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CBT-Based Early Intervention to Prevent Panic Disorder: A Pilot Study

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Abstract. Panic disorder remains a major health problem associated with high levels of disability and medical care, compounded by difficulties accessing appropriate treatment. Despite significant advances in understanding and effective treatment with CBT, the scope for better recognition and early intervention to prevent panic disorder has been relatively neglected in the CBT literature. This pilot study utilized the prevalence of panic attacks presenting in emergency medical care to test deployment of CBT as a practical early intervention strategy for panic disorder in routine NHS conditions. Twenty-seven people attending two typical UK Accident & Emergency (A&E) Departments with recent onset panic attacks were given a single session of CBT-based intervention or assessment only, and followed-up over 3 months. Basic measures of panic symptoms showed an improving trend across the whole sample. The very limited experimental control did not permit firm conclusions about the role of the intervention but at follow-up nearly one-third reported persisting difficulties typical of panic disorder, which then improved with brief additional CBT. Implications are discussed in relation to the existing literature and regarding further research on panic disorder prevention.

Keywords: CBT, panic attack, early intervention, emergency care.

Introduction

The development of effective treatment for panic disorder with cognitive behaviour therapy (CBT) is an important advance in mental health care (Rachman, 1998; Barlow, 2002; Landon and Barlow, 2004; Smits, Powers, Cho and Telch, 2004), as panic disorder and its commonest complication, agoraphobia, rank as major mental health problems in terms of prevalence and potential for enduring distress and incapacity, as well as associated health and welfare costs to society (Markowitz, Weissman, Ouellette, Lish and Klerman, 1989; Greenberg et al., 1999; Birchall, Brandon and Taub, 2000; Barlow, 2002; Goodwin et al., 2005).

The principle of early intervention is well-established for many serious health problems such as heart disease and cancer (DoH, 2000a, b; Wanless, 2002), and within mental health care

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the approach has been most prominently taken up for psychosis (French, Morrison, Walford, Knight and Bentall, 2003; Jolley et al., 2003). The importance of early intervention for individuals at risk of Panic Disorder has also been identified (Amering, Berger, Dantendorfer, Windhaber and Katschnig, 1997; Baillie and Rapee, 2004), particularly given the potentially progressive, chronic and disabling course (Breier, Charney and Heninger, 1986; Katshnig and Amering, 1998; Barlow, 2002; Swoboda, Amering, Windhaber and Katschnig, 2002). However, preventative CBT for anxiety disorders, including panic disorder, has been neglected by comparison with the continuing emphasis in the literature on refining the "technology" of CBT-based panic disorder treatments in established cases: for a recent review, see Landon and Barlow (2004).

In any case, there are significant practical challenges to reliably discriminating recent onset panic, certainly in primary care settings. Sufferers typically harbour panic disorder for many years and see several doctors in a variety of settings before the problem is diagnosed and treated (Zaubler and Katon, 1998; Rachman, 1998; Barlow, 2002), and only a minority receive any CBT in primary care (Roy-Byrne et al., 1999). Help-seeking for panic in primary care is heavily confounded by a variety of social and motivational factors which are poorly understood (Roy-Byrne et al., 2000, 2002; Hazlett-Stevens et al., 2003). These deficits in early recognition and intervention are compounded by chronic difficulties and delays in accessing CBT in the UK (Lovell and Richards, 2000), further prolonging the duration of untreated panic. Individuals with more severe panic-related symptoms appear less responsive to briefer interventions such as guided self-help (Barlow, Ellard, Hainsworth, Jones and Fisher, 2005), and tend to have greater attrition from therapy, poorer outcomes and significantly higher relapse rates (Barlow, 2002; Hecker, Losee, Roberson and Maki, 2004).

Nevertheless, panic attacks are readily recognizable (Rachman, 1998; DSM IV: APA, 2000), and a strong risk factor and early warning sign for the development of panic disorder and agoraphobia (Ehlers, 1995; Baillie and Rapee, 2005). However, panic attacks are common in other anxiety disorders (Marks, 1987; Craske and Barlow, 1988) and in the general population (Rapee, Ancis and Barlow, 1988; Norton, Cox and Malan, 1992), and do not always lead to panic disorder (Baillie and Rapee, 2005). Clearly there is a subgroup of people for whom panic attacks potentiate a critical period of nascent panic disorder. The challenge is to access vulnerable individuals at this point and deploy interventions targeting the factors that may be mediating the progression to more serious difficulties in order to arrest any escalation, in much the same way as assertive screening and prompt intervention is applied to early warning signs to reduce the "duration of untreated psychosis" (e.g. Jolley et al., 2003).

