Mindfulness (2015) 6:1181–1191
DOI 10.1007/s12671-014-0370-7

ORIGINAL PAPER

MBCT for Patients with Respiratory Conditions Who Experience Anxiety and Depression: A Qualitative Study

Alice Malpass · David Kessler · Debbie Sharp · Alison Shaw

Published online: 13 January 2015

Abstract Patients with asthma and chronic obstructive pulmonary disease (COPD) often experience anxiety and depression in relation to their respiratory condition. Anxiety and depression in this population are associated with decreased activity. The aim of this phenomenological study was to carry out in-depth qualitative interviews with a purposive sample of patients with asthma and COPD taking part in an 8-week mindfulness-based cognitive therapy (MBCT) course to explore their experiences of MBCT. In particular, we were interested in how the mindfulness approach helped them, or not, and their awareness of any meaningful changes in relation to their breathlessness, activity levels, anxiety or low mood. Twenty-two patients were recruited from primary and secondary care to receive an 8-week course in MBCT. Two groups of MBCT were taught by qualified MBCT teachers in a community setting. Of the 22 patients who attended the MBCT course, 12 patients were purposively sampled to take part in an in-depth qualitative interview 2 months after completing the MBCT course. Interviews were digitally recorded and transcribed verbatim. Analysis was thematic. The themes that emerged included greater acceptance and reduced sense of disease-related stigma; noticing subtle bodily sensations to detect early warning signs of breathlessness; linking pulmonary rehabilitation advice with mindfulness; developing a new relationship to breathing, activity and associated thoughts; having a greater sense of control; being creative around limitations and removing psychological barriers to being more active. Findings offer, for the first time, qualitative evidence on how MBCT benefits patients with asthma and COPD who experience anxiety and depression. These data provide a useful adjunct to existing quantitative evidence in this area.

A. Malpass (✉) · D. Kessler · D. Sharp · A. Shaw
School of Social and Community Medicine, University of Bristol, Canynge Hall, 39 Whatley Road, Bristol BS8 2PS, UK
e-mail: a.malpass@bristol.ac.uk

Keywords COPD · Asthma · MBCT · Anxiety · Depression · UK

Introduction

Patients with asthma and chronic obstructive pulmonary disease (COPD) often experience anxiety and depression in relation to their respiratory condition. Rates of depression and anxiety are three times higher in those with COPD than in matched controls (Egede 2007). Similarly, rates for depression and anxiety are higher in patients with asthma than in matched controls; estimates of the odds ratios for depression in this group range from 1.7 (Wilhelm et al. 2003) to 2.5 (Kessler et al. 2003). Like COPD, asthma is a chronic condition with distressing symptoms, and patients often feel restricted or give up activities they enjoy out of a fear it will trigger breathlessness. These factors may be associated with the development of depression and reduced quality of life. Patients with asthma often experience anxiety in managing the 'uncertainty' of when an asthma attack may happen; this can lead to avoidance of certain situations and activities with consequent loss of engagement. Similarly patients with COPD live with the uncertainty of a coughing fit and restricted airflow, continually living with the anxious thought that their next breath may be their last.

The literature discusses a circular self-reinforcing relationship between respiratory difficulty and the symptoms of anxiety and depression for patients with COPD (Eisner et al. 2010; Spruit et al. 2010). For patients with asthma, a similar circular self-reinforcing relationship is described as the dyspnea-fear theory (Deshmukh et al. 2007). For some patients with COPD or asthma, anxiety, stress and strong emotion are triggers for increased respiratory difficulty. For other patients, it is the difficulty in breathing that causes the distress. A very similar 'learnt association' between activity,

