# Somatization and Hypochondriacal Concerns in Panic Disorder

by

Patricia Furer

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# SOMATIZATION AND HYPOCHONDRIACAL CONCERNS IN PANIC DISORDER

BY

PATRICIA FURER

A Thesis/Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

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## Abstract

Many individuals with panic disorder present with primarily somatic symptoms and report hypochondriacal concerns. There is, however, little systematic research assessing the prevalence of somatization and hypochondriacal beliefs in patients with panic disorder. The present study attempts to clarify the relationship between panic disorder, somatization and hypochondriacal concerns by assessing the presence of somatic symptoms and the prevalence and nature of hypochondriacal beliefs in 21 patients with DSM-IV panic disorder. The assessment involved a semi-structured diagnostic interview, self-report questionnaires, and daily self-monitoring diaries. These data were compared to the levels of somatic symptoms and hypochondriacal beliefs reported by two comparison samples: (a) a healthy control group (individuals with no psychiatric diagnoses; N=22) and (b) a group of patients with DSM-IV social phobia (N=23). Correlation and regression analyses were conducted to evaluate the relationship between specific symptoms of panic disorder (e.g., general anxiety, agoraphobic avoidance, anxiety sensitivity) and the measures of somatic concerns and hypochondriacal beliefs. Almost half of the individuals with panic disorder in this study met DSM-III-R/DSM-IV criteria for hypochondriasis. Only one case of hypochondriasis was identified in the social phobia sample and none in the healthy control sample. Panic disorder subjects reported higher levels of fear about illness and disease conviction, and endorsed more somatic symptoms than the control

samples on the questionnaire measures and the daily diaries. The inclusion of the social phobia control group, which reported levels of anxiety, depression, general distress and disability similar to the panic group, suggests that hypochondriasis and panic disorder have a relationship that goes beyond general anxiety or psychopathology level. There were significant differences between the panic subjects with and without hypochondriasis. The subjects with hypochondriasis obtained higher scores on measures of hypochondriacal concerns, somatization, blood-injury phobia, and general anxiety and distress. Clinical implications and suggestions for future research are provided.

# Somatization and Hypochondriacal Concerns in Panic Disorder

Many individuals with panic disorder present with primarily somatic symptoms and report hypochondriacal concerns. There is, however, little systematic research assessing the prevalence of somatization and hypochondriacal beliefs in patients with panic disorder. This issue is an important one because somatization and hypochondriasis are related to high levels of health service utilization for unnecessary procedures and tests, thus increasing the costs to our health care system (deGruy, Columbia, & Dickinson, 1987; Escobar, Golding et al., 1987; Katon, 1986; Katon, von Korff, & Lin, 1992; Lipowski, 1988; Smith, 1994; Smith, Monson, & Ray, 1986; Smith, Rost, & Kashner, 1995).

A clearer conceptualization of the relationship between panic disorder, somatization and hypochondriasis may further our understanding of the etiology of panic disorder as somatization and hypochondriasis may be related to the development of panic disorder in some individuals. Furthermore, somatization and hypochondriasis may complicate existing panic disorder and make it more distressing or disabling or more difficult to treat. To date, cognitive-behavioral treatments for panic disorder have put little emphasis on the direct treatment of somatization and hypochondriasis. It is possible that this is a factor contributing to some of the treatment failures reported in the literature as well as to the continuing disability experienced by some persons who have successfully completed treatment (Katon,

1991; Rosenbaum, 1992).

Before discussing the interrelationship between panic disorder, somatization, and hypochondriasis, it is important to define these concepts. Much confusion in the literature has been caused by inconsistent use of these terms. The criteria provided by the DSM-III-R (American Psychiatric Association, 1987) and DSM-IV (American Psychiatric Association, 1994), which are described below, will be used as operational definitions of these constructs.

## Definitions and diagnostic criteria

Panic Disorder. The defining feature of panic disorder is the sudden, unexpected onset of intense apprehension, fear, or terror, that is, the panic attack (Uhde & Maser, 1985). The DSM-III-R diagnostic criteria for panic disorder state that the person must have experienced one or more panic attacks that were unexpected and were not triggered by situations in which the person was the focus of others' attention. The individual must have had at least four attacks in a four-week period, or one or more attacks followed by at least one month of persistent fear of having another attack. Four or more of the following symptoms must be present in order for an episode to be labelled a panic attack: dyspnea, dizziness, accelerated heart rate, trembling, sweating, choking, abdominal distress, depersonalization, chills, hot flushes, chest pain, fear of dying, and fear of going crazy or doing something uncontrolled. The DSM-III-R diagnosis of

panic disorder is made only when it cannot be established that the disorder has an organic origin.

The DSM-IV definitions of panic attacks and panic disorder are, according to Barlow, Brown, and Craske (1994), "more precise and data driven then those contained in prior nomenclatures" (p. 554). Three types of panic are delineated in DSM-IV, including unexpected, situationally bound, and situationally predisposed attacks. DSM-IV criteria for panic disorder include (a) the presence of recurrent unexpected attacks (no specific frequency requirement), and (b) at least one of the attacks must be followed by at least one month of persistent concern about having additional attacks, worry about the implications of the attack or its consequences, or a significant change in behavior related to the attacks. As with DSM-III-R, organic causes of the panic must be ruled out. In addition, the panic attacks must not be better accounted for by another mental disorder, such as social phobia or specific phobia. The diagnosis of panic disorder with agoraphobia is made when the panic disorder is accompanied by anxiety about, or avoidance of, places or situations from which escape might be difficult or in which help may be unavailable in the event of having a panic attack. Typical situations associated with agoraphobic anxiety include being outside the home alone, being in crowded places, and travelling on public transportation. The diagnosis of agoraphobia is made only if these situations are avoided or are endured with significant distress or with anxiety about having a panic attack, or require

the presence of a companion.

Hypochondriasis. Both somatization disorder and hypochondriasis are classified, in the DSM-III-R and DSM-IV, as somatoform disorders. The somatoform disorders, which also include body dysmorphic disorder, conversion disorder, and somatoform pain disorder, are characterized by physical symptoms suggestive of physical illness for which there are no organic bases. The terms somatization and hypochondriasis are often used interchangeably in the literature but several authors have stressed the importance of providing clear definitions of the terms that are being used so as to avoid confusion and inaccuracy (e.g., Kirmayer & Robbins, 1991).

Various meanings have been attached to the term 'hypochondriasis'. Some authors use this term for any person displaying a heightened awareness of bodily functioning while others reserve this diagnosis for persons exhibiting a groundless fear of disease that persists despite medical reassurance. Hypochondriasis has also been defined as the firm, though unfounded, belief that one actually does have a disease. The inconsistent usage of this term has led to confusion in the literature. The diagnostic criteria provided by DSM-III-R and DSM-IV may be useful in terms of providing the field with a reasonably clear definition of hypochondriasis. The central feature of hypochondriasis is identified in DSM-III-R as the "preoccupation with the fear of having, or the belief that one has, a serious disease, based on the person's interpretation of

physical signs or sensations as evidence of physical illness" (p.259). This diagnosis can only be made when a thorough physical examination does not support the diagnosis of a physical disorder that could account for the symptomatology. DSM-III-R criteria also specify that the physical symptoms cannot just be the symptoms of a panic attack. Additional diagnostic criteria are that the fear of having, or the belief that one does have a disease persist, despite medical reassurance, for at least six months, and that they are not of delusional intensity. DSM-IV criteria also specify that the preoccupation must cause "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (p. 465). An interesting modification in DSM-IV is that the criteria no longer state that the physical symptoms cannot be symptoms of a panic attack but only that the preoccupation with disease not be better accounted for by panic disorder, other anxiety disorders, a major depressive episode, or another somatoform disorder.

Barsky, Wyshak, and Klerman (1986) evaluated the internal validity of the criteria for hypochondriasis described in the DSM-III (American Psychiatric Association, 1980). These criteria are very similar to those delineated in DSM-III-R. Barsky et al.'s results indicate that the internal validity and consistency of the syndrome is adequate in that disease conviction, fear of disease, bodily preoccupation and somatic symptoms are significantly intercorrelated. Noyes et al. (1994b) provide data suggesting that the diagnosis of hypochondriasis is stable, at

least over a one year period.

It has been suggested that hypochondriasis may be best considered to exist on a continuum from temporary to permanent beliefs and from slight overanxiety about illness to a severe disease conviction (Schmidt, 1994). To date, there are no clear recommendations as to how this continuum might be quantified.

Somatization disorder. According to DSM-III-R, the essential feature of somatization disorder is the presence of multiple and recurrent somatic complaints, of several years' duration, for which medical attention has been sought, but which are not due to any physical disorder. DSM-III-R criteria specify that this disorder must become evident before age 30. The individual must report at least 13 symptoms from a list of 35 symptoms (31 symptoms for males). The symptoms can be divided into six types: gastrointestinal symptoms, pain symptoms, cardiopulmonary symptoms, conversion or pseudoneurologic symptoms, sexual symptoms, and female reproductive symptoms. To be considered significant, the symptom must (a) not be due to organic pathology or pathophysiologic mechanisms (e.g., a physical disorder or the effects of injury, drugs, or alcohol), or, if there is related organic pathology, the symptom must be grossly in excess of what would be expected from the physical findings; (b) not occur only during a panic attack, and (c) cause the person to take medication (other than non-prescription pain medication), see a doctor, or change his/her lifestyle.

The criteria for somatization disorder have been changed

somewhat in DSM-IV. The new criteria require that the individual report 4 pain symptoms, 2 gastrointestinal symptoms, one sexual symptom, and one pseudoneurological symptom. Although the total number of required somatic symptoms is only 8 compared to the 13 required by DSM-III-R, the DSM-IV criteria appear to be equally stringent because of the required distribution of symptoms across systems. In their field trial comparing the DSM-IV and DSM-III-R criteria, Yutzy et al. (1995) reported a high degree of concordance between the two. These authors suggest that the DSM-IV criteria are easier for the clinician to use and are therefore preferable to the older DSM versions.

The DSM-III-R criteria for somatization disorder (and likely the DSM-IV criteria as well) are very stringent. It has been suggested that somatization occurs along a continuum with full-blown DSM-III-R somatization disorder representing only the extreme of the continuum (e.g., Escobar, Golding, et al., 1987). Various authors have argued that individuals displaying fewer somatic symptoms experience levels of distress and disability comparable to individuals who meet the DSM-III-R criteria. Escobar, Burnam, Karno, Forsythe, and Golding (1987), for example, found that individuals meeting a less-restrictive criterion for somatization (a total of 4 or 6 symptoms rather than the 13 required by DSM-III-R) reported heavy use of medical services, and had similar associated psychopathology and levels of disability as individuals meeting full DSM-III-R criteria for somatization disorder. Similarly, Hiller, Rief, and Fichter

(1995) found that although inpatients with subsyndromal somatization disorder had slightly lower levels of self-reported depression, anxiety and hypochondriasis than did those patients who met full criteria for somatization disorder, they were significantly higher than those who had only a few somatization symptoms (i.e., did not meet criteria for subsyndromal somatization) or none at all. These findings are consistent with those of Katon et al. (1991) who reported that in their sample of 119 high utilizers of medical services, amplification of physical symptoms, self-reported disability, and medical utilization increased linearly with the number of somatic symptoms identified, rather than changing dramatically at the diagnostic threshold for DSM-III-R somatization disorder. In the present study, the criteria for full somatization disorder as well as subsyndromal somatization disorder were evaluated.

Smith (1994) emphasizes the importance of identifying somatization disorder that occurs together with a physical condition and/or another psychiatric condition, including anxiety disorders and depression. This author suggests that focusing only on "pure" somatization disorder will result in loss of valuable information and understanding of the somatization process.

Somatic symptoms in panic disorder

Many individuals with panic disorder present with primarily somatic complaints. Katon (1984) found that 89% of a sample of

55 patients who met DSM-III criteria for panic disorder initially presented with one or more somatic complaints, including cardiac, gastrointestinal and neurologic symptoms. Katerndahl and Realini (1995) found that 85% of individuals seeking care for their panic attacks presented initially to medical settings.

Given the large number of somatic symptoms reported in the typical panic attack it is not surprising that these symptoms become a central focus for some individuals with panic disorder. Pollard and Frank (1990), for example, reported that their subjects experienced a mean of 12 physical symptoms during each panic attack. Other researchers have reported similar findings (e.g., Aronson & Logue, 1988; Rapee, Sanderson, McCauley, & DiNardo, 1992).

Lydiard et al. (1994) examined data from the National Institute of Mental Health Epidemiological Catchment Area community survey to assess gastrointestinal symptoms in individuals with panic disorder. These authors reported that the respondents with panic disorder reported higher rates of gastrointestinal symptoms than did subjects with other psychiatric disorders (including other anxiety disorders) or no psychiatric disorder. Similarly, two recent reports (Barsky, Cleary, Coeytaux, & Ruskin, 1994; Fleet, Dupuis, Marchand, Burelle, & Beitman, 1994) indicate that from 18% to 30% or more of patients presenting with cardiac symptoms, such as palpitations and chest pain, meet criteria for panic disorder. Kuch, Cox, Woszczyna, Swinson, and Shulman (1991) found that

38.3% of patients with panic disorder had chronic pain and 7.8% reported using analgesics on a daily basis. Furthermore, the patients with panic disorder plus chronic pain scored higher on various measures of anxiety and depression than did those with panic disorder alone. It is not clear, however, how many of these patients would meet criteria for a somatoform disorder.

Several studies have assessed the level of somatic concern in panic disorder patients using the Somatization subscale of the Symptom Checklist-90 (SCL-90; Derogatis, Lipman, & Covi, 1973). Noyes, Wesner, and Fisher (1992), for example, reported that 14 subjects with DSM-III-R panic disorder obtained higher scores on this subscale than did a sample of subjects with illness phobia. Similarly, Katon et al. (1986) found that their 22 subjects with panic disorder had significantly higher scores on this measure than did their sample of normal controls.

Hypochondriacal symptoms in panic disorder

The research reviewed above suggests that somatic symptoms are frequently reported by individuals with panic disorder. These somatic symptoms can become the focus of hypochondriacal preoccupation (Diamond, 1987; Katon, Vitaliano, Russo, Jones, & Anderson, 1987; Noyes, 1987).

Fava, Kellner, Zielezny, and Grandi (1988) examined hypochondriacal fears and beliefs in a sample of 18 patients with panic disorder and 18 normal controls. These researchers utilized the Illness Attitude Scales (IAS; Kellner, 1986) to

assess fears and beliefs about disease. The IAS yields seven scales: (a) Worry about Illness, (b) Concerns about Pain, (c) Health Habits, (d) Hypochondriacal Beliefs, (e) Thanatophobia, (f) Disease Phobia, and (g) Bodily Preoccupations. Prior to treatment, the panic disorder patients rated themselves significantly higher than the normal controls on all IAS scales with the exception of the Health Habits scale, which assesses precautions about health (e.g., abstaining from smoking). The latter scale did not discriminate between the two samples. The panic disorder patients reported high levels of hypochondriacal fears and beliefs and obtained IAS scores similar to those reported in patients with DSM-III diagnoses of hypochondriasis (Kellner, 1986; Kellner, Abbott, Winslow, & Pathak, 1987).

Noyes, Reich, Clancy, and O'Gorman (1986) assessed 60 patients who met the DSM-III-R criteria for panic disorder on the Whitely Index of the Illness Behavior Questionnaire (IBQ). The IBQ is a self-report measure which has been found to discriminate between hypochondriacal and non-hypochondriacal patients (Pilowsky, 1967). These researchers found that the panic disorder patients reported very high levels of hypochondriasis. In fact, their scores were nearly as high as those characteristic of hypochondriasis patients. The panic disorder patients indicated that they experienced preoccupation with bodily symptoms, disease phobia, and disease conviction, all of which are major characteristics of hypochondriasis.

It has also been suggested that hypochondriacal concerns may

facilitate the later development of panic disorder. This is supported by two studies conducted by Fava and his colleagues (Fava, Grandi, & Canestrari, 1988; Fava, Grandi, Rafanelli, & Canestrari, 1992). In the first study, self-reports from 20 patients with panic disorder and agoraphobia were obtained in order to identify the prodromal symptoms leading up to their first panic attack. Twenty control subjects were also interviewed to assess the frequency of such symptoms in a normal sample. Seventeen of the panic disorder patients, as compared to only one of the controls, reported hypochondriasis as a prodromal symptom, indicating that they had been concerned about their health and bodily symptoms and worried about illness and death in the six months prior to their first panic attack. These findings were replicated in the 1992 study, with 17 of 20 panic disorder patients reporting prodromal hypochondriacal fears and beliefs. A more recent study (Noyes et al., 1994a) examined the temporal relationship between DSM-III-R hypochondriasis and anxiety disorders. Of their 11 subjects with hypochondriasis and a comorbid anxiety disorder (including 2 subjects with social phobia and 1 with simple phobia), the onset of the anxiety disorder preceded the hypochondriasis by at least 6 months in 4 cases, coincided with the onset of the hypochondriasis in 4 cases, and began at least 6 months following the hypochondriasis in the remaining three cases.

Another interesting source of information suggesting the existence of a relationship between panic disorder and

hypochondriasis are the studies assessing the impact of treatment for panic disorder on accompanying hypochondriacal fears and beliefs. The data suggest that treatment of panic disorder may result in concurrent improvement of the hypochondriasis. For example, as described above, Noyes et al. (1986) found that their 60 patients presenting with panic disorder obtained pretreatment scores on the Whitely Index of the IBQ similar to those of patients with hypochondriasis. The authors also reported that these high scores decreased after a six-week drug treatment targeting the panic disorder. Similar results were reported by Fava, Kellner, et al. (1988) who treated 18 panic disorder patients with in vivo exposure. These patients all reported high levels of hypochondriacal fears on the IAS at pretreatment. Although the exposure therapy was limited to agoraphobic avoidance and did not deal specifically with fears and beliefs about disease, Fava et al. found that their subjects obtained significantly lower scores on the IAS on a posttreatment assessment. Thus, in both of these studies, the hypochondriasis reported by patients with panic disorder responded to the treatment for panic even though the hypochondriacal concerns were not directly addressed. Comorbid hypochondriasis does not, however, always remit with treatment of the panic disorder. Fava, Grandi, Saviotti, and Conti (1990), for example, describe six case studies where pharmacological treatment resulted in improvement of the panic disorder but not of the accompanying hypochondriasis.

Somatization disorder and hypochondriasis in panic disorder

The studies outlined above suggest that persons with panic disorder report many somatic symptoms and tend to focus on these physiological concerns, and that hypochondriacal concerns may be a prodromal symptom contributing to the development of panic disorder. However, these findings do not permit the conclusion that persons with panic disorder have concurrent somatization disorder and/or hypochondriasis. Careful evaluation of each of the diagnostic criteria is necessary before these two diagnoses can be made. For example, in order for the diagnosis of hypochondriasis to be made in an individual with panic disorder it must be shown that fears about illness persist between panic attacks. Buglass, Clarke, Henderson, Kreitman, and Presley (1977) attempted to assess the persistence of health concerns by comparing 30 agoraphobic patients and 30 normal controls. These authors found that 16 of the agoraphobic patients reported that their fears about their physical health persisted in non-phobic contexts while none of the control subjects had this problem. Much of the data gathered in this study as well as by other researchers in this area is retrospective in nature. This research could be strengthened by using a prospective approach such as self-monitoring symptom diaries in order to assess changes in hypochondriacal concerns over time.

