had received only benzodiazepine.

2.2. Survey instruments

2.2.1. Suicidal ideation

We surveyed the participants' severity of suicidal ideation in the preceding 2 weeks. For this item, 0 indicates that the participant had no suicidal ideation; 1 indicates that he/she had suicidal ideation but would not attempt anything; 2 indicates that he/she had a desire to kill himself/herself; and 3 indicates that he/she would commit suicide if the opportunity existed.

2.2.2. Panic and Agoraphobic Symptoms Checklist

We developed the 21-item 4-point Panic and Agoraphobic Symptoms Checklist (PASC) to assess participants' self-reported severity of panic and agoraphobic symptoms in the preceding 2 weeks. The PASC surveys 13 symptoms of panic attack in the *DSM-IV* and is self-limited to 8 situations that may evoke agoraphobic anxiety. Higher scores on the PASC indicate that participants have more severe panic and agoraphobic symptoms. The Cronbach α values of the PASC in the present study were .94 for the panic subscale and .93 for the agoraphobic subscale. A psychiatrist assessed the severity of panic and agoraphobic symptoms in 30 participants based on the PASC, and the intraclass correlation coefficient (ICC) between the participants' self-reports and the psychiatrist's assessment of panic attack (ICC = 0.725, $P < .001$) and agoraphobia (ICC = 0.605, $P < .05$) were statistically significant.

2.2.3. Social Support Scale

The Social Support Scale (SSS), which contains 15 four-point items, was modified by Wang [36] from the Inventory of Socially Supportive Behavior developed by Barrera and Sandler [37]. The Cronbach α of the SSS in the present study was .95, and the 1-week test-retest reliability (r) was 0.92 ($P < .001$). The higher the SSS scores, the higher the level of the subjects' perceived social support.

2.2.4. Questionnaire for Adverse Effects of Medication for Panic Disorder

We used the Questionnaire for Adverse Effects of Medication for Panic Disorder (QAEM-PD) to evaluate a patient's perception of adverse effects in the preceding 2 weeks as induced by the antidepressants (selective serotonin reuptake inhibitors [SSRIs]) and benzodiazepine used to treat panic disorder. The QAEM-PD evaluates 16 items of adverse effects, including psychomotor retardation, tremor, daytime sleepiness, poor concentration, deteriorated memory, fatigue and weakness, dizziness and giddiness, blurred