breathlessness, ruminative thoughts and avoidance behaviours exists for patients with COPD and asthma. In Fig. 1, an adaptation of diagrams available from the 'Living well with COPD' website (http://www.livingwellwithcopd.com/) and Asthma UK website (http://www.asthma.org.uk/) shows when a patient with COPD or asthma increases activity, this often results in breathlessness, triggering anxiety. From a mindfulness-based cognitive therapy (MBCT) perspective, the anxiety may trigger ruminating and catastrophising thought streams (associated with depression) and the avoidance of activity. For patients with asthma and COPD, comorbid depressive disorder can result in a vicious cycle of fear and avoidant behaviour: depressed mood reduces the patient's ability to cope with the physical symptoms, which become less tolerable (Yellowless and Kalvey 1990). For example, a patient with asthma explains: 'When I get low my asthma gets worse, then I feel more depressed because my asthma is bad, and it affects my sleep, and my chest. The whole thing becomes a vicious circle' (Asthma UK2011, p. 4). The National Institute for Clinical Excellence (NICE) guidance on the treatment and management of depression in adults with a chronic physical health problem emphasises the 'importance of offering psychological and psycho-social interventions before considering anti-depressant drugs' (NICE CG91, 2009, p. 316).

There is a growing awareness of the link between mood and asthma symptoms (Affleck et al. 2000). Several studies have shown a positive effect of cognitive behavioural therapy (CBT) on asthma quality of life (QOL) (Ross et al. 2005) and that relaxation therapy may lead to a reduction in 'as needed' medication (Epstein et al. 2004). Despite this evidence, a systematic review of 14 randomised controlled trials (RCT)'s involving 617 patients with asthma was unable to draw firm conclusions for the role of psychological interventions in asthma due to the heterogeneity and low quality of studies (Yorke et al. 2007).

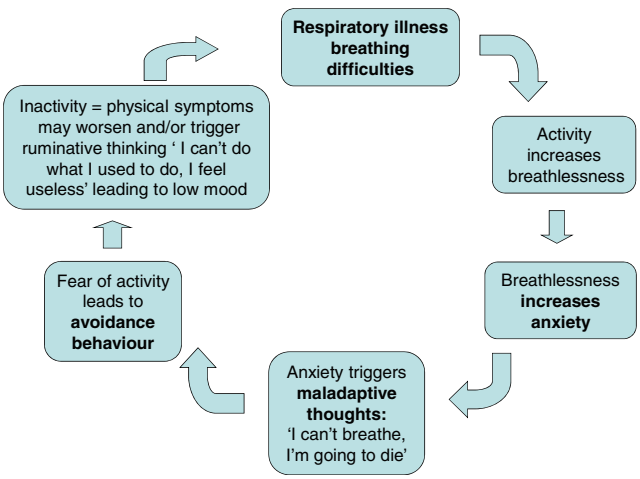

Fig. 1 The learnt cycle of mood, breathlessness and activity for patients with asthma and COPD

A number of psychological interventions for COPD have also been studied. For example, Lamers et al. (2006, 2010), Kunik et al. (2008), Livermore et al. (2010), Kapella et al. (2011), Hynninen et al. (2010) and de Godoy and de Godoy (2003) have all conducted RCT's delivering CBT interventions to patients with COPD. A recent systematic review and meta-analysis of 29 RCTs (n=2063) of non-pharmacological interventions for symptoms of depression and/or anxiety in adults with COPD concluded that behavioural interventions can reduce symptoms of self-reported depression and anxiety in patients with COPD, but their overall effects are small (Coventry et al. 2013). In particular, Coventry et al. (2013) argue that the relative effectiveness of cognitive behavioural therapy, relaxation and self-management education is uncertain in this population, suggesting instead that interventions that promote an 'accepting mode of response' such as mindfulness might be more appropriate and effective for managing psychological distress in patients with COPD, especially breathing-related anxiety. Whilst there are no known large randomised trials of mindfulness for patients with COPD, there is one published RCT of mindfulness for patients with asthma (Pbert et al. 2012). At 12 months follow-up after an 8-week course in mindfulness-based stress reduction (MBSR), there were clinically significant improvements in quality of life and perceived stress but not in lung function. To date, there has been no published qualitative work that explores the experience of mindfulness for patients with asthma and COPD. Without this type of research, our understanding is limited of how mindfulness may be linked to better management of respiratory illness and/or improvements in health-related quality of life.

