

A feasibility study of brief group-based acceptance and commitment therapy for chronic pain in general practice: recruitment, attendance, and patient views

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Background: Acceptance and commitment therapy (ACT), a form of cognitive-behavioral therapy, may help meet a need for accessible and cost-effective treatments for chronic pain. ACT has a growing evidence base, but has not yet been tested within general practice settings. **Aim:** The purpose of the present study was to examine the feasibility of conducting a full-scale randomized controlled trial of ACT in general practice. **Methods:** A total of 481 potential participants with chronic pain identified from general practice in southwest England were invited into a treatment trial. Subsequently, 102 (21.2%) of those invited were screened, and 73 (71.6%) of those screened were allocated to ACT plus usual care or usual care alone. The ACT treatment included four, four-hour group-based sessions over two weeks. **Results:** Twenty-six (70.3%) of the patients allocated to ACT attended three or four sessions. Those who received ACT rated it as credible in a short survey, with Mdn rating 7.0 on a 0–10 scale, across five credibility items. During a post-treatment interview considering 12 aspects of the study from invitation to treatment termination, a median of 79.2% of participants rated the aspects 'acceptable.' Qualitative data from the interviews showed a mixed picture of patient experiences, revealing possible tensions between patients' wishes to avoid discomfort and confusion, and treatment methods that explicitly ask patients to, in essence, 'live with' some discomfort and confusion. **Conclusions:** These data suggest that further study of ACT, as a treatment for chronic pain, is feasible in general practice and it may be possible to further optimize the treatment experience.

Key words: acceptance and commitment therapy; chronic pain; cognitive-behavioral therapy; feasibility; general practice

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Introduction

Chronic pain is a massive problem in the United Kingdom, significantly affecting about one of

every eight adults and greatly reducing health and functioning (Breivik *et al.*, 2006). People with chronic pain in the community typically do not recover from their symptoms and this is particularly true for those whose functioning is most affected (Elliott *et al.*, 2002). Chronic pain places a great burden on the health-care system in the United Kingdom (Maniadakis and Gray, 2000). Cost-effective approaches are needed to meet the needs of the people who suffer from chronic pain.

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By far, most people with chronic pain seek services in general practice (Breivik *et al.*, 2006). Most of what is offered in this setting includes advice and medication (Woolf *et al.*, 2004). It appears that this is not enough. On the basis of general population, telephone surveys about a half of people with chronic pain are not receiving adequate pain management services (Woolf *et al.*, 2004; Breivik *et al.*, 2006).

Cognitive-behavioral treatment approaches represent a viable evidence-based alternative for chronic pain (Eccleston *et al.*, 2009). These treatments are designed to create change in patient behavior patterns, to decrease adverse impacts of pain, and to improve emotional, physical, and social functioning. By advocating active self-management methods for addressing chronic pain, these approaches target, 'passive coping,' a key risk to long-term poor outcome in chronic pain (Jones *et al.*, 2006). However, these approaches are not without their current challenges. The best outcome data for these services derive from intensive, interdisciplinary, or multidisciplinary programs, including more than 100 hours of treatment (Guzmán *et al.*, 2001). This type of treatment is simply not feasible for wide application and is not needed in all cases. Simpler 10-hour cognitive-behavioral treatments, including individual assessment and six 90-minute group sessions, are possible (Lamb *et al.*, 2010). However, these so far have demonstrated generally small treatment effect sizes and difficulties with treatment session attendance. In this study of treatment for low back pain, only 26% attended all the treatment sessions and 63% attended at least half the sessions (Lamb *et al.*, 2010). This study involved a relatively low-intensity cognitive behavioral treatment, delivered primarily by physiotherapists. It is possible that such an approach is less able to affect key processes of treatment-related change (Morley and Keefe, 2007; Eccleston *et al.*, 2009). Clearly, there is a need to continue to develop and refine cognitive behavioral approaches to chronic pain that are impactful, widely deliverable, and cost-effective.