Barsky, Barnett, and Cleary (1994) provide a more thorough assessment of the overlap between the diagnoses of panic disorder and hypochondriasis. These researchers report that 25% of their

panic disorder subjects (N=100) also met criteria for current hypochondriasis. In an earlier study, Barsky, Wyshak, and Klerman (1992) reported that 16.7% of their sample of 42 individuals with DSM-III-R diagnoses of hypochondriasis also had lifetime diagnoses of panic disorder as compared to only 2.6% of the control group of non-hypochondriacal medical patients. Noyes et al. (1994a) reported virtually identical results, with 16% of their sample of 50 individuals with DSM-III-R hypochondriasis having comorbid panic disorder compared to 6% of the normal controls. Much higher rates of panic disorder are reported by Warwick and Salkovskis (1990) in their summary of an unpublished study (Salkovskis, Warwick, & Clark, unpublished data). They found that 59% of their sample of patients with hypochondriasis also met DSM-III criteria for panic disorder.

Similar overlap has been identified between diagnoses of somatization disorder and panic disorder. Results of three studies suggest 20 to 48 percent of individuals with somatization disorder also meet criteria for lifetime panic disorder (Brown, Golding, & Smith, 1990; Katon et al., 1991; Tomasson, Kent, & Coryell, 1991). Two studies (Horwath, Johnson, & Hornig, 1993; King, Margraf, Ehlers, & Maddock, 1986) suggest that 4 to 27 percent of individuals with panic disorder also meet DSM-III criteria for lifetime somatization disorder.

Potential explanations for the close relationship between panic disorder and the somatoform disorders may be garnered from the cognitive etiological models that have been proposed for each

of these disorders. The models for panic disorder and hypochondriasis share many common features which may account for the co-occurrence of panic disorder, somatization and hypochondriasis.

Current cognitive models of panic disorder

There is an extensive literature describing various cognitive models of panic disorder. In general, these models emphasize the importance of the interaction between bodily sensations and cognitions in the development and maintenance of panic disorder. One such model is the fear-of-fear hypothesis which suggests that a panic attack is a terrifying experience and that it is this extreme fear which creates high levels of autonomic arousal. The panic occurs when the fear of bodily sensations is accompanied by catastrophic misinterpretation of these sensations (Chambless & Goldstein, 1988; Goldstein & Chambless, 1978; Griez & van den Hout, 1983).

Other cognitive models, such as those proposed by Clark (1986), Ley (1985a, 1985b, 1987), and Rapee (1993; Rapee & Barlow, 1991), suggest that panic attacks can be explained by a positive feedback loop between bodily symptoms of anxiety and the person's reactions to these symptoms. For example, Clark (1986) suggests that panic attacks result from catastrophic misinterpretation of bodily sensations. These somatic sensations can be those involved in normal anxiety responses such as palpitations and dizziness, or may be caused by a number of

stimuli such as general sympathetic nervous system overactivity, hyperventilation, physical activity, or drug ingestion. The catastrophic misinterpretation involves evaluating these sensations as being much more dangerous than they really are, for example, interpreting a shaky feeling as evidence of impending loss of control, or a rapid heart rate as evidence of a heart attack. These catastrophic cognitions cause apprehension and this anxiety in turn increases the various bodily sensations. This vicious cycle ultimately culminates in a panic attack.

There is considerable empirical evidence to support these cognitive models. Ehlers, Margraf, Roth, Taylor, and Birbaumer (1988) tested the basic assumption of the model, which proposes that the perception of physiological arousal will induce anxiety in persons suffering from panic attacks. Twenty-five patients with panic disorder and 25 non-anxious controls were given false feedback of an abrupt heart rate increase to manipulate their perception of their physiological state. The results of this study indicated that the false feedback of heart rate acceleration induced anxiety, which was measured by a self-report rating, and physiological arousal, as measured by heart rate, blood pressure and skin conductance levels, in the panic disorder patients. In contrast, the control subjects showed decreases in the cardiovascular measures and did not report increased anxiety. These results are consistent with the positive-feedback-loop cognitive model outlined above. These findings were replicated in a field test by Pauli et al. (1991) which provided a direct

demonstration that perception of actual cardiac changes triggered anxiety responses in patients with panic attacks.

Interestingly, panic disorder patients do not generally appear to be more aware of their cardiac activity (Barsky, Cleary, Sarnie, & Ruskin, 1994) or of somatic sensations resulting from carbon dioxide inhalation (Rapee, 1994) than are nonclinical subjects. These data underscore the role of catastrophic cognitions in the development of panic disorder. A recent study by Westling and Ost (1995), for example, found that panic disorder subjects interpreted bodily sensations in a much more threatening fashion than did normal controls. This difference disappeared after the panic subjects received applied relaxation or cognitive behavioral treatment. This interaction between physiological changes and catastrophic cognitions was further clarified by Kenardy, Evans, and Oei (1988). These authors examined the cognitive and physiological changes that occurred during panic attacks for three subjects with panic disorder. Self-reports of cognitions and subjective anxiety were sampled at one-minute intervals during periods of in vivo exposure. The subjects' heart rate and physical activity level were recorded using ambulatory monitoring. The results of this study suggest that panic attacks develop as a result of negative cognitions which follow an acceleration in heart rate. A very interesting finding here was that similar increases in heart rate which were not accompanied by catastrophic cognitions, did not precipitate a panic attack. It seems that heart rate

acceleration and catastrophic cognitions must both be present in order for a panic attack to occur. Additional support for the proposition that catastrophic cognitions play an important role in panic attacks is provided by Rapee, Mattick, and Murrell (1986). These authors investigated the effect of a cognitive manipulation on the experience of panic attacks in 16 patients with panic disorder. The results indicated that the individuals who were given an explanation for the symptoms produced by the inhalation of carbon dioxide (which were similar to panic attack symptoms) experienced less severe panic than those individuals who were not given any explanation for the physical sensations. Subjects in the no explanation condition also reported more catastrophic cognitions and a greater similarity of the overall experience to a naturally-occurring panic attack.

A recent study (Belfer & Glass, 1992) evaluated the hypotheses that individuals with agoraphobia are generally (i.e, not only during panic attacks) overattentive to their internal bodily sensations and mislabel these sensations. Their sample of individuals with DSM-III agoraphobia (with and without panic attacks) scored higher on measures of awareness of internal body sensations, awareness of autonomic sensations when aroused, fear of losing control, and fear of negative social reactions when anxious, than did samples of simple phobics and normal controls.

The research on interoception and panic disorder thus suggests that individuals with panic disorder tend to attend to physically threatening cues and that they rate bodily sensations

associated with anxiety or panic as dangerous (Ehlers, 1993a). Other recent reviews of the etiology of panic disorder (Margraf, 1993; Papp, Klein, & Gorman, 1993) also suggest that both cognitive and physiological factors play an important role in the development and maintenance of panic disorder.

Cognitive models of somatization

Somatization may be defined as the tendency to experience and report one or more physical complaints when there is no organic cause to account for the physical complaint or, if there is related organic pathology, the physical complaints are grossly in excess of what would be expected from the physical findings (Kellner, 1990). Since somatization plays a role in somatization disorder and in hypochondriasis, these etiological models are relevant to both of these disorders. The primary theories that have been proposed to account for the development and maintenance of somatization are that somatization is a result of (a) psychodynamic conflicts, (b) learned social behaviors, and (c) psychophysiological abnormalities.

A cognitive theory of somatization disorder incorporating the latter two factors is described in a recent paper by Bertagnolli, Harris, and Arean (1994). These authors suggest that individuals with somatization disorder have difficulty differentiating between physical and emotional arousal. These individuals develop the belief that all of their somatic symptoms have a physical basis and therefore tend to seek out frequent

medical attention. A vicious cycle develops as the medical consultations lead to increased focus on the bodily symptoms which results in increased pain and other somatic complaints and so forth.

Some evidence supporting the notion of perceptual abnormalities in individuals with somatization disorder is provided by James, Gordon, Kraiuhin, Howson, and Meares (1990). These researchers report findings which suggest disturbances in the processes of attention in the regulation of sensory input in somatization disorder. They compared 10 individuals who met DSM-III-R criteria for somatization disorder and 10 normal controls in terms of their responsiveness to auditory stimuli of various intensities and found that the somatization disorder sample displayed an enhanced central nervous system response to sensory input. It is possible that individuals with somatization disorder are also highly reactive to internal cues and are therefore more likely to notice and report somatic symptomatology.

Cognitive models of hypochondriasis

The cognitive-behavioral model proposes that hypochondriasis results from the tendency to misinterpret bodily symptoms. This model emphasizes the role of perceptual and cognitive "abnormalities" with the illness behaviors being viewed as secondary consequences of these abnormalities. Thus, hypochondriasis develops through the amplification of normal

bodily sensations and the misattribution of these symptoms to serious disease. The amplification and misattribution heightens the individual's fear, arousal, and self-scrutiny and this results in further amplification of other benign bodily sensations thus creating a vicious cycle (e.g., Barsky, 1992; Barsky, Geringer, & Wool, 1988). This model stresses the importance of the person's cognitive reactions to perceived physiological symptoms in the development of hypochondriasis.

Kellner (1985, 1987) adds an interesting component to the cognitive model of hypochondriasis by stressing the importance of childhood experiences, such as disease in the family, that may sensitize the individual to focus on somatic symptoms. He suggests that full-blown hypochondriasis develops following some kind of stressor which causes anxiety or depression with associated somatic symptoms. The somatic symptoms may also be produced by such mechanisms as overactivity of the autonomic nervous system, increased muscular tension, endocrine activity, and biochemical changes caused by hyperventilation. The change in somatic activity is followed by the idea that the symptomatology is indicative of a disease process. Typically, this idea of being seriously ill abates as a result of a physician's reassurance or the disappearance of the symptoms. Kellner and other cognitive theorists, such as Stinnett (1987), argue that if the catastrophizing persists then the person will become more anxious. As anxiety increases so does the person's tendency to focus on somatic symptomatology, thus strengthening

the fear of disease. In this way, the vicious cycle of hypochondriasis develops.

Warwick and Salkovskis (1990; Salkovskis & Warwick, 1986; Warwick, 1989) provide a similar cognitive model describing the factors involved in the development and maintenance of hypochondriasis. Like Kellner (1985, 1987), these authors emphasize the importance of learning history in the development of maladaptive beliefs relating to illness, somatic symptoms and health-related behaviors. If these previous learning experiences were negative ones (e.g., unsatisfactory medical management), the individual may develop maladaptive beliefs about illness. These beliefs create anxiety and may cause the individual to selectively attend to information concordant with their beliefs. The individual thus enters into the vicious cycle of increasing anxiety, selective attention to bodily sensations or other illness-related information, and misinterpretation of bodily sensations as being indicators of serious disease. Warwick and Salkovskis also propose that it is these misinterpretations that prompt the development of behaviors designed to prevent, avoid or check for physical illness (e.g., frequent visits to medical doctors).

Much of the research on hypochondriasis focuses on the perceptual component of the cognitive model. The hypothesis is that individuals with hypochondriasis tend to experience normal bodily sensations as more aversive and more intense than do individuals who do not have problems with hypochondriasis (e.g.,

Barsky, 1979; Barsky & Klerman, 1983; Mayou, 1976). This may be at least partly due to the fact that persons with hypochondriasis appear to have low pain thresholds and tolerance. Bianchi (1971), for example, demonstrated that disease phobics have lower tolerance for the experimentally induced pain of electrical shock and have lower thresholds for detecting sensation before it was painful than did a psychiatric inpatient control group. There is also empirical evidence that arousal level and sensitivity to body sensations and pain may be a major factor contributing to the development of hypochondriasis. For example, Hanback and Revelle (1978) found that the visual and auditory sensitivities of subjects receiving high scores on hypochondriasis measures were generally higher than for those subjects who were low on the hypochondriasis scales. Elevated basal levels of physiological arousal and heightened perceptual sensitivity would, of course, enable the individual to perceive even minor changes in bodily functions and symptomatology.

Barsky, Brener, Coeytaux, and Cleary (1995), however, found that medical outpatients meeting DSM-III-R criteria for hypochondriasis were not more accurately aware of normal cardiac activity than were their non-hypochondriacal subjects. These results appear to run counter to the earlier findings. The authors do note, however, that while the hypochondriacal subjects did not report increased heartbeat detection in the objective assessment, their self-reported sensitivity to somatic sensations was higher than for the non-hypochondriacal subjects. Clearly,

the second component of the basic cognitive model, which involves the cognitive interpretations of bodily sensations, is of critical importance. This refers to the tendency to misinterpret normal bodily sensations and the somatic symptoms associated with emotional arousal as being indicative of a serious disease. Mechanic (1972) suggested that most of the somatic symptoms reported by patients with hypochondriasis are commonly experienced by most people when they are under stress or during the course of trivial and benign disorders. However, individuals with hypochondriasis respond to these symptoms differently in that they tend to attribute the symptoms to a disease process. This is an important point because, as Rodin (1978) notes, self-reported distress and physiological arousal can be affected by the individual's ideas about the causes of physical symptoms. For example, the belief that shortness of breath is indicative of an impending heart attack rather than simply a result of physical exertion would, logically enough, increase the individual's distress and result in amplified breathing difficulties. Barsky and Wyshak (1990) evaluated the relationship between somatosensory amplification and hypochondriasis using self-report data obtained from 177 medical outpatients. Amplification was measured with a five-item self-report questionnaire assessing the respondent's sensitivity to a range of normal bodily sensations and to neutral and noxious stimuli. The results suggested that amplification may play an important role in hypochondriasis. Similar findings were reported by Hitchcock and Mathews (1992).

In a series of experiments, these authors demonstrated that in three non-clinical samples, subjects with higher levels of hypochondriacal concerns (as measured by the Illness Attitude Scales) were more likely to interpret bodily symptoms as indicative of disease than were subjects with low levels of hypochondriasis. Barsky, Coeytaux, Sarnie, and Cleary (1993) also found that individuals with DSM-III-R hypochondriasis were more likely to consider common and ambiguous bodily symptoms to be pathological and indicative of sickness, as compared to their sample of non-hypochondriacal individuals.

The relationship between panic disorder and hypochondriasis

A potential explanation for the frequent co-occurrence of panic disorder and hypochondriasis can be derived from the cognitive etiological models of these disorders. According to this model, both disorders result from a vicious cycle in which catastrophic misinterpretations of bodily sensations increase anxiety to produce more physiological symptoms and so forth. Given the many common components that are hypothesized to be operating in the two disorders, it becomes quite logical that an individual with one disorder might also develop some feature of the other. For example, a person with panic disorder may report catastrophic thoughts about having a heart attack which initially occur only as a result of the very intense physical symptoms experienced during a panic attack. Over time, however, less intense symptoms may be needed to trigger these catastrophic

thoughts. Eventually, fears of having a heart attack may be present virtually all of the time as the individual becomes very skilled at noticing even the slightest tightness in the chest or difficulty breathing. Such persistent fears of a specific illness would be labelled as hypochondriacal.

It is important to consider why some panic disorder patients develop catastrophic beliefs that focus specifically on fear of illness while others do not. It is likely that the individual's learning history plays a substantial role in the content of catastrophic cognitions. It may be only those persons who are, or who have a history of being, reinforced for focusing on disease who develop specific hypochondriacal concerns (Ehlers, 1993b). Additional hypotheses to explain why only some individuals with panic disorder develop hypochondriacal beliefs may be garnered from Salkovskis and Clark's (1993) paper on panic disorder and hypochondriasis. These authors agree that the two disorders share a similar basis and both result in catastrophic misinterpretations of bodily sensations. However, they argue that the disorders differ because the symptoms which are misinterpreted in panic disorder are sensations that increase as a result of anxiety (as a consequence of autonomic arousal) and the interpretation is that the bodily symptoms are the signs of an <u>immediate</u> catastrophe (e.g., "this dizziness means I am going to pass out right now"). Salkovskis and Clark suggest that in hypochondriasis, the bodily symptoms being misinterpreted are not generally ones that increase as a result of anxiety (e.g., a

lump, blotchy skin) and the individual does not regard the feared catastrophe as immediate (e.g., "These headaches mean I have an undetected brain tumor"). This delayed threat leads to the development of reassurance seeking and checking behaviors. According to this model, individuals with panic disorder may develop hypochondriacal beliefs and behaviors if they begin to focus on bodily sensations which do not increase with anxiety and/or if their fears of catastrophe expand to include longer-term disasters. Salkovskis and Clark summarize an unpublished study by Salkovskis (1990) which provides support for these contentions.

There are two published studies in the literature which attempt to clarify the relationship between panic disorder and hypochondriacal concerns (Otto, Pollack, Sachs, & Rosenbaum, 1992; Starcevic, Kellner, Uhlenhuth, & Pathak, 1992). Starcevic et al. (1992) examined correlates of hypochondriacal fears and beliefs in 54 patients with DSM-III-R panic disorder. They divided the panic patients into two groups, a hypochondriacal group and a non-hypochondriacal group, on the basis of their scores on the Illness Attitude Scales. Half of the sample of patients with panic disorder had significant hypochondriacal fears and beliefs. The degree of agoraphobic avoidance (as assessed in a diagnostic interview and by the Fear Questionnaire) was associated with the presence/absence of hypochondriasis. Specifically, 59.3% of patients with panic disorder plus hypochondriasis had moderate or severe agoraphobia, while only

22% of patients with panic disorder without hypochondriasis had moderate or severe agoraphobia. Only 18.5% of patients with panic disorder and hypochondriasis had no agoraphobic avoidance, whereas 51.9% of panic disorder patients without hypochondriasis also had no agoraphobia. The panic patients with hypochondriacal concerns did not, however, have higher levels of general anxiety or somatization (as measured by the SCL-90) than the other panic patients. Thus, Starcevic et al. found that hypochondriacal fears and beliefs in panic disorder were most strongly associated with degree of agoraphobic avoidance.

In their study evaluating the relationship between panic disorder and hypochondriasis, Otto et al. (1992) assessed several characteristics of panic disorder which they felt might account for this association including: (a) chronic or generalized anxiety, (b) depression, (c) anxiety sensitivity (fear of fear, i.e., catastrophic misinterpretations of and fear of somatic symptoms), (d) agoraphobic avoidance, and (e) frequency of panic attacks. They evaluated these symptoms in 50 subjects with panic disorder and concluded that anxiety sensitivity (as measured by the Anxiety Sensitivity Index) was the best predictor of hypochondriacal concerns (as measured by the Illness Attitude Scales) in their sample. In contrast to Starcevic et al. (1992), Otto et al. did not find agoraphobic avoidance (as measured by the Fear Questionnaire) to be significantly correlated with hypochondriacal beliefs. Further evaluation of the relationship between panic disorder, hypochondriasis, anxiety sensitivity, and

agoraphobic avoidance is clearly warranted.

The two studies described above suggest several avenues for further exploration in elucidating the relationship between panic disorder and hypochondriasis. However, both studies have several limitations including lack of control groups and limited assessment of somatic complaints.

Purpose of the present study

The present study attempts to further clarify the relationship between panic disorder, somatization and hypochondriacal concerns. This was done by assessing the presence of somatic symptoms and the prevalence and nature of hypochondriacal beliefs in patients with DSM-IV panic disorder.

The assessment involved a semi-structured diagnostic interview as well as self-report questionnaires and daily self-monitoring diaries. These data were compared to the levels of somatic symptoms and hypochondriacal beliefs found in two comparison samples: (a) a healthy control group (individuals with no psychiatric diagnoses) and (b) a group of patients with DSM-IV social phobia. Additional analyses were conducted to evaluate the relationship between specific symptoms of panic disorder (e.g., general anxiety, agoraphobic avoidance, anxiety sensitivity) and the measures of somatic concerns and hypochondriacal beliefs.

This study builds upon the research of Otto et al. (1992) and Starcevic et al. (1992) and addresses the methodological

limitations in these studies. The present research differs from these studies by including: (a) healthy and anxiety control groups, (b) daily self-monitoring dairies of somatic and hypochondriacal symptoms, (c) a standardized diagnostic interview to establish diagnoses of somatization disorder and hypochondriasis, and (d) a standardized health status questionnaire as an additional measure of health-related functioning.