There is strong evidence for the mediating role of cognitive and behavioural reactions between physical symptoms, panic attacks and panic disorder, lending support to the application of established cognitive-behavioural treatment strategies in a preventative intervention role. A tendency to interpret anxiety symptoms as threatening, termed "Anxiety Sensitivity" (Reiss. Peterson, Gursky and McNally, 1986), is closely associated with being more likely to develop panic attacks (Kenardy and Taylor, 1999). In line with Clark's Cognitive Model implicating "catastrophic interpretation of bodily symptoms" as the key factor (Clark, 1986, 1988), there is consistent evidence that interpretation of bodily symptoms of anxiety and panic as dangerous is more important than symptom severity, in the transition from panic attacks to panic disorder (Cox, Endler and Swinson, 1995; Ehlers, 1995), and is associated with more rapid onset of agoraphobia (Breier et al., 1986). By the same token, changes in catastrophic cognitions are closely linked with improvement in panic problems (Casey, Newcombe and Oei, 2005; Smits et al., 2004).

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Studies by Gardenschwartz and Craske (2001) and Maltby (2002) have looked at the impact of brief CBT for people at risk of developing panic disorder based on anxiety sensitivity and previous history of panic. Both suggested their interventions brought a modest reduction in the likelihood of panic disorder a year later, and also acknowledged the limitations of generalizing from the student samples used to people presenting with panic in health care settings. Thus moving intervention further "downstream" and using recent onset of panic as the focal point for identification, may be a more efficient way to access the relevant cognitive and behavioural mediating processes, and identify those individuals most likely to benefit from preventative CBT.

In a further relevant study, Baillie and Rapee (2004) used posters and telephone to recruit people with panic attacks from doctors' surgeries and emergency departments, to "stepped care" options of psycho-education, guided self-help or group CBT, depending on individual preference. Participants benefited consistently, but not significantly, more than with treatment as usual. Interestingly, the authors noted that a large proportion of the participants had experienced relatively recent panic onset, and their screening strategy also suggested that individuals presenting greater initial severity of panic were more likely to require additional CBT.

Another route to access the target group is signalled by the strikingly high consumption of medical care and medication by panic disorder sufferers (Bridges and Goldberg, 1985; Katon, 1996; Birchall et al., 2000), including emergency medical care (Rees, Richards and Smith, 1998; Barsky, Delamater and Orav, 1999). Indeed, around 28% of panic disorder sufferers seek help at A&E at least once a year because of panic symptoms (Markowitz, Weissman, Ouellette, Lish and Klerman, 1989), and Katerndahl (2002) found that 40% of people experiencing severe panic attended the A&E department. The prevalence of identifiable panic episodes at A&E Departments could present a significant opportunity to test assertive early intervention with CBT, particularly if seeking emergency medical care is a marker for catastrophic thinking and fear in reaction to panic symptoms.

Swinson, Soulios, Cox and Kuch (1992) have completed the only published study of applying CBT in an emergency medical setting as early intervention for panic disorder. Using a structured clinical interview they found that 40% met criteria for panic disorder and agoraphobia, mostly of recent onset, in 33 patients presenting at the Emergency Department with panic attacks. Within 2 days of initial contact, all the patients were offered reassurance that their symptoms were due to a panic attack and half were given additional advice to practise exposure to situations associated with panic until their anxiety subsided. Over 6 months' follow-up, the reassurance-only group tended to become more agoraphobic, whereas patients given the CBT-based practical advice showed some improvement.

Early intervention in an Accident and Emergency setting therefore appears to provide a suitable template for specifically targeting individuals presenting for help with recent-onset panic attacks. The pilot study presented here is, to the best of our knowledge, the first to test this idea in a routine UK NHS setting, and we suggest the results support the case for further systematic research into making better use of established basic CBT strategies in a more preventative approach to panic disorder.

Method

A quasi-experimental design was used to test whether brief CBT at this point of contact would reduce panic-related symptoms over 3 months' follow-up compared to CBT assessment only,

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as an indication of potential to arrest development of panic disorder. As a pilot study, this aimed to inform a number of research questions:

1. What is the effect of brief cognitive behavioural therapy on panic when initiated at the Accident and Emergency Department?
2. Does brief CBT delivered in this way reduce the occurrence, fear and severity of panic problems?
3. Could CBT implemented as soon as possible after onset of panic attacks help prevent progression to panic disorder?
4. Is there support for this approach as an early intervention strategy to prevent panic disorder and its complications?
5. What is the role and viability of providing CBT in this setting?