There are new developments within the cognitive behavioral approaches to chronic pain that have mostly appeared over the last 10 years, in research-based centers, primarily in the United Kingdom and in Sweden. These include applications of what is called acceptance and commitment therapy (ACT; Hayes *et al.*, 1999; McCracken, 2005). The unique

feature of ACT is that it focuses primarily on a process called psychological flexibility. Psychological flexibility is the capacity to persist or to change behavior according to one's goals and what a situation allows, without being limited unnecessarily by thoughts and feelings. It includes acceptance and mindfulness-related processes as well as behavior change and activation processes. It has been developed and studied in specialty treatment contexts (Vowles and McCracken, 2008; Wicksell *et al.*, 2008; Vowles *et al.*, 2011) and is deemed empirically supported (American Psychological Association, Society of Clinical Psychology, 2011), although the evidence base is not complete and definitive. ACT has not yet been designed and tested for wider delivery in general practice settings for chronic pain.

In previous work, we conducted a series of seven group discussions focused on priorities for general practice-based pain management services. This work included three groups of GPs and nurses, three groups of patients with chronic pain, and one group of healthcare commissioners in the southwest of England. Results from these stakeholder groups were used in the design of a treatment for general chronic pain, including ACT, on the basis of experience from specialty treatment delivery but designed specifically for general practice. Broadly, this treatment was designed as group based, with 8 to 12 participants. It was designed to be delivered by a single provider, in GP surgeries, including a format of three sessions one week and a final session the following week. On the basis of these results, the next step was to plan further studies for this treatment.

The purpose of the present study was to examine the feasibility for a larger study of a brief four-session ACT-based treatment for general chronic pain designed for delivery in general practice. This feasibility was examined within the context of a small randomized controlled trial (RCT) and the comparison condition was treatment as usual (TAU). Here three methods were used to examine feasibility: analysis of recruitment and attendance data, self-report treatment evaluation, and post-treatment interviews with both quantitative and qualitative analyses. These methods are partly exploratory; however, we predicted high feasibility. We predicted (a) successful recruitment of 60 participants during the nine-month period for

completion of the small trial, (b) more than 75% endorsement of 5 or higher on a 0–10 scale on the treatment evaluation questions, and (c) a majority rating ‘acceptable’ for each of the 12 selected features of the treatment on the basis of the interview results. It is planned that the analysis of clinical outcomes from this trial will appear as the subject of a separate publication.

Method

Trial design

A randomized feasibility trial of a group-based treatment for chronic pain was conducted in which patients with chronic pain were recruited from general practice. Patients were randomly assigned either to ACT plus TAU or TAU alone. As shown in Figure 1, this trial included an initial screening phase, a baseline pretreatment assessment, a two-week treatment delivery phase for those who were randomized to ACT, a post-treatment assessment, and a three-month post-treatment follow-up assessment. Following treatment delivery participants who were allocated to the intervention arm underwent a post-treatment evaluation interview. Sample size was decided on the basis of the target of recruiting between 8 and 12 participants for each of three groups for the ACT arm. This led us to estimate at least 60 participants needed in total. This level of recruitment was also deemed adequate to calculate reasonably stable estimates for means and standard deviations for future power calculations. This study was given local ethics and National Health Service (NHS) Research and Development approval and the trial was registered (ISRCTN49827391).

Recruitment and participants

Participants were recruited from GP practices in Swindon, Bath, and North East Somerset, in the southwest of England. GP practices were recruited through the UK southwest Primary Care Research Network (PCRN). They were e-mailed through the PCRN, informed about the study on an e-bulletin, or by research staff presentation of posters and fliers at Primary Care Incentive Scheme Events. Practices registering their interest by contacting research staff were given more details of the study. The 12 practices involved had 119 000 registered patients, with individual practice list sizes ranging

from 5300 to 13 000. Recruitment was conducted over a period of two months in each area.

Six practices in Swindon, four in Bath, and four in North East Somerset identified participants by conducting record search, applying the inclusion criteria. Study inclusion criteria were persistent pain of longer than three months’ duration, having had sought treatment for pain from GP in the past six months, significant level of pain-related distress and disability, continuous use of analgesic, and age 18 years or older. In addition, participants who required further medical tests or procedures and who had conditions that could interfere with participation in a group-based treatment program, such as poorly controlled psychiatric conditions, or who were unable to communicate in English, were excluded.

