

A FACTOR ANALYTIC STUDY OF PANIC SYMPTOMS

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ABSTRACT

We studied 94 panic subjects with a view to identify clinical subtypes of panic disorder. Principal component analysis with varimax rotation of 13 DSM-IV panic symptoms yielded four clinically meaningful factors. Factor I with hot flushes, trembling and sweating was suggestive of a general autonomic hyperactivity. Factor II had cognitive symptoms such as fear of loss of control or going crazy and derealisation. Factor III was mixed in nature but had symptoms of fear of dying and chest pain. Factor-IV had respiratory symptoms in the form of choking sensation and being short of breath. These findings are compared to earlier studies of factor analysis of panic symptoms reported from the West. Clinical implications of sub-types of panic disorder have been highlighted.

Key words: Panic symptoms, Factor analysis, Sub-types of panic disorder

Recent research, based largely on the clinical studies of symptom clusters during panic attacks, suggests that there exist several sub-groups of panic disorder. These clinical sub-types include panic patients presenting with prominent cardio-respiratory (Lelliot & Bass, 1990), gastrointestinal (Lydiard et al., 1986), vestibular (Stein et al., 1994) and depersonalization symptoms (Cassano et al., 1989). One subtype of panic attack, 'non-fear' panic attacks has been noted to be particularly common among patients attending cardiology clinics (Kushner & Beitman, 1990).

Several authors have used factor and cluster analysis of panic symptoms to identify distinct sub-types of panic disorder. Cox et al. (1994) studied panic attack symptomatology in 212 subjects with panic disorder. They identified three factors consisting of dizziness - related symptoms, cardio-respiratory distress and cognitive factors. De Beurs et al. (1994) in their factor analytic study of 94 panic patients described three factors comprising of general

arousal, psychological symptoms and smothering sensations such as shortness of breath and choking. In a study of panic disorder patients using cluster analysis, three panic symptom clusters emerged (Shiori et al., 1996). Cluster A comprised of respiratory symptoms, cluster B included both panic and agoraphobic symptoms, while fear symptoms dominated cluster C. In a community based study of comorbidity in patients with panic attacks, panic disorder with phobic avoidance emerged as a prominent factor further lending support to the panic disorder-agoraphobia diagnostic grouping (Katerndahl & Realini, 1997). Segui et al. (1998) studied panic symptoms based on DSM-III-R in 274 consecutive cases of panic disorder using principal component analysis. They identified four factors that accounted for 57% of the variance. Cardio-respiratory and vestibular factors emerged as the two prominent sub-types. Based on the responses to the body sensations questionnaire and agoraphobic cognitions questionnaire, Chambless et al. (2000) identified 4 factors comprising of cardiovascular,

neurological, gastrointestinal and behavioral control symptoms in their panic patients. Moreover they found a relationship between fear of specific physical sensation and logically related catastrophic cognition.

Studies have also identified important clinical differences among the various panic subgroups, concerning longitudinal course and treatment response. Panic patients with prominent respiratory symptoms have more spontaneous and nocturnal panic attacks, past traumatic suffocation experiences, longer duration of illness, are more sensitive to CO₂ challenge, and have a more severe type of panic disorder as compared to the non-respiratory group (Biber & Alkin, 1999; Bouwer & Stein, 1997; Verburg et al., 1995). Vestibular symptoms are more frequent in subjects with panic disorder with agoraphobia as compared to patients with uncomplicated panic disorder (Marks, 1967; Noyes et al., 1987). In a study based on longitudinal data from the Epidemiologic Catchment Area Study, Bovasso and Eaton (1999) observed that the type of panic attack at baseline had some prognostic value in predicting future psychiatric and medical disorders.

Briggs et al. (1993) noted that panic patients with prominent respiratory symptoms responded better to imipramine, while alprazolam was more effective in subjects with non-respiratory symptoms. Thus, the clinical heterogeneity seen among patients with panic attacks can have important implications concerning etiology, course and treatment.