The inclusion of both a healthy control group and a social phobia group as comparison samples is a particularly important aspect of this research. The assessment of somatization and hypochondriasis in the healthy control group provides information about these symptoms in a sample of healthy individuals. The social phobia comparison sample permits an assessment of whether the findings are related to the presence of an anxiety disorder in general, or to panic disorder specifically. The central feature of social phobia is a marked and persistent fear of social situations which the individual fears will cause embarrassment or humiliation. Typical situations associated with social phobia are eating in public, initiating conversations, attending social gatherings, participating in small groups, dating, and interacting with authority figures. According to DSM-IV criteria, the diagnosis of generalized social phobia can be made if the anxiety occurs in most social situations. Various studies have found similar levels of general anxiety in panic disorder and social phobia

patients. For example, Taylor, Koch, and McNally (1992), found no significant differences between these two groups on the trait version of the State-Trait Anxiety Inventory, suggesting that a social phobia sample would be a good control group for overall level of anxiety.

This study also differs from earlier studies in the area in its use of a diary measure of somatic and hypochondriacal concerns in addition to the self-report measures typically used. Previous research on panic disorder has found that diary measures provide valuable data on the frequency and intensity of problems in everyday life which has added considerably to our understanding of the phenomenon of panic. For example, several studies (DeBeurs, Lange, & Van Dyck, 1992; Rapee, Craske, & Barlow, 1990) have found that panic attack diaries typically produce an estimate of the frequency of panic attacks that is 50% of that obtained from retrospective reports. In addition, Rapee et al. reported that a lower estimate of the number of symptoms experienced during a typical panic attack was obtained from the daily self-monitoring diaries. The use of a diary measure in the present study may provide more detailed data on the experience of somatic and hypochondriacal concerns in everyday life than is available from previous research.

Hypotheses

1. There will be a difference among the three groups in comorbid diagnoses: (a) DSM-III-R and DSM-IV diagnoses of

hypochondriasis will be more frequent in the panic disorder sample than in the social phobia sample and the healthy control group; and (b) diagnoses of DSM-III-R and DSM-IV somatization disorder and subsyndromal somatization disorder will be more frequent in the panic disorder sample than in the social phobia sample and the healthy control group;

2. There will be differences among the groups in self-report measures of somatization and hypochondriacal concerns: (a) The panic disorder sample will obtain higher scores on the Illness Attitude Scales (a measure of hypochondriacal fears and beliefs) than will the social phobia sample which will in turn obtain higher scores than will the healthy control group; (b) the panic disorder sample will obtain higher scores on the Somatization scale of the SCL-90-R (a measure of somatic complaints) than will the social phobia sample which will in turn obtain higher scores than will the healthy control group; and (c) the panic disorder sample will obtain higher scores on the daily self-monitoring measure of somatic concerns and hypochondriacal beliefs than will the social phobia sample which will in turn obtain higher scores than will the healthy control group.

3. In the panic disorder sample, there will be a strong positive correlation between the Illness Attitude Scales and the Anxiety Sensitivity Index (a measure of fear of anxiety symptoms). Furthermore, the Anxiety Sensitivity Index will be a stronger predictor of the Illness Attitude Scales than the Beck Depression Inventory and the Beck Anxiety Inventory.

# METHOD

## Subjects

A total of 66 subjects participated in the current study. Of these 66 subjects, 44 were adult outpatients at the Anxiety Disorders Clinic at St. Boniface General Hospital who satisfied DSM-III-R and DSM-IV criteria for either panic disorder (N=21) or social phobia (N=23). The third group of subjects was composed of 22 healthy controls. Fifteen of the subjects with panic disorder (71%) also met criteria for agoraphobia. Of the subjects with social phobia, 21 (91%) met criteria for generalized social phobia. The other two subjects (9%) met criteria for social phobia but not for the generalized subtype as they only experienced anxiety in one or two performance situations.

Inclusion criteria. Inclusion criteria for all three subject groups were: (a) ability to read and write in English at level commensurate with completion of Grade 8 (clinician judgement), (b) age 18-65 years, and (c) willingness to provide informed consent. In addition, subjects in the panic disorder group were required to meet DSM-III-R and DSM-IV criteria for panic disorder and subjects in the social phobia group met DSM-III-R and DSM-IV criteria for social phobia. To be included as a healthy control, subjects could not have any current psychiatric diagnoses and could not have lifetime diagnoses of any of the DSM-III-R and DSM-IV anxiety disorders.

Exclusion criteria. Exclusion criteria for all three groups

included: (a) report of an organic psychiatric disorder such as delirium or dementia, (b) presence of other severe psychiatric disorders including a major depressive episode, schizophrenia and substance abuse or dependence, (c) suicide risk or distress so severe that it caused an unstable life situation, (d) concurrent pharmacological treatment with any psychiatric medication with the exception of benzodiazepines (to a maximum dose of the equivalent of 20 mg. of diazepam), and (e) concurrent psychological treatment. In addition, panic disorder subjects and social phobia subjects could not have the other disorder as a comorbid condition.

Recruitment. The majority of the panic disorder and social phobia subjects (N=41) were recruited from the waiting-list of individuals requiring diagnostic assessment and/or treatment (pharmacological and/or behavioral interventions) at the Anxiety Disorders Clinic of St. Boniface General Hospital. Three additional clinical subjects were individuals referred to the study by a local self-help association. Five subjects in the social phobia control group were individuals who responded to the recruitment for healthy control subjects but met criteria for social phobia. Four each of the panic disorder subjects and social phobia subjects reported use of benzodiazepines (within the limits described in the exclusion criteria above). One subject in each of these groups took the benzodiazepines on a daily basis, whereas the other six took them intermittently (i.e., one to four times during the two weeks).

The 22 healthy controls were recruited from the healthy control samples of other studies conducted at the Anxiety Disorders Research Program and via notices posted in the hospital and in various businesses (e.g., grocery stores, drug stores) and schools (e.g., adult education programs, community college) in Winnipeg. The notices requested "participation of healthy individuals". Individuals responding to this recruitment process were phone screened by an experienced research nurse for presence of anxiety disorders, depression, substance abuse and psychosis. The individuals without significant psychiatric symptoms were then interviewed in-person by the primary investigator using the procedure detailed below. The healthy control subjects were paid a $25 honorarium.

Informed consent to participate in the study was obtained from each subject in the initial interview (see Appendix A).

Demographic information. Complete subject demographic information is summarized in Table 1. The groups were generally well balanced in terms of age, education and racial background (predominantly white). Although the differences in education level across the three groups were not statistically significant ($X^2(6) = 4.74$, $p > .05$), there was a trend towards higher levels of education in the healthy control sample (9% had not completed high school and 68.2% had attended college) and lower levels in the panic sample (28.6% did not complete high school and 43% attended college).

**Table 1**

Sample Demographics

| | Panic Disorder N=21 | Social Phobia N=23 | Healthy Control N=22 | Statistic | *df* | *p* |
|---|---|---|---|---|---|---|
| Mean Age (years) | 32.0 | 31.9 | 33.9 | F = 0.30 | 2,63 | NS |
| SD | 6.7 | 10.2 | 11.5 | | | |
| Sex (% Female) | 85.7 | 73.9 | 72.7 | $X^2$ = 1.26 | 2 | NS |
| Marital Status (%) | | | | | | |
| Never Married | 14.7 | 43.5 | 36.4 | | | |
| Currently Married | 76.2 | 52.1 | 59.1 | | | |
| Divorced/Separated | 4.8 | 0.0 | 4.5 | | | |
| Widowed | 4.8 | 0.0 | 0.0 | | | |
| No Information | NA | 4.3 | NA | $X^2$ = 6.43 | 4 | NS |
| Education (%) | | | | | | |
| < High School | 28.6 | 22.7 | 9.0 | | | |
| High School Grad. | 28.6 | 22.7 | 22.7 | | | |
| Part College or 2 yr. Diploma | 33.4 | 45.4 | 45.5 | | | |
| College Graduate or beyond | 9.6 | 9.1 | 22.7 | $X^2$ = 4.74 | 6 | NS |
| Racial Background (%) | | | | | | |
| White | 100.0 | 87.0 | 100.0 | | | |
| Aboriginal | 0.0 | 8.7 | 0.0 | | | |
| Black | 0.0 | 4.3 | 0.0 | $X^2$ = 5.88 | 2 | NS |

Note. NS = non-significant , p > .05

Procedure

Diagnoses were established using a version of the Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990, 1992). The SCID is a semi-structured diagnostic interview designed to assess mental disorders according to the definitions and criteria of the DSM-III-R. Hypochondriasis and somatization disorder were assessed with the somatoform module of the SCID. Anxiety disorders, depression, and substance abuse disorders were assessed with the Roche version of the SCID (SCID-Ro; Stein, Hazen, Eldridge, & Walker, 1992). The SCID-Ro is a modified version of the SCID which provides more detailed information on anxiety disorders.

The SCID enjoys widespread use as an instrument to select and describe study samples. A multi-site test-retest reliability study of the SCID conducted on 592 subjects reported an overall weighted kappa of .61 for current and .68 lifetime diagnoses in the patient samples and a mean kappa of .37 for current and .51 for lifetime diagnoses for the nonpatients (Williams, Gibbon, et al., 1992). Although these reliability estimates are somewhat low, especially for the nonpatient samples, these values are comparable to those reported for other structured diagnostic instruments. An additional study reported by Williams, Spitzer, and Gibbon (1992), which focused exclusively on the test-retest reliability of the panic disorder section of the SCID, found a kappa of .87 for the diagnosis of current panic disorder in a sample of 72 patients from 13 sites. High levels of between-

interviewer agreement on the SCID-Ro were reported by Hazen, Walker, Chartier, Eldridge, and Stein (1993). This reliability study, which was conducted at the St. Boniface Hospital Anxiety Disorders Clinic, reported a kappa of .70 for panic disorder and .73 for social phobia.

Barsky, Cleary, et al. (1992) developed the hypochondriasis module of the SCID and reported excellent interrater diagnostic agreement (96%) as well as good concurrent validity, external validity and discriminant validity for this section of the SCID. Noyes et al. (1993) further support the validity of the hypochondriasis module of the SCID.

The initial interview utilizing the SCID-Ro was used to establish the presence of panic disorder and social phobia as well as of concomitant DSM-III-R and DSM-IV diagnoses, including other anxiety disorders and depression. The somatoform disorders modules from the SCID were used to assess somatization disorder and hypochondriasis. The presence of subsyndromal somatization disorder (using the criteria proposed by Escobar, Burnam, et al., 1987) was also evaluated. Ninety-five percent of the interviews were conducted by the primary investigator. The remaining five percent were conducted by a senior clinical psychologist. Twenty percent of the interviews were audio-taped with the patient's permission. These were independently reviewed by a doctoral student in clinical psychology in order to assess the reliability of the diagnostic assessment.

Before a diagnosis of a somatoform disorder can be made on

the basis of the SCID, it is important to rule out the presence of physical disorders that may account for the reported symptomatology. This issue was addressed by obtaining a thorough medical history, including what tests and examinations the individual had and developing a list of all current health problems and how these problems were diagnosed.

Prior to the initial interview, subjects were asked to complete self-report questionnaires, including measures of general anxiety, depression, anxiety sensitivity, health status, somatization, and hypochondriacal beliefs. These measures are described below. Subjects completed the questionnaires at home and were asked to return them when they attended the initial evaluation session.

In a separate session with the researcher, subjects were taught to self-monitor panic attacks, anticipatory anxiety, somatic symptoms and hypochondriacal fears and beliefs. (See Appendices B and C for instructions for use of the diary forms.) The self-monitoring diaries are described below. Subjects completed these diaries for a two-week period, the recommended minimum length of self-monitoring of panic attacks (Shear & Maser, 1994).

Self-report questionnaire measures

Illness Attitude Scales (IAS). The IAS (Kellner, 1985, 1986, 1987) consist of 21 items which measure fears, attitudes and beliefs associated with hypochondriasis (see Appendix D).

The IAS are not designed to assess somatic symptoms. Each item is rated on a five point scale ranging from "no" through "sometimes" to "most of the time". The items can be divided into nine subscales: Worry About Illness, Concern About Pain, Health Habits, Hypochondriacal Beliefs, Thanatophobia, Disease Phobia, Body Preoccupation, Treatment Experience, and Effects of Symptoms.

The IAS have been utilized in studies assessing hypochondriacal beliefs in various patient populations and healthy controls. The median test-retest correlations obtained in normal samples ranges from .87 (Kellner, Abbott, Winslow, & Pathak, 1987) to .95 (Fava, Kellner, et al., 1988) over periods from two weeks to three months. The IAS have been shown to discriminate psychiatric outpatients from general practice patients (Kellner, Hernandez, & Pathak, 1992) and to discriminate hypochondriacal patients from other psychiatric patients (Kellner, 1985). These scales have also been utilized to evaluate the role of hypochondriasis in depression (Kellner, Fava, Lisansky, Perini, & Zielezny, 1986) and in panic disorder (Otto et al., 1992). The IAS appear to be sensitive to treatment effects in patients with panic disorder (Fava, Kellner, et al., 1988) and in patients with hypochondriasis (Visser & Bouman, 1992).

Symptom Checklist-90-Revised (SCL-90-R) - Somatization Scale. The SCL-90-R (Derogatis, 1983) is a 90-item self-report measure designed to assess a broad range of symptomatology.

Subjects indicate how much they are distressed by each of the symptoms on a 5-point scale ranging from "not at all" to "extremely". Test-retest reliability for the full scale has been measured at .94 and internal consistency at .95.

The Global Severity Index (GSI) is a summary score which reflects the number of symptoms reported and the intensity of perceived distress. Nine subscores can be obtained from the SCL-90-R: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Anger-Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The Somatization scale has been shown to discriminate between the somatic symptoms of patients with hypochondriasis and those of other psychiatric patients (Kellner, Abbott, Winslow, & Pathak, 1989). Only the GSI and the Somatization scale were evaluated in the present study (see Appendix E for the latter).

Short Form-36 Health Status Survey (SF-36). The SF-36 (Ware & Sherbourne, 1992) is a 36-item questionnaire assessing eight areas of health-related functioning: (a) physical functioning, (b) role limitations because of physical health problems, (c) bodily pain, (d) social functioning, (e) general mental health, (f) role limitations because of emotional problems, (g) vitality, and (h) general health perceptions (see Appendix F). The SF-36 has good test-retest reliability, internal consistency and construct validity (Brazier et al., 1992). Extensive evaluation of the first subscale, Physical Functioning, suggests good unidimensionality and content validity for this scale (Haley,

McHorney, & Ware, 1994). Katz, Larson, Phillips, Fossel, and Liang (1992) demonstrated that the SF-36 is sensitive to clinical change and is comparable in sensitivity to a much longer health questionnaire (the Sickness Impact Profile which has 136 items). McHorney, Ware, and Raczek (1993) suggest that the SF-36 can be used to distinguish patient groups differing in severity of medical and psychiatric conditions.

Reiss-Epstein-Gursky Anxiety Sensitivity Index (ASI). The ASI (McNally & Lorenz, 1987; Peterson & Reiss, 1987; Reiss, Peterson, Gursky, & McNally, 1986) is a 16-item instrument which assesses fear of anxiety symptoms (e.g., "It scares me when I feel shaky") (see Appendix G). Each item is rated on a 5-point Likert scale indicating extent of agreement with the item. The scale ranges from "very little" (scored as 0) to "very much" (scored as 4). The total ASI score may thus range from 0 to 64.

Studies on the psychometric properties of the ASI suggest that it is a reliable instrument for measuring concerns about the physical consequences of anxiety (Reiss et al., 1986; Taylor, Koch, McNally, & Crockett, 1992; Telch, Shermis, & Lucas, 1989). ASI scores have been found to be higher for individuals with panic disorder than with other anxiety disorders, including social phobia, (Hazen, Walker, & Stein, in press; Taylor, Koch, & McNally, 1992) and are sensitive to treatment effects (McNally & Lorenz, 1987). In a longitudinal study, Maller and Reiss (1992) demonstrated that high scores on the ASI in a non-clinical sample of university students predicted the later development of anxiety

disorders in this sample. This study also reported that the test-retest correlation for the ASI over a three year period was .71.

Beck Anxiety Inventory (BAI). The BAI (Beck, Epstein, Brown, & Steer, 1988) is a 21-item inventory designed to measure the severity of generalized anxiety (see Appendix H). This scale has high internal consistency and test-retest reliability. Beck et al. reported a correlation of .48 between the BAI and the Beck Depression Inventory (described below). Creamer, Foran, and Bell (1995) found somewhat higher correlations in a healthy control sample (.54 and .63). Nonetheless, these are lower than most of the reported correlations between other anxiety scales (such as the STAI) and the BDI, suggesting that the BAI is a good measure of anxiety.

State-Trait Anxiety Inventory - Trait form (STAI-T). The STAI was developed by Speilberger, Gorsuch, and Lushene (1970) as a measure of generalized anxiety. The two forms of the inventory were designed to assess state anxiety and trait anxiety. Each form has 20 items which are rated on a four-point scale. The STAI is a widely used measure which has been shown to have good reliability and validity (e.g., Metzger, 1976). Oei, Evans, and Crook (1990) evaluated the factor structure of the STAI with panic disorder patients and concluded that this is a useful measure of anxiety in panic samples and that the distinction between state and trait anxiety is an appropriate one. The STAI is frequently used as a treatment outcome measure with panic

disorder patients (e.g., Ost, Westling, & Hellstrom, 1993). Only the trait form of the STAI was used in the current study (see Appendix I). This measure differs from the BAI in that it assesses how the individual generally feels (the BAI assesses anxiety only during the preceding week), and includes few items assessing somatic symptoms.

Fear Questionnaire (FQ). The FQ was developed by Marks and Mathews (1979) to assess anxiety and avoidance in individuals with panic disorder and agoraphobia. This 20-item questionnaire (see Appendix J) yields four main scores: Main Phobia rating, Total Phobia rating, Anxiety-Depression rating, and a global measure of phobic symptoms. In addition, three subscores, Agoraphobia, Blood-Injury Phobia and Social Phobia, can be obtained. These subscores are each based on 5 factor-analytically derived items. The items are rated on an 8-point scale indicating degree of avoidance. The FQ is one of the most commonly used measures in the assessment of panic disorder and agoraphobia and in the evaluation of treatment efficacy for these disorders (Mavissakalian, 1986; Trull, Nietzel, & Main, 1988). Test-retest reliability for each of the seven scores is high (ranging from .79 to .96) and is sensitive to treatment effects (Marks & Mathews, 1979). The Total Phobia, Agoraphobia, Blood-Injury, and Social Phobia scores were evaluated in the present study.

Beck Depression Inventory(BDI). The BDI (Beck, Steer, & Garbin, 1988; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a

21-item inventory which discriminates depression from generalized anxiety (see Appendix K). Beck et al. (1961) report good internal consistency with a split-half reliability coefficient of .86 and significant relationships between the individual category scores and the total score. Comparisons between the scores on the inventory and clinician judgements of depression also suggest a high degree of validity for the BDI.

Sheehan Disability Scales (SDS). The SDS (Sheehan, 1986) is a three item self-rating scale designed to assess functional impairment due to psychiatric disorders (i.e., illness severity). The items address the impact of symptomatology on three areas of functioning: work, social and family (see Appendix L). Each item is rated on a 10 point Likert-type scale. Leon, Shear, Portera, and Klerman (1992) evaluated the internal consistency among the three items, as well as the construct, criterion-related, and discriminant validity of this scale using data from two independent clinical trials involving patients with panic disorder. These authors report that the SDS has adequate reliability and validity with this population and they recommend that it be included as an outcome measure in treatment studies.