Participants

A sample of participants was recruited from people attending the A&E Departments at the two District General Hospitals in Shropshire, serving a population of 450,000 over a wide area.

Recruitment procedure. A&E nursing and medical staff, including a liaison mental health nurse in each department, were asked to identify individuals presenting with symptoms meeting DSM-IV criteria for panic attack, and who met study criteria. A short checklist including DSM-IV panic symptoms for reference, and study inclusion/exclusion criteria, was developed collaboratively with the staff and used during initial routine medical screening and management.

Individuals meeting the research criteria were given information about the study by A&E staff, and their permission sought for further contact by the research therapist (the first author) regarding participation. Consenting patients were then contacted and offered a 90-minute appointment within one week. For ethical reasons, people unwilling to proceed were given information on accessing cognitive-behavioural assessment and therapy locally if required, and other resources for help with anxiety problems.

For all participants, an initial brief screening to confirm panic was carried out by the first author. This was then followed by a more detailed assessment of the nature of the presenting panic problem, an account of the panic episode leading them to attend A&E, and a check on suitability criteria for the study. Consenting participants were asked to complete the self-rating version of the Panic Disorder Severity Scale (PDSS-SR: Shear et al., 1997; Houck, Spiegel, Shear and Rucci, 2002).

Inclusion criteria.

1. Attendance at A&E;
2. Panic episode fitting DSM-IV criteria for Panic Attack;
3. Medical cause for panic symptoms provisionally excluded with usual A&E investigation and management;
4. Onset of unexpected panic symptoms within the last month;
5. Age 18–60.

Exclusion criteria.

1. History of panic, or worry about panic, longer than one month;
2. Previous diagnosis or treatment of panic disorder;

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3. Other physical or mental health condition that could better account for the panic episode;
4. Regular alcohol/drug/medication use to control anxiety or panic.

Allocation procedure and experimental groups. Following completion of the measure, all consenting participants were then assigned alternately to continue the rest of the session under one of two experimental conditions:

Intervention condition

Brief CBT intervention of 45 minutes with an experienced cognitive behaviour therapist aimed at helping participants to overcome their experience of panic and manage any further symptoms, using standard interventions for this approach, tailored to information gained from individual assessment. This included education about anxiety symptoms and Clark's cognitive model of panic; reattribution of sensations by behavioural experiments e.g. hyperventilation; instructions on exposure to feared sensations and situations; advice on how their panic may have developed, and advice on managing any ongoing stress.

Control condition

Follow-up only: participants were given confirmation from the assessment that their symptoms indicated panic, and an opportunity to ask any questions about this, but otherwise offered no further advice other than to continue consultation as usual with their GP as required.

Integrity check

Adherence to the experimental condition was assessed by a consultant clinical psychologist, trained and experienced in CBT, who listened to two audiotaped session recordings from two consenting participants, confirming adherence in both cases.

Dependent measures. The PDSS-SR (Houck, Spiegel, Shear and Rucci, 2002) was completed after initial allocation and then completed and returned by pre-paid post at 4 and 12 weeks following their session. This questionnaire employs a 5-point self-rating of severity on 7 items reflecting panic disorder and agoraphobic symptoms, namely: panic frequency and distress, anticipatory anxiety, avoidance of panic-related situations and sensations, work and social impairment, thus providing specific item scores and a total score. The measure is quick and easy to complete, thus facilitating compliance, as well as enabling straightforward measurement of panic and agoraphobia. The PDSS-SR has good validity and reliability relative to the Anxiety Disorders Interview Schedule (DiNardo and Barlow, 1988; Shear et al., 2001), and has received previous support as a research tool (Barlow, 2002).

Adherence with the measure

Non-returns were initially prompted once with a reminder, but after this, contact was not pursued. On receipt of the final questionnaire, participants were offered a follow-up appointment to review their requirements for further advice or access to further CBT assessment and therapy.

