

Embarrassment associated with Somatic Symptoms of Anxiety in people
with, and without, Panic Attacks.

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Abstract

A number of studies have found an association between embarrassment/social-evaluative concerns and increased levels of agoraphobia. However, previous research has revealed inconsistent findings with regard to an association between agoraphobia and social phobia. The present study compared levels of symptom-related embarrassment between a community sample of 37 people who experience panic attacks, and 32 people who do not experience panic attacks. In addition, associations between levels of embarrassment, avoidance behaviour and agoraphobia were examined, as well as the potential influence of social phobia symptoms on these respective variables. Given that previous studies have not consistently assessed participants for co-occurring social phobia when investigating embarrassment and avoidance behaviour, the present study incorporated the Social Phobia and Anxiety Inventory (SPAI) as a measure of social phobia symptoms.

In the present study, participants with panic attacks reported significantly greater levels of embarrassment than participants who do not experience panic attacks, thereby replicating the differences reported by Katerndahl (2000). Greater embarrassment was also associated with higher levels of avoidance behaviour and agoraphobia. Associations were observed between agoraphobia and social phobia scores, however, fear of negative social evaluation (a variable derived from a selection of SPAI items) predicted significantly more of the variance in both avoidance behaviour and agoraphobia, than did total social phobia scores. A tentative conclusion is that fear of negative social evaluation may be a feature of both agoraphobia and social phobia. Therefore, therapy addressing social-evaluative concerns may be helpful in improving treatment for people with PDA.

Introduction

Panic disorder with agoraphobia (PDA) is a severely debilitating anxiety disorder which can be described as the fear of experiencing the intense arousal and distress of a panic attack in a situation where help is not available, or where escape may be difficult or embarrassing. People who suffer from PDA may eventually become too frightened to leave their homes for fear of panic. Chambles and Gracely (1989) described agoraphobia as the fear of fear, that is, the fear of the somatic sensations associated with a panic attack, the harmful misappraisals associated with these anxiety symptoms, and fear of the consequences (real or imagined) of a panic attack.

A number of studies have found an association between agoraphobia and symptoms of social phobia. Moreover, previous research has demonstrated the inherent difficulties in teasing apart symptoms of agoraphobia and social phobia, since many of the same situations are avoided in both disorders, albeit not always for the same reasons. The present study investigates the possibility that social-evaluative concerns may underlie both disorders, and this is accomplished by examining whether people who experience panic attacks also tend to exhibit greater fear of embarrassment/social humiliation than the average person. Conversely, another question addressed in this research is whether it is necessary for people to experience co-occurring social phobia in order for embarrassment to be felt as a consequence of enduring panic symptoms in public. Furthermore, the role that fear of humiliation may play in avoidance behaviour, especially with regard to public situations, is also investigated.

Definitions

People with panic disorder and agoraphobia experience physical, cognitive and behavioural symptoms of anxiety. Panic attacks involve a specific period of extreme fear or distress, in which at least four symptoms (see below) develop quickly, and reach a peak within 10 minutes. Symptoms include palpitations or increased heart rate; sweating; trembling; feeling short of breath; choking sensations; chest pain; nausea; feeling dizzy or faint; feelings of derealization or depersonalization; fears of going crazy or losing control; fears of dying; feeling numb; experiencing hot flushes (American Psychiatric Association [APA], 1994). When a person is having a panic attack they generally believe that they are about to go crazy, lose control, or have a heart attack, and may therefore try to escape the situation.

According to the American Psychiatric Association (1994), the frequency and severity of panic disorder may vary, but the client's main concern is for the consequences of a panic attack. Despite professional reassurance, the person is inclined to view the attack as a signal of an undiagnosed illness, such as heart disease. Apprehension regarding the next attack may lead to the avoidance of certain situations. Furthermore, people with panic disorder may also experience anxiety that is not focused on specific situations. They tend to worry excessively about their health, or about being separated from a loved one. They tend to catastrophize, and in such cases a headache, for example, may be misinterpreted as a possible brain tumor. These faulty assumptions result in chronic anxiety and many visits to medical services, thereby incurring great emotional stress and financial cost. The onset of the disorder may be associated with the disruption or termination of an important relationship, or with the loss of a loved one.

Agoraphobia is the intense fear of being in a situation from which it would be difficult, impossible or embarrassing to make a hasty exit, or in which the person might not be able to obtain any help if they were to experience a panic attack (A.P.A., 1994). The situations likely to elicit fear in people with agoraphobia include shopping in a supermarket in the middle of a

crowd; standing in a queue; being on a bridge; travelling in a car, bus, train, airplane or boat; or sitting in movie theatres, classrooms, restaurants, or stadiums. People with agoraphobia tend to avoid the aforementioned situations, or else endure them with great distress and anxiety, and they generally need to be accompanied by another person (A.P.A, 1994). Essentially, avoidance behaviour is secondary to the fear of having a panic attack. However, patients may have what are known as “safety signals”, for example, a family member or friend with whom they feel safe and comfortable. They may feel secure enough to venture into public situations only in the company of this other person. Patients might also ensure that they carry medication with them, while venturing away from their safety zone. These “safety signals” tend to perpetuate the phobic avoidance because people feel they cannot cope without them, and they prevent the occurrence of the cognitive and behavioural changes associated with phobia reduction.

PDA is diagnosed three times as often in women as in men, and the disorder affects a large number of people. Epidemiological studies conducted all over the world show that the lifetime prevalence of panic disorder (with or without agoraphobia) is between 1.5% and 3.5% (A.P.A., 1994). Between a third and one half of people diagnosed with panic disorder in community samples also have agoraphobia, however, a much higher rate of agoraphobia is found in clinical samples. This is most likely due to the disruption in daily functioning associated with agoraphobia adding to the clinical severity of the combined panic disorder and agoraphobia. A study conducted by Ollendick (1995) revealed that clients did not seek treatment until their agoraphobic avoidance behaviour had escalated to the extent that it interfered with their daily functioning, so that only at that point in the escalating severity of their disorder did individuals enter the clinical population of those with PDA.

Debilitating impact on the life of the patient

Panic disorder is associated with health and social consequences, as well as marital, financial and social problems, and the possibility of suicide (Telch, Schmidt, LaNae Jaimez, Jacquin and Harrington, 1995). Patients may feel comfortable only within a certain distance from home or their car, where escape (into the home or by car) is available at a moment's notice. Patients' quality of life is greatly impaired, even within their homes, when the person cannot buy groceries or perform routine errands. Aside from their day to day living being affected, reluctance to ride on buses, trains, boats or planes tends to restrict people with PDA in their travel. If they are left untreated, these people may be denied a social life outside the safety of their home and they may become isolated from their friends and family, and experience employment problems.

Moreover, people with PDA may become demoralized and ashamed because they cannot perform normal routines. Many patients develop depression, mostly as a result of the disorder, and some patients develop substance-abuse problems. Comorbid anxiety disorders are common, such as social phobia, Obsessive-Compulsive Disorder (OCD), and Separation Anxiety Disorder in childhood. As a result of their fear of panic attacks, patients may ultimately lose their sense of freedom and independence.

The Development of Agoraphobic Avoidance Behaviour

Panic disorder can also be diagnosed as occurring without agoraphobia. In this case, the person would experience intense fear of future, unexpected, panic attacks but would not exhibit any consistent avoidance behaviour. It would, however, be rare for a client to present with a case of agoraphobia without a history of panic attacks (Andrews, Crino, Hunt, Lampe and Page, 1994). Accordingly, panic disorder usually precedes the development of agoraphobia, which is not so much a fear of the situation itself than a concern about having a panic attack in an awkward

situation from which escape is impossible or embarrassing. To the extent that patients associate the potential occurrence of feared symptoms with particular situations, they begin to avoid these situations and this leads to agoraphobia.

However, PDA does not involve only fear and avoidance of places. In the past few decades there has been an increased emphasis in research pertaining to the role of panic in the disorder, and therapeutic interventions have become focused on treating panic itself (Williams and Falbo, 1996). In particular, the role of anxiety sensitivity in the onset and maintenance of panic disorder and agoraphobia has been investigated.

McNally (2002) described anxiety sensitivity as a fear of the sensations associated with anxiety or panic; a tendency to be fearful of the actual symptoms of anxiety, such as heart palpitations, hot flushes, or dizziness. McNally (2002) argues that anxiety sensitivity as a trait is higher in those people with, as opposed to those without, panic disorder, and that people high in anxiety sensitivity tend to interpret bodily sensations in a threatening manner. Fear of anxiety symptoms leads the person to avoid any situation that could potentially elicit those symptoms; the greater the anxiety sensitivity, the more situations that tend to be feared.

Goldstein and Chambles' (1978) fear of fear phenomenon and Clark's (1986) model of panic disorder are two other variants of the anxiety sensitivity concept which differ in some respects from McNally's theory of anxiety sensitivity (McNally, 2002). Accordingly, Goldstein and Chambles (1978) argue that fear of fear is conditioned, in that it results from having experienced a panic attack. The panic fear, which ultimately escalates into a panic attack, is viewed as a conditioned response to somatic symptoms that have been detected prior to previous panic attacks, and these symptoms are misinterpreted as being harmful. Clark (1986) also describes how panic symptoms tend to be misinterpreted in a catastrophic manner, thereby perpetuating

the physical symptoms which occur as a result of anxious arousal associated with maladaptive cognitions. McNally (2002), however, argues that the patient dreads the somatic sensations because they signal a panic attack, and not necessarily something more harmful. Thus, according to McNally's (2002) argument, a person with anxiety sensitivity does not necessarily need to misinterpret the bodily sensation as being indicative of, for example, a heart attack, in order for those panic sensations to be aversive (McNally, 2002). Furthermore, anxiety sensitivity may not necessarily evolve from personal experience with panic, but may also, for instance, have been learned vicariously through observing other family members' reactions to somatic symptoms. Thus fear in response to symptoms may be a psychological vulnerability rendering the person more susceptible to panic, and may not merely be the consequence of a panic attack.

The concept of anxiety sensitivity is also discussed by Craske and Barlow (2001) in their model which depicts the maintenance of panic disorder. Anxiety sensitivity is associated with increased awareness of, attention to, and ability to detect, somatic symptoms of arousal (Craske & Barlow, 2001). Additionally, elevated autonomic activity in people with panic disorder may render them more vulnerable to experiencing these bodily sensations. Craske and Barlow (2001) argue that during the initial panic attack these sensations are perceived as threatening when they result in, for example, impaired functioning, feeling trapped, or perceived negative social evaluation, and interoceptive conditioning occurs when the person associates this fear with the symptoms of anxiety. Craske and Barlow (2001) suggest that feelings of entrapment may be associated with the later development of agoraphobia.

Furthermore, the fear of fear phenomenon has been implicated in the development of agoraphobia, and in the differentiation between people with panic disorder versus agoraphobia (Chambles & Gracely, 1989). Accordingly, de Ruiter and Garssen (1989) found that patients with agoraphobia reported significantly greater fear of somatic sensations than those with panic

disorder, and the authors suggest that greater fear may play a role in the development of agoraphobia.

Thus, anxiety sensitivity has been shown to play an important role in the onset and maintenance of panic disorder and agoraphobia, and appears to be associated with the development of avoidance behaviour. Moreover, the increased ability to detect somatic symptoms is consistent with a model presented by Barlow (1988; 2000) which depicts the process of anxious apprehension as a negative feedback cycle. According to this model, certain situations may elicit negative affect arising from the person's perceived inability to predict or control certain outcomes. This, in turn, leads to an attentional shift from external to internal self-evaluation, which results in increased arousal, and subsequent narrowed attention, leading the person to become hypervigilant towards possible sources of apprehension. Furthermore, the person may begin to avoid those situations associated with apprehension. Barlow (1988) maintains that self-focused attention increases a person's sensitivity to somatic sensations, which, in turn, may lead to self-evaluative concerns. The shift towards self-focused attention may lead the person to believe that their inability to control their somatic symptoms falls short of normal standards.

Social/self-evaluative concerns were investigated by Katerndahl (2000) in a community sample of people who did, and who did not experience panic attacks. Using the Symptom Perception Scales, Katerndahl (2000) discovered that people who experienced panic attacks perceived a number of panic symptoms, such as feeling dizzy, chest pain, sweating and trembling, as being more embarrassing, than did those people in the control group who did not experience panic attacks. The panic sample consisted of people who reported unexpected panic attacks, accompanied by at least four symptoms. Given that people did not have to meet criteria for panic disorder in his study, Katerndahl's (2000) findings speak to the distress of clients with even subthreshold symptoms, who may be concerned about the social consequences of panicking.

Furthermore, social-evaluative concerns must be considered when examining factors that may be involved in the development of agoraphobia; a number of studies have demonstrated an association between embarrassment and agoraphobic avoidance behaviour. Accordingly, Amering, Katschnig, Berger, Windhaber, Baischer and Dantendorfer (1997) question why some panic disorder patients develop agoraphobia, while others do not. These authors believed that it would be useful to have an early predictor of agoraphobia, and they examined patients who presented with and without agoraphobia at a panic disorders clinic. Amering et al. (1997) discovered that patients who had their first panic attack in a public place, misinterpreted it as a serious bodily problem, or experienced embarrassment about the symptoms of the initial panic attack, were more likely to develop agoraphobia. It was mainly the embarrassment in response to the attack and the effect of being in a public venue which led to the development of agoraphobia, and it is possible that patients feared social humiliation, losing control, and being evaluated negatively by others (Amering et al., 1997).

In examining the suggested relationship between embarrassment and avoidance behaviour, Whittal and Goetsch (1997) also discovered that people who experience panic attacks tend to develop agoraphobia to various extents, and that patients with agoraphobia may be more concerned about the social implications of panicking, such as looking foolish and eliciting ridicule from others. Whittal and Goetsch (1997) also reported research findings which indicated no significant association between the severity and frequency of panic, and the severity of agoraphobia, nor with duration of the disorder, or age of onset.

Hoffart, Friis and Martinsen (1992) performed a psychometric evaluation of the Agoraphobic Cognitions Scale (ACS). The authors found that patients with agoraphobia described greater fear of bodily incapacitation and fear of losing control than patients with social phobia, generalized

anxiety, or non-anxious depression (Hoffart et al., 1992). Fear of acting in an embarrassing manner was greater among patients with agoraphobia and social phobia than among generally anxious patients and those with non-anxious depression (Hoffart et al., 1992).

Similarly, Pollard and Cox (1988) found that people with PDA reported higher levels of social-evaluative anxiety (using the Willoughby Personality Schedule) than people with panic disorder alone, suggesting that people with agoraphobia as well as panic disorder are more socially anxious than those with panic disorder alone. Pollard and Cox (1988) suggested that fear of public scrutiny may lead these people to avoid social situations in which other people can observe their anxious behaviour. That is, fear of being criticized or rejected by others (social-evaluative anxiety) may play a role in the development of agoraphobia. However, the methodology of the study did not allow for the determination of a causal relationship between social-evaluative anxiety and the development of agoraphobic avoidance behaviour subsequent to panic attacks (Pollard & Cox, 1988). Nevertheless, the authors cited Pollard (1985) who reported that most people with agoraphobia tend to indicate a degree of concern about being embarrassed by panic attacks.

In exploring the relationship between embarrassment and avoidance behaviour, Cox, Swinson, Kuch and Reichman (1993) performed a factor analysis of the Mobility Inventory (a scale measuring the degree to which people avoid certain situations) in a sample of patients with PDA. The authors found that the fear of public places was associated with the fear of making a scene or looking foolish while having a panic attack. In a similar study of patients with PDA, fear of causing a scene was rated as being more severe than fears of going crazy, losing control or dying when having a panic attack (Cox, Endler & Swinson, 1991). Moreover, Fleming and Faulk (1989) performed a discriminant function analysis on the Agoraphobic Cognitions Questionnaire (ACQ), and found that the item “I am going to act foolish” was the only item to distinguish

between panic disorder patients with and without agoraphobia. Interestingly, other items such as thoughts of “going crazy” or “losing control” appeared not to discriminate between the two groups. Additionally, Fleming and Faulk (1989) did not find any difference in patients’ reports of severity or frequency of anxiety symptoms or panic attacks between panic disorder patients with and without agoraphobia. Fleming and Faulk (1989) speculated that rather than fears of physical symptoms, the development of agoraphobia may be related to the fear of social catastrophe and embarrassment (concern over how the patient appears to others). This hypothesis is, however, based on a post-hoc analysis with only one item differentiating between the groups, therefore, those results may be due to chance factors (Fleming & Faulk, 1989).