MBCT (Segal et al. 2002) is a manualised 8-week group intervention based on Kabat-Zinn (2011) MBSR programme. Unlike MBSR, MBCT is informed by a cognitive model of depressive relapse and was developed to help people with recurrent depression learn skills that prevent depressive relapse. In the UK, the National Institute for Clinical Excellence recommends MBCT for the prevention of relapse in chronic depression. An 8-week course emphasises an open and accepting mode of response alongside its use of the breath as a focus of attention. The focus on the breath is not about teaching patients how to control the breath (as in pulmonary rehabilitation) but instead encouraging a befriending attitude towards the breath and a 'turning towards' difficulty without any agenda to change or alter it, allowing the difficulty to be just as it is. The mindfulness approach posits that it is this 'turning towards difficulty' and 'allowing' that actually enables patients to find their difficulty less debilitating and overwhelming (Crane 2009).

The aim of this phenomenological study was to carry out in-depth qualitative interviews with a purposive sample of participants to explore experiences of the 8-week course in MBCT for patients living with COPD or asthma. In particular,

we were interested in how the mindfulness approach helped them, or not, and their awareness of any meaningful changes in relation to their breathlessness, activity levels, anxiety or low mood.

Method

Participants

Adults 18 years of age or older from two primary care practices in the South West of England were invited to take part in an 8-week course of MBCT. Adults needed to have a coded diagnosis of either COPD or asthma and comorbid symptoms coded as low mood, depression or anxiety. We also recruited participants who attended a pulmonary rehabilitation follow-up clinic at a hospital setting in the South West. These patients had a COPD diagnosis and a score of over 12 on the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith 1983). HADS is routinely used at review in the pulmonary rehabilitation clinics and so involved no additional research burden for staff or patients at the recruiting clinic. Ethical approval was obtained for the study from the Avon Primary Care Research Collaborative for Research Governance (ref: 2010-047) on 13 December 2010.

Procedure

Participants were invited to take part in an adapted version of the MBCT course as set out by Segal et al. (2002) (see Table 1). Our adaptations centred upon being sensitive to patients with dyspnea, for example, we provided an alternative to the breath as a point of focus during guided meditations, such as focusing on sensations in the soles of feet. Participants were asked to complete a 30-min home practice in between weekly sessions and record their observations of the practices on home practice sheets for feedback from teachers. Two courses were taught consecutively, one with ten participants and one with 12 participants. Both courses were taught by two qualified mindfulness teachers in a community setting. The lead author observed both courses as a participant observer.

Table 1 Themes covered in the 8-week course of MBCT

Week	Course theme
1	Automatic pilot
2	Dealing with barriers
3	Mindfulness of the breath in stillness and movement
4	Staying present
5	Acceptance and allowing
6	Thoughts are not facts
7	How can I best take care of myself
8	Using what has been learnt to deal with future moods and breathlessness

Recruitment to the qualitative study used purposive sampling to represent equal numbers of participants with COPD and asthma, men and women, a range in weeks attended, and whether patients completed home practice sheets during the course (see Table 2). Of the 22 patients taking part in the MBCT courses, 16 patients were approached by a researcher by email or phone to take part in a qualitative interview that would take place 2 months after completing their MBCT course. Of the 16 patients approached, two patients did not respond and one patient asked to defer the interview until she had worked through the course again on her own following a recommended MBCT book. Thirteen patients agreed to be interviewed. Data saturation was reached from the 13 completed interviews and so no further recruitment took place to the qualitative study.

Measures

Thirteen in-depth one-to-one interviews with participants were carried out, using a topic guide (see Table 3). Seven interviews took place at the participants' homes and six at a room in the university (based on participant preference). One of the 13 interviews was excluded from the analysis reported here after equipment failed to record the interview; therefore characteristics of this participant were excluded from Table 2. All interviews took place 2 months after the last session (8th week) of the MBCT course regardless of how many weeks each participant had attended. We chose a 2-month time lag between the 8th week of the MBCT course and the qualitative

Table 2 Characteristics of participants interviewed using purposive sampling strategy