Self-monitoring diaries

Each subject was asked to monitor somatic symptoms daily for a two-week period following the diagnostic interview. They were also asked to monitor panic attacks if they occurred during this same period. (See Appendices M and N for copies of these two

diary forms.)

The daily diary for somatic symptoms and hypochondriacal behaviors consists of the 12 items from the Somatization scale of the Symptom Checklist-90-R, six items from the Illness Attitude Scales adapted for use in the daily diary, and seven additional items created specifically for this diary to assess cognitive and behavioral components of hypochondriasis not addressed in the items selected from the SCL-90-R and the IAS. The subjects rated the degree of distress caused by each of the symptoms using the 5-point scale of the SCL-90-R. Amount of distress was rated daily based on the previous 24-hour period rather than on the weekly period used in the SCL-90-R.

Subjects also completed panic attack diaries each time they experienced a full-blown panic attack or a limited symptom attack. The panic attack diary provides a list of the common physiological and cognitive symptoms experienced during panic attacks. Subjects were instructed to indicate which symptoms occurred during their panic attack.

## Results

### Comparison of the Panic Disorder and Control Samples

Sample characteristics. Sample demographics are given in the 'Subjects' section. Additional information with regards to the anxiety disorder diagnoses in the panic disorder and social phobia samples are described here. The age of onset of the primary diagnoses was significantly different in these two

groups, with the panic disorder sample reporting a mean onset of 27.3 years of age compared to 16.2 years for the social phobia group ($F(1,41) = 15.45$, $p < .0003$). This data is consistent with epidemiological research on anxiety disorders. Burke, Burke, Regier, and Rae (1990) in their report on the National Health Epidemiologic Catchment Area Program indicated that the mean age of onset for panic disorder is 24 years of age. In another epidemiological study, Kendler, Neale, Kessler, Heath, and Eaves (1992) report that the rate of onset of social phobia is highest in the teenage years.

Given the 11 year difference in age of onset between the panic disorder and social phobia samples and the lack of difference in the current age of these samples, it follows that the duration of the disorder is considerably longer for the social phobia sample than for the panic sample (15.7 years vs. 5.6 years; $F(1,41) = 13.29$, $p< .0007$).

Interrater diagnostic agreement. Agreement between raters was calculated as the percent agreement between the interviewer and a second rater on SCID diagnoses of panic disorder, social phobia, obsessive-compulsive disorder, post-traumatic stress disorder, depression, substance abuse, somatization disorder, and hypochondriasis. Percent agreement was calculated by dividing the number of agreements between raters by the sum of agreements and disagreements. Because of the small sample size for which interrater agreement was assessed (N=13) these results must be interpreted with caution. Percent agreement does not control for

chance agreement but it does provide a way of examining agreement for diagnoses with low base rates. Agreement was 100% for panic disorder, 92% for social phobia, and 90% for hypochondriasis. Agreement on the absence of the remaining diagnoses was 100% (these disorders were never diagnosed by either rater in this sample, indicating that the exclusion criteria had been successfully applied). Agreement of 80% or greater is generally considered acceptable.

Somatoform diagnoses. The first hypothesis, that diagnoses of hypochondriasis would be most frequent in the panic disorder sample, is clearly substantiated by the findings of this study. Ten of the 21 panic disorder subjects (48%) received an additional diagnosis of DSM-III-R/DSM-IV hypochondriasis whereas only one of the subjects with social phobia and none of the healthy control subjects met criteria for this diagnosis, a statistically significant difference ($X^2(2) = 21.40$, $p < .01$).

No differences in diagnoses were found using the DSM-III-R and the DSM-IV criteria for hypochondriasis. The additional criterion in DSM-IV emphasizing that the hypochondriacal concerns must cause significant distress or interference in the individual's life did not affect the diagnosis of hypochondriasis for any individuals in this study.

The second hypothesis suggested that diagnoses of somatization disorder would be more frequent in the panic disorder sample. This was not found to be the case as none of the 66 subjects participating in this study met criteria for

either DSM-III-R or DSM-IV somatization disorder. Using the criterion for subsyndromal somatization disorder recommended by Escobar, Burnam, et al. (1987), that is, that the individual report at least six DSM-III-R somatization symptoms (6 for women and 4 for men), only 1 panic disorder subject could be diagnosed with subsyndromal somatization disorder. None of the subjects in the social phobia or healthy control samples met this criterion.

The number of somatic symptoms endorsed by the respondents in the Somatization Disorder module of the SCID (for which they had sought medical attention, or resulted in altered lifestyle) does suggest a trend towards higher numbers of somatic symptoms in the panic disorder sample. The panic sample reported from zero to seven symptoms with a mean of 2.1 somatic symptoms from the list of 35. The social phobia sample reported from zero to five symptoms with a mean of 1.2, while the healthy control sample reported zero to four symptoms with a mean of 0.6. Only two of the panic disorder subjects reported no somatic symptoms compared to 11 of the social phobia subjects and 16 of the healthy control subjects. It is important to note that somatic symptoms experienced only during panic attacks or when anxious, as well as somatic symptoms related to a diagnosed illness, were not included in this count.

Somatic symptoms are totalled in a different fashion in the DSM-IV criteria for somatization disorder. As indicated earlier, the four criteria are: (a) 4 pain symptoms, (b) 2 gastrointestinal symptoms, (c) 1 sexual/reproductive symptom, and

(d) 1 neurological symptom. Nine panic disorder subjects (43%) reported enough symptoms to meet at least one of these criteria as compared to four of the social phobia subjects (17%) and three of the healthy control sample (14%).

Previously diagnosed medical conditions. Table 2 lists the medical conditions reported by the subjects. This information was obtained during the diagnostic interview and from a background information questionnaire completed prior to the interview. Forty-eight percent of the panic disorder sample, 17% of the social phobia group, and 14% of the healthy controls reported at least one previously diagnosed medical condition. This was a statistically significant difference ($X^2(2) = 7.78$, $p < .02$). However, the medical conditions reported did not account for the physical symptoms and illness concerns endorsed by these subjects in the somatoform modules of the SCID interview. As discussed below, there was no significant difference between those panic disorder subjects with hypochondriasis and those without in terms of frequency of previously diagnosed medical conditions.

Questionnaire measures of hypochondriasis and somatization. One-way analyses of variance (ANOVA) followed by Ryan-Einot-Gabriel-Welsh (REGW) multiple F tests (in the case of a statistically significant difference in the ANOVA) were performed to compare the means on the various questionnaire measures across the three groups. The REGW multiple F test was selected because it controls the familywise error rate while maintaining

**Table 2**

Previously Diagnosed Medical Conditions

| |
|---|
| Panic Disorder Subjects with Hypochondriasis |
| S1 - asthma |
| S2 - hiatus hernia |
| S3 - chronic enlarged lymph node, dysplasia |
| S4 - dysplasia |
| S5 - hypoglycemia |
| no diagnoses for 5 subjects (50%) |
| Panic Disorder Subjects without Hypochondriasis |
| S1 - mitral valve prolapse, migraine headaches |
| S2 - high prolactin level |
| S3 - asthma, pregnancy |
| S4 - irritable bowel syndrome, tendonitis |
| S5 - asthma |
| no diagnoses for 6 subjects (55%) |
| Social Phobia Subjects |
| S1 - asthma, blood clot in leg |
| S2 - asthma |
| S3 - hypoglycemia |
| S4 - paroxysmal supraventricular tachycardia |
| no diagnoses for 19 subjects (83%) |
| Healthy Control Subjects |
| S1 - sarcoidosis, hiatus hernia |
| S2 - chronic back pain |
| S3 - asthma |
| no diagnoses for 19 subjects (86%) |

Note. Medical conditions were reported by the subjects during the diagnostic interview and on a background information questionnaire. Only conditions existing currently or within the last three years are included.

statistical power (Seaman, Levin, & Serlin, 1991).

Table 3 presents the mean scores on the Illness Attitude Scales (IAS). The mean total scores on the IAS, which measure the fears, attitudes and beliefs associated with hypochondriasis, were, as hypothesized, significantly different across the three subject groups (at the $p < .0001$ level). The panic disorder group obtained higher mean scores than the social phobia group which obtained higher mean scores than the healthy controls.

Statistically significant differences (at the $p < .0001$ or $p < .0002$ level) were also found on 8 of the 9 subscales of the IAS. The panic disorder group obtained higher scores than both the social phobia and healthy control samples on 7 of the scales, including Worry about Illness, Concern about Pain, Hypochondriacal Beliefs, Thanatophobia, Disease Phobia, Bodily Preoccupation, and Treatment Experience. The panic disorder and social phobia samples were not significantly different on the Effects of Symptoms scale but both had higher mean scores than the healthy control group. The social phobia sample differed from the healthy control sample only on the Worry about Illness, Thanatophobia, and the Effects of Symptoms scales. The one scale for which there was no significant difference between the three groups was the Health Habits subscale, which assesses precautions about health. These results suggest that subjects with panic disorder do not take better care of their health (e.g., eating healthy foods, avoiding smoking) despite their increased concern about illness. This finding is consistent with the literature

**Table 3**

Scores on the Illness Attitude Scales (IAS) Across the Three Groups

| | Panic Disorder (PD) N=21 | Social Phobia (SP) N=23 | Healthy Control (HC) N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| IAS - Total | 56.33[a] | 35.09[b] | 23.64[c] | 19.00 | 2,63 | 0.0001 |
| WI | 8.38[a] | 5.65[b] | 3.77[c] | 15.36 | 2,63 | 0.0001 |
| CP | 7.33[a] | 4.22[b] | 3.45[b] | 10.39 | 2,63 | 0.0001 |
| HH | 5.95[a] | 5.91[a] | 6.14[a] | 0.04 | 2,63 | NS |
| HB | 4.33[a] | 1.22[b] | 0.77[b] | 10.32 | 2,63 | 0.0001 |
| T | 6.10[a] | 3.70[b] | 1.64[c] | 10.97 | 2,63 | 0.0001 |
| DP | 5.24[a] | 2.26[b] | 1.09[b] | 11.17 | 2,63 | 0.0001 |
| BP | 7.14[a] | 2.18[b] | 1.36[b] | 29.61 | 2,63 | 0.0001 |
| TE | 6.48[a] | 4.22[b] | 3.86[b] | 9.56 | 2,63 | 0.0002 |
| ES | 6.38[a] | 4.82[a] | 1.82[b] | 15.17 | 2,63 | 0.0001 |

Note. IAS subscales: WI = Worry about Illness, CP = Concern about Pain, HH = Health Habits, HB = Hypochondriacal Beliefs, T = Thanatophobia, DP = Disease Phobia, BP = Bodily Preoccupation, TE = Treatment Experience, ES = Effects of Symptoms.

NS = non-significant, $p > .01$

Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

(e.g., Fava, Kellner, et al., 1988).

An IAS subscale of particular interest is the Treatment Experience subscale. The three items on this scale assess the self-reported frequency of doctor visits and medical interventions, and the number of different health care providers seen in the previous 12 months. As expected, the panic disorder sample reported higher medical service utilization than did the social phobia and healthy control samples. All of the panic disorder subjects, 87% of the social phobia subjects, and 91% of the healthy control sample reported making at least one health care visit in the past year. This is comparable to the data reported on utilization of medical services in Manitoba (a publicly funded health care system) which indicate that 85% of Winnipeg residents see a physician at least once per year (Tataryn, Roos, & Black, 1994).

In the present study, 67% of the panic disorder subjects, 87% of the social phobia subjects and 95% of the healthy control subjects reported seeing a doctor either "very rarely" or "about 4 times per year". Twenty-nine percent of panic disorder subjects reported that they see a doctor approximately once per month, compared to 13% of the social phobia subjects and only 5% of healthy control subjects. One panic disorder subject (5%) reported seeing a doctor approximately once per week because of physical symptoms. This high frequency of visits was not reported by any of the social phobia or healthy control subjects. These data can be compared to those presented by Tataryn et al.

which indicate that 62% of the Manitoba population make 1-7 doctor visits per year, 16% make 8-14 visits annually, and 6% make 15 or more visits.

In the present study, 33% of the panic disorder subjects reported that they had seen at least four doctors in the past year as compared to 13% of the social phobia subjects. None of the healthy control sample reported visiting more than three doctors annually. Twenty-nine percent of the panic disorder subjects had also received at least 4 medical treatments (e.g., surgery, medication) in the past year, compared to only 9% each of the social phobia and healthy control samples. Clearly, the panic disorder subjects made substantially greater use of medical services than other social phobia patients and healthy controls.

It is useful to examine some of the individual items on the IAS to explore the differences on this scale between the three groups (see Table 4). The items with the highest mean scores for the panic disorder sample were: "Do you worry about your health?" and "Does the thought of serious illness scare you?". All 21 panic subjects scored these two items as at least a "2", that is, as worries which occur at least "sometimes". The two items with the highest mean scores for the social phobia sample were: "Do you avoid habits which may be harmful such as smoking?" and "Does the thought of serious illness scare you?". The two highest items for the healthy control sample were both from the Health Habits scale: "Do you avoid habits which may be harmful such as smoking?" and "If a pain lasts a week or more, do you see

**Table 4**

Item Means on the Illness Attitude Scales Across the Three Groups

| | Panic Disorder N=16 | Social Phobia N=18 | Healthy Control N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| Do you worry about your health | 2.95[a] | 1.87[b] | 1.40[b] | 14.38 | 2,63 | 0.0001 |
| Are you worried that you may get a serious illness in the future | 2.57[a] | 1.65[b] | 0.96[c] | 13.61 | 2,63 | 0.0001 |
| Does the thought of serious illness scare you | 2.86[a] | 2.13[b] | 1.41[c] | 9.53 | 2,63 | 0.0002 |
| If you have a pain, do you worry that it may be caused by a serious illness | 2.43[a] | 1.35[b] | 0.68[c] | 14.75 | 2,63 | 0.0001 |
| If a pain lasts a week or more, do you see a physician | 2.67[a] | 1.81[a] | 2.09[a] | 2.11 | 2,62 | NS |
| If a pain lasts a week or more, do you believe that you have a serious illness | 2.24[a] | 1.13[b] | 0.68[b] | 10.66 | 2,63 | 0.0001 |
| Do you avoid habits which may be harmful to your health | 2.52[a] | 2.57[a] | 3.14[a] | 0.97 | 2,62 | NS |
| Do you avoid foods which may not be healthy | 1.71[a] | 1.96[a] | 2.00[a] | 0.44 | 2,63 | NS |
| Do you examine your body to find whether there is something wrong | 1.71[a] | 1.39[a] | 1.19[a] | 1.28 | 2,62 | NS |
| Do you believe that you have a physical disease but the doctors have not diagnosed it correctly | 1.95[a] | 0.74[b] | 0.27[b] | 9.59 | 2,63 | 0.0002 |
| When your doctor tells you that you have no physical disease, do you refuse to believe him | 1.38[a] | 0.35[b] | 0.46[b] | 5.12 | 2,63 | 0.0087 |
| When you have been told by a doctor what he found, do you soon begin to believe that you may have developed a new illness | 1.00[a] | 0.30[b] | 0.05[b] | 6.33 | 2,63 | 0.0031 |
| Are you afraid of news that reminds you of death | 1.57[a] | 0.96[a,b] | 0.32[b] | 5.89 | 2,62 | 0.0046 |
| Does the thought of death scare you | 2.67[a] | 1.61[b] | 0.96[b] | 11.06 | 2,63 | 0.0001 |
| Are you afraid that you may die soon | 1.86[a] | 1.17[a] | 0.36[b] | 7.66 | 2,63 | 0.0011 |
| Are you afraid that you may have cancer | 1.91[a] | 0.91[b] | 0.50[b] | 6.82 | 2,63 | 0.0021 |

(Table continues)

| | | | | | | |
|---|---|---|---|---|---|---|
| Are you afraid that you may have heart disease | 1.91[a] | 0.70[b] | 0.41[b] | 9.66 | 2,63 | 0.0002 |
| Are you afraid that you may have another serious illness | 1.43[a] | 0.68[b] | 0.18[b] | 5.60 | 2,62 | 0.0057 |
| When you read or hear about an illness, do you get symptoms similar to those of the illness | 1.52[a] | 0.44[b] | 0.09[b] | 14.88 | 2,63 | 0.0001 |
| When you notice a sensation in your body, do you find it difficult to think of something else | 2.24[a] | 1.13[b] | 0.32[c] | 13.76 | 2,63 | 0.0001 |
| When you feel a sensation in your body, do you worry about it | 2.38[a] | 1.52[b] | 0.68[c] | 13.30 | 2,63 | 0.0001 |
| How often do you see a doctor | 2.14[a] | 1.65[b] | 1.48[b] | 4.73 | 2,62 | 0.01 |
| How many different doctors, chiropractors or other healers have you seen in the past year | 2.29[a] | 1.52[b] | 1.41[b] | 5.76 | 2,63 | 0.0051 |
| How often have you been treated during the past year | 2.05[a] | 1.09[b] | 1.00[b] | 6.12 | 2,62 | 0.0038 |
| Do your bodily symptoms stop you from working | 1.57[a] | 0.96[a,b] | 0.50[b] | 5.31 | 2,63 | 0.0074 |
| Do your bodily symptoms stop you from concentrating on what you are doing | 2.33[a] | 1.83[a] | 0.68[b] | 16.08 | 2,63 | 0.0001 |
| Do your bodily symptoms stop you from enjoying yourself | 2.48[a] | 2.04[a] | 0.64[b] | 15.60 | 2,63 | 0.0001 |

Note. NS = non-significant, $p > .01$

Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

a physician?".

As shown in Table 5, the mean scores on the Somatization subscale of the SCL-90 were also, as hypothesized, significantly different across the three subject groups ($p < .0001$). The panic disorder group obtained higher mean scores than the social phobia group which obtained higher mean scores than the healthy controls. The items with the highest mean scores for the panic disorder sample were "trouble getting your breath" and "pains in heart or chest". These two symptoms tend to be very prominent in panic attacks. The items with the highest means in the social phobia sample were "nausea or upset stomach" and "headaches", both of which tend to be associated with high levels of general anxiety and physical tension. The healthy control sample rated "pains in lower back" and "soreness of your muscles" as the highest items.

The SCL-90 Somatization scores obtained by the panic disorder sample were similar to those reported by Starcevic et al. (1992) and Noyes et al. (1992). Munjack, Brown, and McDowell (1987) reported a mean of 9.8 for this measure for a social phobia sample, which is slightly lower than the 11.64 obtained by the social phobia sample in the present study. The healthy control subjects obtained scores consistent with the norms for a non-patient population established by Derogatis (1983) using a large sample (N=974). Thus the scores obtained by the three samples in this study appear to be representative of their respective populations.

**Table 5**

Questionnaire Measures of Somatization, Anxiety, Depression, and Disability Across the Three Groups

| | Panic Disorder N=21 | Social Phobia N=23 | Healthy Control N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| SCL-90-R | | | | | | |
| Somatization | 16.90[a] | 11.64[b] | 2.86[c] | 20.44 | 2,62 | 0.0001 |
| GSI | 1.36[a] | 1.28[a] | 0.32[b] | 18.59 | 2,63 | 0.0001 |
| Fear Questionnaire | | | | | | |
| Total | 35.05[a] | 36.87[a] | 9.59[b] | 16.72 | 2,63 | 0.0001 |
| Agoraphobia | 11.14[a] | 7.43[a] | 1.64[b] | 7.96 | 2,63 | 0.0008 |
| Social Phobia | 13.52[b] | 22.00[a] | 4.18[c] | 35.25 | 2,63 | 0.0001 |
| Blood-Injury | 10.38[a] | 7.43[a,b] | 3.77[b] | 5.49 | 2,63 | 0.0063 |
| ASI | 33.33[a] | 25.65[b] | 6.05[c] | 41.12 | 2,63 | 0.0001 |
| BAI | 22.67[a] | 17.74[a] | 3.05[b] | 32.30 | 2,63 | 0.0001 |
| STAI-T | 49.14[a] | 50.52[a] | 31.64[b] | 16.34 | 2,63 | 0.0001 |
| BDI | 14.00[a] | 16.87[a] | 2.91[b] | 17.39 | 2,63 | 0.0001 |
| Sheehan Disability Scales | | | | | | |
| Work | 4.06[a] | 3.67[a] | 0.63[b] | 7.21 | 51 | 0.0018 |
| Social | 3.88[a] | 5.05[a] | 0.71[b] | 11.56 | 52 | 0.0001 |
| Family | 3.88[a] | 3.10[a] | 0.59[b] | 8.39 | 52 | 0.0007 |

Note. GSI= Global Severity Index, ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory, STAI-T = State Trait Anxiety Inventory - Trait form, BDI = Beck Depression Inventory.

Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

Questionnaire measures of anxiety, depression, and disability. Table 5 presents the mean scores on the SCL - GSI, Fear Questionnaire, Anxiety Sensitivity Index, State-Trait Anxiety Inventory - Trait form, Beck Depression Inventory, and the Sheehan Disability Scales. The panic disorder group obtained significantly higher scores than the healthy control sample on all of these measures. Significant differences were also found between the social phobia and healthy control samples on all of the measures with the exception of the FQ-Blood Injury subscale.

The panic disorder and social phobia samples reported similar levels of general distress, fear, general anxiety, depression, and disability on the questionnaire measures. This suggests that these two groups were comparable with respect to overall levels of psychopathology.

The panic disorder sample obtained significantly higher scores than the social phobia sample only on the ASI, suggesting that the panic disorder subjects report greater concern with the physical symptoms of anxiety. This is consistent with the findings of greater somatization and illness concerns in this sample. The social phobia group obtained significantly higher scores than the panic sample on the FQ-Social Phobia subscale.

Questionnaire measure of health status. Table 6 summarizes the mean scores of the three groups on the Short Form-36 Health Status Survey. Higher scores on this measure indicate better health status. The panic disorder sample obtained significantly

**Table 6**

Short Form-36 Health Status Survey (SF-36) Subscales Across the Three Groups

| | Panic Disorder N=21 | Social Phobia N=23 | Healthy Control N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| Physical Functioning | 25.57[a] | 27.61[a] | 28.41[a] | 2.69 | 2,63 | NS |
| Role Limits-Physical | 6.10[a] | 6.96[a] | 7.41[a] | 3.75 | 2,63 | NS |
| Bodily Pain | 8.41[a] | 8.72[a] | 10.35[a] | 4.20 | 2,62 | NS |
| Social Functioning | 7.00[a] | 6.35[a] | 9.36[b] | 15.58 | 2,63 | 0.0001 |
| Mental Health | 18.78[a] | 17.96[a] | 24.77[b] | 14.83 | 2,63 | 0.0001 |
| Role Limits-Emotional | 4.48[a] | 4.57[a] | 5.59[b] | 6.61 | 2,63 | 0.0025 |
| Vitality | 11.14[a] | 13.78[a] | 18.45[b] | 9.18 | 2,63 | 0.0003 |
| General Health | 16.17[a] | 19.50[b] | 21.56[c] | 8.26 | 2,62 | 0.0007 |

Note. NS = non-significant, $p > .01$

Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

lower scores than the healthy control sample on five of the eight subscales. The panic sample obtained a lower mean score than the social phobia sample only on the General Health Perceptions scale. There were no significant differences between the two anxiety groups on any of the other subscales.

## Relationship between Hypochondriacal Concerns and Somatic Symptoms in the Panic Disorder Sample

Correlational analysis. As shown in Table 7, the Pearson correlation coefficients between nine of the primary scores obtained from the self-report questionnaire measures revealed that there was, as predicted, a strong positive correlation between the IAS (total score) and the ASI ($r = 0.64$; $p < .0017$). However, the strongest correlation was between the IAS and the SCL-90 Somatization scale ($r = 0.76$, $p < .0001$). Other moderate to strong correlations were found between the IAS and the FQ-BI subscale, the STAI, and the BAI. The SCL-90 Somatization scale was most strongly correlated with the IAS and also had significant positive correlations with the BDI, STAI, and ASI.

Multiple regression analyses. A stepwise multiple regression analysis was conducted to determine which of the questionnaire measures, including the SCL-90 Somatization scale, ASI, BAI, BDI, STAI-T, and FQ subscales, were the best predictors of the IAS. The SAS regression procedure with the stepwise option was used for this analysis (SAS, Release 6.04). Four of

**Table 7**

Correlation Analysis for the Panic Disorder Sample (N=21)

| | IAS | SCL Somat | FQ-Agora | FQ-BI | FQ-SP | ASI | BAI | STAI-T |
|---|---|---|---|---|---|---|---|---|
| SCL Somat | 0.76* | | | | | | | |
| FQ-Agora | 0.14 | 0.37 | | | | | | |
| FQ-BI | 0.63* | 0.34 | 0.08 | | | | | |
| FQ-SP | 0.29 | 0.52 | 0.70* | 0.34 | | | | |
| ASI | 0.64* | 0.56* | 0.01 | 0.19 | 0.34 | | | |
| BAI | 0.59* | 0.48 | 0.34 | 0.48 | 0.43 | 0.37 | | |
| STAI-T | 0.63* | 0.57* | 0.32 | 0.39 | 0.49 | 0.46 | 0.64* | |
| BDI | 0.51 | 0.58* | 0.49 | 0.24 | 0.61* | 0.42 | 0.44 | 0.83* |

Note. IAS = total score on the Illness Attitude Scales, SCL-90 Somat = Somatization subscale of the Symptom Checklist, FQ-Agora = Agoraphobia subscale of the Fear Questionnaire, FQ-BI = Blood-Injury subscale of the Fear Questionnaire, FQ-SP = Social Phobia subscale of the Fear Questionnaire, ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory, STAI-T = trait form of the State Trait Anxiety Inventory, BDI = Beck Depression Inventory.

* Pearson Correlation Coefficient, $p < .01$

the eight variables were significant at the $p < 0.15$ level and were entered into the model. The SCL-90 Somatization scale, FQ-Blood Injury scale, ASI, and FQ-Social Phobia scale were found to be uniquely and meaningfully associated with the IAS (total score) and together accounted for 86% of the variance on the IAS ($R^2 = 0.86$, $p < .03$). The SCL-90 Somatization scale accounted for 58% of the variance on the IAS and was clearly the best individual predictor of scores on this measure. The FQ-Blood Injury scale accounted for an additional 16% of the variance, the ASI added 7%, and the FQ-Social Phobia scale contributed a unique 5% to the total variance accounted for in the regression analysis.

An identical multiple regression analysis was conducted on the SCL-90 Somatization scale. Three variables met criteria to be entered into the model. Together, the IAS and the FQ-Social Phobia and Blood Injury subscales accounted for 75% of the variance on the SCL-90 Somatization scale ($R^2= 0.75$, $p < 0.05$). The IAS accounted for the majority of the variance (58%), while the FQ-Social Phobia and Blood Injury scales contributed 10% and 7%, respectively, to the regression model.

Daily Diary Measures

Daily diary data were obtained for 76% (N=16) of the panic disorder sample, 78% (N=18) of the social phobia sample and 100% (N=22) of the healthy control sample. Eighty percent of the 56 subjects completing this phase of the study mailed in diary forms

twice per week for 14 consecutive days of self-monitoring. An additional 18% completed forms for at least 11 consecutive days and one subject completed diary forms for only one week.

Somatization diaries. As described in the 'Method' section, the somatization daily diary included the 12 items of the SCL-90 Somatization subscale as well as 10 additional items. Each item score was based on the average ratings across the days of self-monitoring. One-way ANOVAs followed by REGW multiple comparison F tests were performed on the three summary measures of the somatization diary: total score (items #1-22), SCL-90-R Somatization scale items (#1-12), and illness concern items (#13-22). As shown in Table 8, the panic disorder sample obtained significantly higher scores than the social phobia sample which in turn obtained higher mean scores than the healthy control group on all three summary measures of the somatization diary.

Further ANOVAs and REGW multiple comparison F tests were then conducted on the individual items of the diary form to obtain more detailed information on the different response patterns of the three samples on this measure. Table 9 presents the mean scores on the 22 items for the three samples. The panic disorder sample obtained significantly higher mean scores than the healthy control sample on 19 of the 22 items ($p < .01$). The panic sample was higher than the social phobia sample on 12 items and there was no significant difference between the two anxiety groups on the remaining 10 items. The item with the highest mean score for the panic disorder sample was "worrying about your

**Table 8**

Somatization Daily Diaries: Summary Scores Across the Three Groups

| | Panic Disorder N=16 | Social Phobia N=18 | Healthy Control N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| Total (#1-#22) | 0.64[a] | 0.33[b] | 0.09[c] | 23.75 | 2,53 | 0.0001 |
| SCL-Somatization items (#1-#12) | 0.64[a] | 0.32[b] | 0.12[c] | 20.12 | 2,53 | 0.0001 |
| Illness concern items (#13-#22) | 0.65[a] | 0.35[b] | 0.06[c] | 14.54 | 2,53 | 0.0008 |

Note. Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

**Table 9**

Somatization Daily Diaries: Individual Item Means Across the Three Groups

| | Panic Disorder N=16 | Social Phobia N=18 | Healthy Control N=22 | F | *df* | *p* |
|---|---|---|---|---|---|---|
| Soreness of your muscles | 0.99[a] | 0.56[a] | 0.44[a] | 4.82 | 2,53 | NS |
| Numbness or tingling in parts of your body | 0.46[a] | 0.17[b] | 0.07[b] | 6.55 | 2,53 | 0.0029 |
| Heavy feelings in your arms and legs | 0.41[a] | 0.16[b] | 0.02[b] | 8.11 | 2,53 | 0.0008 |
| Weakness in parts of your body | 0.58[a] | 0.22[b] | 0.06[b] | 9.32 | 2,53 | 0.0003 |
| Pains in heart or chest | 0.57[a] | 0.22[b] | 0.04[b] | 11.89 | 2,53 | 0.0001 |
| Hot or cold spells | 0.62[a] | 0.38[a] | 0.02[b] | 9.85 | 2,53 | 0.0002 |
| Pains in lower back | 0.87[a] | 0.36[a] | 0.44[a] | 3.00 | 2,53 | NS |
| Trouble getting your breath | 0.63[a] | 0.41[a] | 0.03[b] | 9.00 | 2,53 | 0.0004 |
| Faintness or dizziness | 0.42[a] | 0.27[a] | 0.01[b] | 8.71 | 2,53 | 0.0005 |
| A lump in your throat | 0.24[a] | 0.26[a] | 0.003[b] | 5.64 | 2,53 | 0.0060 |
| Headaches | 1.00[a] | 0.44[b] | 0.20[b] | 10.05 | 2,53 | 0.0002 |
| Nausea or upset stomach | 0.84[a] | 0.40[b] | 0.07[b] | 10.29 | 2,53 | 0.0002 |
| Worrying about your health | 1.08[a] | 0.47[b] | 0.10[c] | 14.66 | 2,53 | 0.0001 |
| Worrying about bodily symptoms | 0.99[a] | 0.47[b] | 0.12[b] | 12.72 | 2,53 | 0.0001 |
| Did your bodily symptoms stop you from working? | 0.32[a] | 0.23[a] | 0.02[b] | 8.66 | 2,53 | 0.0006 |
| Wondering whether you should visit a doctor | 0.39[a] | 0.29[a] | 0.05[a] | 3.92 | 2,53 | NS |
| Did your bodily symptoms stop you from enjoying yourself? | 0.87[a] | 0.51[b] | 0.06[c] | 17.54 | 2,53 | 0.0001 |
| The belief that you have a serious medical illness | 0.54[a] | 0.26[b] | 0.00[b] | 8.57 | 2,53 | 0.0006 |
| Worrying that you may get a serious illness in the future | 0.66[a] | 0.34[a,b] | 0.06[b] | 7.16 | 2,53 | 0.0018 |
| Did your bodily symptoms stop you from concentrating on what you were doing? | 0.65[a] | 0.35[b] | 0.07[c] | 12.19 | 2,53 | 0.0001 |
| Did you speak to someone about your bodily symptoms? | 0.65[a] | 0.26[b] | 0.13[b] | 5.20 | 2,53 | 0.0087 |
| Did you examine your body to find out whether there is something wrong? | 0.38[a] | 0.27[a] | 0.01[b] | 5.58 | 2,53 | 0.0063 |

Note. NS = non-significant, $p > .01$

Means with different superscripts differ significantly at $p < .01$ based upon the Ryan-Einot-Gabriel-Welsh multiple F-test following significant ANOVA.

health". The social phobia and healthy control samples both rated "soreness of your muscles" as the most frequent complaint.

An interesting finding was noted when comparing the mean scores on the SCL-90 Somatization items obtained in the daily diary format and the mean scores obtained on the same items when this measure was administered in standard fashion as part of the questionnaire package. The scores on these 12 items were at least twice as high when administered in its original format (i.e., rating the last week) than when the items were rated on a daily basis. This finding was consistent across all three samples. This difference may have been due to the different time frames involved. For example, a respondent could have had headaches on two days which over the course of a week may have been rated as "quite distressing". On daily diaries, however, the symptom might be rated as "quite distressing" on the two days but as "not at all distressing" on the other five days.

The subjects also recorded any visits to health care professionals which occurred during the two week self-monitoring period as well as any medication used. A substantial percentage of each of the three groups did see a health care professional during the self-monitoring period: 31%( N=5), 39% (N=7), and 32% (N=7) of the panic disorder, social phobia, and healthy control samples respectively used medical services at least once during the two weeks. These percentages were not significantly different ($X^2(2) = 0.29$, $p > .05$). Two of the panic disorder subjects made two health care visits during this period, one

panic disorder subject made four visits, and one of the healthy control subjects made three visits. None of the social phobia subjects made more than one health care visit during the two week period.

Medication usage during the two week self-monitoring phase was reported by 69% (N=11) of the panic disorder sample, 72% (N=13) of the social phobia sample, and 41% (N=9) of the healthy control subjects. These percentages were not significantly different ($X^2(2) = 3.58$, $p > .05$). The primary medication used by all three samples was non-prescription analgesics. Other medications recorded included benzodiazepines, prescription pain medication, asthma medication, antibiotics and gastrointestinal medications.

Panic attack diaries. The weekly rate of panic attacks is displayed in Table 10. Almost two-thirds of the panic disorder sample reported at least one panic attack during the self-monitoring period, as compared to one third of the social phobia sample and none of the healthy control subjects. The panic disorder subjects reported a high mean frequency of full-blown and limited symptom attacks, suggesting that they were quite symptomatic at the time of assessment.

## Comparison of Panic Disorder with and without Hypochondriasis

As indicated above, 10 of the 21 panic disorder subjects also met DSM-III-R/DSM-IV criteria for hypochondriasis. Additional analyses were conducted to identify differences

**Table 10**

Panic Attack Frequency

| | Panic Disorder N=16 | Social Phobia N=18 | Healthy Control N=22 | Statistic | *df* | *p* |
|---|---|---|---|---|---|---|
| Subjects with >= 1 Panic Attack | 63% | 33% | 0% | $X^2 = 18.03$ | 2 | 0.01 |
| Panic Attacks per Week - Mean | 1.9 | 0.6 | 0.0 | | | |
| Panic Attacks per Week - Range | 0 - 7.5 | 0 - 3.8 | 0 - 0 | | | |
| Limited Symptom Attacks per Week - Mean | 1.4 | 1.3 | 0.0 | | | |

Note. Panic attack frequency based on two weeks of self-monitoring.

A limited symptom attack refers to an attack with less than four symptoms.

between the panic disorder subjects with and without hypochondriasis. Given the small sample size and limited power, statistical comparisons should be interpreted with caution.

Sample characteristics. Table 11 outlines the sample characteristics, including diagnostic details, for the panic subjects with and without hypochondriasis. These two groups were well balanced in terms of mean age and the age of onset of the panic disorder. There was a statistically significant difference in the gender composition between the two groups, with the three male subjects with panic disorder all being in the panic disorder with hypochondriasis group. There were differences in education level, with only 50% of the subjects with hypochondriasis having graduated from high school as compared to 91% of the panic subjects without hypochondriasis ($X^2(1) = 4.30$, $p < .05$).

As shown in Table 2, five subjects in each of the panic disorder subgroups reported specific physical health problems. No differences were found between the 10 panic disorder subjects with a self-reported health problem and the 11 panic disorder subjects without health problems on the Fear Questionnaire, SCL-90 Somatization scale and GSI, IAS, BAI, STAI-T, BDI, SDS, 7 of 8 SF-36 subscales, and the number of somatic symptoms reported on the SCID ($p > .05$). A statistically significant difference ($F(1,19) = 4.86$, $p < .04$) was found only for the Pain subscale of the SF-36 Health Status Survey.

Diagnostic information. There was no significant difference in rate of agoraphobia diagnosis between those panic subjects

**Table 11**

Demographics and Diagnostic Information for the Panic Disorder (PD) Sample

| | Panic Disorder with Hypochondriasis N=10 | Panic Disorder without Hypochondriasis N=11 | Statistic | *df* | *p* |
|---|---|---|---|---|---|
| Mean Age (Years) | 30.6 | 33.3 | F = 0.84 | 1,19 | NS |
| SD | 7.8 | 5.4 | | | |
| Age of Onset of the PD | 25.9 | 27.5 | F = 0.65 | 1,18 | NS |
| Sex (% Female) | 70.0 | 100.0 | $X^2$ = 3.85 | 1 | 0.05 |
| Education (%) | | | | | |
| < High School Graduate | 50 | 9 | | | |
| High School Graduate | 10 | 46 | | | |
| Part College/ 2 yr. Diploma | 30 | 36 | | | |
| College Graduate or beyond | 10 | 9 | | | |

Note. NS= non-significant, p > .05

with and without hypochondriasis: 8 (80%) of the panic subjects with hypochondriasis and 7 (64%) of the panic subjects without hypochondriasis met criteria for agoraphobia ($X^2(1) = 0.69$, $p > .05$). This is consistent with the findings of Otto et al. (1992) and contrasts with Starcevic et al. (1992).

For the 10 panic disorder subjects with combined diagnoses, the onset of the hypochondriasis predated the onset of the panic disorder in 6 cases. The hypochondriasis preceded the panic disorder for these subjects by a mean of 4.5 years with a range of 1 to 11 years. The onset of the hypochondriasis was concurrent with the onset of the panic disorder in 1 subject and followed the panic disorder (with onset within one year of the panic disorder) in 2 subjects. The final subject was unable to clearly establish age of onset for her panic disorder or for the hypochondriasis. The number of individuals with comorbid panic disorder and hypochondriasis was not sufficient for a statistical evaluation of the temporal relationship between the disorders.

Questionnaire measures. Table 12 presents the mean scores on the Illness Attitude Scales (IAS). The panic disorder plus hypochondriasis group obtained higher total mean scores than the panic group with no hypochondriasis. The panic subjects with hypochondriasis obtained significantly higher scores than those without hypochondriasis on all of the scales except the Health Habits and Treatment Experience scales.