The studies previously outlined suggest that people with panic disorder and PDA may differ in the extent to which they are embarrassed by symptoms of anxiety/panic. This difference was also exhibited by subjects in a study by Telch, Brouillard, Telch, Agras and Taylor (1989), in which the authors found a significant difference between patients’ perceived consequences of panic, when assessing those with panic disorder and those with PDA. That is, participants with PDA (as opposed to panic disorder alone) displayed significantly more concern about social consequences and loss of control consequences (for example, going insane, becoming hysterical, or screaming), as assessed by the Panic Appraisal Inventory. Moreover, the group differences were most significant for social consequences, namely, that other people might stare or laugh, that the person would be embarrassed by making a scene, and that bystanders would think they were weird. Patients in both groups were equally concerned about the physical consequences of the panic attack (such as having a heart attack). People with PDA, however, exhibited significantly higher scores on scales measuring concerns about social ridicule and loss of control (Telch et al., 1989).

In a study of PDA patients, Robinson and Birchwood (1991) found that cognitions regarding social catastrophe (acting foolishly and panicking in public) were moderately correlated, and the authors also found a moderate correlation between both of the social catastrophe cognitions and thoughts about loss of control. Additionally, Robinson and Birchwood (1991) found that the cognition of ‘acting foolishly’ was significantly associated with avoidance behaviour (when both alone and accompanied). Moreover, both depressive and experiential symptoms (depersonalization and derealization) independently and significantly contributed to the cognition of ‘acting foolishly’. Robinson and Birchwood (1991) also found a strong association between experiential symptoms and ‘losing control’. Those PDA patients who fear social consequences as a result of panicking may be more likely to exhibit avoidance behaviour with respect to a number of situations which could involve the presence of, or contact with, other people (Robinson & Birchwood, 1991). Although none of the patients in the study by Robinson and Birchwood (1991) experienced comorbid social phobia, more than half of them were concerned about ‘social embarrassment’. Given that many of the situations in the Mobility Inventory involve potential contact with other people, it is understandable that an association between avoidance behaviour and ‘social embarrassment’ cognitions was found (Robinson & Birchwood, 1991). Moreover, the association between cognitions of ‘social catastrophe’ and avoidance behaviour may indicate that cognitive factors may have a substantial influence on the development of phobic avoidance behaviour (Robinson & Birchwood, 1991).

The studies previously outlined provide support for the argument that concerns about the social consequences of panicking, or feelings of embarrassment, may play a role in the development and maintenance of agoraphobic avoidance behaviour. Given that fear of embarrassment/humiliation is also the primary clinical feature of social phobia, it is important to consider the relationship between agoraphobic avoidance and symptoms of social phobia. Social phobia is described as an excessive fear of social or performance situations in which

embarrassment could potentially occur as a result of the person behaving in an inadequate manner, or due to their anxiety symptoms being visible to others (A.P.A., 1994).

Comorbidity between agoraphobia and social phobia

A number of studies (outlined below) have demonstrated an association between agoraphobia and social phobia. Previous research has explored, although not conclusively, whether the co-occurrence of PDA and social phobia is a separate syndrome to either PDA or social phobia alone, or whether these disorders overlap substantially.

Rapee and Murrell (1988) examined factors that could possibly be related to the development of various levels of agoraphobic fear. Multiple regression analyses revealed that the social phobia subscale of the Fear Questionnaire best predicted agoraphobic avoidance behaviour in that scores on that subscale increased along with avoidance behaviour (Rapee & Murrell, 1988).

Furthermore, the authors found that the subjects in all three groups experienced approximately the same number of symptoms during a panic attack, and they had experienced approximately the same number of panic attacks in that past month. Thus, avoidance did not appear to be connected simply with the frequency or severity of panic attacks (Rapee & Murrell, 1988). The authors reported that the degree of avoidance was most consistently related to “social anxiety, unassertiveness, and introversion” (Rapee & Murrell, 1988, p. 214); these factors appeared to increase along with greater avoidance behaviour. Moreover, Rapee and Murrell (1988) argue that social concern is consistently found among people with agoraphobia.

Similarly, Rapee, Sanderson and Barlow (1988) found that features of social phobia tend to be common among people with different anxiety disorders. Participants in their study were asked to indicate the degree to which they would fear or avoid various scenarios due to thoughts of embarrassment or public scrutiny. Rapee et al., (1988) found that people with agoraphobia

tended to experience greater social anxiety than people with panic disorder. Accordingly, there was a trend for agoraphobia patients to be fearful of, and to avoid social situations to a greater extent than those patients with only panic disorder. Interestingly, Rapee et al. (1988) also found that those patients with Generalized Anxiety Disorder (GAD) tended to display the greatest degree of social anxiety.

In another study investigating the association between PDA and social phobia, Cox, Swinson, Norton and Kuch (1991) found that panic occurrence and anticipation of panic were often associated with social phobic situations, as well as agoraphobic situations. Cox et al. (1991) suggested that PDA patients might also exhibit symptoms of social phobia.

Social concerns were also reported by panic disorder subjects in a study by Breitholtz, Johansson and Ost (1999) who examined cognitions reported by subjects with GAD and panic disorder. The authors found that patients with panic disorder reported slightly more cognitions in the social catastrophe category, than subjects with GAD.

In a similar manner, Horwath, Wolk, Goldstein, Wickramaratne, Sabin, Adams, Lish and Weismann (1995) described a number of studies that demonstrated the high co-occurrence of social phobia and panic disorder. It appears that although they are two distinct syndromes, they are nevertheless frequently comorbid. Although they differ in age of onset, gender ratios and prevalence rates, people often present with both disorders simultaneously. It has not been established whether there is an underlying risk factor common to both disorders, or whether one disorder predisposes one to the other, or whether the frequent comorbidity represents a syndrome on its own (Horwath et al., 1995). These authors investigated the relationship between social phobia and panic disorder by conducting a family study and found a tendency for an increased risk of social phobia and agoraphobia in relatives of people with panic disorder.

Pursuing the question of whether the joint occurrence of panic disorder and social phobia may be a separate syndrome to either panic disorder or social phobia alone, Andersch and Hanson (1993) examined the prevalence of social phobia in a sample of panic disorder patients and sought to determine whether clinical differences exist between panic disorder patients with and without social phobia. In order to account for overlap, Andersch and Hanson (1993) excluded from the social phobia group those patients who displayed social phobia symptoms due to “the fear of having a panic attack in a social situation” (pp.60-61). Andersch and Hanson (1993) found that social phobia occurred in 26% of the panic disorder sample, and the authors also found that agoraphobia occurred significantly more often in those panic disorder patients who were also socially phobic than in those panic disorder patients without social phobia. Interestingly, among those with social phobia, 66% developed social phobia before the onset of their panic disorder (primary social phobia), while 34% developed social phobia after the onset of panic disorder (Andersch & Hanson, 1993). Moreover, out of the remainder of those panic disorder patients without social phobia, 23% reported experiencing symptoms of social phobia as a reaction to panic attacks. Furthermore, panic attacks *without* agoraphobia were significantly more common among patients who did *not* have concomitant social phobia, than among those who did have social phobia. Moreover, of those panic disorder patients who had co-occurring social phobia, only 9% did not experience agoraphobia, whereas 91% did have agoraphobia. A history of depression did not, however, differ between the two groups. Andersch and Hanson (1993) established that those panic disorder patients in the social phobia group displayed more panic anxiety, social difficulties, and greater agoraphobic avoidance behaviour, than those panic patients who did not have social phobia. Andersch and Hanson (1993) speculate that perhaps both social phobia and panic disorder are expressed by agoraphobia.

Consistent with the associations between PDA and social phobia previously outlined, Whittal and Goetsch (1997) found that 46% of the panic disorder/PDA patients in their study had comorbid social phobia. Interestingly, there was no correlation between self-reported social concerns (using the Social Interaction factor of the Fear Survey Schedule/FSSSI) and observed avoidance behaviour with respect to social interaction situations in a Behavioural Avoidance Test (Whittal & Goetsch, 1997). That is, the social interaction condition was correlated with greater avoidance behaviour, however, the self-report measure (FSSSI) did not significantly predict subsequent avoidance behaviour (Whittal & Goetsch, 1997). In explanation, the authors suggested that given that the FSSSI is a trait measure of social interaction fears, it is possible that a “state measure of social anxiety” may have more aptly predicted avoidance behaviour (Whittal & Goetsch, 1997, p.819). During the Behavioural Avoidance Test (social demand condition) the subjects were aware of the specific type and degree of requisite social interaction (Whittal & Goetsch, 1997). The authors liken this to the relationship between panic expectancy and avoidance (which showed a strong association in their study), since the panic expectancy was more of a state measure, and thus specific to the situation. Whittal and Goetsch (1997) argue that in previous studies, global/trait measures of panic expectancy have also not been as strongly associated with avoidance as have state measures of panic expectancy.

In assessing sociodemographic and clinical features of social phobia, Schneier, Johnson, Hornig, Liebowitz and Weismann (1992) found that agoraphobia was the psychiatric disorder with the highest increased rate of co-occurrence with social phobia; agoraphobia occurred in 44.9% of subjects who had social phobia. Schneier et al. (1992) also reported studies showing that agoraphobia occurs in 30-60% of patients with primary social phobia, however, Schneier et al., (1992) did not ascertain whether social phobia preceded the comorbid agoraphobia. According to DSM-IV, social phobia tends to emerge prior to panic disorder/agoraphobia, even if there is an underlying predisposition to both social phobia and agoraphobia. Alternatively, it is possible that

panic may result in agoraphobia and embarrassment, which in turn might trigger an underlying predisposition to social phobia.

In attempting to distinguish between social phobia and panic disorder, Manuzza, Fyer, Liebowitz and Klein (1990) discussed 'secondary social phobia', that is, avoidance of social situations due to a fear of being embarrassed or humiliated in the event of having a panic attack. Furthermore, Manuzza et al., (1990) stressed that interview questions may blur the differential diagnosis of panic disorder and social phobia, in that panic disorder patients who tend to avoid social situations might agree that they are afraid of embarrassing or humiliating themselves. Further questioning may, however, reveal that the embarrassment would occur upon people noticing that the person is having a panic attack. Although Manuzza et al., (1990) agree that social phobia and panic disorder may coexist, the authors also caution the reader to discriminate between those panic disorder patients who avoid social situations (for the above reason) and those who develop social phobia. The focus of the fear, and the reasons for avoidance, must be assessed in order to make a differential diagnosis (Manuzza et al., 1990). Nevertheless, it would be interesting to determine the mechanisms underlying the development of generalized versus panic-restricted social phobia.

In a similar attempt to differentiate between the two disorders, Ball, Otto, Pollack, Ucello and Rosenbaum (1995) found that social phobia and panic disorder are distinguished by fear of negative evaluation and by lack of assertiveness. Nevertheless, the authors discovered a large overlap between the two disorders with regard to anxiety sensitivity and catastrophic beliefs about panic attacks. When Ball et al. (1995) compared patients with panic disorder alone to social phobia alone, they found that the patients differed with regard to scores on the Fear of Negative Evaluation Scale ([FNE] Watson & Friend, 1969), but there was only a trend for those with social phobia (alone) to report less anxiety sensitivity. However, Ball et al. (1995) also

reported studies which have found that scores on FNE do not always differentiate between those patients with panic disorder, and those with social phobia. More people tend to exhibit high FNE scores than social phobia scores. Perhaps the FNE scale targets more core beliefs, such as those of inadequacy, as opposed to the Social Phobia and Anxiety Inventory (SPAI), which is more specific to social phobia and agoraphobia. Furthermore, Ball et al. (1995) argue that there is not an absolute difference between panic disorder and social phobia with regard to fears of negative evaluation and bodily sensations, but that the two disorders can be more adequately differentiated by the relative distribution of those fears.

Overall, previous studies have demonstrated an association between social phobia and increased agoraphobic avoidance. That is, on a continuum of panic disorder versus PDA, social phobia tends to increase accordingly. Given the findings previously outlined that increased agoraphobia is associated with increased embarrassment or social concern, and that increased agoraphobia is also associated with increased social phobia, the question arises as to whether the presence of social phobia could be accounting for patients' concerns about the social consequences/embarrassment associated with panicking, as well as the degree of agoraphobic avoidance in people with PDA. Furthermore, is the presence of social phobia a prerequisite for experiencing embarrassment in response to symptoms of anxiety? This question cannot be adequately answered by reviewing the studies thus far, because previous studies investigating embarrassment (such as Katerndahl, 2000) and avoidance in people with PDA have not consistently assessed participants for the presence of comorbid social phobia. Thus, it is difficult to determine any causal relationship between social phobia and embarrassment or avoidance behaviour.

Self-Consciousness, Social Anxiety and Agoraphobia

Perfectionism and self-consciousness are two concepts that have been investigated as possibly underlying or differentiating between PDA and social phobia. Nevertheless, a number of studies (outlined below) do not show any association between agoraphobia and social phobia. This raises the question of what variables might underlie the associations when present, as opposed to when no associations are found. Once again, this prompts the question of whether the presence of social phobia is necessary in order to feel embarrassed about panic attacks.

Antony, Purdon, Huta and Swinson (1998) found that individuals in both the social phobia and panic disorder groups reported more “socially prescribed perfectionism” (Anthony et al., 1998, p.1152) when compared with people in the non-clinical /volunteer groups. Socially prescribed perfectionism refers to people’s beliefs regarding others’ high expectations of them and this concept is consistent with the model of social phobia (Turk, Heimberg & Hope, 2001). However, Saboonchi, Lundh and Ost (1999) found that when public self-consciousness was controlled for there were no longer any significant differences on perfectionism. Furthermore, Saboonchi et al. (1999) compared people with social phobia, PDA and normal controls on traits of perfectionism and self-consciousness, and found that people with social phobia demonstrated greater public self-consciousness than people with panic disorder.

Therefore, Saboonchi et al. (1999) suggested that public self-consciousness could be a characteristic that differentiates social phobia from PDA, in terms of the more severe social anxiety exhibited in social phobia. Alternatively, it is also possible that people with PDA experience self-consciousness in terms of the symptoms of panic, as opposed to social situations in general. Public self-consciousness involves the extent to which people are preoccupied with, and direct attention to, certain aspects of themselves which others may notice, for example, the

way they look or the impression they make on others (Saboonchi et al., 1999). Previous studies cited by the authors showed that public self-consciousness was correlated positively with social anxiety and social phobia, compared to controls, or subjects with other anxiety disorders.

The concept of self-consciousness may help to explain why a number of studies have found no association between symptoms of agoraphobia and social phobia. Accordingly, De Ruiter and Garssen (1989) and Amering et al. (1997) found that symptoms of social anxiety did not differ significantly between panic disorder patients with, and without, agoraphobia. De Ruiter and Garssen (1989) concede that this finding could, however, be a result of the measure of social anxiety used in their study, which focused on social skills, and not social interaction or fear of negative social evaluation. De Ruiter and Garssen (1989) suggested that scales which incorporate fear of negative evaluation and social evaluation/scrutiny may be more adept at capturing how people with agoraphobia experience embarrassment, and how they may fear panicking in public. Moreover, participants with agoraphobia tended to score higher than participants with panic disorder, on measures of interpersonal sensitivity. De Ruiter and Garssen (1989) interpreted this finding (which is reportedly consistent across studies) to suggest that patients might be embarrassed or humiliated if they had a panic attack in front of others, and this may lead to agoraphobic avoidance behaviour.

In the same way, Stein, Shea and Uhde (1989) reported no significant relationship between those diagnosed with agoraphobia and social phobia. Given that agoraphobic avoidance was classified in one of three categories as “none, limited or extensive”, it is, however, possible that regression analysis could have provided a more incremental picture. Nonetheless, in those patients who had social phobia, 68% reported having met the social phobia criteria prior to panic disorder onset.

