Available online at www.sciencedirect.com

ScienceDirect

Comprehensive Psychiatry 55 (2014) 762–769

COMPREHENSIVE PSYCHIATRY

www.elsevier.com/locate/comppsych

Panic symptom clusters differentially predict suicide ideation and attempt

Lance M. Rappaport[a,*], D. S. Moskowitz[a], Igor Galynker[b], Zimri S. Yaseen[b]

[a]*Department of Psychology, McGill University, Montreal, QC, Canada*
[b]*Department of Psychiatry, Beth Israel Medical Center, New York, NY*

Abstract

Increasingly strong evidence links anxiety disorders in general and panic attacks in particular to suicidality. The underlying causes and specifics of this relation, however, remain unclear. The present article sought to begin addressing this question by clarifying the association between panic symptoms and suicidality. Data were sampled from the NESARC epidemiological data set from the US and analyzed as four independently, randomly selected subsets of 1000 individuals using structural equation modeling analyses and replicating results across samples. Evidence is presented for four symptom clusters (cognitive symptoms, respiratory distress, symptoms of alpha and beta adrenergic activation) and the differential association of each with suicidal ideation and attempts. Symptoms of alpha adrenergic activation predicted prior suicide attempt whereas cognitive symptoms predicted prior suicidal ideation. These findings were independent of comorbid major depressive disorder. It is suggested that assessment of suicide risk in the community includes the presentation of cognitive symptoms and symptoms related to alpha adrenergic activation.

Panic attacks and panic disorder are relatively common psychiatric occurrences in the community with epidemiological estimates of prevalence at 3.8% for panic disorder and between 5% and 15% for panic attacks [1]. Panic attacks, panic disorders, and panic symptoms have been associated with physical, social, and emotional impairment [2].

1. Panic disorder as a risk factor for suicidal ideation and suicide attempt

Despite some negative findings [3], increasingly strong evidence links anxiety disorders in general [4] and panic attacks in particular to suicidality [5]. The first major evidence for this association was presented by Weissman et al. [6], who found that panic disorder and panic attacks were associated with increased risk for suicide ideation and attempt.

Mixed support for the relation between panic disorder and suicide has been found in large national data sets [7–10]. Estimates based on the National Comorbidity Survey (NCS) suggest a non-significant association between suicide and panic disorder [11]. In contrast, results based on the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) estimate an overall adjusted odds ratio (AOR) of 1.3 to 1.54 between panic disorder and history of at least one suicide attempt adjusted for comorbid disorders and sociodemographic factors. Moreover, among individuals with a lifetime history of depressive disorders, Katz et al. found that a panic attack in the past year was associated with adjusted odds ratios of 2.1 for suicide attempt and 1.8 for attempt versus ideation only [12]. Results based on the Christchurch Health and Development Study indicated somewhat stronger relations between panic disorder and suicidal ideation (AOR 1.89) and between panic disorder and concurrent suicide attempts (AOR 3.93) when adjusting for other concurrent anxiety disorders, comorbid disorders and life stressors [13]. In addition, research indicates that higher self-reported panic disorder severity predicts suicidal ideation [14], and other panic-related states have been linked to suicidality [15].

Previous research has relied on diagnoses of panic disorder rather than the presence or absence of relevant symptoms. There is strong evidence suggesting that panic attacks are not homogenous events but rather comprise distinct symptom clusters. Mixed findings may be explained by a failure to take into account mixed symptom presentations. While epidemiological analyses provide robust estimates of this relation, its

Portions of this work were presented at The Association for Behavioral and Cognitive Therapies Annual Meeting, November 2011, Toronto, ON.

* Corresponding author at: 1205 Dr. Penfield Avenue, Montreal, QC H3A 1B1, Canada. Tel.: +1 514 398 3717; fax: +1 514 398 4896.
E-mail address: Lance.Rappaport@mail.mcgill.ca (L.M. Rappaport).

0010-440X/$ – see front matter © 2014 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.comppsych.2013.10.017

mechanisms remain obscure. To date two studies have presented findings on the association between individual panic symptoms and suicidality [12,16]. This research found evidence for the association of certain panic symptoms with suicidal ideation and suicide attempt. In particular, fear of dying was associated with suicide attempts, while other cognitive symptoms (e.g. fear of losing control or going insane and dissociation) were associated with history of suicide ideation [12]. Patients with panic disorder present both physiological [17,18] and psychological differences from healthy controls, such as anxiety sensitivity [19]. The linkage between panic attacks and suicidality may be due to either or both physiological and psychological factors.