Potential participants meeting eligibility criteria were sent formal invitation materials including a letter, trial information sheet, consent form, background information form, and screening questionnaire by their GPs. Participants who wished to take part posted signed consent forms and screening questionnaire to the research team.

The brief screening questionnaire for eligibility was based on the disability rating portion of the scheme for grading the severity of chronic pain by Von Korff *et al.* (1992). To be eligible for the study, all potential participants needed to rate the level of interference with their daily activities from pain at least 4 or higher on a scale from 0, ‘no interference,’ to 10, ‘unable to carry on any activities.’ All eligible participants were then asked to complete a baseline questionnaire, which they then received and returned through the mail.

Participant characteristics are included in Table 1. Participants ranged widely in age from 23 to 86 years in the ACT condition and 27 to 83 years in the TAU. It was found unexpectedly that there were significant numbers of participants who were over the age of 65, 29.7% in the ACT condition and 25.0% in the TAU condition. Participants were predominantly women, married, and White British. Most were not working because of their chronic pain. Low back pain was the most frequent primary complaint, but that was true in not more than 42% of either treatment arm. Many had multiple pain areas or fully generalized pain. Participants in general had pain for many years, more than 13 years on average in both arms of the study.

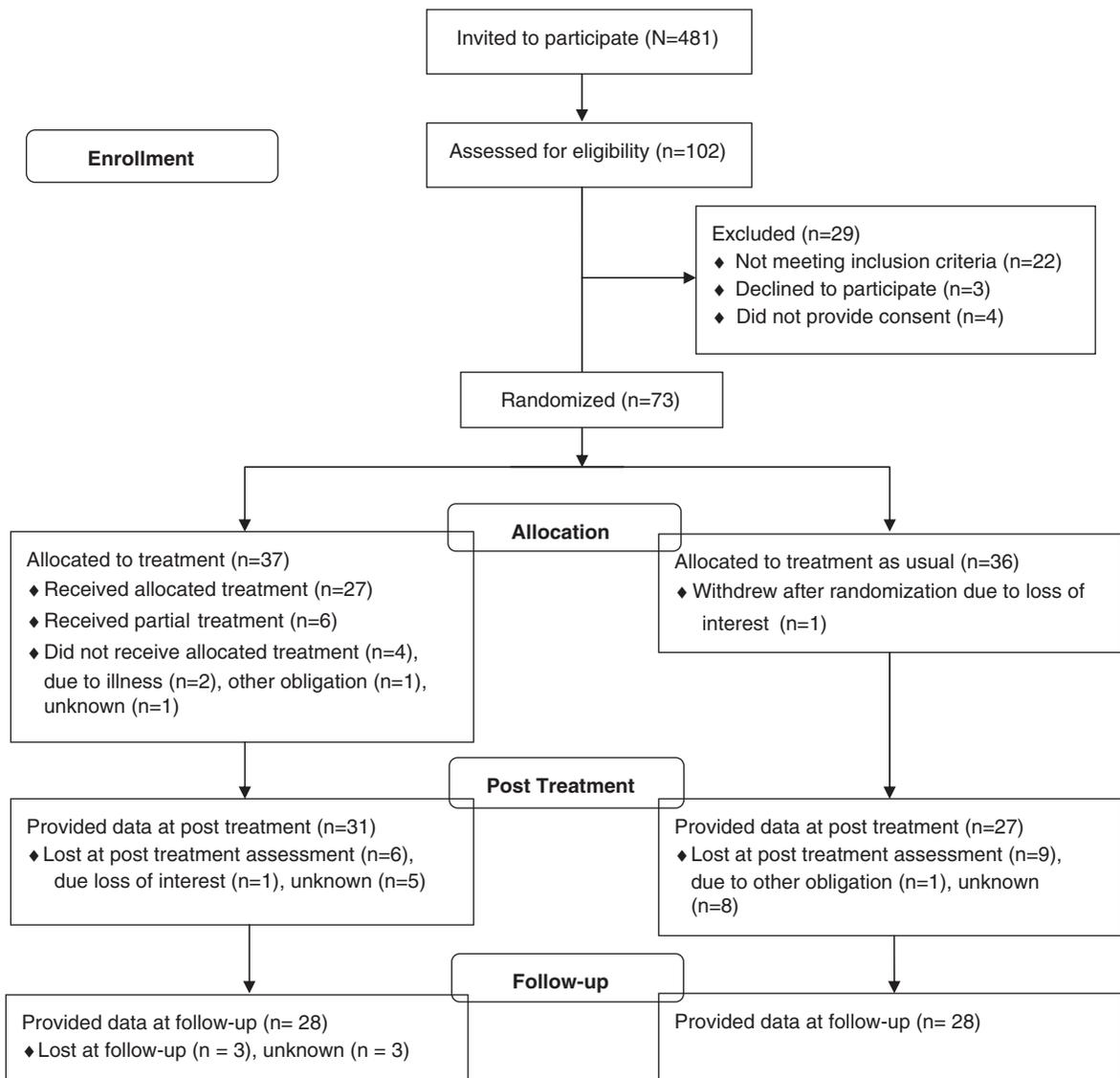


Figure 1 CONSORT flow diagram

There were no differences between the two groups in background characteristics, with the exception of work status, $\chi^2(4, n = 71) = 9.79, P < 0.05$, where more of those in the control arm reported working full time, 7 versus 0, although more of those in the ACT arm reported working part time, six versus two, or being retired, 12 versus 8. Further details are included in Table 1.