Again, Cox, Endler and Swinson (1991) compared clinical panic disorder patients with non-clinical panickers (not receiving treatment). With regard to symptom severity ratings, Cox et al. (1991) found that clinical and non-clinical panickers differed significantly in their ratings for fears of dying or of going crazy, but that they did not differ significantly with regard to fears of losing control. Although there was a significant difference with regard to fear of causing a scene, with the clinical panickers obtaining higher scores, the two groups did not differ significantly in terms of social phobia (using the Fear Questionnaire) nor with respect to fears of social evaluation (Cox et al., 1991). The authors found that agoraphobia was the only fear that differentiated clinical from non-clinical panickers. Cox et al. (1991) argue that their results support the notion of a “panic-anxiety continuum” (p.31) which depicts clinical panickers as experiencing the same phenomena, but in a more severe form, than non-clinical panickers (Cox et al., 1991). Thus, differences tend to be quantitative, rather than qualitative. However, the presence of agoraphobia was one qualitative difference between the two groups, and given that fear of causing a scene was significantly greater for the clinical panickers, it is possible that greater panic-related embarrassment could be associated with greater avoidance, regardless of social phobia symptomatology.

Another study that found no specific association between PDA and social phobia was undertaken by Chambles and Gracely (1989). Patients in a number of clinical groups (including patients with PDA, panic disorder, GAD, social phobia, and OCD) indicated, to a significantly greater extent than normal controls, that their anxiety would result in a loss of control or social humiliation. Although Chambles and Gracely (1989) found no significant difference in fears of social/behavioural consequences of panic and anxiety among the different groups, it is interesting that those people with agoraphobia obtained the highest scores. This finding may indicate that anxious patients do not necessarily have to be socially phobic to feel embarrassed,

and also suggests that people with agoraphobia might very well experience a greater degree of embarrassment than people with other anxiety disorders, aside from social phobia.

Studies that have not demonstrated an association between social phobia and agoraphobia appear to be inconsistent with the previously outlined studies that depicted the two disorders as being frequently comorbid conditions. Therefore, a tentative suggestion is that the previous associations may have been mediated by social-evaluative concerns. That is, in those studies that demonstrated a high co-occurrence of PDA and social phobia, it is possible that public self-consciousness was the underlying factor responsible for the PDA patients' apparent social phobia symptoms. Similarly, self-consciousness may not have been assessed in studies that found no association (when using only measures of social skills). Moreover, these findings suggest that experiencing social phobia may not be necessary in order to feel embarrassed or to increase avoidance or agoraphobic anxiety, if the person is self-conscious.

Findings by Miller (1995) may substantiate this hypothesis. Miller (1995) argued that shyness and embarrassment are quite different phenomena, in that shyness results from fear (and anticipation) of failure, while embarrassment is a reaction to an adverse event. Miller (1995) reported an association between embarrassability and fear of negative evaluation, however, no association was found between embarrassability and low social competence.

Miller (2001) argues that, when embarrassed, people feel they have made an undesirable impression and that they have subsequently been evaluated negatively by others. Embarrassment invariably occurs in a social context, and tends to involve undesirable attention from other people, whether real or imagined (Miller, 2001). Still, the tendency to become embarrassed is associated with public self-consciousness, therefore, people will tend to be more susceptible to

embarrassment when they are constantly aware of, or monitoring, what others might be thinking of them (Miller, 2001).

Miller (2001) differentiates between embarrassment (which is experienced as awkwardness) and social phobia (characterized by intense fear or avoidance of those situations which lead to distress). Accordingly, embarrassment occurs as a reaction to the threatening situation, whereas in social phobia, the fear and apprehension are felt before the person enters that situation. Most people do have the potential to feel embarrassed, but not all people will experience social phobia in their lifetime. This might explain why Amering et al. (1997) did not find a significant relationship between DSM-III-R social phobia and agoraphobia, despite finding that embarrassment appeared to play a role in the development of agoraphobic avoidance behaviour.

The previous findings notwithstanding, both embarrassment and social phobia share a common denominator, which is the fear of being evaluated negatively by others (Miller, 2001). Social phobia is also characterized by an immense fear of embarrassment. Most people will try to avoid embarrassment, but some people will go to great lengths to avoid any situation which could potentially elicit embarrassment, and this may lead to social phobia (Miller, 2001).

In his study, Miller (1995) described two theoretical models which offer different perspectives for susceptibility to embarrassment: one, that people are concerned about others' negative evaluations, and second, that they are deficient in social skills. The social-evaluation perspective suggests that embarrassment is due to the anxious expectation of being judged unfavourably by others, that is, when a person does not present themselves in an appropriate manner, they may believe that others are forming an unfavourable impression of them and this leads to embarrassment. According to this perspective, people only become embarrassed in the presence of real or imagined others since embarrassment necessarily involves the threat of social rejection.

The social-evaluation model predicts that those people with a great fear of negative social evaluation are especially susceptible to embarrassment, despite their social skills. Thus, if social-evaluative concerns are responsible for embarrassment, the latter may differ from shyness (which is based on a lack of social skills).

Miller (1995) found that social skills and self-esteem were the best predictors of shyness, whereas social-evaluative variables, such as social sensitivity and fear of negative evaluation, were better predictors of embarrassability. People with a high sensitivity to social norms and views about the appropriateness of behaviour appeared to be more embarrassable, independent of their level of interactive skills (Miller, 1995). Miller (1995) found that women reported more embarrassability, displayed more concern about social evaluation, and reported greater fear of negative evaluation, than men, however, both men and women tended to report the same amount of shyness.

Embarrassability tended to be related to people's fear of disapproval or rejection by others, and to their degree of social sensitivity. Social sensitivity was later found to be an even better predictor of embarrassability, than fear of negative evaluation. Miller (1995) found that both shyness and embarrassability were positively related to the need for approval, and to the fear of negative evaluation, but that shyness tended to be more associated with "effectiveness", whereas embarrassability tended to be more related to "appropriateness" (Miller, 1995; p.333). Miller (1995) concluded that shy people tend to be concerned about negative social evaluation due to a lack of skills underlying their shyness. In contrast, social evaluation and anticipated judgement by others plays a more pivotal role in embarrassability than "behavioural adeptness" (Miller, 1995; p333). Therefore, Miller (1995) suggested that therapy should aim to address fears of negative social evaluation for those who are highly embarrassable, and that therapy should address social skills (such as monitoring of social situations and effective communication skills)

for those who are shy. Perhaps people with social phobia need to incorporate both factors in treatment, while those with PDA may require intervention for fear of negative social evaluation more so than for lack of social skills. This cognitive aspect might not be adequately addressed in current treatment regimes.

Miller's (1995) argument for the role of inappropriate behaviour in embarrassment is consistent with Rapee and Heimberg's (1997) model of anxiety in social-evaluative situations. Incorporated within this model is the idea that people have a mental representation of themselves as seen by an audience, and they compare this representation of their appearance and behaviour with their predictions about the standards held by the audience (Turk et al., 2001). If the person perceives that they fall short of these standards they expect that social rejection will follow as a consequence. The resultant behavioural, cognitive and physical symptoms of anxiety (for which the person is hypervigilant) then feed back into the person's negatively-biased mental self-representation (Turk et al., 2001). Although the latter is a model of anxiety in social phobia, it could also be useful in explaining how fears of negative social evaluation may underlie, and perpetuate, both social phobia and PDA. The concept of a mental representation of the self is exemplified in a study by Wells and Papageorgiou (1999) who investigated social-evaluative concerns and found that people with both agoraphobia and social phobia tend to exhibit an observer perspective when describing an "anxiety-provoking social situation" (p 653). That is, the subjects in both groups tended to have an image of themselves as they believed they appeared to others. Furthermore, Barlow's (1988) model of anxious apprehension, previously outlined, is consistent with the concept of self-focused attention in the maintenance of anxiety. Therefore, the aforementioned models (Barlow, 1988; Craske & Barlow, 2001; Miller, 1995; Rapee et al., 1997; Wells & Papageorgiou, 1999) assist in explaining how people with PDA may experience social-evaluative concerns that are similar to those of people with social phobia.

Overall, the fear of negative social evaluation may be one variable underlying the frequent association between PDA and social phobia, and may also explain why some studies (those assessing social skills) have not found an association between the two disorders. More importantly, fear of negative social evaluation may explain why increased social phobia appears to be associated with increased agoraphobia, embarrassment and avoidance behaviour; the common variable may be the fear of negative social evaluation.

Depression: Another factor?

Depression may be another factor whose impact requires a degree of consideration. The studies below suggest that greater depression may be associated with greater social phobia in people with PDA.

Stein et al. (1989) examined a group of 35 patients with panic disorder, in order to determine the prevalence of symptoms of social phobia, and the possible clinical implications of these symptoms. The authors found that almost half of the patients were also socially phobic, and all but one of those with social phobia reported having experienced episodes of major depression in their past. Interestingly, those panic disorder patients who had a history of depression rated themselves significantly higher on social anxiety and avoidance, but not on agoraphobia-related fear and avoidance, than those panic disorder patients without a history of depression (Stein et al., 1989). The authors concluded that both panic disorder and social phobia may co-occur in many cases, and that comorbid social phobia could possibly be associated with a greater risk of depression in that population. Stein et al. (1989) suggest that those patients with concomitant social phobia may represent a subgroup of panic disorder patients who possess certain personality traits, such as “low self esteem, extreme self-consciousness, and a tendency toward negative self-appraisal” (Stein et al, 1989; p. 237), and that these cognitive factors could possibly render them more susceptible to depression. Furthermore, Stein et al. (1989) suggested that

social avoidance could lead to social isolation, which could in turn act as a catalyst in the patient becoming depressed.

Likewise, in a study by Hoffart et al. (1992), fear of losing control was related to symptoms of depression. Hoffart et al. (1992) suggested this finding could indicate that fear of losing control is related to both agoraphobia and depression (as a result of pessimistic thinking leading to more concern regarding loss of control). The authors also speculated that depressive symptomatology (such as decreased ability to think and concentrate) may lead to thoughts/fears of losing control and going crazy (Hoffart et al., 1992).

Similarly, Ball et al. (1995) argued that depressive symptomatology may affect patients' thought processes with regard to anxiety, and to the consequences of anxiety. Moreover, Ball et al. (1995) found that the presence of comorbid depression within social phobia tended to blur the boundaries between social phobia and panic disorder.

Thus, it is possible that an increased risk of depression exists when people with PDA experience co-occurring social phobia, either through certain personality traits or through increased social isolation. Depression is likely to exacerbate PDA symptoms and to make it more difficult to treat the person. Although the impact of depression on treatment is worthy of consideration, the focus of the present study will be on the impact of embarrassment/ self-consciousness upon treatment delivery.

Accordingly, the suggested relationship between embarrassment and agoraphobic avoidance behaviour is relevant in improving treatment for people with PDA. When comparing the relative effects of cognitive therapy and exposure on panic and agoraphobia, Van den Hout, Arntz, and Hoekstra (1994) found that cognitive therapy did not lead to a decrease in agoraphobic

avoidance, and did not “potentiate the effects of exposure” (Van den Hout et al., 1994, p.450). The results indicated that cognitive therapy reduced the frequency of panic, while exposure therapy did not do so. Exposure therapy, however, reduced agoraphobic avoidance and attenuated anxiety and fear. The authors pointed out that the cognitive therapy focused only on the catastrophic misinterpretation of somatic symptoms. According to Van den Hout et al. (1994), it is “assumed that this core cognitive distortion of panic patients is also central to agoraphobics. This assumption may be wrong” (Van den Hout et al, 1994; p.450). Thus, the ineffectiveness of the cognitive therapy in that study may be due to the fact that social fears were not addressed. People with agoraphobia are concerned about embarrassment, losing control and social ridicule, and Van den Hout et al. (1994) suggested that perhaps the cognitive therapy in that study was not as effective because it did not address these social concerns.

Similarly, Ost, Westling and Hellstrom (1993) argued that there is a need to evaluate the effectiveness of the cognitive therapy developed by Clark (1986), for clients with PDA. Clark’s (1986) cognitive therapy was designed to treat panic disorder, and thus focuses on the feared somatic sensations; it does not specify the correction of false beliefs pertaining to embarrassment. In trying to prevent the development of agoraphobia, therapists should challenge social catastrophe cognitions as part of their treatment regime (Fleming & Faulk, 1989; Robinson & Birchwood, 1991). Moreover, future research should assess the added impact of social anxiety-reduction procedures to the current exposure treatment package (Pollard & Cox; 1988; Turner, Meles & Ditomasso, 1983). Additionally, Telch et al. (1989) suggested that if therapists assess patients’ panic appraisal domains (physical, social, or loss of control consequences), therapy can be tailored to the individual’s panic appraisal profile, thereby increasing the efficacy of treatment.

Therefore, current treatment facilities that tend to provide separate therapy for different anxiety disorders may not be entirely helpful to clients who present with co-occurring disorders. Social-evaluative concerns may need to be addressed for people with PDA as well as those with social phobia. Secondly, it might be less helpful to categorize individuals as belonging to one group or the other, but rather to assess their level of self-consciousness, which itself may impinge on avoidance behaviour, whether or not criteria for social phobia are met by the individual.

Purpose of the Present Study

The present study will attempt to replicate Katerndahl's (2000) findings that symptom-related embarrassment differs between people with and without panic attacks. It is hypothesized that participants who suffer from panic attacks and who exhibit agoraphobic avoidance behaviour will perceive panic symptoms as more embarrassing than people in the control group who do not experience panic attacks. It is also hypothesized that greater embarrassment will be associated with greater avoidance behaviour in situations in which the person could be observed by others.

Furthermore, in order to better account for the role of social phobia, the present study will incorporate the Social Phobia and Anxiety Inventory (SPAI), which has been found to discriminate agoraphobia from social phobia (Peters, 2000). This measure should prove useful given that the present study seeks to determine whether greater panic-related embarrassment is associated with more symptoms of social phobia. Previous studies (such as Katerndahl, 2000) have not incorporated the SPAI as a measure of both social phobia and agoraphobia. The study will therefore attempt to resolve previous conflicting findings regarding the influence of comorbid social phobia symptoms on panic-related embarrassment, agoraphobic anxiety and avoidance behaviour.

The following dependent variables will be derived from the self-report questionnaires:

- 1) extent of agoraphobic avoidance behaviour (Mobility Inventory); 2) degree of embarrassment (Symptom Perception Scales); 3) social phobia and agoraphobic anxiety scores (SPAI) and 4) number of anxiety and depressive symptoms (Hospital Anxiety and Depression Scale [HADS]). An additional variable (fear of negative social evaluation) will be derived from a selection of items on the SPAI in order to explore the possibility of this variable as an underlying factor in both agoraphobia and social phobia.

Method

Participants

A community sample of people who experience panic attacks and agoraphobic avoidance behaviour (panic group) included volunteers from the Agoraphobic Support Group (Canterbury), as well as people who were recruited through the University of Canterbury volunteer database. The panic group consisted of 32 women and 5 men, ranging in age from 24-65 years ($M = 44.11$; $SD = 9.76$).

Selection into the panic group was made on the basis of participants (a) having experienced a panic attack within the past 6 months, and (b) currently experiencing at least four panic-associated symptoms. This information was obtained during an initial telephone interview, and through further e-mail correspondence with those participants on the volunteer database who reported panic attacks.

The control group was comprised of 20 women and 12 men, ranging in age from 20-64 years ($M = 45.19$; $SD = 9.58$). The control group participants were matched for the age and gender profile of the panic group, and included only those volunteers from the University database who had either never experienced a panic attack, or had experienced an attack only as an isolated occurrence in the past.

Participants in both the panic and control groups were over 18 years of age, and were not excluded on the basis of gender, ethnicity, socioeconomic status or occupation.

Materials

The Symptom Perception Scale for Embarrassment is adapted from the Symptom Perception Scale developed by (Katerndahl, 2000). The Symptom Perception Scale for Embarrassment is a 25-item Likert scale measuring the degree to which the subject would perceive both panic and nonpanic symptoms to be embarrassing (regardless of whether the subject had the symptom), should they occur in a situation where the person could be seen by others. Thirteen panic symptoms such as “dizziness” and “palpitations” were combined with 12 nonpanic symptoms such as “hair loss” and “skin infection”, and the 25 items were randomly ordered within the scale (see Appendix A). Items are rated on 7-point scales ranging from “Not at all embarrassing” to “Extremely embarrassing”. The Symptom Perception Scale for Embarrassment has been shown to have acceptable internal consistency (Katerndahl, 2000).

Hospital Anxiety and Depression Scale. The HADS (Zigmond and Snaith, 1983) is a 14-item scale that provides a state measure of the degree of both anxiety and depression, as well as a cut-off for probable clinical disorder (see Appendix B). Items are rated on four-point scale ranging from a score of 0 for positive features (no clinical symptoms) to a score of 3 for the maximum number of clinical symptoms (no positive features). Higher scores indicate greater severity of the disorder. The HADS has been shown to have acceptable face and concurrent validity as well as acceptable internal consistency.