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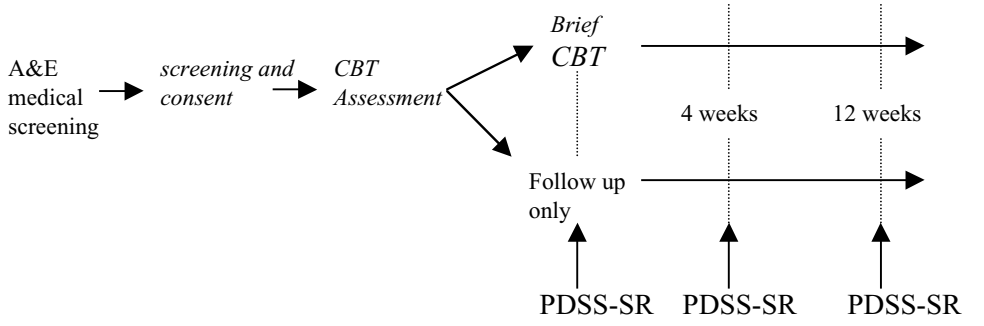


Figure 1. Study design

Table 1. Participant characteristics

	Number	Male	Female	Mean age (range)	Mean no. weeks since panic onset (range)
All referrals	36	15	21	34.1 (18-58)	2.2 (1-8)
Excluded subjects	9	5	4	28.6 (19-41)	1.6 (1-3)
All participants	27	10	17	36.8 (18-58)	2.4 (1-8)
Completed	21	7	14	37.4 (18-58)	2.6 (1-8)
Treatment group	12	3	9	38.6 (19-58)	2.9 (1-8)
Control group	9	4	5	35.9 (18-53)	2.2 (1-4)
CBT + follow-up treatment	5	1	4	31.7 (19-44)	2.8 (1-8)
Asst. only + follow-up treatment	2	1	1	31, 58	1, 4

Data analysis. The PDSS-SR produces ordinal data which, combined with the sample size under pilot study conditions, meant that non-parametric statistical methods were used. Comparisons were made on PDSS-SR scores within subjects between initial contact, 4-week and 12-week follow-up, using the Wilcoxon signed ranks test; and between subjects at each time point using the Mann-Whitney U test. It was predicted that individuals receiving brief CBT would show improvement in panic problems at 4 and 12 week follow-up, compared to follow-up only.

Results

A total of 36 people were referred into the study from the two A&E departments over a 4-month period. Of these, 9 were excluded at initial contact: 2 with previously diagnosed panic disorder; 3 with psychological problems that could better account for the panic, including affective disorder, drug-induced anxiety, and paranoid beliefs; 2 who refused to participate, and 2 who did not attend their appointment. Twenty-seven participants commenced the study, of whom 21 completed the 3-month follow-up, 12 in the treatment group, and 9 in control. Further details of the sample are shown in Table 1.

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Table 2. Within subjects comparison of PDSS-SR scores at pre-intervention, 1- and 3-month follow-up (z scores derived from Wilcoxon signed ranks test)

		Pre-intervention	1-month follow-up	3-month follow-up	pre-1mfu	1-3mfu	pre-3mfu
PDSS		mean score	mean score	mean score	*z* score	*z* score	*z* score
Q1	Brief CBT	2.25	1.25	1.42	2.2*	0.74 ns	1.77 ns
	Control	1.22	0.67	0.67	1.63 ns	0.00 ns	1.13 ns
Q2	Brief CBT	2.67	1.42	1.17	2.68*	0.91 ns	2.71*
	Control	2.11	0.89	0.78	2.26*	0.38 ns	1.84 ns
Q3	Brief CBT	2.42	1.75	1.75	2.31*	0.00 ns	1.65 ns
	Control	1.78	1	0.78	2.12*	1.00 ns	1.90**
Q4	Brief CBT	1.83	1.5	1.08	1.41 ns	1.67 ns	2.26*
	Control	1.22	0.67	0.89	1.89 ns	1.00 ns	1.34 ns
Q5	Brief CBT	1.58	1.33	0.92	1.13 ns	1.89 ns	1.99**
	Control	1.44	0.67	0.67	1.63 ns	0.00 ns	1.19 ns
Q6	Brief CBT	2.17	1.33	1	1.99**	0.96 ns	2.48*
	Control	1.56	0.78	0.89	1.13 ns	0.58 ns	1.00 ns
Q7	Brief CBT	2	1.33	1.17	2.27*	0.41 ns	2.16*
	Control	1.11	0.56	0.67	1.41 ns	1.00 ns	1.00 ns
Total	Brief CBT	14.92	9.92	8.5	2.88*	1.01 ns	2.58*
	Control	10.44	5.22	5.33	2.23*	0.14 ns	1.78 ns

ns = not significant, * = significant at $p < .05$ (two-tailed), ** = significant at $p = .05$ (two-tailed).

Outcome measures

Within-subject comparison of total PDSS scores using Wilcoxon signed ranks test showed a significant reduction for the intervention group between initial contact and 1- and 3-month follow-up ($n = 12$, $z = -2.88$, $p = .004$; $z = -2.58$, $p = .01$(two tailed test). The control group also showed improvement, significant between initial contact and 1-month follow-up, but not reaching significance at 3 months ($n = 9$, $z = -2.23$, $p = .026$; $z = -1.78$, $p = .075$ (two tailed test).