As shown in Table 13, the panic subjects with hypochondriasis obtained significantly higher mean scores on the

**Table 12**

Scores on the Illness Attitude Scales (IAS) within the Panic Disorder Sample

| | Panic Disorder with Hypochondriasis N=10 | Panic Disorder without Hypochondriasis N=11 | F | *df* | *p* |
|---|---|---|---|---|---|
| Total | 76.6 | 37.9 | 30.13 | 1,19 | 0.0001 |
| WI | 10.5 | 6.5 | 20.05 | 1,19 | 0.0003 |
| CP | 10.4 | 4.5 | 33.08 | 1,19 | 0.0001 |
| HH | 6.1 | 5.8 | 0.04 | 1,19 | NS |
| HB | 7.3 | 1.6 | 15.01 | 1,19 | 0.001 |
| T | 9.1 | 3.4 | 19.33 | 1,19 | 0.0003 |
| DP | 8.8 | 2.0 | 33.44 | 1,19 | 0.0001 |
| BP | 9.3 | 5.2 | 9.39 | 1,19 | 0.0064 |
| TE | 7.0 | 6.0 | 0.92 | 1,19 | NS |
| ES | 8.2 | 4.7 | 8.97 | 1,19 | 0.0074 |

Note. IAS subscales: WI = Worry about Illness, CP = Concern about Pain, HH = Health Habits, HB = Hypochondriacal Beliefs, T = Thanatophobia, DP = Disease Phobia, BP = Bodily Preoccupation, TE = Treatment Experience, ES = Effects of Symptoms.

NS = non-significant, $p > .05$

**Table 13**

Questionnaire Measures of Somatization, Anxiety, Depression, and Disability within the Panic Disorder Sample

| | Panic Disorder with Hypochondriasis (N=10) | Panic Disorder without Hypochondriasis (N=11) | F | *df* | *p* |
|---|---|---|---|---|---|
| SCL-90-R | | | | | |
| Somatization | 22.4 | 11.9 | 11.32 | 1,19 | 0.0033 |
| GSI | 1.8 | 1.0 | 8.09 | 1,19 | 0.0104 |
| Fear Questionnaire | | | | | |
| Total | 42.5 | 28.3 | 2.71 | 1,19 | NS |
| Agoraphobia | 11.7 | 10.6 | 0.05 | 1,19 | NS |
| Social Phobia | 15.1 | 12.1 | 0.58 | 1,19 | NS |
| Blood-Injury | 15.7 | 5.6 | 25.23 | 1,19 | 0.0001 |
| ASI | 37.2 | 29.8 | 2.05 | 1,19 | NS |
| BAI | 27.1 | 18.6 | 7.56 | 1,19 | 0.0128 |
| STAI-T | 54.6 | 44.2 | 5.44 | 1,19 | 0.0308 |
| BDI | 16.5 | 11.7 | 1.57 | 1,19 | NS |
| Sheehan Disability Scales | | | | | |
| Work | 5.1 | 3.1 | 1.72 | 1,15 | NS |
| Social | 5.0 | 2.9 | 2.30 | 1,15 | NS |
| Family | 5.1 | 2.8 | 3.17 | 1,15 | NS |

Note. GSI= Global Severity Index, ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory, STAI-T = State Trait Anxiety Inventory - Trait form, BDI = Beck Depression Inventory.

NS = non-significant, $p > .05$

Somatization subscale of the SCL-90, SCL-GSI, FQ-Blood Injury scale, BAI, and STAI-T. There were no significant differences on the ASI, BDI, the Agoraphobia and Social Phobia subscales of the FQ, and the three subscales of the SDS.

Table 14 summarizes the mean scores of the two panic disorder subgroups on the SF-36. There were no significant differences between the two groups on any of the subscales except on the General Health scale.

Daily diary measures. Somatization diaries and panic attack diaries were completed by eight of the panic disorder subjects with hypochondriasis and eight of the panic subjects without the additional diagnosis. Statistical comparisons were limited by the small sample sizes.

One-way ANOVAs were performed on the three summary measures of the somatization diary: total score (items #1-22), SCL-90-R Somatization scale items (#1-12), and illness concern items (#13-22). Panic disorder subjects with hypochondriasis tended to report higher scores than those without hypochondriasis but these trends did not reach statistical significance.

A comparison of the panic disorder subjects with and without hypochondriasis reveals a non-significant trend towards higher rates of both full-blown and limited symptom attacks for those subjects with hypochondriasis. Seventy-five percent of the subjects with hypochondriasis reported at least one panic attack during the self-monitoring period, as compared to 50% of the subjects without hypochondriasis ($X^2(1) = 1.07$, $p > .05$).

**Table 14**

Short Form-36 Health Status Survey (SF-36) Subscales within the Panic Disorder Sample

| | Panic Disorder with Hypochondriasis (N=10) | Panic Disorder without Hypochondriasis (N=11) | F | *df* | *p* |
|---|---|---|---|---|---|
| Physical Functioning | 24.1 | 26.9 | 2.87 | 1,19 | NS |
| Role Limits-Physical | 5.7 | 6.5 | 1.21 | 1,19 | NS |
| Bodily Pain | 7.7 | 9.1 | 2.24 | 1,19 | NS |
| Social Functioning | 6.3 | 7.6 | 2.93 | 1,19 | NS |
| Mental Health | 17.9 | 19.6 | 1.07 | 1,19 | NS |
| Role Limits-Emotional | 4.0 | 4.9 | 4.35 | 1,19 | NS |
| Vitality | 9.8 | 12.4 | 2.44 | 1,19 | NS |
| General Health | 13.0 | 19.0 | 10.06 | 1,19 | 0.005 |

Note. NS = non-significant, $p > .05$

The subjects with hypochondriasis reported a mean of 2.3 full-blown panic attacks and 2.0 limited symptom attacks per week as compared to 1.4 full-blown panic attacks and 0.8 limited symptom attacks for those panic disorder subjects without hypochondriasis. Neither of these differences reached statistical significance ($p > .05$).

## Discussion

Almost half of the individuals with panic disorder in this study met criteria for hypochondriasis. Only one case of hypochondriasis was identified in the social phobia sample and none in the healthy control sample. The inclusion of the social phobia control group, which reported levels of anxiety, depression, general distress and disability similar to the panic group, suggests that hypochondriasis and panic disorder have a relationship that goes beyond general anxiety or psychopathology level.

The rate of hypochondriasis in this panic disorder sample is higher than that reported by Barsky, Barnett, and Cleary (1994) who indicated that 25% of their panic disorder subjects also met DSM-III-R criteria for hypochondriasis. This is the only other study identified in the literature reporting the frequency of DSM-III-R diagnoses in this population. It is unclear why the rate in the current study is almost double that found by Barsky et al. One possible explanation is that the subjects in the latter study were recruited from the patient population of a

general medicine clinic and they were not presenting for treatment for panic disorder. Patients seeking treatment for their anxiety may differ from those who are not. Further research comparing community samples and clinical samples will be needed to clarify this question.

The present research found that the hypochondriasis preceded the onset of panic disorder in almost 30% of the subjects. This is consistent with Noyes et al. (1994a) who found that DSM-III-R hypochondriasis preceded the onset of anxiety disorders (including panic disorder, social phobia, and simple phobia) in 27% of their subjects. The current literature thus suggests that hypochondriasis may be a risk factor for the development of panic disorder in many patients.

The IAS scores obtained in the panic disorder sample in this study are consistent with the suggestion that this population experiences high levels of fear about illness and substantial disease conviction. Although IAS scores were found to be high in the panic disorder sample, it is important not to take this finding as a suggestion to use IAS scores alone to establish the presence of hypochondriasis. The results of the present study suggest that this strategy is inadequate in terms of identifying cases of hypochondriasis meeting standard diagnostic criteria. For example, one of the proposed techniques for identifying hypochondriasis using the IAS is to use a criterion of a score of 3 or higher on any of the six items of the Hypochondriacal Beliefs and Disease Phobia subscales (Kellner et al., 1987;

Starcevic et al., 1992). In the present study, this technique would misclassify 4 panic disorder subjects, 7 social phobia subjects and 2 healthy controls. With one exception, the errors would be of labelling individuals as hypochondriacal when they do not meet DSM-III-R/DSM-IV criteria for hypochondriasis.

The daily diary data obtained on medical service utilization and medication consumption is also very interesting. It was surprising to find that almost one third of the panic disorder and healthy control samples and almost 40% of the social phobia sample made use of health care services during the two week self-monitoring period. This frequency is much higher than one would expect based on the medical service utilization data for Manitoba residents summarized earlier (Tataryn et al., 1994). The data on frequency of doctor visits obtained on the Treatment Experience subscale of the IAS is, however, consistent with the daily diary data only for the panic sample, with 33% of the panic sample reporting monthly doctor visits on the IAS. Only 13% of the social phobia sample and 5% of the healthy control sample reported monthly doctor visits on the IAS. These lower rates are more consistent with the community rates of medical service utilization reported by Tataryn et al.. Further research is needed to document actual service utilization in panic disorder and social phobia samples in addition to self-reported medical service usage.

Almost half of the panic disorder subjects reported having a recent or current medical condition such as asthma, hiatus

hernia, or hypoglycemia. An unexpected finding in this study was the difference in the rates of such health problems between the panic disorder and the social phobia groups. The sample size is small and the results should be interpreted with caution, but this difference raises the issue of whether health problems have a specific role in the development of panic disorder. Several studies have suggested that panic disorder may be associated with physical health problems. Wells, Golding, and Burnam (1988, 1989), for example, found that individuals with chronic medical conditions such as lung disease, heart disease, cancer, and arthritis were more likely to have an anxiety disorder (including panic disorder) than individuals without such medical conditions and vice versa. This study did not, unfortunately, make comparisons among the different anxiety disorders. Studies of events preceding the onset of panic disorder (Faravelli, 1985; Ottaviani & Beck, 1987) and the relapse of symptoms in panic disorder (Burns, Thorpe, & Cavallaro, 1986) suggest that health related events experienced by the individual or by close family and friends are at times related to an increase in anxiety. One of the few epidemiological studies of new cases of panic disorder (Keyl & Eaton, 1990) found that one of the risk factors for panic disorder was the earlier experience of symptoms that were similar to the symptoms later experienced during the panic attacks. It was not possible to determine in this study whether the symptoms were early anxiety symptoms or were related to other health problems. The relationship between health problems and concerns

and the development of hypochondriasis and panic disorder is an important area for further exploration.

The current research revealed significant differences between the panic subjects with and without hypochondriasis. The subjects with hypochondriasis obtained higher scores on measures of hypochondriacal concerns, somatization, blood-injury phobia, and general anxiety and distress. Thus, the scores on most of the measures tapping into somatic symptoms and illness concerns were as expected. Interestingly, the two panic disorder subgroups reported similar frequency of self-reported medical conditions suggesting that the differences in illness concerns did not simply reflect differences in physical health.

None of the subjects interviewed for this study met criteria for current somatization disorder and only one panic disorder subject met criteria for current subsyndromal somatization disorder. Earlier studies (Horwath et al., 1993; King et al., 1986) reported that 3.9% to 27% of individuals with panic disorder met DSM-III criteria for lifetime somatization disorder. Only current somatization disorder was assessed in the present study which may account for the disparity in the findings. The results of the present study likely also reflect the stringency of the DSM-III-R/DSM-IV criteria for somatization disorder (Escobar, Burnam, et al., 1987; Escobar, Golding, et al., 1987; Hiller et al., 1995; Katon et al., 1991) since the panic disorder sample did report high levels of somatic concern on the SCL-Somatization subscale and the somatization daily diaries, and

indicated on the Short-Form-36 Health Status Survey that their physical health and pain symptoms interfered with their work and social activities.

The correlational and multiple regression analyses suggest that illness concerns and somatic symptoms are very closely related. The IAS and SCL-90-R Somatization scale may both provide information with regards to the general tendency of individuals with panic disorder to respond to somatic sensations with anxiety. The IAS may assess this tendency in terms of illness concerns and beliefs (as suggested by Otto & Pollack, 1994) while the SCL-90-R Somatization scale focuses on the perceived frequency and intensity of unpleasant somatic sensations.

The findings of the present study suggest several avenues for future research to explore the role of hypochondriasis in panic disorder. One area of interest would be to expand the studies which have examined the impact of treatment for panic disorder on accompanying hypochondriasis. Two studies summarized in the literature review found a decrease in hypochondriacal concerns (as measured by self-report questionnaires) following in vivo exposure treatment (Fava, Kellner, et al., 1988) and pharmacological treatment (Noyes et al., 1986) for panic disorder. It is unclear how successful treatment for panic disorder is in reducing full-blown DSM-IV hypochondriasis. Further research is needed to assess the impact of treatment for panic disorder on hypochondriacal concerns and beliefs for

individuals who meet DSM-IV diagnostic criteria for both panic disorder and hypochondriasis. Ideally, this assessment should be multimodal, incorporating interview, self-report questionnaire, and daily self-monitoring data (Warwick, 1995). This type of research may suggest the necessity of incorporating techniques specifically targeting illness concerns into treatment programs for panic disorder. It may be useful, for example, to evaluate the efficacy of supplementing panic disorder treatments with cognitive-behavioral treatment strategies for hypochondriasis (e.g., Warwick & Salkovskis, 1990).

It would also be interesting to examine hypochondriasis in a broader sample of panic disorder patients. Including panic subjects with comorbid psychiatric disorders, such as depression or obsessive-compulsive disorder, would reflect a more typical clinical sample and would thus enhance the generalizability of the findings. It is likely that individuals with other psychiatric diagnoses in addition to the panic disorder would have hypochondriacal concerns that are at least as substantial as those of individuals with pure panic disorder.

Further research is also needed to identify factors which may account for differences in the levels of hypochondriacal concern in individuals with panic disorder. A promising direction for such research is to explore prior experiences with illness and physical symptoms (e.g., Ehlers, 1993b; Laraia, Stuart, Frye, Lydiard, & Ballenger, 1994; Lteif & Mavissakalian,

1995; Schwartz, Gramling, & Mancini, 1994). This may further our understanding of the overlap between these two disorders.

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Appendix A

INFORMATION AND CONSENT FORM

Title of Study: Anxiety Symptoms

Principal Investigator: Patricia Furer, M.A., C.Psych Candidate
Staff Psychologist
237-2606

Co-Investigator: John R. Walker, Ph.D., C.Psych.
Senior Psychologist

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Description of study

In order to provide as effective a service as possible, it is important for the staff of the Anxiety Disorders Clinic to carefully evaluate the problems experienced by patients referred to our service. The more we understand about these factors, the more effectively we can provide service.

We are asking patients seen in our clinic to consider participating in our research. This involves meeting with one of the psychologists at the Clinic for an initial interview during which you will be asked about various emotional experiences and problems. This interview will be similar (although more extensive) to the standard assessment interview normally conducted prior to starting any kind of treatment at the Clinic. This initial interview will take approximately two hours.

In addition, you will be asked to complete a number of questionnaires. Several of these questionnaires are normally used during assessment and treatment as part of our routine evaluation. Several others are included mainly for research purposes. The questionnaires we are using cover the following areas:

- a description of the types of difficulty you may have with anxiety and related problems such as depression.
- common fears, including fears of illness and death.

There may be some duplication in the items from different questionnaires. This happens because we are working to establish which questionnaires are most helpful with which problem. The questionnaires will take approximately 1 1/2 hours to complete.

The final component of this study involves completing a brief checklist about anxiety symptoms on a daily basis for a two-week period. This will take about five minutes each day.

RISKS OF THE STUDY

There are no significant risks associated with this study. The cost to you will be the time it requires to participate.

POTENTIAL BENEFITS OF THE STUDY

This study is designed to acquire information that will, in the long run, lead to an improved understanding of anxiety disorders. The knowledge gained from this study will be of considerable potential benefit to the scientific community, and ultimately, we hope, to individuals who suffer from anxiety disorders.

RESEARCH PERSONNEL

This study is being conducted by the staff of the Anxiety Disorders Clinic at St. Boniface General Hospital. If you have any questions or concerns about the study please contact Trish Furer or Dr. John Walker at 237-2606.

VOLUNTARY PARTICIPATION

Your participation in this study is entirely voluntary. If you choose to participate you are free to withdraw at any time. You may also choose not to answer any questions or questionnaires that are a part of the project. This will not affect your treatment in the Anxiety Disorders Clinic.

ANXIETY SYMPTOMS STUDY CONSENT FORM - A

I, _____, have been informed of the nature of the Anxiety Symptoms study, and consent to participate in it. A copy of this agreement has been provided to me.

I understand that my participation is voluntary and that I may withdraw at any time with no penalty. I may also simply not answer any questions or questionnaires that are a part of the project. This will not affect my treatment in the Anxiety Disorders Clinic. I understand that any information derived from this study is confidential and may only be shared with the staff involved with the study. I also understand that this information will be used for research purposes, but that any details that may reveal my identity will be excluded from any research reports.

| | |
|---|---|
| PARTICIPANT SIGNATURE | DATE |
| INVESTIGATOR SIGNATURE | DATE |
| WITNESS SIGNATURE | DATE |

INFORMATION AND CONSENT FORM FOR HEALTHY CONTROL SUBJECTS

Title of Study: Anxiety Symptoms

Principal Investigator: Patricia Furer, M.A., C.Psych Candidate
Staff Psychologist
Anxiety Disorders Clinic
237-2606

Co-Investigator: John R. Walker, Ph.D., C.Psych.
Senior Psychologist
Coordinator, Anxiety Disorders Clinic

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DESCRIPTION OF STUDY

This study is designed to help us understand the problems experienced by individuals who have panic disorder and social phobia, both of which are anxiety disorders. This study is a research project conducted by the staff of the Anxiety Disorders Clinic and the Anxiety Disorders Research Program at St. Boniface General Hospital.

Participation in the study involves meeting with one of the psychologists at the Clinic for an interview during which you will be asked about various emotional experiences as well as health problems. This initial interview will take approximately 1 1/2 hours.

In addition, you will be asked to complete a number of questionnaires. The questionnaires we are using cover the following areas:

- anxiety and related problems such as depression.
- common fears, including fears of illness and death.

There may be some duplication in the items from different questionnaires. This happens because we are working to establish which questionnaires are most helpful with which problem. The questionnaires will take approximately 1 1/2 hours to complete.

The final component of this study involves completing a brief checklist about anxiety and bodily symptoms on a daily basis for a two-week period. This will take about five minutes each day.

**As a healthy control subject, the information you provide through the interview and the questionnaires will be compared to the information provided by the participants who have anxiety disorders. This will enable us to better understand how the experiences of those individuals who have anxiety disorders differ from those who do not have an anxiety disorder.**

ELIGIBILITY

In order to be a healthy control subject for this study, you must have no history of psychiatric or emotional illness. You must not have problems with alcohol or drug abuse.

RISKS OF THE STUDY

There are no significant risks associated with this study. The cost to you will be the time it requires to participate.

POTENTIAL BENEFITS OF THE STUDY

This study is designed to acquire information that will, in the long run, lead to an improved understanding of anxiety disorders. The knowledge gained from this study will be of considerable potential benefit to the scientific community, and ultimately, we hope, to individuals who suffer from anxiety disorders.

In addition, you will receive an honorarium of $25 for your participation.

RESEARCH PERSONNEL

This study is being conducted by the staff of the Anxiety Disorders Clinic at St. Boniface General Hospital. If you have any questions or concerns about the study please contact Trish Furer or Dr. John Walker at 237-2606.

VOLUNTARY PARTICIPATION

Your participation in this study is entirely voluntary. If you choose to participate you are free to withdraw at any time. You may also choose not to answer any questions or questionnaires that are a part of the project.

## ANXIETY SYMPTOMS STUDY CONSENT FORM - B

I, _____, have been informed of the nature of the Anxiety Symptoms study, and consent to participate in it as a healthy control subject. A copy of this agreement has been provided to me.

I understand that my participation is voluntary and that I may withdraw at any time with no penalty. I may also simply not answer any questions or questionnaires that are a part of the project.

I understand that any information derived from this study is confidential and may only be shared with the staff involved with the study. I also understand that this information will be used for research purposes, but that any details that may reveal my identity will be excluded from any research reports.