Most of the investigations on subtypes of panic disorder have come from the west. There is increasing evidence to suggest that there is trans-cultural variation in the expression of panic disorder symptoms (Amering & Katsching, 1990; Liebowitz et al., 1994). The aim of the present study was to identify clinical subtypes of panic attacks in a consecutive series of patients presenting with panic attacks.

MATERIAL AND METHOD

A consecutive series of adult patients

presenting with panic attacks to the outpatient psychiatric clinic of the department of psychiatry, St.John's Medical College Hospital were evaluated for the purpose of the study. Subjects with psychotic disorder and/or substance abuse disorders were excluded from the study. Patients should have had at least one panic attack in the two weeks before their entry into the study. All subjects, who consented to participate in the study, underwent physical examination and laboratory investigations including a thyroid profile. This study was conducted over a one year period from December 1998 until December 1999.

Clinical assessments: Patients were asked to maintain a panic diary for 2 weeks. The panic diary included the following items: Frequency of panic attacks, symptoms experienced during each panic attack, and whether the panic attack was spontaneous or situational. All subjects were then evaluated using the following questionnaires:

a) Composite International Diagnostic Interview (CIDI) (Robins et al., 1988) was used to generate psychiatric diagnosis according to DSM-IV criteria. CIDI has been used in India (Sartorius et al., 1993) and one of the authors (1 N) was trained in its administration.

b) Panic symptom checklist: This checklist consisted of symptoms commonly reported by panic patients. A list of 26 symptoms was developed from a literature review of published studies on the phenomenology of panic attacks. This list also included 13 symptoms described under DSM-IV criteria for panic attack. Symptoms were scored as present or absent.

Statistical Analysis: Factor analysis of 13 DSM-IV panic symptoms was performed using principal component extraction method with varimax rotation. An eigen value of 1 was used as the criteria for determining the number of factors that would be subjected to varimax rotation. The minimum number of items in a factor was set at two.

RESULTS

Males (47.9%) and females (52.1%) were equally distributed among the study sample. The

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average age of the sample at the time of the interview was about 35 years (Mean=34.7±10.58). Majority in the present study were married (69.1%) with 27.7% being never married, while 1.1% were separated and 2.1% were widowed. The mean age at onset of panic attacks was 28.9 years (Mean=28.9±10.37) and the average duration of panic symptoms was 5.7 years (Mean=5.7±7.3).

TABLE
PRINCIPAL COMPONENT ANALYSIS OF THE 13 DSM-IV
PANIC SYMPTOMS (N=94)

	Factor1	Factor2	Factor3	Factor 4
	Autonomic	Cognitive	Mixed	Respiratory
Hot Flashes	0.78			
Trembling	0.69			
Sweating	0.56			
Going Crazy		0.77		
Derealization		0.65		
Paraesthesia			0.77	
Nausea			0.59	
Chest Pain			0.56	
Fear of Dying			0.54	
Short of Breath				0.74
Choking				0.72
Tachycardia				
Dizziness				
Eigen Value	2.32	1.66	1.40	1.13
Percentage of				
Total Variance	17.83	12.80	10.75	8.67

On the CIDI interview, 42 patients (44.7%) were diagnosed to have panic disorder according to the DSM-IV criteria, while 30 subjects (31.9%) had a diagnosis of major depression (with panic attacks). Panic disorder with agoraphobia was the diagnosis in 22 subjects (23.4%). Feeling anxious, tachycardia, panicky, fear about dying, heart pounding, weakness, feeling depressed, trembling, sweating, shortness of breath and hot flushes were the most frequently reported panic symptoms.

Principal component analysis using a varimax rotation yielded five factors, which collectively accounted for 58% of the variance (Table). Out of these five factors, four clinically meaningful factors emerged. Factor I was hot flushes, trembling and sweating explaining 17.8% of the variance. Factor II had cognitive symptoms such as going crazy and derealization accounting

for 12.8% of the variance. Factor III had chest pain, fear of dying, nausea and paraesthesia explaining 10.8% of the variance. Factor IV had respiratory symptoms in the form of choking sensation and being short of breath explaining 8.7% of the variance.