The Mobility Inventory. The MI (Chambles, Caputo, Jasin, Gracely, & Williams, 1985) is a 27-item scale measuring the degree to which a subject avoids certain situations. Items are rated on 5-point scales for when the subject is either accompanied or alone, with anchors ranging from “never avoid” to “always avoid” (see Appendix C). The MI has been shown to have good

internal consistency, test-retest reliability, convergent validity and discriminant validity. The MI is often used in treatment outcome research involving people with PDA.

The Social Phobia and Anxiety Inventory. The SPAI (Turner, Beidel, Dancu, & Stanley, 1989) is a 45-item scale measuring the frequency with which somatic, behavioural and cognitive aspects of social phobia are experienced. Items are rated on a 7-point scale ranging from “never” to “always” (see Appendix D). The SPAI has acceptable test-retest reliability and internal consistency, as well as good concurrent and discriminant validity. The measure is comprised of two subscales: social phobia and agoraphobia. The total SPAI score is derived from the difference between these two subscales. In a study by Peters (2000), the SPAI was shown to be a better predictor of social phobia, and was more useful in discriminating between social phobia and panic disorder/PDA, than either the Social Phobia Scale or the Social Interaction Anxiety Scale.

Procedure

Participants in the panic group were recruited by telephone using the Agoraphobic Support Group (ASG) correspondent list. Additional participants were also recruited in person at the ASG monthly meetings. The remainder of the panic participants responded to an e-mail that was distributed to people listed on the University of Canterbury’s research volunteer database.

Participants for the control group were also recruited via e-mail correspondence, through the University’s volunteer database. A letter was e-mailed to the control participants, with a list of all panic symptoms, in order to describe the nature of a panic attack, and only those who did not experience regular panic attacks were asked to respond. Consequently, most people in the control group had never experienced a panic attack.

Participants were asked to complete the self-report measures as well as a questionnaire capturing demographic information (Appendix F) and to return the information using reply-paid envelopes. This was a between-groups design, however, given the limited number of people willing to participate, randomization was not possible.

Results

Demographic Characteristics

In the panic group, the most common frequency of panic attacks was in the past week, rather than less frequently.¹ Although the panic attacks ranged from being experienced as very mild to very severe, on average they were reported as being moderately severe. In the control group, the modal score for recency of panic attacks was 5, consistent with these participants having never experienced a panic attack.

1. Recency of Panic attack = Past week (1), Past month (2), Past 6 months (3), more than 6 months ago (4), Never (5).

Psychological Measures

Table 1 presents a comparison of the panic and control group means on the dependent variables (*p* values are derived from the univariate analyses of variance).

Table 1.

Means, Standard Deviations, Ranges and Confidence Intervals on the Psychological Measures

<u>Panic Group (n=36)</u>					<u>Control Group (n=32)</u>					<i>Effect size</i> ^a	<i>P</i>
<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>	<i>CI (95%)</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>	<i>CI (95%)</i>			
EMB	4.19	1.38	1.17 - 6.85	3.73- 4.65	3.27	1.20	1.23 – 5.25	2.83- 3.70	.73	**	
ANX	10.65	3.91	2 - 20	9.34- 11.95	4.88	3.24	0 – 12	3.70- 6.04	1.76	***	
DEP	5.49	4.08	0 - 20	4.13- 6.85	2.31	2.47	0 – 9	1.42- 3.20	1.28	***	
AVAL	2.66	1.08	1 - 5	2.3- 3.01	1.43	0.54	1 – 3.2	1.24- 1.63	2.26	***	
Ag	34.11	15.86	3 - 66	28.74-39.48	11.28	9.78	0 – 35	7.76- 14.81	2.34	***	
SP	63.92	33.65	1 - 121	52.53-75.30	45.44	34.16	1 - 123	33.12- 57.75	.54	*	

Note.

EMB = panic symptom embarrassment score which reflects the extent to which people would feel embarrassed if they were to experience symptoms of panic in situations where they could be seen by others.

ANX = HADS score for anxiety.

DEP = HADS score for depression.

AVAL = average score for avoidance of a selection of situations on the Mobility Inventory, in which one could potentially be seen by other people. Selected situations are marked with an asterisk in Appendix C.

Ag = agoraphobia score on the SPAI, intended to reflect the likelihood of panic disorder.

SP = difference score on the SPAI, which is viewed as a measure of social phobia.

CI= Confidence Interval

^aEffect size estimated as the difference between the means of the panic and control group scaled in terms of the standard deviation of the control group.

*p<.05. ** p<.01. ***p<.001 (two-tailed)

Multivariate Analyses

Multivariate and univariate analyses of variance were conducted on the dependent variables of embarrassment, anxiety, depression, avoidance, agoraphobia, social phobia and age, for the panic and control groups (Table 1). An alpha level of .05 was used for all statistical tests. Significant differences were found among the two groups in the multivariate analysis of variance (MANOVA) on the above dependent variables, [$F(7, 60) = 8.176, p < .001$].

These differences were then examined by univariate analyses of variance (ANOVA) for each relevant measure. The mean values, standard deviations, ranges and confidence intervals for the psychological measures are displayed in Table 1. As illustrated in Table 1, the panic group ($M = 4.15; SD = 1.38$) reported significantly higher scores, on average, than the control group ($M = 3.27; SD = 1.20$), for symptom-related embarrassment [$F(1,66) = 7.82, p = .007$]. The raw effect size (Clinical mean – Control mean/ S.D. Control) of .73 is moderate given that one standard deviation difference between the means is considered to be large in terms of effect size. As seen in Table 1, the range and variability of scores for embarrassment are similar among the two groups.

With respect to anxiety, the mean of the panic group ($M = 10.58; SD = 3.95$) was significantly higher than that of the control group ($M = 4.88; SD = 3.24$) [$F(1,66) = 41.87, p < .001$], and the same was found for levels of depression, where the mean of the panic group ($M = 5.47; SD = 4.14$) was significantly higher than that of the control group ($M = 2.31; SD = 2.47$) [$F(1,66) = 14.2, p < .001$]. The effect sizes in terms of the standard deviation differences between the group means for anxiety and depression were 1.76 and 1.28, respectively. The range of scores on both variables was greater for the panic group and, as illustrated in Table 1, the variability among anxiety scores for the two groups was similar, but there was slightly more variability for

depression scores in the panic group as opposed to the control group. The greater range may be explained by the presence of outliers on that variable.

According to the HADS norms, the mean anxiety score in the panic group fell within the mild to moderate range for anxiety whereas the mean anxiety score for the control group fell within the normal range. The mean depression scores for both groups fell within the normal range, indicating no clinically significant depression, on average. At the level of individuals in the panic group, however, 19% (7) scored in the severe range, 49% (18) in the moderate range, and 22% (8) in the normal range (below the cutoff) for clinically significant anxiety, whereas only 22% (8) scored above the normal range for depression in the panic group. At the level of individuals in the control group, the scores of only five people fell in the mild to moderate range for anxiety, and only one person scored within the mild range for depression. The remainder of the participants in the control group scored within the normal range (below the clinical cutoff) for both anxiety and depression.

25
37
13%
22
10%

Table 1 shows that with respect to avoidance of observed situations on the MI [MI observed avoidance], the mean of the panic group ($M = 2.65$; $SD = 1.09$) was significantly higher than that of the control group ($M = 1.43$; $SD = 0.54$), [$F(1,66) = 32.5, p < .001$], and there was a large difference between the means, of 2.26 SD units. Given that a selection of situations was included in this score, Chronbach's Alpha was calculated and the selection of situations was shown to have good internal consistency (.95).

In Table 1, it can be seen that mean scores for agoraphobia in the panic group ($M = 34.11$; $SD = 15.86$) were significantly higher when compared with the control group ($M = 11.28$; $SD = 9.78$), effect size = 2.34, [$F(1,66) = 49.5, p < .001$], and the same was found for social phobia, where the mean of the panic group ($M = 63.92$; $SD = 33.65$) was significantly higher than that of the

control group ($M = 45.44$; $SD = 34.16$), effect size = .54, [$F(1,66) = 5.04$, $p = .03$]. This indicates that people in the panic group tended to exhibit greater anxiety with regard to situations typically feared by people with agoraphobia, than people in the control group, and that people in the panic group also tended to exhibit greater social anxiety than people in the control group.

Table 1 shows that the range and variability of agoraphobia scores in the panic group was higher than that of the control group, indicating that individual scores tended to differ from the mean. At the individual level, 42% (15) of those participants in the panic group met the criterion score for possible panic disorder, according to the SPAI interpretation, whereas none of the participants in the control group met the criterion score for panic disorder.

As seen in Table 1, the range and variability of the scores for social phobia were high for both the panic and control groups, which indicates that individual scores differed substantially from the means for social phobia. An outlying score was responsible for the range in the control group exceeding that of the panic group. At the level of individual scores in the panic group, 50% (18) met the criterion for possible social phobia, and 33% (12) met the criterion for probable social phobia, as indicated in the SPAI interpretation. Only 19% (7) were considered unlikely for social phobia in the panic group. It is interesting to note that only 50% (16) of the control group were considered unlikely to have social phobia, as per the criterion score. As many as 38% (12) participants in the control group met the criterion for possible social phobia and 22% (7) met the criterion for probable social phobia.

There was, however, no significant difference between the means of the panic ($M = 44.08$; $SD = 9.89$) and control group ($M = 45.19$; $SD = 9.58$) with respect to age [$F(1,66) = 0.2$, $p = .64$].

Effects of Gender

Given that more women than men with panic attacks responded to the request to participate in this study, the panic group was comprised largely of women whereas the ratio of men to women was slightly higher in the control group. For this reason, all the participants were divided according to gender, and a MANOVA was conducted to compare gender groups on embarrassment, anxiety, depression, avoidance, agoraphobia, social phobia and age, revealing no significant effects of gender overall [$F(7,60) = 0.711, p = .66$].

Although the mean scores for social phobia differed significantly among the panic and control groups, the difference was not as large (effect size = .54, see Table 1) as that among other measures. Given that there were more men in the control group, and notwithstanding the lack of any overall effect of gender, it was deemed desirable to determine whether the average social phobia scores for men in the control group were significantly greater than for women in the control group, as this may have led to an elevated mean social phobia score for the control group. Thus, the control group was divided according to gender and a t-test revealed that although the mean social phobia score for men in the control group ($M = 49.25; SD = 37.5$) was higher than the mean social phobia score for women in the control group ($M = 43.15; SD = 32.8$), this difference was not significant [$t(30) = -0.48; p > .6$]. Finally, all participants were divided according to gender and a t-test revealed no significant difference between the overall mean social phobia scores for women ($M = 55.86; SD = 34.6$) and men ($M = 53.3; SD = 36.8$) across both groups [$t(66) = 0.26, p > .79$].

In order to examine potential gender differences in levels of agoraphobia, the agoraphobia scores were divided by gender, revealing that the overall mean score for women ($M = 25.65; SD = 18.1$) was higher than the mean score for men ($M = 16.53; SD = 14.3$), however, this difference was not significant [$t(66) = 1.89, p > .06$]. Similarly, in the panic group alone, the mean agoraphobia

score for women ($M = 34.25$; $SD = 16.9$) was not significantly greater than the mean agoraphobia score for men ($M = 33.2$; $SD = 7.6$) [$t(34) = 0.14$, $p > .9$].

Examining agoraphobia, embarrassment and avoidance behaviour

In order to investigate the effect of agoraphobia on embarrassment scores, the panic group was divided by median split using their agoraphobia scores, yielding a high and a low agoraphobia group within the panic group. Comparing the respective mean embarrassment scores of these two groups with the mean embarrassment score for the control group revealed that mean embarrassment scores for those people in the high agoraphobia group ($M = 4.39$; $SD = 1.45$), low agoraphobia group ($M = 3.90$; $SD = 1.29$), and control group ($M = 3.14$; $SD = 1.13$) were significantly different [$F(2,63) = 5.84$, $p < .005$], $R^2 = 0.16$. This is a large effect size², and the relationship is depicted in Figure 1, where it can be seen that embarrassment increases almost linearly between the control participants, the low agoraphobia participants within the panic group, and the high agoraphobia participants within the panic group.

2. According to Cohen's Conventions for Effect Sizes in a one-way ANOVA, R^2 .01 = small; .06 = medium; .14 = large (Aron & Aron, 1999).

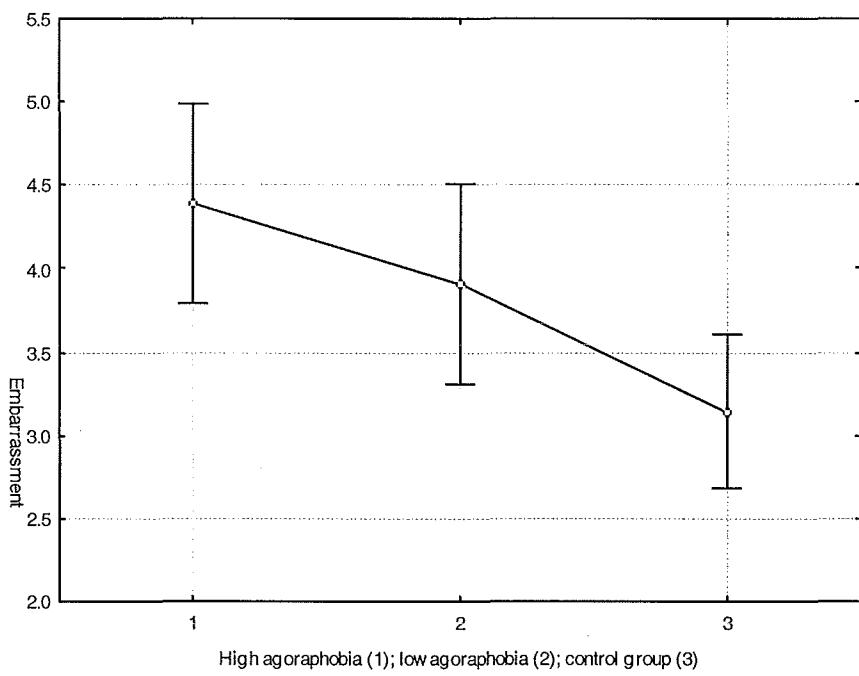


Figure 1. Mean embarrassment scores for high and low agoraphobia groups, and the control group.

Further, in order to examine the effect of panic-related embarrassment on relatively high or low avoidance behaviour, the panic group participants were divided into two groups by median split according to their degree (high versus low) of MI observed avoidance. When the mean scores for embarrassment were calculated for each group (high versus low avoidance), a t-test revealed, however, that the mean embarrassment score for those people in the high avoidance group ($M = 4.40$; $SD = 1.26$) did not differ significantly from the mean score of those in the low avoidance group ($M = 3.97$; $SD = 1.50$), [$t(35) = -.93, p < .36$].

Correlational Analyses

Given that the distributions were slightly skewed for depression and avoidance behaviour, it was decided to use the combination of scores among both groups in the correlational analyses in order to achieve a more normal distribution of scores.³ The intercorrelations among the variables for both groups are displayed in Table 2, where it can be seen that embarrassment scores were significantly correlated with agoraphobia scores ($r = .31$), and this relationship is depicted in Figure 2. Therefore, the tendency to become embarrassed about panic symptoms is associated with increased symptoms of agoraphobia.⁴ Although the correlation was not significant in the panic group alone ($r = .18$), this could be attributed to a restriction in the range of scores. That is, most of the scores for embarrassment fell between 3 and 6. The correlation is therefore based on a set of scores that include only a limited range of the possible values for embarrassment, and this is depicted in Figure 3.

In Table 2 it can be seen that greater social phobia scores were significantly correlated with higher panic symptom embarrassment scores ($r = .29$), and this relationship is also depicted in Figure 4. Therefore, higher scores on social phobia tend to be associated with greater symptom-related embarrassment. Again, this correlation was not significant in the panic group alone ($r = .21$) and this finding, which is depicted in Figure 5, may also be attributed to a restriction in the range of embarrassment scores as previously outlined.

3. According to Hair, Anderson, Tatham and Black (1998), skewness and kurtosis values exceeding 2.58 indicates the assumption of normality of the distribution can be rejected at the .01 probability level. In the panic group, kurtosis for depression was 3.17, and in the control group, kurtosis for AVAL was 3.7. The remainder of the values were within those boundaries. The intercorrelations for the variables in the panic and control groups, separately, are displayed in Appendix G and Appendix H.