COPD or asthma (6 COPD/6 asthma)	Number of weeks on course	Gender (6 males/6 females)	Handed in weekly home practice sheets
Asthma	3	F	Y
Asthma	7	F	N
COPD	4	M	Y
COPD	3	M	Y
Asthma	8	M	Y
Asthma	6	M	Y
COPD	7	F	Y
Asthma	2	F	N
COPD	6	F	Y
COPD	7	M	Y
Asthma	6	F	N
COPD	8	M	Y

COPD chronic obstructive pulmonary disease, *M* male, *F* female, *Y* yes, *N* no

Table 3 Topic guide used during in-depth interviews

Experience of different mindfulness practices
Experience of home practice
Experience of group context
Experience of group facilitator
Has anything that you had lost as a result of your respiratory illness been restored to you?
What practices/skills do you use now?

interview so we could explore whether any perceived changes (in breathlessness, activity, low mood or anxiety) had been sustained over time or sustained independently of the weekly input of the group context and teacher. The first author conducted all the interviews which lasted between 1 and 2 h. As the first author had been a participant observer during all the components of each MBCT course, she was well known to the participant and good rapport was already established. Limitations of this familiarity are discussed below.

In addition to qualitative interviews, the following data were also collected and analysed: participant observations and digital recordings of all the eight weekly sessions of MBCT; copies of weekly home practice sheets (where these existed); recordings of the MBCT teacher and patient one-to-one orientation consultation that was a prerequisite for attending a MBCT course (Crane 2009). However, in this paper, we only report data from the qualitative interviews.

Data Analyses

The 12 digitally recorded interviews were transcribed verbatim. Participant identifiers were removed by the lead author. Interviews were analysed thematically, coding the data for both anticipated and emergent themes. Data were not double coded. To initially maintain a sense of each participants account, printed copies of the transcripts for each participant were read and reread, marked by hand for what initially appeared to be significant for each person. Brief notes were made by hand on the transcript to summarise each participant's experience of the MBCT course, including links and inconsistencies within each participant's account. A thematic table was constructed to organise the data, examine continuities and inconsistencies within an individual participant's narrative and aid interpretation across participants. This approach was chosen over coding in a qualitative software program such as Atlas.ti as the latter can lead to fragmented accounts of an individual's experiences and possibly miss important relationships within one account (Braun and Clarke 2006). In the table, participants were listed in the first column, and each transcript was taken in turn. When a theme was noted, it became a column heading in the next available column with verbatim quotes added into the corresponding cell. In the rows above each labelled theme, interpretive notes were kept as more participants began to share a particular theme/column. After all the transcripts had been analysed thematically, the theme label was refined to make sure it represented all the data entered within it. This involved a similar process to that used in meta-ethnography, where there is an 'interpretive translation' of the theme label across all the relevant data (Malpass et al. 2012). A theme was considered a 'key' theme not only because it was heavily populated by quotes across a large number of transcripts/participants but if it played a particularly key role in an individual's account. The spaces in the tables could also indicate an important absence of a theme in one participant's account. Notes on relationships between theme headings were also noted and fed into interpretive field notes during the analysis period.

Results

The main themes emerging from the data were greater acceptance and a reduced sense of disease-related stigma, noticing subtle bodily sensations to detect early warning signs of breathlessness and feelings of panic, linking pulmonary rehabilitation advice with mindfulness tools, experiencing a new relationship to breathing, activity and associated anxious thoughts, having a greater sense of control, being creative around limitations and removing psychological barriers to being more active. If disconfirming evidence was available for a theme, it is reported at the end of that theme's section. Our analysis also reports any differences between participants with COPD and asthma in their awareness of any meaningful changes. We also explore data from participants who struggled with the course or perceived little benefit. We selected verbatim quotes to discuss and illustrate each theme. In parentheses after each quote is information on the sex of the participant being cited, their COPD or asthma diagnosis and the number of weeks out of 8 MBCT sessions that they attended.