Treatment outcome measures

All patients completed a set of standard measures at baseline, four weeks after randomization and four months after randomization. All of these were administered and returned through the mail. The measures included the following: Short Form Health Survey (SF-36; Ware and Sherbourne, 1992), Roland and Morris Disability Questionnaire

Table 1 Demographic details of the sample

	ACT (<i>n</i> = 37)	Treatment as usual (<i>n</i> = 36)
Age [mean (SD)] (years)	59.4 (12.8)	56.6 (12.7)
Gender (%)		
Male	32.4	30.6
Female	67.6	69.4
Marital status (%)		
Married	62.2	61.1
Single	13.5	11.1
Divorced	10.8	11.1
Cohabiting	2.7	5.6
Widowed	10.8	0
Ethnic group (%)		
White	100	94.4
Indian	0	2.8
Other ethnicities	0	2.8
Education [mean (SD)] (years)	12.5 (4.3)	12.3 (4.3)
Working status (%)		
Working		
Full time	0	19.4
Part time	5.4	0
Part time (due to pain)	10.8	5.6
Unemployed	0	2.8
Unemployed (because of pain)	32.4	30.6
Homemaker	16.2	13.9
Retired	32.4	13.9
Pain chronicity [mean (SD)] (years)	13.9 (10.6)	13.1 (12.0)
Primary pain location (%)		
Low back	37	41.9
Lower extremity	18.2	19.9
Neck	8.1	16.2
Other	16.2	8.4

ACT = acceptance and commitment therapy.

(RMDQ; Roland and Morris, 1983), Patient Health Questionnaire (PHQ-9; Kroenke *et al.*, 2001), a healthcare and medication use survey, a 0–10 numerical rating of average pain intensity in the past week, Chronic Pain Acceptance Questionnaire (CPAQ; McCracken *et al.*, 2004), Acceptance Action Questionnaire (AAQ-II; Bond *et al.*, 2011), the EQ-5D-5L (the EuroQol Group, 1990), and a Patient Global Impression of Change scale (PGIC; Guy, 1976). The actual results from these outcome and process measures are not the focus of the current study.

Randomization

After baseline assessment, participants were randomized to the intervention or control condition (1:1) on the basis of computer-generated random numbers (see Figure 1 for CONSORT diagram). The allocation was not concealed from

either the participants, treatment providers, or the researcher; however, assessment and data entry were conducted blind to allocation.