4. The agoraphobia score, as previously mentioned, is an indication of the likelihood of panic disorder. Thus, the score reflects the extent to which participants experience anxiety in response to situations typically feared by people with agoraphobia. The inclusion criteria for the panic group required participants only to have experienced a panic attack, and current panic-associated symptoms, as opposed to meeting criteria for either panic disorder or agoraphobia.

Furthermore, Table 2 shows that embarrassment was significantly correlated with the degree of MI observed avoidance when alone ($r = .24$), but not when the person is accompanied by someone else ($r = .13$).

A significant negative correlation was found between panic-related embarrassment and age ($r = -.27$), as shown in Table 2, and in Figure 6. Thus, older individuals were less embarrassed about panic symptoms.

In Table 2, it can be seen that agoraphobia was significantly correlated with social phobia ($r = .42$), and this relationship is also depicted in Figure 7. Increased symptoms of social phobia were associated with greater agoraphobia scores, and this finding was expected given the high comorbidity frequently reported between the two disorders. Although the correlation between agoraphobia and social phobia was not significant in the panic group alone ($r = .23$), this finding, depicted in Figure 8, may be attributed to the greater variability among scores for agoraphobia and especially, social phobia. The significant correlation found between agoraphobia and social phobia in the control group ($r = .46$), however, may reflect a cluster of scores on the lower range of each variable (floor effect), and this is depicted in Figure 9.

A significant negative correlation in the panic group alone, was found between embarrassment and recency of panic attack ($r = -.42$), as seen in Figure 10. Thus, greater embarrassment tended to be associated with more recent panic attacks. Interestingly, more recent panic attacks were also significantly correlated with greater levels of agoraphobia ($r = -.4$), in the panic group. Furthermore, severity of the panic attack was significantly associated with MI observed avoidance ($r = .36$), in the panic group.

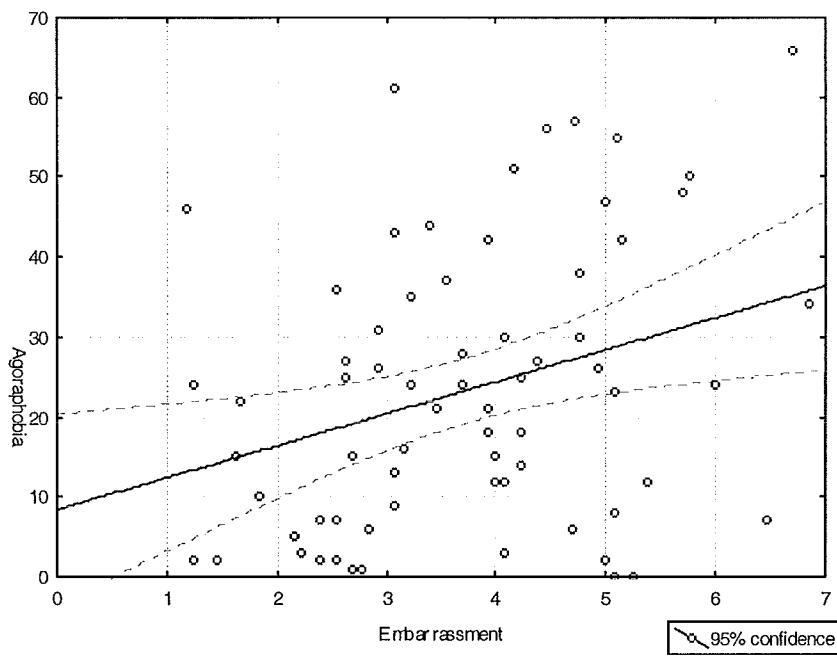


Figure 2. Scatterplot showing correlation between embarrassment and agoraphobia across both groups. Equation of best-fitting regression line: $Y = 8.4379 + 3.9978X$; $r^2 = .10$.

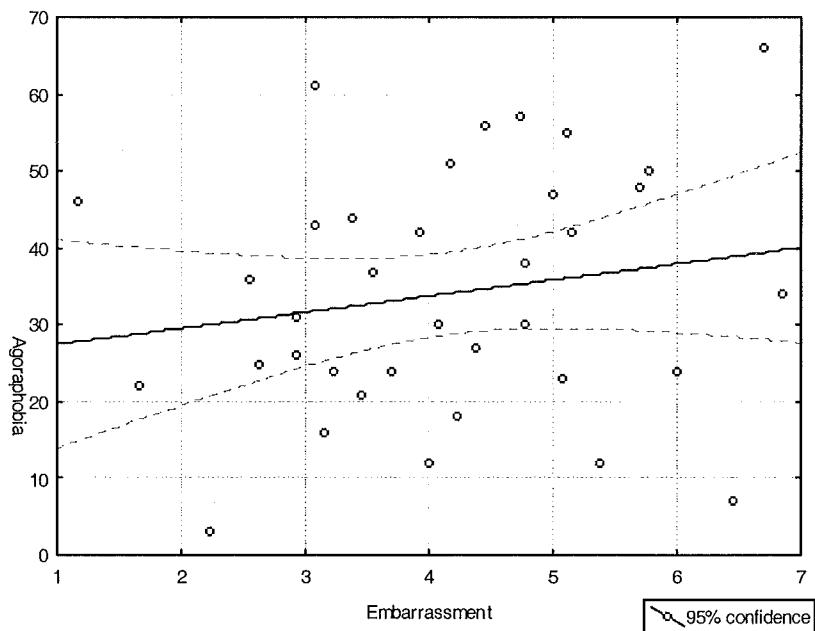


Figure 3. Scatterplot depicting restriction in range of scores for embarrassment and agoraphobia in the panic group. Equation of best-fitting regression line: $Y = 25.408 + 2.0976X$; $r^2 = .03$.

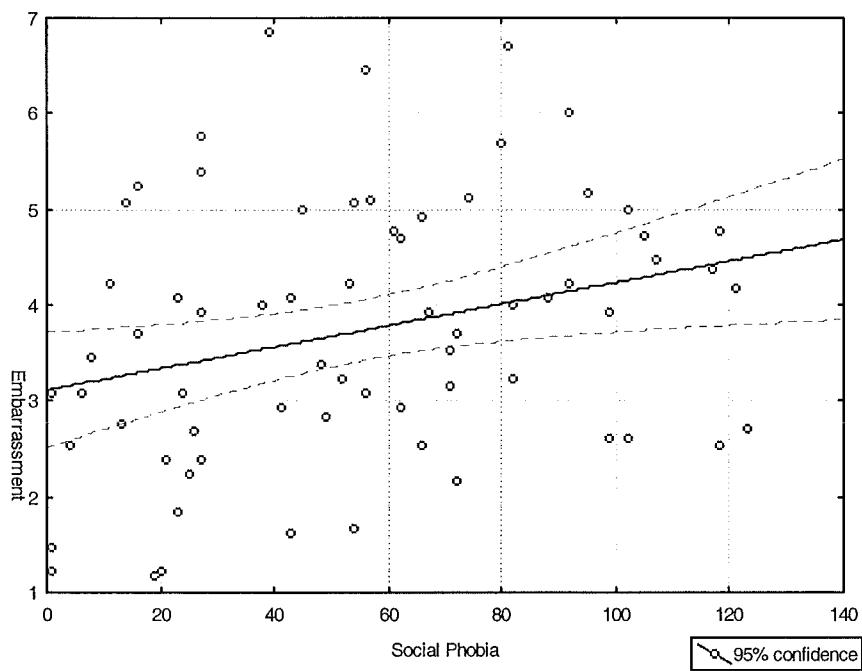


Figure 4. Scatterplot showing correlation between social phobia and embarrassment scores. Equation of best-fitting regression line: $Y = 3.1168 + .01119X$; $r^2 = .08$.

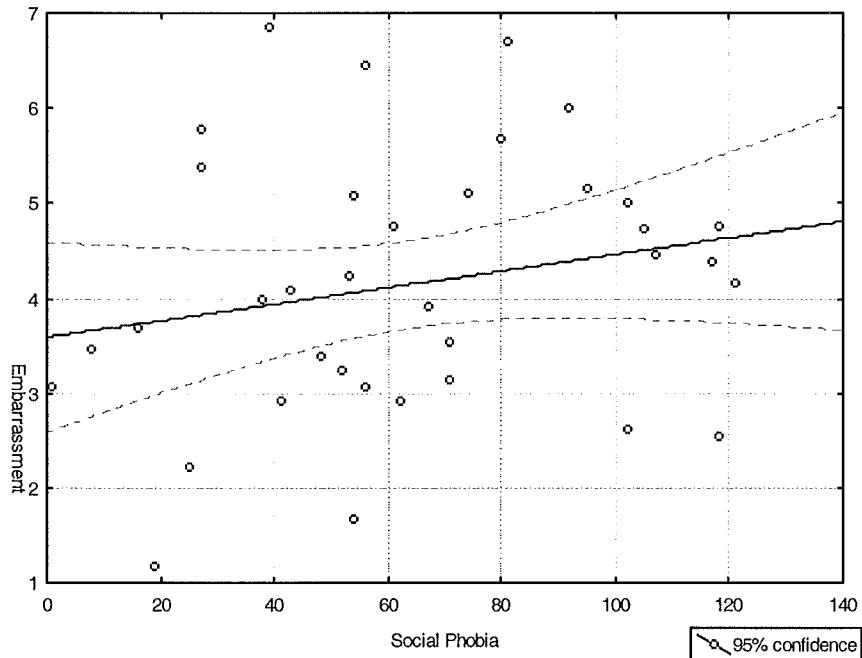


Figure 5. Scatterplot depicting restriction in range of scores for embarrassment and social phobia in the panic group. Equation for best-fitting regression line: $Y = 3.5915 + .00873$; $r^2 = .04$.

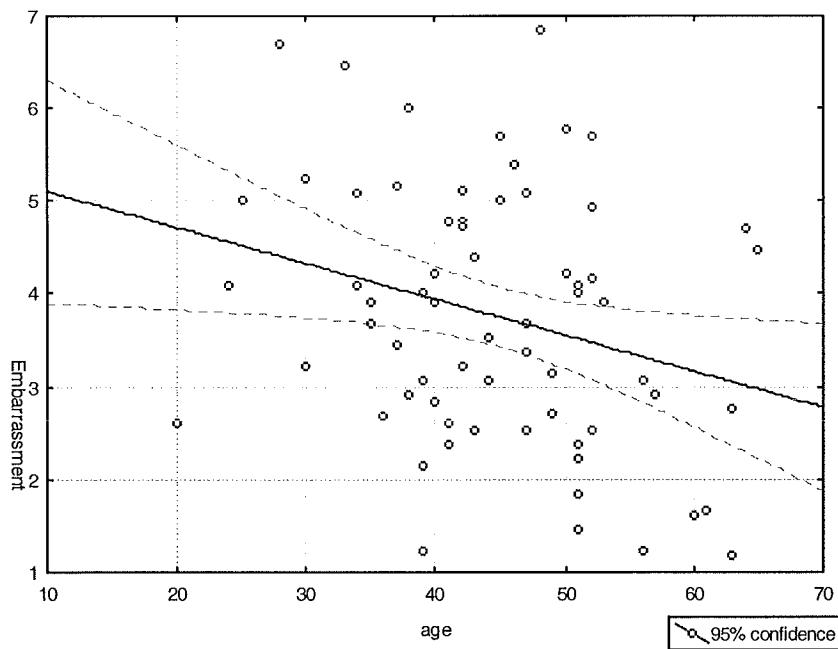


Figure 6. Scatterplot depicting negative correlation between age and embarrassment scores. Equation for best-fitting regression line: $Y = 5.4864 - .0386$; $r^2 = .07$.

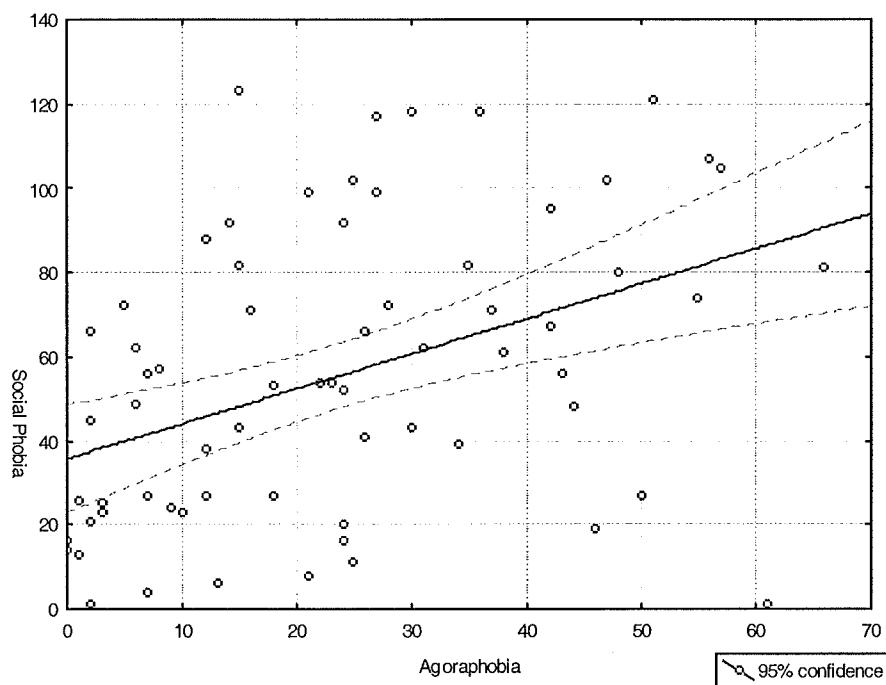


Figure 7. Scatterplot showing correlation between agoraphobia and social phobia scores. Equation for best-fitting regression line: $Y = 35.775 + .83215$; $r^2 = .18$.

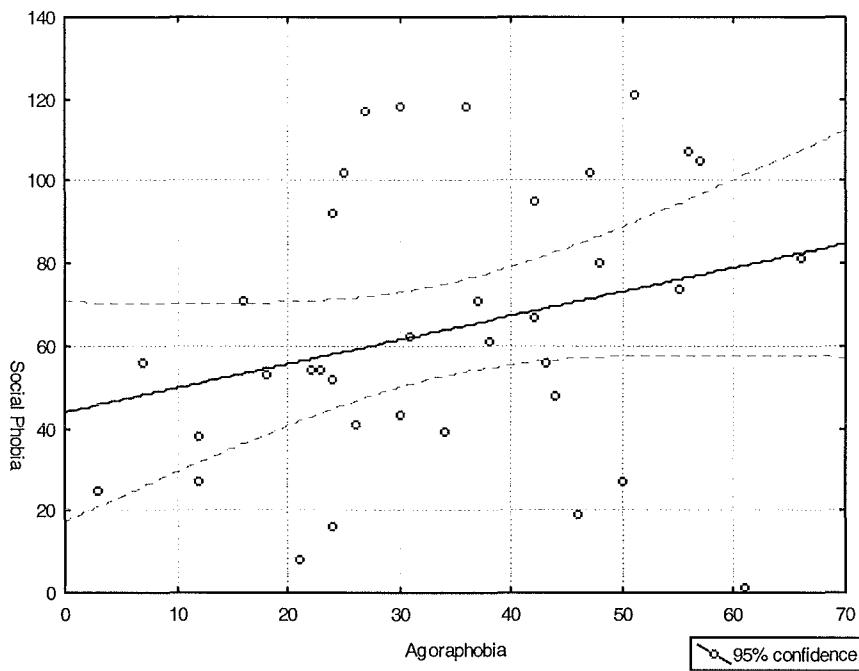


Figure 8. Scatterplot depicting variability among scores in the panic group. Equation for best-fitting regression line: $Y = 44.012 + .58353x$; $r^2 = .08$.