Greater Acceptance and Reduced Sense of Disease-Related Stigma

Participants reported a greater acceptance of their respiratory illness, in particular, feeling less embarrassed when in public spaces. The accepting mode of response taught in the course effected participants in different ways, helping them work with different types of difficulty. For example, when asked if he remembered how his breathing was before the MBCT course started, a male patient with asthma commented:

> I did feel the course helped me accept it more rather than fight it. (M, asthma, 8)

For the other participants, there was a shift in the way they related to the limitations of chronic respiratory illness placed upon their mobility. There was also an acceptance of vulnerability as part of life:

> I was trying to do everything as normal which I used to, and I could not do it. But I think it was more like pig ignorance. I wasn't going to bow down to say well, there's something wrong with me. We don't accept there's something wrong. It has really turned me right round because I always thought I was on a spiral, slowly going down but now I've suddenly shot back up again…accept life as it is more and more. We're not all invincible, we've all got illness and we're all different. (M, COPD, 7)

Beneath the surface of this general sense of acceptance of respiratory illness was, on the one hand, an acceptance of vulnerability and, on the other hand, an accepting mode of approach towards the episodic panic and breathlessness:

> There's times when you think 'I'm not going to breath again'. And that makes it worse. If you can sit and say, 'oh that's a bit breathless, oh, here we are then', you're fine, but if you think 'oh my god, I'm not going to breathe again!' it doesn't help you one little bit. You just get worse. I think the course taught me to calm down [pause]. Once you've got COPD you never get rid of it, it's always with you. It's just how you manage it.. I don't panic so much as I used to. I think it came home to roost doing the course. You feel vulnerable, yes, but you don't feel acceptance of that vulnerability. You know I don't want to die, but when my time comes I will die… At LEEP (pulmonary rehabilitation drop-in club), we had really good friends we used to go for coffee and there was two tables full. Now there's one table full. So you either accept it or you get maudlin about it and think 'oh my god, I'm the next one on the list', I just accept it now. (F, COPD, 7)

Part of the accepting mode of response was a realisation for participants of what was and what was not within their power to change. Instead of fighting what cannot be changed, participants learnt a new way of relating to it:

> You can actually take some control over your breathing and your jangled, jumbled, depressive whatever feelings you have…(mindfulness) can help you gather those things in, Say, 'right, yeah let's just be aware'. Perhaps there's nothing I can do about it, but I can be aware of it. And I'm actually doing this. (M, COPD, 4)

In a similar way to participants descriptions of experiencing a new acceptance of their breathlessness, some participants also described being able to accept their low mood symptoms instead of fighting against them. Acceptance of low mood symptoms often included kind 'self-talk':

> When I'm just not able to motivate myself… I understand why that is now, so you just kind of accept it and think 'oh, I need to rest' rather than trying to fight against it. When I'm most tired is when my depression symptoms are there, so I just need to rest and I try to be a bit kinder to myself… identifying the feeling and the trigger and then better able to find solutions to it as well, like what I need to get back on track rather than just sort of fighting against it all the time and getting myself into a worse and worse state. (F, asthma, 7)

Acceptance of low mood symptoms and chronic respiratory symptoms lifted a disease-related stigma that many participants had carried for years, 'living a lie' in an attempt to hide their limitations (F, asthma, 7):

> we feel in some way ashamed of letting other people know. (the course) it's got me to mix with people. I'd shut myself away… I had no faith in the course at all (but) it really worked…I always thought people were staring at me…when I'm wearing my oxygen or because I'm walking with a stick… and you think, 'well, he's a bit young to be walking with a stick, I can't see anything wrong with him.' I can't keep pace with you and I've got to stop… I think well, what am I so worried about? Don't even look at me, go the other way then. Sod off! That's the way I look at it now. (M, COPD, 7)

In our data set, we had two disconfirming cases. Two participants expressed their continual sense of struggle and shame:

> feels like it's been a fight for just too f**king long you know? (F, borderline asthma/COPD, 6)

This participant carried a lot of fear around choking to death and any description of these episodes triggered crying and a sense of despair during the interview:

> If someone is with me, I'll grab their hands, because they don't know, sometimes if I'm starting to choke, [tearful]…sometimes a little thought goes, 'oh god you're going to die in front of all these people…I feel deep down at the moment, it sounds really irrational, but I just feel like I'm going to die, got a real fear about …[tearful] dying, and the irony of that maybe is, just sort of sometimes that would be preferable, you know? (F, borderline asthma/COPD, 6)