Treatment

The treatment course was an adaptation of ACT principles and treatment methods (Hayes *et al.*, 1999) to chronic pain and group-based treatment (McCracken, 2005). The treatment includes a combination of methods to promote mindfulness, acceptance, and awareness, as well as methods to promote behavioral activation and behavior change directed by goals and values. The methods emphasize experiential learning and de-emphasize lecturing and information-giving. Before the start of treatment, all participants were telephoned by the psychologist providing their treatment for a very brief introduction and to begin to build some rapport. Treatment was provided by trained clinical

Table 2 Summary treatment evaluation results

Item	Mean rating (SD)	Percent ratings ≥ 5
How logical did the treatment offered to you seem?	6.5 (2.2)	86.1
How successful to you think this treatment was in reducing the impact of pain on your life?	4.5 (2.3)	62.1
How confident would you be in recommending this treatment to a friend?	7.0 (2.8)	82.8
How interesting and engaging was the treatment overall?	8.3 (1.9)	93.1
How satisfied were you with the overall quality of the treatment?	8.6 (2.3)	93.1

All item rated on a scale from 0 = 'Not at all,' to 10 = 'completely.'

psychologists with more than 5 and more than 15 years of experience in treatment for chronic pain and using methods related to ACT. The actual treatment consisted of four sessions, with each session four hours in length, delivering three sessions in one week and one session a week later. The actual group size for each of the three group sessions conducted was 12, 11, and 13 participants. All sessions were conducted in GP practices that were local to the participants and during afternoon hours. Treatment integrity was maintained by use of a treatment manual. All sessions were audio-taped for later integrity analysis.

TAU

Participants in the control arm were instructed to follow their usual treatments including any new treatments that might arise, as they, their GP, or their other doctors might wish, during their time in the study.

Measures of credibility and acceptability

A five-item feasibility survey was used to identify patient attitudes toward a proposed treatment for ACT. This was administered at the end of the post-treatment assessment process. The items were adapted from a treatment credibility measure originally developed by Borkovec and Nau (1972). They consider the participants' views of how logical, likely to help, recommendable, interesting, and satisfying in quality the treatment was. The five items are each rated on an 11-point scale, 0 = not at all to 10 = completely. We deemed ratings of 5 or higher to indicate that the treatment description appeared credible and thus feasible to deliver in a larger trial. The items of this treatment evaluation are shown in Table 2.

Qualitative methods

In addition to the post-treatment self-report credibility measure, we also conducted semi-structured telephonic interviews with those who were allocated to the ACT condition ($n = 24$). The interviews were conducted at six to nine weeks after randomization. The interview questions and format were produced by a process of discussion and consensus among the investigators and researchers. The interview schedule comprised 13 open-ended questions regarding motivational factors and barriers to participation, expectations of treatment, the process of care, perceived effectiveness, and the impact of treatment. A final section asked them to consider a series of 12 issues in their participation from the process of invitation onward, and to rate each as acceptable, unacceptable, or neither acceptable nor unacceptable. These 12 items can be seen in Table 3.

The telephonic interviews were digitally recorded and transcribed verbatim. The Nvivo software package was used to aid the analytical process, which comprised thematic content analysis (Green and Thorogood, 2004). The aim of the analysis was to summarize the most salient themes for the respondents, by identifying and coding categories that emerged from the individual transcripts and then comparing the accounts to identify common themes. This was an iterative process in which the coding scheme was continually revised.

The results of the qualitative analysis have been blended with the quantitative findings to aid clarity and depth of understanding. Our purpose was not just to illustrate the quantitative findings with selected quotations from the interviews, but also to access insights and individual preferences that may not have been apparent in the aggregated quantitative data. Where we have included

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Table 3 Summary of interview results on acceptability ($n = 24$)

Experiences of participation	Number of participants (%)		
	Acceptable	Unacceptable	Neither acceptable nor unacceptable
Process of contact and invitation	24 (100)		
Consent process	24 (100)		
Clarity and completeness of initial information provided	19 (79.2)	3 (12.5)	2 (8.3)
Treatment allocation	14 (58.3)	2 (8.3)	8 (33.3)
Number of sessions	14 (58.3)	8 (33.3)	2 (8.3)
Length of sessions	15 (62.5)	9 (37.5)	
Scheduling of sessions	20 (83.3)	4 (16.7)	
Content or focus of sessions	21 (87.5)	2 (8.3)	1 (4.2)
Experience of being in sessions and doing tasks	21 (87.5)	1 (4.2)	2 (8.3)
Practicing exercises and making changes at home	19 (79.2)		5 (20.8)
The assessment methods	19 (79.2)	1 (4.2)	4 (16.7)
The experience of completing treatment and moving on	18 (75.0)	3 (12.5)	3 (12.5)
Average (%)	79.2	11.5	9.4

ACT = acceptance and commitment therapy.