For the intervention group, there were also significant reductions in scores between initial contact and follow-up on all PDSS items except anticipatory anxiety (question 3). For the control group, significant reductions were found at 1-month follow-up on items 1–3 (panic frequency, distress and anxiety), but not on avoidance (questions 4, 5) or life interference (questions 6, 7). Details for each PDSS-SR question are shown for both groups in Table 2.

Between group comparisons, using Mann-Whitney U test of PDSS-SR scores at initial contact, 1-month and 3-month follow-up, showed higher initial total scores for the intervention group, though this did not reach significance ($N = 12,9$, $U = 34$, $p = .169$, one tailed test). There were no significant differences between the groups on total scores at 1- or 3-month follow-up ($U = 32$, $p = .238$; $U = 38$, $p = .473$, one tailed test). The control group scored significantly lower on panic frequency (question 1) at initial contact ($U = 26$, $p = .049$, one tailed test), but otherwise there were no significant differences between intervention and control. Comparison of change in total PDSS-SR scores showed no significant differences between intervention and control subjects from initial contact to 1- or 3-month follow-up ($N = 12,9$, $U = 31.5$, $p = .208$;

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$U = 37$, $p = .427$, one-tailed test, respectively). Between-group comparison results are shown in Table 3.

Outcomes of CBT at follow-up

After the final 12 weeks' completion point in the study, 10 of the participants completing the study requested additional follow-up appointments. When interviewed all the intervention subjects reported that the initial assessment session arranged so soon after attending A&E had been helpful in "normalizing" and helping them to understanding their panic episode. Three participants attributed some of their improvement to prescribed medication, two of whom requested one session advice only, and one who received two further CBT sessions for continuing symptoms. Two people were still engaged in further medical investigations following a further consultation with their GP about their symptoms.

Seven of the follow-up participants then engaged in between 1 and 4 sessions' additional CBT that targeted persisting panic difficulties. The outcomes for this cohort at 1-month follow-up after further treatment are shown in Table 4 and Figure 2. This clearly shows that with further brief cognitive-behavioural intervention, all of these participants whose panic symptoms had continued during the previous 3-month period of the study then improved.

Discussion

Consistent with epidemiological data (DSM IV: APA, 2000), two-thirds of the sample were female, with an average age of mid-30s. All attended specifically because of distress about panic symptoms, and presented with DSM-listed panic symptoms; for all but one, this was their first visit to A&E for this reason. Given the relatively brief and focused initial assessment, it could be argued that many of the subjects were presenting with exacerbation of pre-existing generalized anxiety disorder, depression or panic disorder. From self-report, approximately half the participants had consulted a doctor in the past because of anxiety or depression, or recalled some previous panic symptoms. However, given the prevalence of panic in the normal population (Norton, Harrison, Hauch and Rhodes, 1985; Norton et al., 1992) one would expect this to show up in the mental health history of many of the subjects, as well as anxiety/depression, particularly if there are vulnerability factors involved such as anxiety sensitivity. One-third had consulted their GP in recent months because of stress, mood or anxiety problems, almost all of whom had been offered some medication. However, most participants reported onset of the first panic attack within the last 2–3 weeks (a few within the previous 3 days): less than the month duration of recurrent attacks suggested in DSM criteria for panic disorder. In addition, ongoing stress-related anxiety and worry was not primarily focused on anticipation of panic, and most of the presenting attacks were unexpected, which does not fit with the DSM criteria of "persistent worry about panic attacks". Even for those with ongoing anxiety and worry, the commonest remark was that they had attended this time because the panic was more severe, distressing and had "come out of the blue" (of note, one-third arrived by ambulance). Commonest fears expressed were of having a heart attack or stroke, passing out, collapsing or being unable to breathe; for 40% of the sample, specific interpretations of symptoms were accompanied by a fear of dying. Again these are typical of the cognitive features of panic disorder, but in the context of recent onset. None of the participants were aware of being currently diagnosed or receiving treatment explicitly for

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Table 3. Between subjects comparison on PDSS-SR scores pre-intervention, 1- and 3-month follow-up