The participant's low mood (expressed in feelings around dying) was making it harder for her to manage and work with her breathing difficulties. The participants distance from

acceptance was highlighted in her description of a 'crisis approaching' and feeling ashamed of her respiratory limitations. Another patient with asthma who left the course after week 3, hospitalised with a chest infection, described a resistance to any suggestion of an accepting mode of response. She believed, as many participants initially do on the MBCT course when it is first suggested, that acceptance of how things are will result in them getting worse:

> wouldn't that make you feel worse, if you keep thinking about it? [its better to] try and push it out? (F, asthma, 3)

This participant misunderstood acceptance to involve 'thinking about' something rather than simply allowing it to be present in awareness. She believed that if you allowed difficulty to be present, without pushing it away, that she would 'still have it [the difficulty] inside me' (F, asthma, 3). The accepting mode of response in MBCT is based on the hypothesis that it is by pushing away unwanted experience that we reinforce and perpetuate its impact upon us. Unlike other participants on the course, the woman cited above had left the course after week 3 due to illness, before the invitation to move towards and welcome difficulty had been introduced and worked through. As a result, the accepting mode of response remained counter intuitive and something to be feared.

Noticing Subtle Bodily Sensations to Detect Early Warning Signs of Breathlessness

A starting point in the MBCT course for learning an accepting mode of response is learning to notice very basic yet subtle bodily sensations, for example, noticing a sensation of heat or moisture on the surface of the skin when feeling anxious. For a patient with COPD, this was significant:

> It's a personal awareness of a side of me that I didn't know was really there… It allows me to be able to look at myself and my feelings in a different way, in a sort of internal way… you know your body tingles, before (the course) I would never give that any attention but now I am thinking 'oh what's all that about'… (M, COPD, 3)

One participant described being able to identify an earlier warning sign in the body that a breathless episode was threatening to develop:

> I've actually picked up on a earlier warning system than what the hospital told me. The Hospital has always said you will start to feel yourself going tight. I found, before I go tight, my shoulders go up which causes the tightness to your chest …you start to panic. I haven't done that for ages…I've realised, pull your shoulders down, it bloody stops it! And it works. (M, COPD, 7)

Linking Pulmonary Rehabilitation Advice and Mindfulness

After noticing body sensations and thoughts, participants described 'stepping back' from difficulty, creating a space from which to choose an appropriate and helpful response, instead of reacting automatically with panic. This ability led some participants to implement pulmonary rehabilitation advice for the first time. Here, a participant describes how he managed his breathlessness whilst walking up a steep hill to meet the researcher for the interview:

> Participant: simply the awareness that you can step back, especially when it's uncomfortable you can just step back, you can feel the breathlessness…You realise what it is… and the panicking and getting involved in it, you almost take a step back and reflect on it, think 'what to do', instead of just going along with it. It's like 'ok I'm getting breathless but I need to do something about it'. Instead of – like 'oh my god this is horrible!'… It gives you that opportunity to apply something, deeper breaths are exactly what I need to do if I get in that situation. AM: ok, at LEEP (pulmonary rehabilitation clinic) they told you to breath more deeply? Participant: right, but until the sessions with you, I wouldn't apply it. (M, COPD, 3)

Our data had many examples of participants developing a new relationship with their breathlessness during activity (for example, getting dressed) which often involved being able to breathe, sometimes for the first time, in the way recommended at the pulmonary rehabilitation clinic:

> I still get the problems of breathing first thing in the morning, when I get out of bed, start struggling. I realise since I've done this course that if I stop and think about some of the things that were said in the course to do and stopped what I was doing, it worked. I could carry on and my breathing went back to normal. I wasn't racing or going [gasps] for oxygen, plus my wife was saying 'in through your nose, and out through your mouth' she shouted at me. And I said something else…. [laughs] but I won't repeat it. But I've even got to the stage now I actually do that (breath in through nose/out through mouth) which I didn't do before. This was my problem. I would try and do it in a hurry, 'get dressed, put the kettle on and have all my tablets' … it was all racing through my mind. Well now …I'll sit and think for a few seconds what I'm going to do or click into something that was on the CDs, like concentrate from your feet up through the body, and I felt that worked because by the time I had got up to here (chest area), my racing theories had gone and I've slowly got dressed in the meantime without realising it. [laughs] And it does work. (M, COPD, 7)