DISCUSSION

In the present report, we studied the subtypes of panic in 94 consecutive patients attending an out-patient psychiatric clinic. Patients with panic attacks typically had multiple symptoms. In majority of the subjects, the panic attacks were spontaneous. Our results on factor analysis are comparable to findings of other investigators with some differences. As compared to earlier reports, where cardio-respiratory factors had emerged as either the first or the second factor (Briggs et al., 1993; Cox et al., 1994; Segui et al., 1998; Chambless et al., 2000), in our study a general autonomic factor accounted for the largest variance. This autonomic factor is similar to the general arousal factor described by De Beurs et al. (1994) in their factor analytic study of panic symptoms.

The cognitive symptoms of fear of dying and fear of loss of control have segregated into two different factors. The second factor had the cognitive items of going crazy/fear of loss of control and derealization. The third factor, which was mixed in nature, had the cardiac symptom of chest pain and fear of dying. Cox et al. (1994) and Segui et al. (1998) in their factor analysis study of panic attacks also noted an association between fear of dying and chest pain. While fear of dying is associated with a general symptom of anxiety (Starcevic et al., 1993), fear of going crazy or loss of control seems to be related to other cognitive symptoms such as derealization or depersonalization (Briggs et al., 1993; De Beurs et al., 1994). Other authors too have stressed the importance of making a distinction between fear of dying and fear of loss of control (Langs et al., 2000; Segui et al., 1998; Starcevic et al., 1993). Fear of loss of control is more likely to be perceived as socially embarrassing resulting in avoidance

behaviour (Starcevic et al., 1993) and is associated with agoraphobia rather than uncomplicated panic disorder (Cassano et al., 1989; Langs et al., 2000). The last factor has respiratory symptoms (Shortness of breath, choking) and is similar to the smothering sensation factor described by DeBeurs et al. (1994) and the panic symptom cluster with prominent respiratory symptoms reported by Shiori et al. (1996). Among the various clinical sub-types of panic disorder, those with prominent respiratory symptoms have received a lot of attention. Panic patients with respiratory symptoms are found to be more sensitive to CO₂ challenge (Biber & Alkin, 1999) and have a differential treatment response as compared to panic patients without prominent respiratory symptoms (Briggs et al., 1993).

There are some important differences in the sub-types of panic attacks identified in the present study when compared to the findings of the earlier factor analytic studies reported from the West. Some of these differences may be attributed to the sample size or to the number of panic symptoms included in the factor analysis (Segui et al., 1998). Another important reason for these discrepancies may be related to cross-cultural differences in the subjective symptoms that are part of panic attacks. In the present study, the frequency of vestibular symptoms (dizziness & faintness) and cognitive symptoms such as depersonalisation were less compared to rates reported by investigators from the West (Aronson & Logue, 1988; Cox et al., 1994; Segui et al., 1997). Shiori et al., (1996) reported that depersonalisation was not a common symptom of panic attacks among Japanese subjects. Other investigators too have commented on the cross-cultural differences in the expression of panic symptoms (Amering & Katshnig, 1990; Liebowitz, 1994; Segui et al., 1998).

There are some limitations to this study. Patients recruited to the study were from a tertiary care center. In common with other studies of this kind, panic symptoms were elicited in a retrospective manner. However, to minimize recall difficulty as far as possible, it was necessary for patients in the present study to have had panic

attacks in the two weeks before their entry onto the study. In the present study, for the purpose of factor analysis we have included only the 13 DSM-IV panic items as they are recognized as the core symptoms of a panic attack. However, Cox et al. (1994) in their study observed that panic patients frequently experience many symptoms not listed in DSM-III R criteria for panic attack. They, therefore, included a much larger universe of panic symptoms in their factor analytic study of panic symptoms.

In conclusion, in the present study, factor analysis of panic symptoms using the principal component method yielded clinically meaningful sub-types of panic attacks. The clinical subgroups of panic disorder identified in this study need to be further validated on a larger sample of panic patients drawn preferably from a primary care center or the community. In addition, the various sub-types of panic disorder need to be compared with each other on their longitudinal course, treatment response and biological characteristics (Segui et al., 1998).

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