Between groups rank		Pre-intervention	Mann-Whitney *U*	1-month follow-up	Mann-Whitney *U*	3-month follow-up	Mann-Whitney *U*
Total PDSS score	Treatment group	12.67		11.83		11.33	
	Control group	8.78	34.0 NS	8.5	32.0 NS	9.25	38.0 NS
Q1 panic frequency	Treatment group	13.33		12.63		11.75	
	Control group	7.89	26.0*	8.83	34.5 NS	8.63	33.0 NS
Q2 panic distress	Treatment group	11.96		12.04		11.13	
	Control group	9.72	42.5 NS	9.61	41.5 NS	9.56	40.5 NS
Q3 anticipatory anxiety	Treatment group	12.42		12.75		12.54	
	Control group	9.11	37.0 NS	8.67	33.0 NS	7.44	23.5**
Q4 situational avoidance	Treatment group	12.13		12.58		10.75	
	Control group	9.5	40.5 NS	8.89	35.0 NS	10.13	45.0 NS
Q5 sensation avoidance	Treatment group	11.29		11.75		10.79	
	Control group	10.61	50.5 NS	8.63	33.0 NS	10.06	44.5 NS
Q6 work/home interference	Treatment group	12.29		10.96		10.58	
	Control group	9.28	38.5 NS	9.81	42.5 NS	10.38	47.0 Ns
Q7 social/leisure interference	Treatment group	12.83		11.88		11.29	
	Control group	8.56	32.0 NS	8.44	31.5 NS	9.31	38.5 NS
Change in total PDSS score	Treatment group	11.88		11.42		11.71	
	Control group	8.44	31.5 NS	9.13	37.0 NS	8.69	33.5 NS

Rank comparisons using Mann-Whitney *U* test: NS not significant, *significant at $p < .05$ **$p = .05$.

Table 4. Shows outcomes for participants offered further cognitive therapy at follow-up (PDSS-SR Scores)

	Pre-intervention	1mfu	3mfu	Post-CBT
Case 1 FU only	20	8	12	3
Case 2 FU only	4	4	7	0
Case 3 intervention	14	5	6	1
Case 4 intervention	24	22	22	10
Case 5 intervention	11	6	9	1
Case 6 intervention	24	14	7	6
Case 7 intervention	9	7	14	5

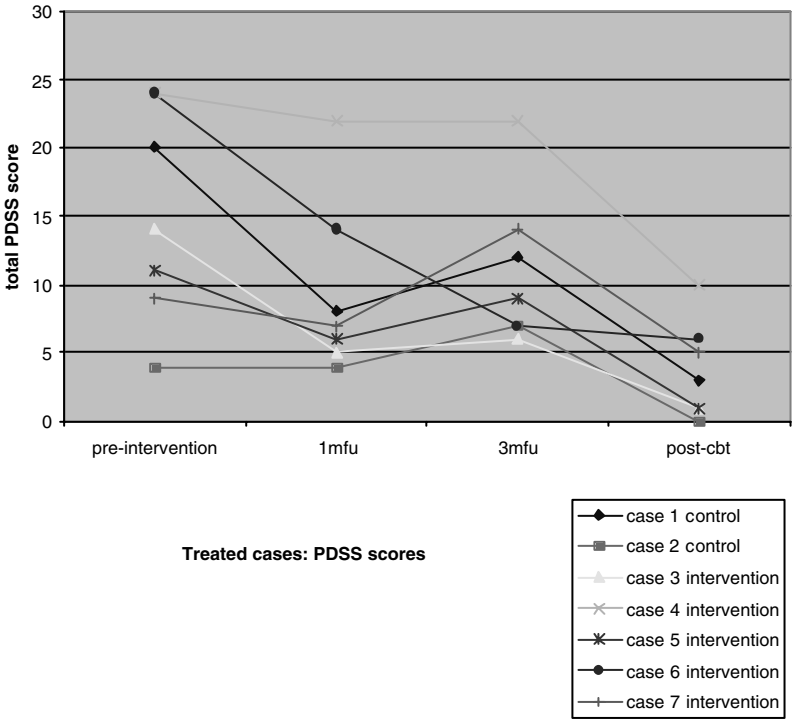


Figure 2. Shows outcomes for participants offered further cognitive therapy at follow-up (PDSS-SR scores)

panic disorder, and none were receiving any recent or ongoing psychological therapy, or had received any previous CBT for anxiety or panic.

With regard to the research questions, firstly: the level of recruitment of the target group over a 4-month period at A&E confirms this to be a suitable setting for early identification and intervention with people experiencing recent onset panic attacks. Secondly, there was a clear overall improvement in panic-related difficulties for most subjects over 3 months following initial presentation in A&E. An important further finding was that nearly a third of the sample reported continuing panic problems at 3 month follow-up, which then improved

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with brief additional CBT, indicating the potential of deploying a stepped model of immediate brief CBT-based intervention, followed by more intensive, brief CBT in patients who are still symptomatic after, say, a 3-month period, consistent with Baillie and Rapee's (2004) approach.