I understand that I will be offered a $25 honorarium for my participation in the research study.

| | |
|---|---|
| PARTICIPANT SIGNATURE | DATE |
| INVESTIGATOR SIGNATURE | DATE |
| WITNESS SIGNATURE | DATE |

# Appendix B

## INSTRUCTIONS FOR USE OF DAILY SYMPTOM DIARY

The Daily Diary is designed to help you keep a record of various symptoms which may be related to health concerns and anxiety. Keeping the diary may help you understand your symptoms and recognize patterns in the symptoms and thoughts that are related to them. Please fill out the Daily Diaries every day for two weeks.

### HOW TO COMPLETE THE DAILY DIARY

1. Complete the Daily Diary at the end of each day. You will find it easier to remember to do this if you plan to fill out the diary at the same time each day, such as right before bed. (Sometimes people are tempted to complete the diaries at the end of the week rather than doing them on a daily basis. This is not a good idea because it is very difficult to remember enough details.)

2. Please write your initials, the day of the week and the date in the spaces provided at the top of the Daily Diary.

3. On the front of the diary, there is a list of 22 problems or complaints that people sometimes have. Each item has its own 0 to 4 rating scale at the right. Read each item carefully and then circle the number from 0 to 4 that best reflects how much that problem has bothered or distressed you today.

4. There are two additional questions on the back of the diary. Please don't forget them.

5. At the end of the diary there is a space provided for you to write down the day and time when you filled out the diary. Please be as accurate as you can (e.g., Wednesday, 10:30 p.m.).

* REMEMBER TO FILL OUT A SYMPTOM DIARY AT THE END OF EVERY DAY!

### MAILING INSTRUCTIONS

Please mail your completed Daily Diaries to Trish Furer in the envelopes provided two times per week (that is, every 3 or 4 days).

# Appendix C
## INSTRUCTIONS FOR USE OF THE PANIC ATTACK DIARY

### WHEN DO I FILL OUT THE DIARY?

Fill out the Panic Attack Diary as soon as possible after your attack ends. A diary should be filled out after every panic attack or limited symptom attack. Make a habit of taking a diary with you in your purse or wallet so you can fill out the diary right away even if you are away from home. It is best to complete the diary promptly so you don't have to rely on your memory to fill out the diary later.

### WHAT IS A PANIC ATTACK?

A panic attack is the sudden, unexpected onset of intense physical sensations, usually accompanied by feelings of fear or terror. To be called a panic attack, the attack must include 4 or more of the symptoms which are listed in the Panic Attack Diary. In a panic attack, the surge of symptoms comes on rapidly and peaks within 10 or 15 minutes. The symptoms do not have to be severe to be called a panic attack; they just have to come on quickly. It is the rapid increase of symptoms that determines whether an anxiety episode is a panic attack, not how high the anxiety gets. In some situations, you may experience intense anxiety that comes on slowly. In these cases, the anxiety may be intense, but you would not call it a panic attack because the sensations did not come on rapidly.

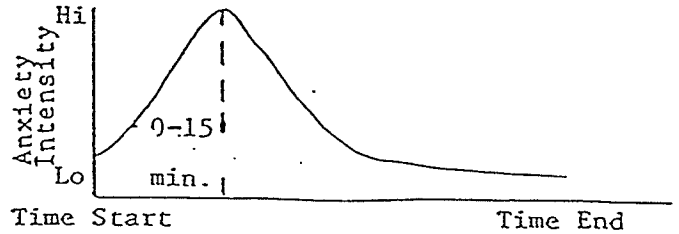
### WHAT IS A LIMITED SYMPTOM ATTACK?

Most people also have sudden episodes in which they have fewer than 4 symptoms. These episodes are called Limited Symptom Attacks. In some cases, you may have only 1 or 2 symptoms that come on suddenly and reach a peak within 10 to 15 minutes. The symptoms may even come on rapidly without any feelings of anxiety or panic. Examples are sudden episodes of rapid heart rate, dizziness, or abdominal distress. If they come on suddenly and unexpectedly and reach a peak within 10 to 15 minutes, you would consider them Limited Symptom Attacks and record them on your Panic Attack Diary.

The following diagrams will help you decide if an episode of anxiety is something you should record on your Panic Attack Diary.

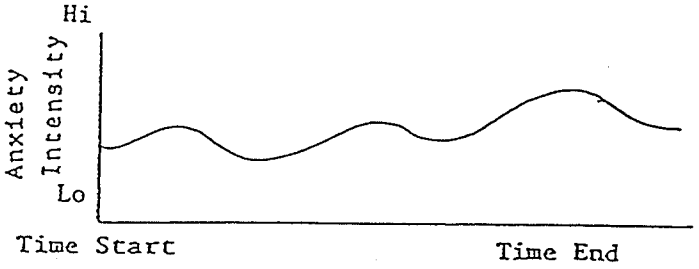
### PANIC ATTACK OR LIMITED SYMPTOM ATTACK

In this graph, the symptoms increase suddenly and reach a peak within 10 or 15 minutes. If there are 4 or more symptoms, this is a Panic Attack. If there are fewer than 4 symptoms, it is a Limited Symptom Attack. For each of these, fill out a diary immediately after the attack.



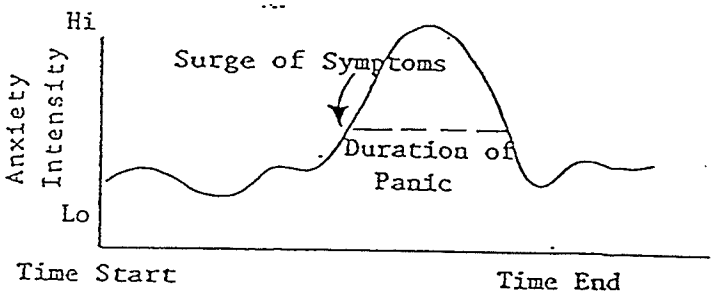
ANXIETY EPISODE

In this graph, the anxiety increases gradually to a high level. It does not come on suddenly. Therefore, this is not a Panic Attack or Limited Symptom Attack because the increase in symptoms is too slow. Do not fill out a Panic Attack Diary.




ANXIETY EPISODE PLUS PANIC ATTACK OR LIMITED SYMPTOM ATTACK

In this diagram, a fairly high anxiety level is combined with a panic attack which comes on rapidly over a few minutes. Fill out a diary immediately after the attack.




HOW DO I FILL OUT THE PANIC DIARY?

Fill out the Panic Diary using the instructions below. The instructions may seem complicated at first, but most people find the forms easy to fill out once they have done it once or twice. The sample diaries show how the forms looks when they are completed. The diaries are important in understanding your panic attacks and limited symptom attacks. Please fill out a diary completely and carefully after each attack.

At the front of the diary booklet, you will find a list of panic attack symptoms and rating scales to be used in completing the diary.

Use one Daily Diary form each day, even if you do not have an attack. Each Daily Diary form has enough space to list up to 10 panic or limited symptom attacks. If you have more than 10 attacks on a given day, please start another diary form and write CONTINUED beside the date. The attack number from 1 to 10 is listed in a row across the top of the form. Write the information about a given attack in the column under the number.

Even if you have no attacks on a given day, fill out a form for that day to rate the Duration of daily anticipatory anxiety (step 6 below) and the severity of daily anticipatory anxiety (step 7 below).

The numbered steps listed below are illustrated on the attached sample diaries.

1. Write in your initials, the date, and the day at the top of the diary form.

2. Note whether the attack was unexpected or situational.

   An unexpected attack is one that occurs when you were not anticipating or in a feared situation - WRITE IN 1.

   A situational attack is one that occurs when you were anticipating or in a feared situation - WRITE IN 2.

3. List of symptoms observed. List the numbers corresponding to the symptoms you experienced during the attack from the symptom list in front of the booklet.

   In Sample Form A, T.J. recorded symptoms numbers 1, 2, 5, and 11, which indicate that she experienced shortness of breath, dizziness, sweating, and chest pain during the panic attack.

4. Severity of the attack. Rate the intensity of the attack on the scale in the front of the booklet from 1-very mild to 6-very severe.

5. Duration of the attack. Note the duration of the attack in minutes from the start to the point where the intense symptoms subsided. Most people have a higher anxiety level after the attack subsides than they did before the attack started, but they can tell when the intense symptoms subside.

6. Duration of daily anticipatory anxiety (from 0 to 100%). In this section, you estimate the percentage of your time awake that you were anxious or worried about having an attack.

   In Sample Form A, T.J. estimated that she spent 40% of her waking time worrying about having an attack.

7. Severity of daily anticipatory anxiety (1-10). Rate the severity or intensity of your anticipatory anxiety about having an attack on the scale from 0-least anxious to 10-most anxious.

   In Sample Form A, T.J. estimated that her severity of anticipatory anxiety for the day was 6 on the 1-10 scale.

REMEMBER: Be sure to complete one diary form every day, even if you do not have an attack.

MAILING INSTRUCTIONS

Please mail your completed Panic Attack Diaries to Trish Furer in the envelopes provided once a week.

Sample Form A for TJ: One panic attack in the day

| Accompanying Symptoms (each number must be counted only once) | Intensity of the Attack |
|---|---|
| 1 = Shortness of breath (dyspnea) or smothering sensations | 1 = Very mild |
| 2 = Dizziness, unsteady feelings or faintness | 2 = Mild |
| 3 = Palpitations or accelerated heart rate (tachycardia) | 3 = Moderate |
| 4 = Trembling or shaking | 4 = Marked |
| 5 = Sweating | 5 = Severe |
| 6 = Choking | 6 = Very severe |
| 7 = Nausea or abdominal distress | |
| 8 = Feeling that things around you are strange, unreal, foggy or detached (derealization); or feeling outside of or detached from part or all of your body (depersonalization) | |
| 9 = Numbness or tingling sensations | |
| 10 = Flushes (hot flashes) or chills | |
| 11 = Chest pain or discomfort | |
| 12 = Fear of dying | |
| 13 = Fear of going crazy or doing something uncontrolled | |

Anticipatory Anxiety

Please choose a number from 1 to 10 from the scale below according to how afraid/anxious you are about having another attack and enter this number in the provided space at the opposite page:

least anxious 1 2 3 4 5 6 7 8 9 10 most anxious

## DAILY DIARY

(1) Date: 28/01/94 day/mo/yr

| Attack Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| (2) 1 = Unexpected 2 = Situational | 1 | | | | | | | | | |
| (3) List of symptoms observed (1-13, see scale left page) | 1 2 5 11 | | | | | | | | | |
| (4) Severity of the attack (1-6, see scale left page) | 4 | | | | | | | | | |
| (5) Duration of attack (in minutes from onset to end) | 20 | | | | | | | | | |
| (6) Duration of daily anticipatory anxiety (% of time) | 40 % | | | | | | | | | |
| (7) Severity of daily anticipatory anxiety (1-10, see scale inside cover) | 6 | | | | | | | | | |

Sample Form B: Three panic attacks in one day and one limited symptom attack (less than 4 symptoms)

| Accompanying Symptoms (each number must be counted only once) | Intensity of the Attack |
|---|---|
| 1 = Shortness of breath (dyspnea) or smothering sensations | 1 = Very mild |
| 2 = Dizziness, unsteady feelings or faintness | 2 = Mild |
| 3 = Palpitations or accelerated heart rate (tachycardia) | 3 = Moderate |
| 4 = Trembling or shaking | 4 = Marked |
| 5 = Sweating | 5 = Severe |
| 6 = Choking | 6 = Very severe |
| 7 = Nausea or abdominal distress | |
| 8 = Feeling that things around you are strange, unreal, foggy or detached (derealization); or feeling outside of/detached from part or all of your body (depersonalization) | |
| 9 = Numbness or tingling sensations | |
| 10 = Flushes (hot flashes) or chills | |
| 11 = Chest pain or discomfort | |
| 12 = Fear of dying | |
| 13 = Fear of going crazy or doing something uncontrolled | |

Anticipatory Anxiety

Please choose a number from 1 to 10 from the scale below according to how afraid/anxious you are about having another attack and enter this number in the provided space at the opposite page:

least anxious 1 2 3 4 5 6 7 8 9 10 most anxious

## DAILY DIARY

(1) Date: 29/01/94 day/mo/yr

| Attack Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| (2) 1 = Unexpected 2 = Situational | 1 | 2 | 2 | 1 | | | | | | |
| (3) List of symptoms observed (1-13, see scale left page) | 1, 2, 6, 11, 12 | 3, 6, 9, 11, 12 | 2, 4, 7, 11 | 1, 3, 7 | | | | | | |
| (4) Severity of the attack (1-6, see scale left page) | 4 | 5 | 5 | 3 | | | | | | |
| (5) Duration of attack (in minutes from onset to end) | 15 | 60 | 10 | 10 | | | | | | |
| (6) Duration of daily anticipatory anxiety (% of time) | 60% | | | | | | | | | |
| (7) Severity of daily anticipatory anxiety (1-10, see scale inside cover) | 8 | | | | | | | | | |

Sample Form C: Day with no panic or limited symptom attacks

| Accompanying Symptoms (each number must be counted only once) | Intensity of the Attack |
|---|---|
| 1 = Shortness of breath (dyspnea) or smothering sensations | 1 = Very mild |
| 2 = Dizziness, unsteady feelings or faintness | 2 = Mild |
| 3 = Palpitations or accelerated heart rate (tachycardia) | 3 = Moderate |
| 4 = Trembling or shaking | 4 = Marked |
| 5 = Sweating | 5 = Severe |
| 6 = Choking | 6 = Very severe |
| 7 = Nausea or abdominal distress | |
| 8 = Feeling that things around you are strange, unreal, foggy or detached (derealization); or feeling outside or detached from part or all of your body (depersonalization) | |
| 9 = Numbness or tingling sensations | |
| 10 = Flushes (hot flashes) or chills | |
| 11 = Chest pain or discomfort | |
| 12 = Fear of dying | |
| 13 = Fear of going crazy or doing something uncontrolled | |

Anticipatory Anxiety

Please choose a number from 1 to 10 from the scale below according to how afraid/anxious you are about having another attack and enter this number in the provided space at the opposite page:

least anxious 1 2 3 4 5 6 7 8 9 10 most anxious

## DAILY DIARY

(1) Date: 30/01/94 day/mo/yr

| Attack Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 = Unexpected<br>2 = Situational | | | | | | | | | | |
| List of symptoms observed (1-13, see scale left page) | | | | | | | | | | |
| Severity of the attack (1-6, see scale left page) | | | | | | | | | | |
| Duration of attack (in minutes from onset to end) | | | | | | | | | | |
| (6) Duration of daily anticipatory anxiety (% of time) | 30% | | | | | | | | | |
| (7) Severity of daily anticipatory anxiety (1-10, see scale inside cover) | 5 | | | | | | | | | |

# Appendix D

IAS

Initials: _____ Date: _____

For each item, please circle the number to the right that best describes you.

Please answer the other few questions with a few words or sentences. Do not think long before answering. Work quickly!

| | No | Rarely | Sometimes | Often | Most of the time |
|---|---|---|---|---|---|
| 1. Do you worry about your health? | 0 | 1 | 2 | 3 | 4 |
| 2. Are you worried that you may get a serious illness in the future? | 0 | 1 | 2 | 3 | 4 |
| 3. Does the thought of serious illness scare you? | 0 | 1 | 2 | 3 | 4 |
| 4. If you have a pain, do you worry that it may be caused by a serious illness? | 0 | 1 | 2 | 3 | 4 |
| 5. If a pain lasts for a week or more, do you see a physician? | 0 | 1 | 2 | 3 | 4 |
| 6. If a pain lasts a week or more, do you believe that you have serious illness? | 0 | 1 | 2 | 3 | 4 |
| 7. Do you avoid habits which may be harmful to you such as smoking? | 0 | 1 | 2 | 3 | 4 |
| 8. Do you avoid foods which may not be healthy? | 0 | 1 | 2 | 3 | 4 |
| 9. Do you examine your body to find whether there is something wrong? | 0 | 1 | 2 | 3 | 4 |
| 10. Do you believe that you have a physical disease but the doctors have not diagnosed it correctly? | 0 | 1 | 2 | 3 | 4 |
| 11. When your doctor tells you that you have no physical disease, do you refuse to believe him? | 0 | 1 | 2 | 3 | 4 |
| 12. When you have been told by a doctor what he found, do you soon begin to believe that you may have developed a new illness? | 0 | 1 | 2 | 3 | 4 |
| 13. Are you afraid of news that reminds you of death (such as funerals, obituary notices)? | 0 | 1 | 2 | 3 | 4 |
| 14. Does the thought of death scare you? | 0 | 1 | 2 | 3 | 4 |
| 15. Are you afraid that you may die soon? | 0 | 1 | 2 | 3 | 4 |
| 16. Are you afraid that you may have cancer? | 0 | 1 | 2 | 3 | 4 |
| 17. Are you afraid that you may have heart disease? | 0 | 1 | 2 | 3 | 4 |
| 18. Are you afraid that you may have another serious illness?<br>Which illness? _____ | 0 | 1 | 2 | 3 | 4 |
| 19. When you read or hear about an illness, do you get symptoms similar to those of the illness? | 0 | 1 | 2 | 3 | 4 |
| 20. When you notice a sensation in your body, do you find it difficult to think of something else? | 0 | 1 | 2 | 3 | 4 |
| 21. When you feel a sensation in your body, do you worry about it? | 0 | 1 | 2 | 3 | 4 |

22. Has your doctor told you that you have an illness now? YES ____ NO ____

    If YES, what illness? _____

23. How often do you see a doctor? (Please circle one)

| Almost never | Only very rarely | About 4 times a year | About once a month | About once a week |
|---|---|---|---|---|

24. How many different doctors, chiropractors or other healers have you seen in the past year? (Please circle one)

    None 1 2 or 3 4 or 5 6 or more

25. How often have you been treated during the past year? (For example, drugs, changes of drugs, surgery, etc.) (Please circle one)

| Not at all | Once | 2 or 3 times | 4 or 5 times | 6 or more times |
|---|---|---|---|---|

26. If yes, what were the treatments? _____

    _____

The next three questions concern your bodily symptoms (for example, pain, aches, pressure in your body, breathing difficulties, tiredness, etc.).

| | No | Rarely | Sometimes | Often | Most of the time |
|---|---|---|---|---|---|
| 27. Do your bodily symptoms stop you from working? | 0 | 1 | 2 | 3 | 4 |
| 28. Do your bodily symptoms stop you from concentrating on what you are doing? | 0 | 1 | 2 | 3 | 4 |
| 29. Do your bodily symptoms stop you from enjoying yourself? | 0 | 1 | 2 | 3 | 4 |

# Appendix E

## SCL-90 Somatization Scale

Below are a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, please circle one of the numbers to the right that best describes HOW MUCH THAT PROBLEM HAS BOTHERED OR DISTRESSED YOU DURING THE PAST WEEK INCLUDING TODAY.

| | NOT AT ALL | A LITTLE BIT | MODER-ATELY | QUITE A BIT | EXTRE-MELY |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| 1. soreness of your muscles | 0 | 1 | 2 | 3 | 4 |
| 2. numbness or tingling in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 3. heavy feelings in your arms or legs | 0 | 1 | 2 | 3 | 4 |
| 4. weakness in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 5. pains in heart or chest | 0 | 1 | 2 | 3 | 4 |
| 6. hot or cold spells | 0 | 1 | 2 | 3 | 4 |
| 7. pains in lower back | 0 | 1 | 2 | 3 | 4 |
| 8. trouble getting your breath | 0 | 1 | 2 | 3 | 4 |
| 9. faintness or dizziness | 0 | 1 | 2 | 3 | 4 |
| 10. a lump in your throat | 0 | 1 | 2 | 3 | 4 |
| 11. headaches | 0 | 1 | 2 | 3 | 4 |
| 12. nausea or upset stomach | 0 | 1 | 2 | 3 | 4 |

# Appendix F

## HEALTH STATUS SURVEY

INSTRUCTIONS: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Answer every question by circling the appropriate number. If you are unsure about how to answer a question, please give the best answer you can.