The physiological symptoms of panic attacks include symptoms of both alpha [20,21] (e.g., sweating, shortness of breath/choking) and beta adrenergic activation [22] (e.g., pounding/racing heart, trembling) as well as more complex symptoms and mechanisms (e.g., dizziness which could be an orthostatic response to reflex parasympathetic activation [23] or to respiratory alkalosis [24]). If panic symptoms reliably cluster in terms of different autonomic signalling pathways and these clusters associate differentially with suicide, then disturbances at the neuro-transmitter receptor level may contribute directly to the association between the physiological symptoms of panic and suicidality.

Research is needed to replicate and evaluate whether there are unique psychological and physiological mechanisms for the association between panic and suicide. Thus, further research is warranted to examine the relation between specific, naturally-occurring clusters of panic attack symptoms and suicidality to establish more specific risk factors for suicidal ideation and for suicide attempts.

2. Factorial structure of panic-related symptoms

A large literature has documented the heterogeneity in panic disorder, specifically the presence of clusters of panic symptoms. Findings from exploratory factor analyses of symptoms in patient populations identify either a 3- or 4-factor solution accounting for approximately 40–60% of the variance in symptom items.

The 3-factor solution has been supported by Shiori and colleagues [25,26] who report evidence of clusters of respiratory (e.g. dyspnoea), cognitive (e.g. depersonalisation), and miscellaneous symptoms (e.g. trembling/shaking, fear of dying). Meuret et al. [27] replicated the respiratory and cognitive factors but added a cluster of arousal symptoms. Cox et al. [28] replicated the cognitive factor but describe a cluster of cardiorespiratory symptoms and one of the symptoms related to dizziness.

A somewhat larger literature has consistently identified the presence of four underlying symptom-clusters in panic disorder [29–31]; however there is not yet a consensus on the makeup of these clusters. Among the factors previously identified are: a cluster of symptoms resembling respiratory distress [32], a cluster comprising cognitive symptoms [33,34], and various clusters (e.g. gastrointestinal, cardiovascular) which are broadly related to autonomic arousal [32,35].

A limitation of the generalizability of the derivation of the three or the four factor solution is the participants sampled. Prior studies have been based on clinical inpatient or outpatient samples, thus restricting the sample to participants with diagnosed panic disorder. This focus restricts the findings to describing the manifestation of panic symptoms in a population with panic disorder. The present study examines a community sample to provide a more widely applicable test of naturally occurring clusters of the symptoms related to panic.

3. Comorbidity of panic-related symptoms and major depressive disorder

Epidemiological studies and clinical reports have noted the high comorbidity of panic disorder and major depressive disorder, leading to the proposal of mixed-state anxiety and depressive disorder. Panic disorder when comorbid with major depressive disorder increases risk for suicidal ideation and for suicide attempts [36]. Thus, comorbidity with major depressive disorder should be taken into account in any study examining the relation of panic disorder and panic symptoms with suicidal ideation and suicide attempt.

4. The present study

The present study seeks to establish robust estimates of the factorial structure of panic attack symptoms and use these latent factors to clarify the relation between panic and suicidality. To obtain a large sample for split-half exploratory and confirmatory analyses, National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) epidemiological data were used. This is a community sample which allowed examination of the natural clustering of panic-related symptoms within the general population. This yields more generalizable information about the structure of panic-related symptoms than studies which have restricted analyses or data collection to participants with diagnosed panic disorder. Analysis of this sample creates a more stringent test of the association between panic-related symptoms and suicidality in the general community rather than predicting such risk only for patients diagnosed with panic disorder. The present study made use of generalized structural component analysis [37], which allows for confirmatory factor analysis and structural equation modelling of dichotomous variables as endogenous within the model. Following the findings of Katz et al. [12], differentially linking individual panic symptoms to suicidal ideation and attempts, we hypothesized that two of the symptom clusters in panic attacks, cognitive and alpha adrenergic activation-related symptoms, would associate differently with suicidal ideation versus suicide attempt.