These data were obtained from interviews with participants who completed the ACT group treatments.

During the interviews, the participants were asked to consider aspects of participation in the study and to rate each one as acceptable, unacceptable, or neither acceptable nor unacceptable.

illustrative quotations from the interview transcripts, we have not included pseudonyms or informant code numbers to reduce the possibility of individuals being identified.

Results

Recruitment and attendance

Again, 37 people were allocated to the ACT arm. Four of them (10.8%) did not attend any of the sessions. Attendance at three or four sessions was defined as having received all of the basic components of treatment. Twenty-six of those allocated (70.3%) received this level of treatment. Hence, the remaining seven (18.9%) of those allocated received either one or two sessions only. The 11 participants who did not attend an adequate number of treatment sessions did not differ from those who did in terms of age, gender, primary pain location, marital status, education, work status, number of medical comorbidities, pain, pain-related distress, or any of the primary outcome and process measures assessed at baseline.

The qualitative data revealed some of the factors that motivated participation and some of the obstacles. Many informants had experienced other interventions that had not satisfactorily

ameliorated their symptoms and were *prepared to try anything that's offered that might help*. Although not all informants had initially recognized that the aim was to manage or cope with pain, rather than to reduce the intensity or duration of pain:

Once it got going I realized it was just to help you cope rather than actually to get... to stop you feeling pain.

In terms of recruitment, the role of the GP in recommending the study to potential participants appears to have been significant:

My GP suggested it to me, he said to me that I was a candidate because of the pain I'm going through and he suggested that I went for it.

Interviews were not conducted with those who declined to participate; however, participants identified some of the obstacles to sustained engagement and attendance. Principal among these obstacles was the challenging and emotionally/physically demanding nature of the group sessions:

I found it mentally straining and so tired [...] my brain was just whirling and I felt uncomfortable having sat on a plastic chair

for that long, you know it was tiring, I found it very tiring for that length of time.

Others reported emotional distress:

I did end up in tears on one session, because I think [CLINICAL PSYCHOLOGIST] stirred up a lot of emotion. But you cover up with the pain, so I mean I had to leave the room. [...] [CLINICAL PSYCHOLOGIST] was talking about the families, difficulties with families and all that sort of thing and it sort of, I dunno, it sort of woke the brain up I think, if that's what you can call it. So yeah, I ended up in tears because me and my daughter don't speak. We haven't spoke for probably eight years now.

Credibility ratings

Results from the post-treatment ratings of credibility for the ACT arm are included in Table 2. Using ratings of 5 and higher as the criterion for positive credibility yields a majority of positive ratings on each of the five credibility ratings. For the items regarding how logical, level of confidence in recommending the treatment to a friend, how interesting it was, and satisfaction with overall quality, more than 82% positive responses were achieved. In fact, for the latter two items, just two participants offered a rating less than 5. For the item regarding how successful the treatment was expected to be for reducing the impact of pain the results were less positive, with just 62.1% providing positive ratings and 11 participants providing ratings between 0 and 4. This was the only item that yielded results below our cutoff criteria of 75% positive responses.

The qualitative findings provide a more nuanced account of participants' understanding of the intervention. Whereas many found the approach helpful and referred to the benefits they had gained from specific exercises and the overall experience, others were more equivocal, and some found the approach difficult to grasp:

... I just couldn't see anything that [CLINICAL PSYCHOLOGIST] was talking about was relevant [...] The first session I went to I thought 'what on earth am I doing here?' So I gave it a go, I went to the second session and again I thought 'what on earth is all this about?' I couldn't relate to any of what he

was talking about. It all seemed wishy-washy and I just couldn't... there was nothing concrete about it.

Some informants felt that demographic factors and age in particular influenced the extent to which participants understood or were receptive to the psychological orientation of the intervention:

...for older people you need to talk their language, because they speak a different language. They're not, you know... they've been through wars and what not... you know they just want someone to tell them either way.

With most biomedical interventions, effectiveness is not compromised by the patient's failure to understand the science behind it, but is this the case with psychological interventions? We return to this question in the discussion.