---

1. In general, would you say your health is:

   1 Excellent
   2 Very Good
   3 Good
   4 Fair
   5 Poor

---

2. Compared to one year ago, how would you rate your health in general now:

   1 Much better than 1 year ago
   2 Somewhat better now than 1 year ago
   3 About the same
   4 Somewhat worse now than 1 year ago
   5 Much worse than 1 year ago

---

3. The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much? (Circle one number on each line)

| | | Yes Limited A Lot | Yes Limited A Little | No, Not Limited At All |
|---|---|---|---|---|
| a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports..... | a. | 1 | 2 | 3 |
| b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf..... | b. | 1 | 2 | 3 |
| c. Lifting or carrying groceries..... | c. | 1 | 2 | 3 |
| d. Climbing several flights of stairs.. | d. | 1 | 2 | 3 |
| e. Climbing one flight of stairs..... | e. | 1 | 2 | 3 |
| f. Bending, kneeling, or stooping..... | f. | 1 | 2 | 3 |
| g. Walking more than a mile..... | g. | 1 | 2 | 3 |
| h. Walking several blocks..... | h. | 1 | 2 | 3 |
| i. Walking one block..... | i. | 1 | 2 | 3 |
| j. Bathing or dressing yourself..... | j. | 1 | 2 | 3 |

---

OVER...

4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health? (Circle one number on each line.)

| | | Yes | No |
|---|---|---|---|
| a. Cut down the amount of time you spent on work or other activities..... | a. | 1 | 2 |
| b. Accomplished less than you would like. | b. | 1 | 2 |
| c. Were limited in the kind of work or other activities..... | c. | 1 | 2 |
| d. Had difficulty performing the work or other activities (for example, it took extra effort..... | d. | 1 | 2 |

5. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? (Circle one number on each line.)

| | | Yes | No |
|---|---|---|---|
| a. Cut down the amount of time you spent on work or other activities..... | a. | 1 | 2 |
| b. Accomplished less than you would like. | b. | 1 | 2 |
| c. Didn't do work or other activities as carefully as usual..... | c. | 1 | 2 |

6. During the past 4 weeks, to what extent has you physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups? (Circle one number.)

1 Not at all
2 Slightly
3 Moderately
4 Quite a bit
5 Extremely

7. How much bodily pain have had during the past 4 weeks? (Circle one number.)

1 None
2 Very Mild
3 Mild
4 Moderate
5 Severe
6 Very severe

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? (Circle one number)

1 Not at all
2 A little bit
3 Moderately
4 Quite a bit
5 Extremely

9. These questions are about how your feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that come closest to the way you have been feeling. How much of the time during the past 4 weeks... (Circle one number on each line.)

| | All of the time | Most of the time | A Good Bit of the time | Some of the time | A Little of the time | None of the time |
|---|---|---|---|---|---|---|
| a. Did you feel full of pep?..... a. | 1 | 2 | 3 | 4 | 5 | 6 |
| b. Have you been a very nervous person?..... b. | 1 | 2 | 3 | 4 | 5 | 6 |
| c. Have you felt so down in the dumps nothing could cheer you up?..... c. | 1 | 2 | 3 | 4 | 5 | 6 |
| d. Have you felt calm and peaceful? d. | 1 | 2 | 3 | 4 | 5 | 6 |
| e. Did you have a lot of energy?.. e. | 1 | 2 | 3 | 4 | 5 | 6 |
| f. Have you felt downhearted and blue?..... f. | 1 | 2 | 3 | 4 | 5 | 6 |
| g. Did you feel worn out?..... g. | 1 | 2 | 3 | 4 | 5 | 6 |
| h. Have you been a happy person?.. h. | 1 | 2 | 3 | 4 | 5 | 6 |
| i. Did you feel tired?..... i. | 1 | 2 | 3 | 4 | 5 | 6 |

10. 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)? (Circle one number.)

1 All of the time
2 Most of the time
3 Some of the time
4 A little of the time
5 None of the time

11. Please choose the answer that best describes how true or false each of the following statements is for you. (Circle one number on each line.)

| | Definitely True | Mostly True | Not Sure | Mostly False | Definitely False |
|---|---|---|---|---|---|
| a. I seem to get sick a little easier than other people..... a. | 1 | 2 | 3 | 4 | 5 |
| b. I am as healthy as anybody I know. b. | 1 | 2 | 3 | 4 | 5 |
| c. I expect my health to get worse... c. | 1 | 2 | 3 | 4 | 5 |
| d. My health is excellent..... d. | 1 | 2 | 3 | 4 | 5 |

OVER...

---

12. a. Which are you? (Check one)

_____Male _____Female

How old were you on your last birthday? (Check one)

b. ____ Less than 35 ____ 35-44 ____ 45-54 ____ 55-64

____ 65-74 ____ 75-84 ____ 85 and older

---

13. Have you ever filled out this form before? (Check one)

_____ Yes _____ No _____ Don't Remember

---

THANK YOU FOR YOUR TIME

# Appendix G

## ASI

Your Initials_____ Date_____

Please circle the number below which best describes you.

| | very little | a little | some | much | very much |
|---|---|---|---|---|---|
| It is important to me not to appear nervous | 0 | 1 | 2 | 3 | 4 |
| When I cannot keep my mind on a task. I worry that I might be going crazy | 0 | 1 | 2 | 3 | 4 |
| It scares me when I feel `shakey´ (trembling) | 0 | 1 | 2 | 3 | 4 |
| It scares me when I feel faint | 0 | 1 | 2 | 3 | 4 |
| It is important to me to stay in control of my emotions | 0 | 1 | 2 | 3 | 4 |
| It scares me when my heart beats rapidly | 0 | 1 | 2 | 3 | 4 |
| It embarrasses me when my stomach growls | 0 | 1 | 2 | 3 | 4 |
| It scares me when I am nauseous | 0 | 1 | 2 | 3 | 4 |
| When I notice that my heart is beating rapidly. I worry that I might have a heart attack | 0 | 1 | 2 | 3 | 4 |
| It scares me when I become short of breath | 0 | 1 | 2 | 3 | 4 |
| When my stomach is upset. I worry that I might be seriously ill | 0 | 1 | 2 | 3 | 4 |
| It scares me when I am unable to keep my mind on a task | 0 | 1 | 2 | 3 | 4 |
| Other people notice when I feel shakey | 0 | 1 | 2 | 3 | 4 |
| Unusual body sensations scare me | 0 | 1 | 2 | 3 | 4 |
| When I am nervous. I worry that I might be mentally ill | 0 | 1 | 2 | 3 | 4 |
| It scares me when I am nervous | 0 | 1 | 2 | 3 | 4 |

Appendix H

## Beck Anxiety Inventory

Name _____ Date _____

Below is a list of common symptoms of anxiety. Please read each item in the list carefully. Indicate how much you have been bothered by each symptom during the PAST WEEK, INCLUDING TODAY by placing an X in the corresponding space in the column next to each symptom.

| | | Not at all | Mildly It did not bother me much | Moderately It was very unpleasant but I could stand it | Severely I could barely stand it. |
|---|---|---|---|---|---|
| 1 | Numbness or tingling. | | | | |
| 2 | Feeling hot. | | | | |
| 3 | Wobbliness in legs. | | | | |
| 4 | Unable to relax. | | | | |
| 5 | Fear of the worst happening | | | | |
| 6 | Dizzy or lightheaded. | | | | |
| 7 | Heart pounding or racing. | | | | |
| 8 | Unsteady. | | | | |
| 9 | Terrified. | | | | |
| 10 | Nervous. | | | | |
| 11 | Feelings of choking. | | | | |
| 12 | Hands trembling. | | | | |
| 13 | Shaky. | | | | |
| 14 | Fear of losing control. | | | | |
| 15 | Difficulty breathing. | | | | |
| 16 | Fear of dying. | | | | |
| 17 | Scared. | | | | |
| 18 | Indigestion or discomfort in abdomen. | | | | |
| 19 | Faint. | | | | |
| 20 | Face flushed. | | | | |
| 21 | Sweating (not due to heat). | | | | |

# Appendix I

## STAI-T

Initials: _____ Date: _____

Please read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers.

1 almost never
2 sometimes
3 often
4 almost always

| | | | | |
|---|---|---|---|---|
| 1. I feel pleasant | 1 | 2 | 3 | 4 |
| 2. I tire quickly | 1 | 2 | 3 | 4 |
| 3. I feel like crying | 1 | 2 | 3 | 4 |
| 4. I wish I could be as happy as others seem to be | 1 | 2 | 3 | 4 |
| 5. I am losing out on things because I can't make up my mind soon enough | 1 | 2 | 3 | 4 |
| 6. I feel rested | 1 | 2 | 3 | 4 |
| 7. I am "calm, cool and collected" | 1 | 2 | 3 | 4 |
| 8. I feel that difficulties are piling up so that I cannot overcome them | 1 | 2 | 3 | 4 |
| 9. I worry too much over something that really doesn't matter | 1 | 2 | 3 | 4 |
| 10. I am happy | 1 | 2 | 3 | 4 |
| 11. I am inclined to take things hard | 1 | 2 | 3 | 4 |
| 12. I lack self-confidence | 1 | 2 | 3 | 4 |
| 13. I feel secure | 1 | 2 | 3 | 4 |
| 14. I try to avoid facing a crisis or difficulty | 1 | 2 | 3 | 4 |
| 15. I feel blue | 1 | 2 | 3 | 4 |
| 16. I am content | 1 | 2 | 3 | 4 |
| 17. Some unimportant thought runs through my mind and bothers me | 1 | 2 | 3 | 4 |
| 18. I take disappointments so keenly that I can't put them out of my mind | 1 | 2 | 3 | 4 |
| 19. I am a steady person | 1 | 2 | 3 | 4 |
| 20. I get in a state of tension or turmoil as I think over my recent concerns and interests | 1 | 2 | 3 | 4 |

# Appendix J

FEAR QUESTIONNAIRE: Your Initials: _____ Date: _____

1. Describe in your own words on the line below the major fear that you want treated:

   _____

2. Circle a number from the scale below to indicate how distressing this fear is to you.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Not at all distressing | | Slightly distressing | | Definitely distressing | | Moderately distressing | | Very severely distressing |

**********

Choose a number from the scale below to indicate how much you would avoid each situation listed below because of fear or other unpleasant feelings. Then, write the number you chose in the space opposite each item.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Would not avoid it | | Slightly avoid it | | Definitely avoid it | | Markedly avoid it | | Always avoid it |

1. Your major fear that you described above .....____
2. Injections or minor surgery .....____
3. Eating or drinking with other people .....____
4. Hospitals.....____
5. Travelling alone by bus .....____
6. Walking alone in busy streets ..____
7. Being watched or stared at .....____
8. Going into crowded stores .....____
9. Talking to people in authority .....____
10. Sight of blood .....____
11. Being criticized .....____
12. Going alone far from home .....____
13. Thought of injury or illness .....____
14. Speaking or acting to an audience .....____
15. Large open spaces .....____
16. Going to the dentist ..... ____
17. Visiting a person who is seriously ill or dying .....____
18. Encountering things which remind you of death.....____

List any other situations you avoid because of fear or other unpleasant feelings and rate as above:

19. _____..... ____

20

Appendix K

## BECK INVENTORY

Name_____ Date_____

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1 0 I do not feel sad.
1 I feel sad.
2 I am sad all the time and I can't snap out of it.
3 I am so sad or unhappy that I can't stand it.

2 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel that the future is hopeless and that things cannot improve.

3 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.

4 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.

5 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.

8 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate

12 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.

14 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.

15 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

16 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19 0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds. I am purposely trying to lose weight
2 I have lost more than 10 pounds. by eating less. Yes_____ No_____
3 I have lost more than 15 pounds.

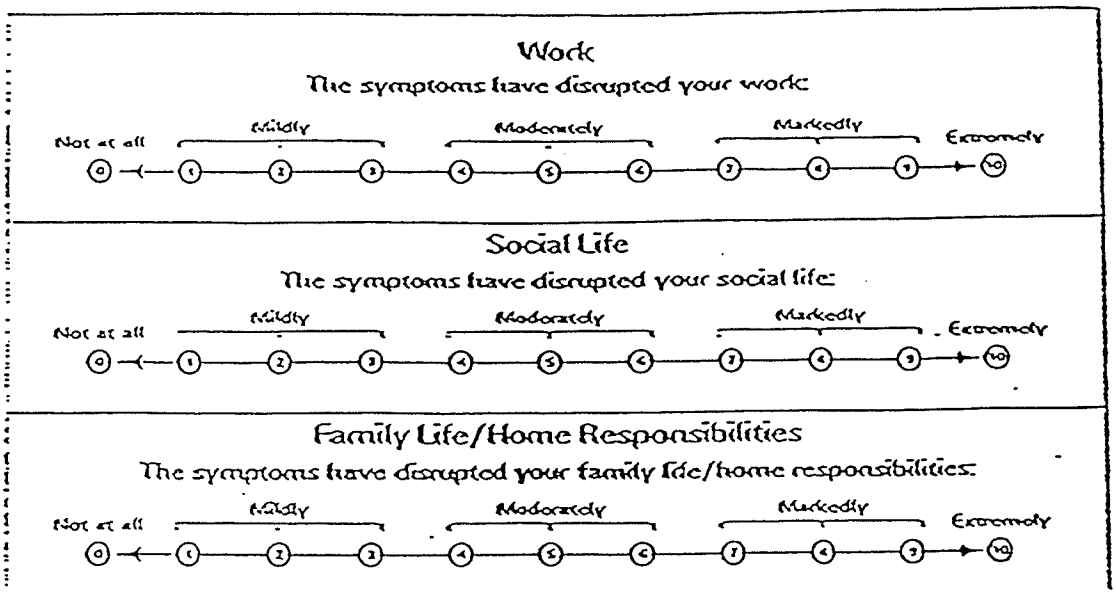
20 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think about anything else.

21 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

Appendix L

Instructions - Please fill ONE circle for each scale.

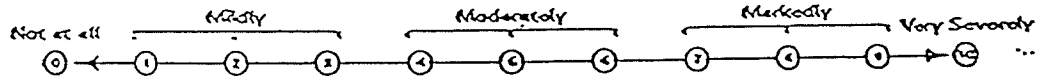
# DISABILITY SCALES




# STRESS AND SOCIAL SUPPORT SCALES (Sheehan)

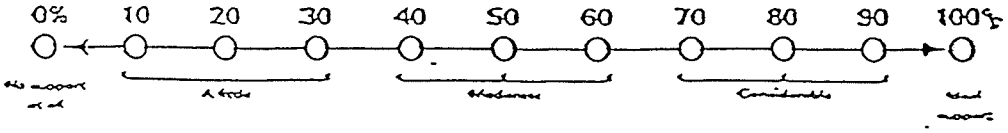
Perceived Stress Scale

In terms of your feelings over the last few weeks, how much were you set back by stressful events or personal problems, such as work, home, social, health, or financial problems?




Perceived Social Support Scale

In terms of your feelings over the last few weeks, how much support have you received from friends, relatives, co-workers, etc., as a percentage of the amount you needed to cope?



# Appendix M

## DAILY DIARY

Initials:_____ Day:_____ Date:_____

Below are a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, please circle one of the numbers to the right that best describes HOW MUCH THAT PROBLEM HAS BOTHERED OR DISTRESSED YOU TODAY.

Some individuals participating in this study may be experiencing panic attacks. When you are rating the problems below, please do not include how you feel during a panic attack (if you had a panic attack today).

| | NOT AT ALL | A LITTLE BIT | MODER-ATELY | QUITE A BIT | EXTRE-MELY |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| 1. Soreness of your muscles | 0 | 1 | 2 | 3 | 4 |
| 2. Numbness or tingling in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 3. Heavy feelings in your arms and legs | 0 | 1 | 2 | 3 | 4 |
| 4. Weakness in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 5. Pains in heart or chest | 0 | 1 | 2 | 3 | 4 |
| 6. Hot or cold spells | 0 | 1 | 2 | 3 | 4 |
| 7. Pains in lower back | 0 | 1 | 2 | 3 | 4 |
| 8. Trouble getting your breath | 0 | 1 | 2 | 3 | 4 |
| 9. Faintness or dizziness | 0 | 1 | 2 | 3 | 4 |
| 10. A lump in your throat | 0 | 1 | 2 | 3 | 4 |
| 11. Headaches | 0 | 1 | 2 | 3 | 4 |
| 12. Nausea or upset stomach | 0 | 1 | 2 | 3 | 4 |
| 13. Worrying about your health | 0 | 1 | 2 | 3 | 4 |
| 14. Worrying about bodily symptoms | 0 | 1 | 2 | 3 | 4 |
| 15. Did your bodily symptoms stop you from working? | 0 | 1 | 2 | 3 | 4 |
| 16. Wondering whether you should visit a doctor | 0 | 1 | 2 | 3 | 4 |
| 17. Did your bodily symptoms stop you from enjoying yourself? | 0 | 1 | 2 | 3 | 4 |
| 18. The belief that you have a serious medical illness | 0 | 1 | 2 | 3 | 4 |
| 19. Worrying that you may get a serious illness in the future | 0 | 1 | 2 | 3 | 4 |
| 20. Did your bodily symptoms stop you from concentrating on what you were doing? | 0 | 1 | 2 | 3 | 4 |
| 21. Did you speak to someone (e.g., friend or relative) about your bodily symptoms? | 0 | 1 | 2 | 3 | 4 |
| 22. Did you examine your body to find out whether there is something wrong (e.g., check your pulse, examine your body closely)? | 0 | 1 | 2 | 3 | 4 |

23. Did you see a doctor, chiropractor, or other health professional today?

YES NO

If YES: What type of health professional: (e.g. family doctor, physiotherapist, neurologist, etc.)?

_____

24. Did you take medication (prescription or non-prescription) for your bodily symptoms?

YES NO

| If YES: | Type | Number of tablets | Amount (mg) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

(example: lorazepam - 2 tablets - 0.5 mg. each)

Please indicate the day and the time when you filled out this form (e.g., Wednesday, 10 p.m.).

DAY: _____ TIME: _____

Appendix N

# DAILY DIARY

Date: ____/____/____ day/mo/yr

| Attack Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 = Unexpected<br>2 = Situational | | | | | | | | | | |
| List of symptoms observed (1-13, see scale left page) | | | | | | | | | | |
| Severity of the attack (1-6, see scale left page) | | | | | | | | | | |
| Duration of attack (in minutes from onset to end) | | | | | | | | | | |
| Duration of daily anticipatory anxiety (% of time) | | | | | | | | | | |
| Severity of daily anticipatory anxiety (1-10, see scale inside cover) | | | | | | | | | | |

Accompanying Symptoms (each number must be counted only once)

1 = Shortness of breath (dyspnea) or smothering sensations

2 = Dizziness, unsteady feelings or faintness

3 = Palpitations or accelerated heart rate (tachycardia)

4 = Trembling or shaking

5 = Sweating

6 = Choking

7 = Nausea or abdominal distress

8 = Feeling that things around you are strange, unreal, foggy or detached (derealization); or feeling outside of detached from part or all of your body (depersonalization)

9 = Numbness or tingling sensations

10 = Flushes (hot flashes) or chills

11 = Chest pain or discomfort

12 = Fear of dying

13 = Fear of going crazy or doing something uncontrolled

Intensity of the Attack

1 = Very mild

2 = Mild

3 = Moderate

4 = Marked

5 = Severe

6 = Very severe

Anticipatory Anxiety

Please choose a number from 1 to 10 from the scale below according to how afraid/anxious you are about having another attack and enter this number in the provided space at the opposite page:

least anxious 1 2 3 4 5 6 7 8 9 10 most anxious