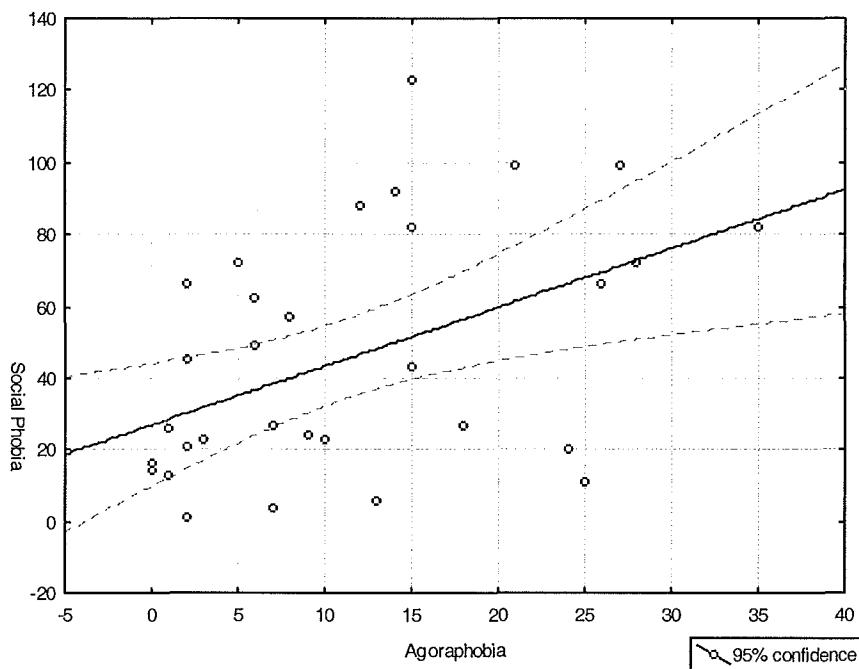


Figure 9. Scatterplot depicting restriction in range of scores in the control group. Equation for best-fitting regression line: $Y = 26.949 + 1.6389x$; $r^2 = .10$.

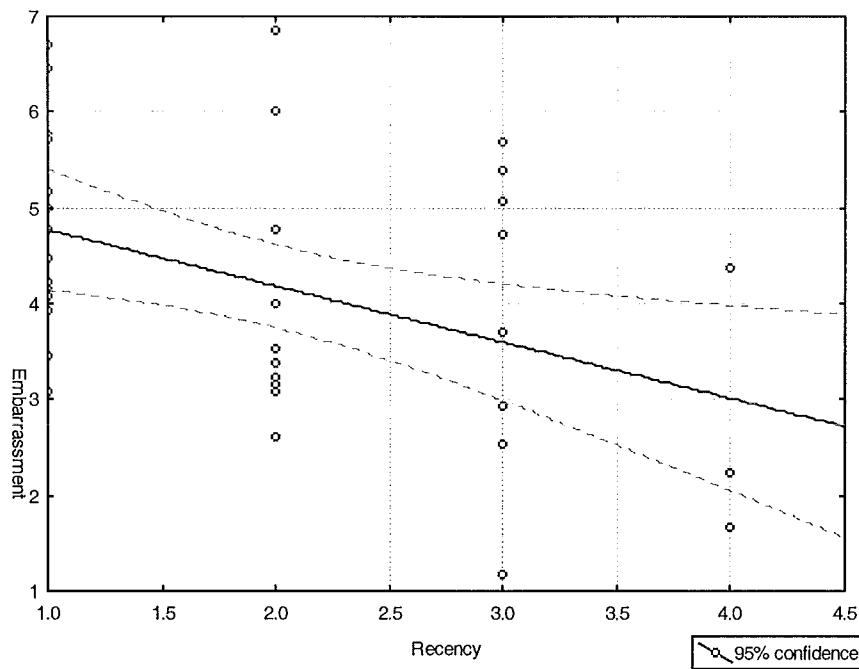


Figure 10. Scatterplot depicting recency versus embarrassment scores in the panic group. Equation for best-fitting regression line: $Y = 5.3497 - .5839; r^2 = .18$.

Table 2**Intercorrelations Among Variables for Both Groups Combined**

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Emb	—	.43***	.28*	.13	.24*	.31**	.29*	-.27*	-.46***	.26
2. Anx		—	.75***	.54***	.69***	.75***	.56***	-.06	-.69***	.43**
3. Dep			—	.53***	.58***	.59***	.55***	.08	-.39***	.35*
4.AVACC				—	.86***	.78***	.27*	.08	-.54***	.19
5. AVAL					—	.85***	.38***	-.01	-.63***	.32*
6. Ag						—	.42***	.02	-.68***	.31
7. SP							—	-.05	-.24	.21
8. Age								—	.18	.07
9. Rec ^a									—	-.25
10. Sev ^b										—

Note.

Cell sample sizes ranged from 66 to 69 due to missing data. For severity, cell sample sizes ranged from 40 to 41 as these correlations included only those people who had experienced panic attacks.

a. Rec = Recency; b. Sev = Severity (ranging from very mild to extremely severe)

* p<.05. ** p<.01. *** p<.001

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting Avoidance Behaviour Across Both Groups (N=68)

Variable	B	SE B	β	$R^2\Delta$
Step 1				.05
Embarrassment	.23	.12	.18	
Step 2				.16
Embarrassment	.13	.12	.10	
Social Phobia	.34	.12	.01 *	

* $p < .01$

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Agoraphobia Across Both Groups (N=68)

Variable	B	SE B	β	$R^2\Delta$
Step 1				.10
Embarrassment	.31	.12	3.99 *	
Step 2				.21
Embarrassment	.21	.11	2.67	
Social Phobia	.36	.11	.18 *	

* $P < .01$

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting Level of Depression Across Both Groups (N=68)

Variable	B	SE B	β	$R^2 \Delta$
Step 1				.34
Agoraphobia	.59	.1	.13 *	
Step 2				.46
Agoraphobia	.43	.10	.10 *	
Social Phobia	.37	.10	.04 *	

* $p < .001$

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting Avoidance Behaviour Across Both Groups (N=68)

Variable	B	SE B	β	$R^2 \Delta$
Step 1				.28
Embarrassment	.03	.11	.03	
Social Evaluation	.51	.11	.06*	
Step 2				.30
Embarrassment	.01	.11	.011	
Social Evaluation	.81	.22	.10*	
Social Phobia	-0.33	.21	-0.01	

* $p < .001$

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting Agoraphobia Across Both Groups (N=68)

Variable	B	SE B	β	$R^2 \Delta$
Step 1				
Embarrassment	.07	.10	.91	
Social Evaluation	.63	.10	1.12*	
Step 2				
Embarrassment	.04	.09	.46	
Social Evaluation	1.19	.18	2.13*	
Social Phobia	-0.63	.18	-0.32*	

* $p < .001$

Multiple Regression Analyses

By means of a series of hierarchical multiple regression analyses, variables predictive of MI observed avoidance, agoraphobia, and depression were examined.

Embarrassment, anxiety, depression, agoraphobia and social phobia scores were evaluated as predictors of MI observed avoidance. However, the tolerance values for anxiety, depression and agoraphobia (0.26, 0.41, 0.43, respectively) were low, therefore these variables were removed from the model in order to mitigate the problem of multicollinearity (Hair et al., 1998). This left embarrassment and social phobia scores to be evaluated as predictors of avoidance behaviour. As summarized in Table 3, Step 1 revealed that embarrassment did not significantly predict avoidance behaviour, and accounted for only 5% of the variance in avoidance behaviour, [$F(1,66) = 3.65, p = .06$]. By contrast, when social phobia was added to the model (Step 2) the

latter was found to exert a significant influence on the prediction of variance in avoidance behaviour; the two variables jointly significantly predicted avoidance behaviour, and accounted for 16% of the variance in avoidance [$F(2,65) = 6.19, p = .003$].

Embarrassment and social phobia scores were evaluated as predictors of agoraphobia. As summarized in Table 4, Step 1 revealed that embarrassment significantly predicted levels of agoraphobia, but accounted for only 10% of the variance in agoraphobia [$F(1,66) = 7.04, p < .01$]. However, when social phobia was added to the model (Step 2), the latter was found to exert a significant influence on the prediction of variance in agoraphobia, with the two variables accounting for 21% of the variance in agoraphobia [$F(2,65) = 8.87, p < .001$].

Social phobia and agoraphobia scores were evaluated as predictors of depression across both groups. As summarized in Table 5, Step 1 revealed that agoraphobia significantly predicted levels of depression, accounting for 34% of the variance in depression, [$F(1,66) = 34.503, p < .001$]. By contrast, when social phobia was added to the model (Step 2), the latter was found to exert a significant influence on the prediction of variance in depression, with the two variables accounting for 46% of the variance in depression [$F(2,65) = 27.473, p < .001$].

An additional regression analysis was conducted to determine whether fear of negative social evaluation might be an underlying factor in both agoraphobia and social phobia. A new variable (hereafter referred to as social evaluation) was generated by adding participants' scores on the SPAI for those seven items which pertained specifically to situations involving fear of negative social evaluation/behavioural appropriateness⁵, but excluding those SPAI questions associated with perceived social skill deficits/behavioural adeptness. Cronbach's Alpha for this measure was estimated to be .92, which indicates good internal consistency for the social evaluation scale (Aron & Aron, 1999). The purpose of generating the additional variable was to determine whether the fear of negative social evaluation component of the SPAI accounts for more of the variance in avoidance behaviour and agoraphobia, than the total social phobia score.

Participants in the panic group ($M = 19.58$; $SD = 9.6$) reported significantly higher scores, on average, than the control group ($M = 11.66$; $SD = 8.37$), for fear of negative social evaluation [$t(66) = 3.61$, $p < .001$]. The estimated effect size of the difference between the group means in terms of standard deviations is .95.

Moreover, an hierarchical multiple regression analysis was performed, with embarrassment, social phobia and social evaluation scores as predictors of MI observed avoidance. As summarized in Table 6, Step 1 revealed that embarrassment and social evaluation scores significantly predicted avoidance behaviour, accounting for 28% of the variance in avoidance behaviour [$F(2,65) = 12.468$, $p < .001$]. However, when social phobia was added to the model (Step 2) the latter did not exert a significant influence on the prediction of variance in avoidance behaviour. The three variables together accounted for 30% of the variance in avoidance behaviour [$F(3,64) = 9.26$, $p < .001$].

5. See Appendix E for list of items

Finally, an hierarchical multiple regression analysis examined embarrassment, social evaluation and social phobia scores as predictors of agoraphobia. As summarized in Table 7, Step 1 revealed that embarrassment and social evaluation significantly predicted levels of agoraphobia, accounting for 43% of the variance in agoraphobia [$F(2,65) = 24.68, p<.001$]. Although social phobia was found to exert a significant influence on the prediction of variance in agoraphobia in Step 2, the three variables together accounted for 53% of the variance in agoraphobia [$F(3,64) = 23.65, p<.001$]. Thus, social evaluation accounted for a greater proportion of the variance in agoraphobia, than did either social phobia or embarrassment.

Discussion

The aim of this study was to examine whether the level of embarrassment in response to panic-related symptoms differs among people who experience panic attacks and current panic-associated symptoms, compared with people who do not experience panic attacks. In addition, the study sought to determine whether an association exists between the level of embarrassment, and the degree of avoidance behaviour with regard to situations where people could be seen by others (MI observed avoidance). The study also investigated the possibility of an association between embarrassment and the level of agoraphobic anxiety. The potential influence of social phobia symptoms on the level of embarrassment, and on the degree of avoidance behaviour and agoraphobic anxiety was explored. In particular, the study investigated whether panic-related symptoms would be deemed embarrassing regardless of the level of social phobia, and also whether greater embarrassment was associated with greater avoidance behaviour regardless of the level of social phobia.

Overall Findings

The present study demonstrated the predicted difference in symptom-related embarrassment in a social situation between people who experience panic attacks versus those who do not experience panic attacks. This finding replicates the differences in embarrassment obtained in the study by Katerndahl (2000). The greater level of embarrassment reported by people in the panic group is also consistent with the concept of anxiety sensitivity (Craske & Barlow, 2001; McNally, 2002). That is, in addition to being more aware of, and paying more attention to, bodily sensations, people in the panic group may be more threatened by somatic symptoms of arousal. Moreover, as a result of their elevated levels of autonomic arousal, people in the panic

group may have a lower threshold for detection of panic symptoms (Craske & Barlow, 2001) than people who do not experience panic attacks.

In addition, the greater embarrassment reported by people with panic attacks is consistent with Barlow's model of anxious apprehension (1988; 2000), in which he suggests that negative affect leads to a shift to more self-focused attention, thereby increasing a person's sensitivity to somatic sensations. Barlow (1988; 2000) argues that this process elicits self-evaluative concerns. Accordingly, if people with panic attacks are more aware of/can more easily detect anxiety symptoms such as dizziness, trembling or sweating, they might assume that those symptoms would be equally noticeable to others.

Associations between embarrassment, avoidance behaviour and agoraphobic anxiety were investigated across both groups, and the present study found that symptom-related embarrassment was associated with the tendency to avoid situations in which a person was potentially under observation. Additionally, the correlational analyses revealed that the level of embarrassment increased in accordance with the level of agoraphobic anxiety, which suggests that people who exhibit greater agoraphobic anxiety may indeed be more embarrassed by panic-related symptoms. Further analysis revealed that mean embarrassment scores were significantly greater for people in the panic group who reported high versus low agoraphobic anxiety, whereas the control group obtained a mean embarrassment score that was significantly lower than that of people in the low agoraphobia group. Finally, an increase in agoraphobic anxiety scores was associated with greater observed avoidance, and this finding was expected given that the MI is intended to be a measure of agoraphobic avoidance behaviour.

The observed associations between embarrassment and avoidance behaviour, and embarrassment and agoraphobic anxiety are in the expected direction and are consistent with previous findings that have shown panic-related embarrassment to be associated with the development of avoidance behaviour and agoraphobic anxiety (Amering et al., 1997; Pollard & Cox, 1988; Robinson & Birchwood, 1991; Telch et al., 1989; Whittal & Goetsch, 1997). Additionally, the association between embarrassment and avoidance behaviour is consistent with Craske and Barlow's (2001) model of the development of avoidance behaviour. Craske and Barlow (2001) argue that the initial panic attack may involve fears of negative social evaluation (among other concerns such as entrapment or impaired functioning) and this is one of the reasons why somatic symptoms may be perceived as threatening, and thereby contribute to the maintenance of avoidance behaviour.

Furthermore, the observed association between embarrassment and agoraphobic anxiety is consistent with previous studies which have demonstrated a difference in social-evaluative fears between people who have either panic disorder or PDA (Amering et al., 1997; Fleming & Faulk, 1989; Telch et al., 1989). Although the design of the present study did not allow for the investigation of group differences between people with panic disorder and PDA, the measure of agoraphobic anxiety is intended to represent fears ranging from those with panic disorder to those with PDA, with higher scores representing greater anxiety.

Another aim of the present study was to determine whether greater symptom-related embarrassment might be associated with more symptoms of social phobia. The results indicated that embarrassment is significantly associated with social phobia scores on the SPAI, however, the correlation was not as large as would be expected given that the criteria for social phobia include an intense fear of humiliation. Accordingly, the present study found that social phobia

accounted for only a small proportion of the variance in embarrassment, which suggests that people may indeed feel embarrassed about the consequences of a panic attack, whether or not they have comorbid social phobia. This is consistent with Miller's (1995) argument that social phobia and embarrassability are not necessarily the same concept. Miller (1995) differentiated between embarrassment and social phobia by demonstrating that the tendency to become embarrassed is related to fear of disapproval/rejection, social sensitivity and social appropriateness, whereas social phobia is associated, to a greater extent, with skills deficits and behavioural adeptness.

The results of the present study, however, suggest that social phobia accounts for a greater proportion of the variance in both agoraphobic anxiety and avoidance behaviour, than panic-related embarrassment. On the one hand, this result is consistent with previous studies (Andersch & Hanson, 1993; Cox et al., 1991; Horwath et al., 1995; Rapee & Murrell, 1988; Rapee, Sanderson & Barlow, 1988; Schneier et al., 1992) which demonstrated a high comorbidity between agoraphobia and social phobia. Again, Rapee and Murrell (1988) found that social phobia scores best predicted agoraphobic avoidance behaviour. Furthermore, Whittal and Goetch (1997) and Turner et al. (1983) found that in people with agoraphobia, a significant proportion reported symptoms of social phobia. Therefore, the significant association observed between agoraphobia and social phobia symptoms in the present study was expected.

Nevertheless, much of the variance in both embarrassment and avoidance behaviour was not explained by social phobia, despite the fact that scores for avoidance behaviour were derived only from those MI items which represented situations where people could potentially be seen by others. Moreover, scores for agoraphobia were more highly correlated with observed avoidance, than were scores for social phobia. Thus, it was considered possible that another factor

underlying both agoraphobia and social phobia may have been responsible for the association between these two variables. It was hypothesised that this underlying factor might be the fear of negative social evaluation, suggested by Miller (1995).