Informants reported their own interpretations of how the intervention had helped them, for example, by encouraging them to reframe their own difficulties by comparison with others in the group and in doing so acquire an increased motivation to cope:

...there was one lady that said she couldn't... she wasn't going to be able to swim and then she did. I said, 'well if she can do that then I can do the gardening, and that's what I did; so that's where transformation came about. I thought, well I've got to be positive and I've got to do something. I can't just sit here and just fester, I've got to go out and do something, and that's what I did.

Another informant described their experience in a way that matched the intended focus of the intervention, a focus on creating openness to experiences of pain and on values:

It's helped me to realize that the pain, to consider that pain is... not necessarily something to stop you doing things, to view life in a different way so life can become more rewarding, if you set yourself objectives based on your values and all the rest of it, then erm, unless someone is already doing that then I think that it would benefit people, yeah.

Acceptability

Results from the 12 interview questions on acceptability are included in Table 3. There was again a majority of positive ratings. For nine of the items, 75% or more of the participants rated their experiences as acceptable. Particularly, high rates of acceptability were achieved for the invitation and consent processes, the content of the sessions, and the experience of engaging in the session tasks and activities, each rated as acceptable by >87% of participants. Three items were less consistently acceptable, the aspect of random allocation, where 8.3% (two participants) found this unacceptable and 33.3% found it neither acceptable or unacceptable; the number of sessions, where 33.3% found this unacceptable and 8.3% found it neither acceptable or unacceptable; and the length of sessions, where 37.5% found this unacceptable. For the number of sessions, two participants wanted fewer and six participants wanted more. For the length of sessions, 8 of the 24 participants wanted the length reduced.

Again, the qualitative data revealed a more complex and nuanced set of responses to the format and content of the sessions, which many found challenging. We have reported that some informants found the sessions emotionally challenging or difficult to understand; in addition, several participants found the duration of the sessions and the mode of delivery difficult to cope with:

I managed to stay awake and I... if I have a wander 'round or something, and have a cup of tea. But it just felt, it just felt... to be honest I don't really like classrooms, do you know what I mean?

With a biomedical intervention, patient discomfort might be acceptable if the benefits of the intervention are deemed sufficient to warrant it, but there is an unequivocal imperative to minimize such discomfort. However, with a psychological intervention, which aims to equip participants with coping or pain management skills, with the capacity to face discomfort, patient discomfort is not simply an undesirable by-product of the intervention, but may be an essential component.

Discussion

Overall, with a couple caveats, it appears feasible to conduct a larger RCT of ACT for chronic pain

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in general practice. The specific design and content features examined here included a two-arm study with TAU as the comparison arm, adults with general chronic pain without regard to pain location or diagnosis as the population, an efficient screening process, single-provider delivery in general practice settings, and a treatment course that included exclusively group-based delivery during just four visits over a two-week period. An important implication of these feasibility results is that the ACT treatment itself also appears acceptable and feasible to deliver in primary care in the United Kingdom.

Recruitment for this trial was done efficiently, requiring less than two months for each of the locations where treatment was delivered. Attendance was also good. Out of 37 participants allocated to the ACT arm, 26 (70.3%) attended three or more of the four sessions, our definition of treatment completion. These results compare favorably with the 63% who attended at least half the sessions in another recent larger scale trial for low back pain (Lamb *et al.*, 2010).

Almost uniformly the treatment experience received high ratings of credibility and acceptability, with our tests of feasibility based on the patients' views. Between 86% and 94% of the participants found the treatment logical, a treatment they could recommend, and were overall satisfied with the treatment. Between 87% and 100% of the participants found the process of invitation, the process of consent, the focus of the treatment, and the particular methods used in sessions to be acceptable. These issues are not trivial or irrelevant. ACT does not aim for pain reduction but for improved functioning, an agenda that can be confusing and is often perceived as at odds with the patient's primary agenda, which is pain relief. ACT also includes processes that appear psychologically complicated and difficult to learn, often leading professionals to believe that many patients will not 'get it.' In fact, experience in practice and the participants' views in the current study overall show just the opposite that, for many people, the highly experiential and psychologically intensive methods may create greater engagement and interest.