The numbers recruited confirm that attendance at A&E because of panic attacks is a regular and frequent occurrence, as reported elsewhere (Tommasini and Frederici, 1992; Zun, 1997; Dyckman, Rosenbaum, Hartmeyer and Walter, 1999); there is little reason to suppose our experience in Shropshire is unique in the UK. It is also interesting to note that in post-project debriefing discussions A&E staff reported many other patients with panic symptoms whom they did not refer into the study, including those with drug or alcohol-related symptoms (particularly teenagers and young adults), and recurrent attenders with mental health problems. Furthermore, local factors including high staff turnaround, variable staff interest in the project, and frequent diversion of resources to serious emergencies were acknowledged as resulting in a number of other potentially suitable patients being missed. Therefore it is likely that those recruited still represent an underestimate of the prevalence of recent-onset panic at A&E.

These findings thus offer support for the notion that, for a substantial proportion of these individuals, attendance at A&E may mark a transition towards the intensifying of panic-related problems via catastrophic thinking, associated anticipatory anxiety and avoidance as proposed by the Cognitive Model (Clark, 1986) – which may then be reinforced or weakened by subsequent events, information and attention received: namely the key focus for early intervention.

Outcomes of intervention showed no significant difference between control and brief CBT subjects on PDSS-SR measures of panic problems over 3-month follow-up, or on the amount of change in scores, but a striking overall improving trend across the whole sample following initial contact. Whilst by 3-month follow-up there were relatively more brief CBT subjects with lower scores, there is considerable variance in the sample, and the difference between groups on initial assessment scores could indicate either regression to the mean for higher scoring intervention group subjects, or conversely a "floor effect" for the controls. The improvements observed may indicate change factors common to all participants; the nature of such factors and role of additional brief CBT is difficult to interpret from these quantitative results alone due to the weak statistical power and lack of control over external influences and behaviour during follow-up.

One possibility is that of spontaneous recovery in a sample experiencing a largely discreet panic episode, who would have recovered anyway without intervention, particularly in view of the prevalence of panic attacks in the "non-clinical" population (Norton, Dorward and Cox, 1986). Naturalistic follow-up studies of untreated panic such as Roy-Byrne and Cowley (1995) found that around half of people identified with possible panic disorder were panic-free a year later; and Ehlers (1995) found that about 15% people with panic attacks had developed panic disorder within a year. The phenomenon of improvement in waiting list control subjects in panic treatment studies has also been noted previously (Barlow, Craske, Cerny and Klosko, 1989; Gardenschwartz and Craske, 2001).

Nevertheless, a number of people continued to experience varying levels of panic symptoms and associated anxiety and avoidance 3 months later, raising the question of when their improvement might occur. Presumably if they are still experiencing panic-related fear and avoidance, which are suspected to potentiate panic disorder (Craske, Rapee and Barlow, 1988; Salkovskis, Clark and Gelder, 1996) then they remain at risk of their panic worsening rather than improving. This was strikingly apparent for two cases in this study who presented for

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further CBT at follow-up with markedly progressing situational avoidance due to continuing fear of panic.

Whilst support for the causal role of the CBT intervention in the improving trend is unclear, participants' reports at follow-up suggest that the initial intervention (both assessment only and additional advice) was not inactive. All subjects were provided detailed assessment and attention to their panic symptoms by virtue of participation in the study, and led through the same CBT-based assessment process. A number of participants in both conditions commented that they appreciated the extra time and attention, and that it was reassuring in itself to examine their experience in this way and find out that this is a known problem for which help is available. In addition, some of the brief intervention subjects reported that the CBT model presented had been valuable in "decatastrophizing" their experience, providing an alternative plausible account that appeared to greatly augment the benefit of any reassurance they acquired through being given a medical "all clear" at A&E. This suggests that negative medical findings are not necessarily sufficient reassurance or information to challenge fearful beliefs about the symptoms experienced during panic. This is consistent with previous research indicating the value of education with a positively framed psychological formulation, as possibly the most potent common ingredient in brief interventions (Shear, Pilkonis, Cloitre and Leon, 1994; Arntz and Van Den Hout, 1996; Elsesser, Mosch and Sartory, 2002).