Given that no measure of fear of negative social evaluation was administered to participants in the present study, a new variable was generated by adding the scores on seven of the SPAI items specifically addressing social-evaluative concerns. Consequently, multiple regression analyses performed in the present study confirmed the hypothesis: fear of negative social evaluation predicted significantly more of the variance in both avoidance behaviour and agoraphobic anxiety, than did social phobia. Given that the fear of negative social evaluation variable was derived from a scale designed to measure social phobia, a tentative conclusion from these findings is that fear of negative social evaluation is a feature of both agoraphobia and social phobia, and this variable may account for the frequent co-occurrence of the two disorders. That is, the association between fear of negative social evaluation and agoraphobic anxiety may assist in explaining why certain studies have found a strong association between social phobia and agoraphobia.

The abovementioned finding is consistent with a study by Wells and Papageorgiou (1999) in which social-evaluative concerns were found among people with agoraphobia, as well as those with social phobia. Furthermore, the significant between-group difference in fear of negative social evaluation scores suggests that people with panic attacks experience greater fear of negative social evaluation than the average person who does not experience panic attacks.

Methodological Considerations

The external validity of the samples, as well as psychometric and interpretative limitations must be taken into account in evaluating the present study.

Firstly, people in the panic group were not included on the basis of panic disorder or agoraphobia; the criteria for inclusion in the panic group were only those of having experienced panic attacks, and/or current panic-associated symptoms. Accordingly, less than half of the participants in the panic group met the SPAI criterion for possible panic disorder, and therefore, the results are not necessarily generalizable to all people with panic disorder or PDA, and may be representative of people with only mild agoraphobia or panic disorder. Given that most of the participants in the panic group were recruited through the ASG, it is possible that many of their concerns about panic attacks may already have been alleviated through treatment at the Anxiety Disorders Unit. Moreover, those people suffering most severely from agoraphobia may not have been able to attend the monthly support group meetings, thereby limiting the generalizability of these findings to those who are not housebound. However, a number of participants were recruited by telephone as they did not attend meetings, and this may have allowed for a more balanced sample in the panic group. Furthermore, the mean anxiety score for those in the panic group was in the mild to moderate range according to the HADS norms. The average person was therefore not overly anxious in the panic group, and findings may not necessarily be generalizable to people who experience greater levels of anxiety. The same applies to the mean score for depression in the panic group, which fell within the normal range; these results may not be representative of a clinical population.

Conversely, the results of the present study may be ecologically valid in the sense that they are applicable to people who do not meet criteria for panic disorder or PDA, but who may

nevertheless experience subthreshold symptoms which may cause them distress and thus require treatment. Given the correlation between embarrassment/fear of negative social evaluation and agoraphobia scores, one could speculate that people with more severe panic disorder or PDA may exhibit even greater fear of negative evaluation and panic-related embarrassment. Moreover, the significant differences found between the groups on all of the psychological measures support the hypothesis that the panic and control groups are representative of two different populations.

The process of recruiting volunteers for the present study was complicated by a number of factors, such as the lack of incentive for participation. Given that the forms were posted to people in a wide geographical area, participants were not able to receive financial compensation. This may have detracted from potential participants' willingness to respond to the request, thereby lowering the available number of participants. Accordingly, neither the panic nor the control group was comprised of random samples of participants. Therefore, systematic differences may have existed between those who did versus those who did not, agree to participate in the study. For example, it is possible that participants in the control group may have known more about the concept of anxiety or panic attacks and therefore responded to the e-mail request. Therefore, these participants may have been biased towards indicating greater embarrassment about the panic-related symptoms.

The finding that 22% of the participants in the control group exhibited scores indicative of probable social phobia is comparable with the lifetime prevalence rates of 3 to 13%, reported in the DMS-IV (A.P.A, 1994). Alternatively, these control group participants may have responded because they find it difficult to refuse requests. If this were so, it would mean that only a subset

of people who lack assertiveness had responded to the questionnaires and the results would not be representative of the general population.

In terms of psychometric limitations, it must be remembered that the ‘fear of negative social evaluation’ variable was generated by adding scores for certain items on the SPAI. Although Cronbach’s Alpha was estimated at .92, this scale may have been lacking in content validity and is not likely to be the most appropriate measure of social-evaluative concerns. However, given that the original Fear of Negative Evaluation scale (Watson & Friend, 1969) does not consistently specify fears of *social* evaluation, the latter was not chosen to measure such concerns in the present study. Furthermore, the FNE has not been shown to consistently differentiate between people with social phobia and those with panic disorder (Ball et al., 1995).

Another psychometric limitation is that the measure of avoidance behaviour (the MI) did not allow for a range of scores to be produced and many participants may have selected a value of (1) to represent no anxiety at all, instead of the intended meaning, which was no avoidance despite anxiety. This may have resulted in the clustering of scores with a value of (1) and scores in the control group may have been unnecessarily elevated. Furthermore, those MI items included in the analyses were chosen (at the author’s discretion) to reflect a situation in which the person could be seen by others. Although Chronbach’s Alpha was estimated at .95, it is possible that some situations should, or should not, have been included in the analyses.

Additionally, the degree of panic-related embarrassment was measured in terms of symptom-related embarrassment. The results may therefore have differed if people were asked to report the degree of embarrassment associated with a full-blown panic attack. However, the decision to include separate symptoms was taken to avoid bias on the part of the control group who may

have imagined, and then rated, a panic attack to be more embarrassing than if they had actually experienced one. Moreover, in the panic group alone, most of the embarrassment scores fell between 3 and 6, and this restriction in the range of embarrassment scores for the panic group may be attributed to the effect of recency. That is, more recent panic attacks were also associated with greater embarrassment scores, and given that most of the panic group participants had experienced a panic attack within the past week, they may have been more likely to report at least a moderate degree of embarrassment.

The restricted range of scores for embarrassment and avoidance behaviour, as well as the high variability of scores for agoraphobia and social phobia, may account for any absence of significant correlations in the panic group alone, compared with the significant correlations observed across participants in both the panic and control groups, combined.

Additionally, correlational analyses preclude the determination of direction of causality, and are subject to various possible causal interpretations. This means that other variables not assessed in the present study may be responsible for the observed associations among the variables. The fear of negative social evaluation variable was therefore included in the regression analyses in an attempt to account for one possible underlying factor responsible for the association between agoraphobia and social phobia. However, its ability to predict more of the variance in agoraphobia and avoidance behaviour notwithstanding, other variables may still account for more of the variance than was explained by fear of negative social evaluation.

Furthermore, given that the fear of negative social evaluation variable was derived from a measure of social phobia, the study could not determine with any certainty whether or not social phobia is a prerequisite for fear of negative social evaluation. That is, although fear of negative

social evaluation accounts for more of the variance in agoraphobic anxiety and avoidance behaviour, it is not known whether the results would have been similar if the subjects had been excluded for social phobia.

Finally, although a strong positive correlation was demonstrated in these results, the present study cannot determine whether social-evaluative fears, and/or embarrassment are a cause, or a consequence, of agoraphobia.

Additional Findings

Participants in the panic and control groups did not differ with regard to anticipated embarrassment about non-panic symptoms, such as loss of hair, overweight and skin infections. Therefore, people in both groups tended to find these symptoms embarrassing to the same extent, but there was a distinct difference with regard to the panic-related symptoms. This could be interpreted as once again reflecting the anxiety sensitivity which accompanies, and maintains, PDA (Craske & Barlow, 2001; McNally, 2002). The greater embarrassment associated with panic symptoms, as opposed to nonpanic symptoms, suggests that people with panic attacks exhibit greater anxiety sensitivity for the former. That is, people with panic attacks are more aware of, pay more attention to, and are more threatened by symptoms of anxiety, compared with other non-panic somatic symptoms.

In the present study, no association was found between levels of agoraphobia or embarrassment and the severity of panic attacks. These results are consistent with previous studies (Fleming & Faulk, 1989; Rapee & Murrell, 1988; Whittal & Goetch, 1997) which found no significant association between severity of panic and severity of agoraphobia. A separate regression analysis

revealed, however, that recency of panic attacks accounted for a greater proportion of the variance in embarrassment than symptoms of social phobia or agoraphobia. Thus, as previously outlined, greater embarrassment is associated with more recent panic attacks.

Consistent with previous studies which suggest that co-occurring social phobia may increase the risk of depression in people with panic disorder (Stein et al., 1989), the present study found that the addition of social phobia to agoraphobia in the regression analysis significantly increased the variance accounted for in depression. This suggests that social phobia may have an influence on depression, over and above that of panic disorder, however, the most likely explanation is that people with both disorders experience greater emotional distress.

In addition, the finding that women and men did not differ significantly with regard to scores for social phobia is consistent with the literature which suggests that social phobia is equally common/uncommon among men and women, unlike other anxiety disorders. Although the difference was not statistically significant, the finding that women obtained higher agoraphobia scores than men tends to be consistent with the literature which suggests that women report more agoraphobic fears than men. However, the finding in the panic group that mean agoraphobia scores for women and men did not differ significantly may reflect the fact that there were fewer men, as opposed to women, in the panic group, and thus less variability in men's scores for agoraphobia. Alternatively, the similarity in mean scores for agoraphobia may reflect the fact that the men in the panic group were attending a support group for people with panic disorder/agoraphobia. Thus, these men may have experienced greater symptomatology than many of the women who did not belong to a support group but had merely experienced a panic attack.

Implications for Treatment and Future Research

The observed comorbidity between PDA and social phobia, and the possible shared feature of fear of negative social evaluation, gives rise to a number of implications for treatment. These include the need for therapists to consider blending treatment options for PDA and social phobia. Additionally, the increase in agoraphobic anxiety and avoidance behaviour associated with greater fear of negative evaluation also suggests the need for an additional treatment focus on social concerns for people with PDA versus panic disorder alone.

The present finding that embarrassment, and to a greater degree, social-evaluative concerns, tend to increase along with the degree of both agoraphobic anxiety and avoidance behaviour has implications for cognitive behavioural treatment programs. The role of fear of negative evaluation in the development of agoraphobia suggests that there is a need to target misappraisal of social evaluation by incorporating concerns about social ridicule into cognitive therapy for PDA. Therefore, concerns about social evaluation and embarrassment are important in terms of improving treatment for PDA, and this has been suggested in previous research (Ost et al., 1993; Telch et al., 1989; Van den Hout et al., 1994).

Although it has been shown to be efficacious, cognitive therapy for PDA requires some degree of improvement. Previous studies have indicated that Clarke's (1986) focus on the treatment of catastrophic misinterpretation in the onset and maintenance of panic disorder may not be sufficient for those people with PDA (Ost et al., 1993; Telch et al., 1989; Van den Hout et al., 1994). That is, Clark's (1986) model tends to focus on misappraisal of somatic symptoms, whereas Craske and Barlow's (2001) model of panic disorder may be more useful in terms of the fears associated with physical symptoms during the initial panic attack. Accordingly, somatic

sensations may be perceived in a threatening manner because of negative social evaluation as well as the result of feelings of being trapped or unable to reach a safe place (Craske & Barlow, 2001). This is also consistent with McNally's (2002) argument that somatic sensations do not necessarily need to be perceived as harmful in order to be aversive, and this needs to be taken into account in therapy. Thus, individuals with PDA may have two unhelpful beliefs: one, that their panic symptoms are easily detected by others (which is a projection of their own anxiety sensitivity onto others), and second, that, as a consequence of their detecting the panic symptoms, other people will reliably form an unfavourable impression of the person experiencing a panic attack. Both beliefs may need to be challenged in cognitive behavioural therapy.

Furthermore, the greater fear of negative evaluation associated with increased agoraphobia and avoidance behaviour may need to be addressed more specifically with people who have PDA versus panic disorder alone. Given that current treatment regimes (in a group context) may incorporate clients with both panic disorder and agoraphobia, it might be useful to target social-evaluative concerns especially for those people with PDA.

Thus, the alleviation of social-evaluative concerns may enhance the efficacy of exposure therapy in those patients with PDA as well as for those with comorbid PDA and social phobia. Furthermore, perhaps social concerns should be addressed as a preventative measure for those with panic disorder whose fear of negative evaluation may contribute towards the development of agoraphobia. Given that fear of negative social evaluation is likely to be one of the maintaining and exacerbating factors in the development of agoraphobic avoidance behaviour, it is suggested that therapy for PDA may be more successful if these concerns are addressed.

Furthermore, the association between agoraphobia and social phobia, and more specifically, the observed underlying variable of fear of negative evaluation in the present study is consistent with suggestions by Andrews et al. (1994) that cognitive restructuring should not be specific to either agoraphobia or social phobia. That is, therapists should consider blending treatment for the two disorders. However, given the additional analyses which showed that fear of negative social evaluation accounted for more of the variance in agoraphobic anxiety and avoidance behaviour than social phobia, it is suggested that social-evaluative concerns need to be addressed in people with PDA to a greater extent than ameliorating social skills deficits.

Nevertheless, the present study also found that social phobia symptoms accounted for significantly more of the variance in depressive symptoms, than agoraphobic anxiety alone, and this finding has implications in terms of both treatment and research. Accordingly, the increased risk for depression that is associated with the co-occurrence of social phobia in people with panic disorder may require more effort on the part of the therapist to motivate the person and may lead to more difficulty in challenging cognitive distortions.

In accordance with the aforementioned treatment implications, the results of the present study suggest a number of directions for future research in terms of treatment outcome studies, replicating the present results, and validating the fear of negative social evaluation measure used in this study.

Firstly, future research needs to compare the treatment outcome results of PDA participants who receive cognitive therapy addressing social-evaluative concerns, with the outcome of PDA participants whose social-evaluative fears are not addressed. Such research could investigate whether the additional cognitive component contributes to increased treatment efficacy and

effectiveness by reducing fear of social evaluation for patients with PDA, and whether overall treatment gains are maintained to a greater extent in these individuals.

In addition, a measure of social-evaluative fears needs to be administered to people with panic disorder alone in prospective studies in order to investigate whether those participants who go on to develop agoraphobia do indeed experience greater social-evaluative fears at the outset. If this is found to be true, further studies would need to assess whether the alleviation of social-evaluative fears may help to prevent the development of agoraphobia in people with panic disorder.

Moreover, the present findings suggest that fear of negative social evaluation may be a feature of both agoraphobia and social phobia, and may contribute towards the high co-occurrence of the two disorders. This theory is consistent with Wells et al. (1999) who found that the mental representation (or observer perspective) of the self to be present in both agoraphobia and social phobia. However, previous research has revealed conflicting outcomes with regard to associations between agoraphobia and social phobia, and one explanation for this might be the measure of social phobia used in previous studies. That is, measures of social phobia incorporating only social skills may be less associated with agoraphobia than measures of social phobia which incorporate fear of negative social evaluation. It is this component which may be common to both disorders, however, further research is necessary in order to replicate and extend these results. Further research also needs to establish whether social-evaluative concerns are responsible for agoraphobia, or whether they are a result of the disorder.

Furthermore, although embarrassment and fear of negative social evaluation were correlated, these variables appear to be measuring different facets of emotion. It is possible that

embarrassment is more of a reaction to (in this case) a hypothetical event, whereas fear of negative social evaluation is a form of anxious apprehension over an anticipated event. This may explain why fear of negative social evaluation accounted for more of the variance in avoidance behaviour and agoraphobia than did embarrassment. Alternatively, perhaps embarrassment is subsumed under the concept of fear of negative social evaluation. Although fear of negative social evaluation appears to be a feature of both social phobia and agoraphobia, the former variable was derived from a measure of social phobia. Thus, further research is needed to determine whether fear of negative social evaluation is associated with avoidance behaviour and agoraphobic anxiety *regardless* of social phobia. Moreover, the possibility of additional variables that may underlie agoraphobia and social phobia needs to be investigated in order to clarify whether comorbidity may encompass a separate syndrome which requires a different intervention.

Therefore, further research may need to exclude participants who have comorbid social phobia in order to determine whether participants with panic attacks continue to report greater fear of negative social evaluation when they do not meet criteria for social phobia. As mentioned previously, the present study cannot rule out the possibility that people reported fear of negative evaluation as a consequence of experiencing social phobia. Future research may also need to include more participants in order to reduce the variance in scores for both agoraphobia and social phobia.