Post-treatment interviews and qualitative analyses show that behind the generally positive quantitative ratings of the treatment experience there are tensions. Patients with chronic pain suffer from both pain and confusion. They want to know why they

have pain and how to reduce it and they seek treatment for these purposes. These are very normal and strong patterns in human behavior. However, when these patterns of behavior are unsuccessful, and when this leads directly to further problems, ACT methods attempt to redirect patient effort away from these purposes and onto more healthy activities. These patterns in behavior, however, are never completely erased (Bouton, 2000). They are merely suppressed when a competing behavior pattern, focused on other purposes and goals, is stronger. Negative patient reactions to discomfort and confusion during treatment, or such things as complaints about session length, are not ideal under any circumstances and should not be ignored. They suggest three possible directions for further treatment development: (a) makes sessions more clear and comfortable, (b) apply greater effort in the treatment toward helping people openly sit with some degree of discomfort and confusion, or (c) identify those who particularly respond with strong and durable resistance to these experiences and provide them a different treatment experience. The theory behind ACT, the central role of avoidance in pain-related disability (Vlaeyen and Linton, 2000; McCracken and Samuel, 2007), and our experience during treatment delivery would suggest that the latter two options offer the most promise for further treatment development.

Certainly there are features of this feasibility trial that may require further examination before they are optimized. More than a third of the participants expressed a relatively low level of credibility that this treatment will reduce the impact of pain on their life, and the same number rated the session length as too long. Of course, reducing the impact of pain is the purpose of this treatment and thus the substantial proportion of participants who expect not to achieve that seems worrying. On the other hand, by design, ACT aims to produce behavior change and improved functioning whether participants believe they can do it or not – it is distinctly not a treatment aimed at producing positive beliefs. Nonetheless, such beliefs can have a positive influence and their absence for a substantial fraction of those participating in treatment is worth further investigation.

The issue of session length presents a dilemma. The experience during treatment delivery was that patients experienced increased pain and became fatigued during sessions. Although these

might be seen as adverse events, within the ACT treatment model they are not necessarily so. In ACT, these are experiences that present opportunities for learning and rehearsal. In fact, such experiences are a necessary part of treatment. Either way, it will be worth seeking the best way to optimize the level of challenge presented in sessions, the extent of learning achieved, and level of engagement, by continuing to look at session length, and other manipulable processes, such as participant selection.

The purposes for the smaller number of longer sessions were several. First, it was intended to reduce the burden of patient travel and to create fewer chances for missed sessions. It was also designed to reduce the travel burden of treatment providers, as this treatment was designed to be deliverable by providers who are not themselves based in primary care or necessarily in the region where the treatment is delivered. Finally, there is accumulating evidence that short treatment formats can produce significant results, including formats as short as one or two days (eg, Dindo *et al.*, 2012).

The recruitment and screening process for this feasibility trial was purposefully designed, with access and cost-effectiveness in mind, for broad inclusion and efficiency. It is possible that these processes were overly inclusive. Although these patients were contacted through general practice, most did not present with recent, uncomplicated, chronic pain, as one might imagine. More than 50% of the sample had chronic pain for more than 10 years and the same number had seen four or more doctors seeking treatment for their pain. Excluding those who were retired from work, 58% of the patients were either out of work or working significantly decreased hours because of their pain. A significant proportion (40%) reported a history of depression. Two patients attended treatment in wheelchairs, and at least four in the ACT arm had already attended and failed intensive psychological treatments in specialty centers. On the basis of experience during treatment and in the post-treatment interviews, some of the participants attended the first session with goals that were incompatible with the treatment being provided. Perhaps the use of an interview for screening purposes, rather than a records search and paper screening process, would have helped some of these people appropriately choose not to attend.

There is a growing evidence base for ACT for chronic pain. However, the evidence base is far from definitive. Most studies are small in scale and not optimally designed to isolate and verify the specific benefits of ACT-related therapeutic processes, including primarily psychological flexibility. None of the previous treatment outcome results from ACT were obtained from treatment delivered in general practice in the United Kingdom. On the basis of the present results, a larger more definitive trial of ACT for chronic pain appears feasible in this setting.

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