Other strategies reported as helpful included: knowing what is happening to the body during anxiety and panic; reading handouts and remembering what causes panic and that it can be controlled; breathing slowly and letting the feelings blow over; and seeing that symptoms can be made to come and go by deliberate practice of, for example, over-breathing. Furthermore, participants' perceptions of staff attitudes also varied considerably from "kind and sympathetic" to "disinterested, impatient". This may be a further factor influencing subsequent beliefs, coping, and care-seeking in response to panic symptoms, which could affect the course of the problem in "treatment as usual" conditions (Salmon, Peters and Stanley, 1999; Roy-Byrne et al., 2002).

The promising outcomes (at least to 1-month follow-up) of subsequent additional sessions for those with persistent panic problems, perhaps lend the clearest support for the potential preventative role of CBT-based intervention deployed in this setting. The improvements observed at this point, following 3 months of ongoing panic symptoms of recent onset, are certainly consistent with an intervention effect. Taking into account the anecdotal feedback, a viable hypothesis is that the initial CBT intervention was on course to address active psychological factors, but was insufficient to achieve impact for some individuals: at the very least, this additional CBT showed potential to arrest progression to more serious panic disorder. It seems reasonable to conclude that for many individuals presenting with recent onset panic in this setting, basic education, reattribution, and awareness of options for further help may suffice, as a useful compliment to negative medical diagnosis. However, a short course of CBT may be indicated for those assessed with initially higher levels of panic-related symptoms, and research comparing these different levels of intervention appears worthwhile.

This pilot study has deliberately balanced experimental control and ecological validity in order to inform clinical practice and models of service delivery. A number of weaknesses from a purist experimental perspective are evident that are relevant to further research. Firstly, the small sample size limited interpretation of quantitative aspects of the study. However, the steady referral rate achieved confirms the feasibility of recruiting sufficient numbers for a more substantial controlled trial over a modest time scale, particularly in a collaborative multi-centre study. Secondly, there was inadequate discrimination between assessment/follow-up only and

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intervention conditions, with considerable overlap in terms of interpersonal contact and the overall therapeutic approach: the study may therefore have tested slightly differing "doses" of CBT. Comparing more substantial initial CBT with a less active control (e.g. assessment measures only and no treatment) would enable clearer appraisal of the impact of CBT deployed in this way. In addition, the strong bias inherent in the combined therapist and researcher role in this study would need to be addressed with sufficient resources and design considerations. Longer term follow-up studies will also be needed.

From a practical viewpoint, the screening method used at A&E presented few problems and, combined with focused CBT assessment and PDSS-SR, appears to have been an acceptable and productive method of identifying people with recent onset panic, including more severe cases who may be most in need of early intervention (Baillie and Rapee, 2004). However, for this to work in large departments with high staff and patient turnover and crisis intervention conditions, it should be noted that willing engagement and thorough briefing of A&E staff will require constant attention, coupled with a clear screening pathway and documentation that can be unobtrusively incorporated into the department's mainstream procedures. Promoting a more prominent role for liaison mental health nurses, where available and workload permitting, could facilitate this.

Conclusion

The key implications arising from this study are, firstly: people experiencing recent onset panic attacks can be routinely screened for and identified at the Accident and Emergency Department, thus presenting an opportunity for active intervention and treatment much earlier than is typically the case for these patients. Secondly, patients are amenable to CBT being provided at this early stage to help reduce and overcome their panic problems, thus reducing the risk of progressing to more severe and enduring panic disorder and agoraphobia. Thirdly, although the role of CBT and other possible therapeutic factors needs exploring further, the findings are consistent with previous literature, and the theoretical rationale proposed for CBT as an early intervention in panic disorder.

Increasing referrals for early intervention would also mean increased demands for therapy resources within the finite constraints of the NHS. However, the outcomes of this study support the view that a shift towards early intervention, at least for panic disorder, could increase rather than dilute the availability of CBT. If, as suggested by the findings, panic problems can be treated effectively with brief, simple cognitive and behavioural interventions at this earlier stage, then it is possible that such assessment and intervention could be carried out by a wider range of suitably trained and interested health care practitioners, freeing up specialist CBT therapists (and their waiting lists) over the longer term in a cost effective way.

At the very least, this pilot study has demonstrated the feasibility of a straightforward early detection and CBT-based intervention strategy for people experiencing recent onset panic attacks, based at the A&E department, enabling prompter access to appropriate treatment. The findings support the case for further research in this application, and the study has also hopefully informed further research questions and considerations for experimental design, and practical procedures that can translate into useful strategies in clinical practice. In particular, it suggests that a practical system of screening, early advice and intervention pathways, with links to more specialist care, could be readily set up, researched and evaluated in routine NHS practice, thus providing a new direction to build on the tremendous advances in treatment of panic disorder with cognitive-behaviour therapy.

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