Additional replication is required to establish the validity of the fear of negative social evaluation score as a measure of social-evaluative fear across both agoraphobia and social phobia. This may necessitate factor analysis or further investigation as to the best possible combination of items on the SPAI for the most reliable and valid measure of fear of negative social evaluation. Different

combinations may increase the content validity as well as the internal consistency of the fear of negative social evaluation scale. Wells and Papageorgiou (1999) required that participants think about a hypothetical situation and imagine their view of themselves (either as an observer or from a field perspective). Perhaps this type of imagined scenario would be more useful in establishing the degree to which a person fears social evaluation in particular contexts.

Similarly, given the restricted range of scores on the MI, future research into the nature of social concern and agoraphobic avoidance behaviour may need to consider incorporating more behavioural (and more sensitive) measures of avoidance behaviour, such as Behavioural Avoidance Tests.

Finally, further research is needed to discover causal mechanisms underlying the association between comorbid social phobia and increased depression in people with PDA; it is possible that the cumulative effect of two disorders adds to one's depressed mood, or that social phobia results in avoidance of additional situations, thereby leaving the person feeling more depressed. Alternatively, certain maladaptive cognitions associated with social phobia might increase a person's vulnerability toward depression.

Thus, future treatment outcome studies need to incorporate the present findings of social-evaluative concerns, social phobia and depression among people with PDA. Additionally, further research is required to replicate, validate and extend the results of the present study, especially with regard to the possible shared feature of fear of negative social evaluation among people with either PDA or social phobia.

Conclusion

The present study supports the hypothesis that people with panic attacks consider panic-related symptoms to be more embarrassing than do people without panic attacks. The findings in the present study replicate those of Katerndahl (2000), and are consistent with the literature which has shown the people with PDA tend to exhibit considerable concern about social humiliation associated with panic attacks. Thus, social-evaluative concerns appear to be more common among people who experience panic attacks, compared to those who do not, and social-evaluative concerns appear to be associated with agoraphobic anxiety and avoidance behaviour to a greater extent than is social phobia.

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Appendix A

Perception of Symptoms (Adapted from Katerndahl, 2000)

Psychological disturbances and disorders are often accompanied by symptoms. If you were suffering each of these symptoms, please rate how embarrassing you would feel them to be, if they occurred in a situation where you could be seen by other people.

Using the following scale, please rate the extent to which you would feel embarrassed by these symptoms, in a social situation:

1 Not at all	2 Hardly	3 A little	4 Moderately	5 Considerably	6 Greatly	7 Extremely
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1. Paralysis of limbs	1	2	3	4	5	6	7
2. Loss of weight	1	2	3	4	5	6	7
3. Skin infection	1	2	3	4	5	6	7
4. Shortness of breath	1	2	3	4	5	6	7
5. Irritability	1	2	3	4	5	6	7
6. Loss of hair	1	2	3	4	5	6	7
7. Overweight	1	2	3	4	5	6	7
8. Convulsions	1	2	3	4	5	6	7
9. Chest pain or discomfort	1	2	3	4	5	6	7
10. Fear of dying	1	2	3	4	5	6	7
11. Fear of going crazy, or losing control	1	2	3	4	5	6	7
12. Dizziness	1	2	3	4	5	6	7
13. Palpitations	1	2	3	4	5	6	7
14. Trembling	1	2	3	4	5	6	7
15. Numbness or tingling	1	2	3	4	5	6	7
16. Choking or smothering feelings	1	2	3	4	5	6	7
17. Faintness	1	2	3	4	5	6	7
18. Stuffy nose	1	2	3	4	5	6	7
19. Hot or cold flushes	1	2	3	4	5	6	7
20. Headaches	1	2	3	4	5	6	7
21. Coughing up blood	1	2	3	4	5	6	7
22. High blood pressure	1	2	3	4	5	6	7
23. Sweating	1	2	3	4	5	6	7
24. Gas	1	2	3	4	5	6	7
25. Feeling that things are not real	1	2	3	4	5	6	7

Appendix B

Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983).

Read each item and underline the reply which comes closest to how you have been feeling in the past week.

I feel tense or ‘wound up’:

Most of the time
A lot of the time
From time to time, occasionally
Not at all

I still enjoy the things I used to enjoy:

Definitely as much
Not quite so much
Only a little
Hardly at all

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly
Yes, but not too badly
A little, but it doesn’t worry me
Not at all

I can laugh and see the funny side of things:

As much as I always could
Not quite so much now
Definitely not so much now
Not at all

Worrying thoughts go through my mind:

A great deal of the time
A lot of the time
From time to time but not too often
Only occasionally

I feel cheerful:

Not at all
Not often
Sometimes
Most of the time

I can sit at ease and feel relaxed:

Definitely
Usually
Not often
Not at all

I feel as if I am slowed down:

Nearly all the time
Very often
Sometimes
Not at all

I get a sort of frightened feeling like ‘butterflies’ in the stomach:

Not at all
Occasionally
Quite often
Very often

I have lost interest in my appearance:

Definitely
I don’t take as much care as I should
I may not take quite as much care
I take just as much care as ever

I feel restless as if I have to be on the move:

Very much indeed
Quite a lot
Not very much
Not at all

I look forward with enjoyment to things:

As much as I ever did
Rather less than I used to
Definitely less than I used to
Hardly at all

I get sudden feelings of panic:

Very often indeed
Quite often
Not very often
Not at all

I can enjoy a good book or radio or TV programme:

Often
Sometimes
Not often
Very seldom

Appendix C

Mobility Inventory (Chambles, Caputo, Gracely, Jasin & Williams, 1985)

Please indicate the degree to which you avoid the following places or situations because of discomfort or anxiety. Rate your amount of avoidance when you are with a trusted companion and when you are alone. Do this by using the following scale:

1 never avoid	2 rarely avoid	3 avoid about half of the time	4 avoid most of the time	5 always avoid
------------------	-------------------	--------------------------------------	--------------------------------	-------------------

Circle the number for each situation or place under both conditions: when accompanied and when alone. Leave blank situations that do not apply to you.

Places	When accompanied					When alone				
*Theatres	1	2	3	4	5	1	2	3	4	5
*Supermarkets	1	2	3	4	5	1	2	3	4	5
*Shopping malls	1	2	3	4	5	1	2	3	4	5
*Classrooms	1	2	3	4	5	1	2	3	4	5
*Department stores	1	2	3	4	5	1	2	3	4	5
*Restaurants	1	2	3	4	5	1	2	3	4	5
*Museums	1	2	3	4	5	1	2	3	4	5
*Elevators	1	2	3	4	5	1	2	3	4	5
*Auditoriums or stadiums	1	2	3	4	5	1	2	3	4	5
Garages	1	2	3	4	5	1	2	3	4	5
High places	1	2	3	4	5	1	2	3	4	5
Enclosed Places	1	2	3	4	5	1	2	3	4	5
 Open spaces										
Outside(for example:fields	1	2	3	4	5	1	2	3	4	5
Wide streets, courtyards)	1	2	3	4	5	1	2	3	4	5
*Inside (for example: large rooms, lobbies)	1	2	3	4	5	1	2	3	4	5
 Riding in										
*Buses	1	2	3	4	5	1	2	3	4	5
*Trains	1	2	3	4	5	1	2	3	4	5
*Subways	1	2	3	4	5	1	2	3	4	5

*Airplanes	1	2	3	4	5	1	2	3	4	5
*Boats	1	2	3	4	5	1	2	3	4	5
Driving or riding in a car										
At anytime	1	2	3	4	5	1	2	3	4	5
On expressways	1	2	3	4	5	1	2	3	4	5
Situations										
*Standing in lines	1	2	3	4	5	1	2	3	4	5
Crossing bridges	1	2	3	4	5	1	2	3	4	5
*Parties or social gatherings	1	2	3	4	5	1	2	3	4	5
*Walking on the street	1	2	3	4	5	1	2	3	4	5
Staying at home alone						1	2	3	4	5
Being far away from home	1	2	3	4	5	1	2	3	4	5

Other (specify)

Note

Items with an asterisk were selected to represent situations in which the person could potentially be observed by others. Consequently, the average score for avoidance behaviour was comprised of only these items.

SOCIAL ANXIETY

SAMUEL M.
LERNER
DEBORA

Please Read Carefully:

INSTRUCTIONS: On the next page is a list of behaviors that may or may not be relevant for you. Based on your personal experience, please indicate how frequently you experience these feelings and thoughts in social situations. A social situation is a gathering of two or more people (e.g., a meeting; a lecture; a party; bar or restaurant; conversing with one other person or group of people). *Feeling anxious is a measure of how tense, nervous, or uncomfortable you are during social encounters.*

SPAI-THE SOCIAL PHOBIA AND ANXIETY INVENTORY

Name: _____ Age: _____ Sex: M F Date: _____ / _____ / _____

Please use the scale listed opposite and circle the number which best reflects how frequently you experience these responses.

	Never	Very Infrequent	Infrequent	Sometimes	Frequent	Very Frequent	Always
1. I feel anxious when entering social situations where there is a small group	0	1	2	3	4	5	6
2. I feel anxious when entering social situations where there is a large group	0	1	2	3	4	5	6
3. I feel anxious when I am in a social situation and I become the center of attention	0	1	2	3	4	5	6
4. I feel anxious when I am in a social situation and I am expected to engage in some activity	0	1	2	3	4	5	6
5. I feel anxious when making a speech in front of an audience	0	1	2	3	4	5	6
6. I feel anxious when speaking in a small informal meeting	0	1	2	3	4	5	6
7. I feel so anxious about attending social gatherings that I avoid these situations	0	1	2	3	4	5	6
8. I feel so anxious in social situations that I leave the social gathering	0	1	2	3	4	5	6
9. I feel anxious when in a small gathering with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
10. I feel anxious when in a large gathering with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
11. I feel anxious when in a bar or restaurant with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
12. I feel anxious and I do not know what to do when in a new situation with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
13. I feel anxious and I do not know what to do when in a situation involving confrontation with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
14. I feel anxious and I do not know what to do when in an embarrassing situation with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
15. I feel anxious when discussing intimate feelings with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
16. I feel anxious when stating an opinion to:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
17. I feel anxious when talking about business with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
18. I feel anxious when approaching and/or initiating a conversation with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6
19. I feel anxious when having to interact for longer than a few minutes with:							
strangers	0	1	2	3	4	5	6
authority figures	0	1	2	3	4	5	6
opposite sex	0	1	2	3	4	5	6
people in general	0	1	2	3	4	5	6

Please use the scale listed opposite and circle the number which best reflects how frequently you experience these responses.



		Never	Very Infrequent	Infrequent	Sometimes	Frequent	Very Frequent	Always
20.	I feel anxious when drinking (any type of beverage) and/or eating in front of:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
21.	I feel anxious when writing or typing in front of:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
22.	I feel anxious when speaking in front of:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
23.	I feel anxious when being criticized or rejected by:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
24.	I attempt to avoid social situations where there are:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
25.	I leave social situations where there are:							
	strangers	0	1	2	3	4	5	6
	authority figures	0	1	2	3	4	5	6
	opposite sex	0	1	2	3	4	5	6
	people in general	0	1	2	3	4	5	6
26.	Before entering a social situation I think about all the things that can go wrong. The types of thoughts I experience are:							
	Will I be dressed properly?	0	1	2	3	4	5	6
	I will probably make a mistake and look foolish	0	1	2	3	4	5	6
	What will I do if no one speaks to me?	0	1	2	3	4	5	6
	If there is a lag in the conversation, what can I talk about?	0	1	2	3	4	5	6
	People will notice how anxious I am	0	1	2	3	4	5	6
27.	I feel anxious before entering a social situation	0	1	2	3	4	5	6
28.	My voice leaves me or changes when I am talking in a social situation	0	1	2	3	4	5	6
29.	I am not likely to speak to people until they speak to me	0	1	2	3	4	5	6
30.	I experience troubling thoughts when I am in a social setting. For example:							
	I wish I could leave and avoid the whole situation	0	1	2	3	4	5	6
	If I mess up again I will really lose my confidence	0	1	2	3	4	5	6
	What kind of impression am I making?	0	1	2	3	4	5	6
	Whatever I say it will probably sound stupid	0	1	2	3	4	5	6
31.	I experience the following prior to entering a social situation:							
	Sweating	0	1	2	3	4	5	6
	Frequent urge to urinate	0	1	2	3	4	5	6
	Heart palpitations	0	1	2	3	4	5	6
32.	I experience the following in a social situation:							
	Sweating	0	1	2	3	4	5	6
	Blushing	0	1	2	3	4	5	6
	Shaking	0	1	2	3	4	5	6
	Frequent urge to urinate	0	1	2	3	4	5	6
	Heart palpitations	0	1	2	3	4	5	6
33.	I feel anxious when I am home alone	0	1	2	3	4	5	6
34.	I feel anxious when I am in a strange place	0	1	2	3	4	5	6
35.	I feel anxious when I am on any form of public transportation (e.g., bus, train, airplane)	0	1	2	3	4	5	6
36.	I feel anxious when crossing streets	0	1	2	3	4	5	6
37.	I feel anxious when I am in crowded public places (e.g., stores, church, movies, restaurants, etc.)	0	1	2	3	4	5	6
38.	Being in large open spaces makes me feel anxious	0	1	2	3	4	5	6
39.	I feel anxious when I am enclosed in places (e.g., elevators, tunnels, etc.)	0	1	2	3	4	5	6
40.	Being in high places makes me feel anxious (e.g., tall buildings)	0	1	2	3	4	5	6
41.	I feel anxious when waiting in a long line	0	1	2	3	4	5	6
42.	There are times when I feel like I have to hold on to things because I am afraid I will fall	0	1	2	3	4	5	6
43.	When I leave home and go to various places, I go with a family member or a friend	0	1	2	3	4	5	6
44.	I feel anxious when riding in a car	0	1	2	3	4	5	6
45.	There are certain places I do not go to because I may feel trapped	0	1	2	3	4	5	6

Appendix E

The average score for fear of negative social evaluation was comprised of the following items on the SPAI:

3: I feel anxious when I am in a social situation and I become the centre of attention

26: Before entering a social situation I think about all the things that can go wrong.

The types of thoughts I experience are:

- a) Will I be dressed properly?
- b) I will probably make a mistake and look foolish
- c) People will notice how anxious I am

30: I experience troubling thoughts when I am in a social setting. For example:

- b) If I mess up again I will really lose my confidence
- c) What kind of impression am I making?
- d) Whatever I say it will probably sound stupid

Appendix F

Demographic Information Sheet

Please complete or tick as appropriate:

Name:

Date of birth:/...../..... (dd/mm/yyyy)

Gender

Male Female

Ethnic Group

NZ Maori
Pacific Island

NZ European/Pakeha
Other

When was your most recent panic attack:

In the past week

In the past month

Within the past 6 months

More than 6 months ago

Never experienced a panic attack

Please circle the number which best represents the severity of your most recent panic attack, on the following scale (if applicable):

1

2

3

4

5

very mild

mild

moderately severe

very severe

extremely severe

Appendix G

Intercorrelations Among Variables for the Panic Group

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Emb	—	.32	.15	-.10	.08	.18	.21	-.37*	-.42*	.25
2. Anx		—	.68***	.28	.46**	.58***	.47**	.09	-.42*	.50**
3. Dep			—	.41*	.44**	.41*	.42*	.26	-.03	.39*
4. AVACC				—	.82***	.70***	.16	.19	-.08	.20
5. AVAL					—	.79***	.22	.10	-.30	.36*
6. Ag						—	.28	.12	-.36*	.33
7. SP							—	-.05	-.03	.21
8. Age								—	.34*	.02
9. Rec ^a									—	-.20
10. Sev ^b										—

Note.

Cell sample sizes ranged from 35 to 37 due to missing data.

a. Rec = Recency; b. Sev = Severity (ranging from very mild to extremely severe)

* p<.05. ** p<.01. *** p<.001

Appendix H

Intercorrelations Among Variables for the Control Group

Variable	1.	2.	3.	4.	5.	6.	7.	8.
1. Emb	—	.26	.19	.05	.02	.05	.23	-.13
2. Anx		—	.73***	.53**	.68***	.60***	.60***	-.19
3. Dep			—	.40*	.52**	.58***	.71***	-.15
4. AVACC				—	.68***	.52**	.24	-.02
5. AVAL					—	.74***	.50**	-.13
6. Ag						—	.47**	.02
7. SP							—	-.03
8. Age								—

Note.

Recency and severity are not included in this correlation table since most people in the control group had never experienced a panic attack.

* p<.05. ** p<.01. *** p<.001