This participant was able to teach himself to breathe through his nose and out through his mouth by using the mindfulness body scan practice to facilitate an everyday activity—getting dressed. He describes using the practice (which starts with feeling into the sensations of your feet) as a way to unhook from his habit of 'rushing' in the morning. By letting go of his 'rushing' type thoughts (such as 'I must get dressed so I can go onto the next thing') he was able to stay present simply with his body as he got dressed and this seems to have resulted in both a calming down and a slowing down-facilitating his ability to then breathe through his nose and out through his mouth. Both these examples demonstrate that knowing what to do, during a breathless period is not enough (even if your wife is reminding you!); both participants describe a shift in how they first relate to the thoughts about their breathlessness and other habits such as rushing, before being able to put their knowledge into practice. The same participant spoke again about combining the MBCT advice with his pulmonary advice:

> 'through your nose and not your mouth'… the hospital teaches that, but you find yourself saying … 'yeah, yeah yeah. Shut up! [breaths in sharply]…Its the combination of the two (placing hand on mindfulness course folder)… with the hospital one they say yes, if you get a panic attack, breath in through your nose, out through your mouth, relax, and that's it. With (hand on mindfulness course folder) with that, there's that little bit more which says 'that's how to do it'… because with the breathlessness you can hit a stage where you are full in panic. You start thinking stupid bloody things – am I doing to die? Do I need an ambulance? How am I going to get an ambulance – especially if I'm on my own? How am I going to get to the phone? I can't do it. More panic sets in and the next minute you've passed out. But doing mindfulness, I'm thinking what the hospital told me and linking it with that (hand on mindfulness folder).. great. It works. I haven't had a panic attack at all since because I've linked the two together. (M, COPD, 7)

Linking MBCT and pulmonary rehabilitation was not something the MBCT teachers had taught or prompted explicitly. Participants made the links between pulmonary rehabilitation and MBCTthemselves as they discovered a relationship between a mindful awareness of the breath alongside an awareness of anxious thinking.

Participants reported a new relationship to their breathing as well as activity and associated anxious thoughts. One of the ways MBCT is thought to work is by 'redirecting attentional resources' (Crane 2009). For example, by focusing on sensations in different parts of the body during the body scan, there are less attentional resources available for ruminative thinking. Participants in our study spontaneously described this when asked about any changes in their mood:

> the body scan is quite a good one sometimes, if i'm feeling a bit anxious, just do that and i think it disciplines the mind, it just gives you something else to think about. (M, asthma, 6)

Realising 'thoughts are not facts' was a major revelation for participants that changed how they related to their breathlessness. For example,

> I was trying to get some sense of why my moods altered so much, so wildly and so quickly. And it is to do with my breathing and if I'm having difficulty in breathing that leads to feelings of being less worthy and not being able and all those 'not' words, you know… 'not being part of', 'not able to do', 'can't go there because'…if I'm able to see them for what they are rather than react to them. Then I think that is creative. (M, COPD, 4)

For other participants, they were able to separate themselves from rising feelings of panic by coming closer to the experience of bodily sensation:

> that was the connection that I made right at the beginning. Doing that body scan enabled me to take the emphasis from my chest onto somewhere else. And I find that my chest then functions good on its own. (M, COPD, 4)

This is a good example of how MBCT, with its invitation to focus on bodily sensation, leaves less attentional resources for panic and rumination. Mindfulness is also thought to teach participants how to become a wider container for their experience so they are less overwhelmed by it (Malpass et al. 2012). In our data, a female participant with asthma described being able to separate the panic from the breathing difficulty during a led practice whilst attending the course:

> one of the lying down exercises (during a weekly session) I think I noticed a really big change because I think it just happened to coincide with a bit of breathing difficulty at the same time and then I was able to kind of separate myself from the panic. I was able to kind of sense that I was beginning to get really out of breath and then take myself away from the feeling of panic so it wasn't … I wasn't experiencing the panic anymore. It means I could kind of take myself away from the emotion of the situation and then just focus on the breathing a bit better because I could very much separate the two. (F, asthma, 6)

Being able to step back from the panic or fear was a common experience for participants in the study. In this case, the participant had noticed for the first time that her breathing

difficulty was a source of anxiety. Before the course, she had associated any anxiety she experienced with her mental health diagnosis:

> I remember getting panicky feelings around my breathlessness if I was starting to get short of breath I would panic, which would kind of make it worse but then I would be having feelings of panic around different things which weren't related to the breathing at all… the anxiety that I felt with the panicking when I knew I was getting short of breath, I don't really get those panicky feelings any more. I haven't really since the course… I didn't realise that the respiratory problem does create some feelings of anxiety that I was just putting down to the depression and other anxiety if that makes sense… I thought all the feelings of anxiety I was having was related to the depression and not that there were two separate things going on. (F, asthma, 6)

Greater Sense of Control

This new relationship to breathing created a greater sense of control over their respiratory illness which continued for some participants even during bouts of illness:

> Just recently I had quite a nasty bout of my chest again…I only did it (the practice) twice a week, I did find it hard although I still enjoyed it, I found it helped me to regulate my breathing. (F, COPD, 7)

This sense of self-regulation, even during illness, was in stark contrast to our disconfirming cases. For the participant with borderline asthma/COPD who had struggled to accept her condition, any sense of regulation and control was based on fear, not on the mindful mode of acceptance:

> I don't practice it, I'm sorry I didn't during the course do the practice as much as I should have done…I'm more in control. I think I've had to be. It's based on fear… (tearful) because you think there's going to be nobody around and you're going to suddenly choke to death and there's going to be nobody there. (F, borderline asthma/COPD, 7)

In our analysis, we coded this as 'fear based' control as opposed to 'mindful control' which is based on greater awareness.

Being Creative Around Limitations

Part of the mindfulness approach is to learn ways to respond rather than react to situations. For participants who described the course as helpful, they reported a new ability to look at their limitations with a creative mind:

> Its hell, literally hell. Its like today I watched my wife dig a hole in the garden to plant a tree and I couldn't even bend down to pick a stone out…I walked away from it, thought about something else. Through this system (mindfulness) I think 'right turn around and go back down and see what I can do'. So I thought, 'alright think about it', so I sat on the floor when I did it (to pick stones out). (M, COPD, 7)

This participant's new ability to take a 'step back' and think calmly 'what can be done' gave him the ability to go back towards the difficulty and work through it, with kindness and acceptance. Notice in this short narrative, when he returns to the hole his wife is digging, he does not berate himself for his limitation but works with it. These new mindfulness-based coping skills meant he was able to stay involved and remain active, instead of giving up in that moment and becoming sedentary.

Removing Psychological Barriers to Being More Active

Avoidance of activity was often based on a fear of becoming breathless. The course helped develop a new relationship with thoughts, removing psychological barriers to being more active:

> It's easier now…I used to have a kind of a fear that if I didn't move out of someone's way they might bounce against me and make me fall…But that's no longer the case -although if somebody was to push me a bit hard I probably would still fall, but that has really changed, the fear is not there. I can now go down town. (M, COPD, 4)

Other participants discovered that the MBCT course had enabled them to walk further by helping them develop a 'nice and steady pace' from not feeling they had to 'rush about'. This links back to the theme of acceptance and a reduced sense of felt stigma, feeling comfortable with going at their own pace:

> its got my breathing right down to a nice and steady pace now. Before I could only walk, you haven't heard me say this, I could only walk 25 m. I've (just) walked all up here without stopping. Normally I've got to stop every 25 m…And that's by doing a lot of the mindfulness practice that's in here (tapping MBCT folder with hand). I think 'you're not in a rush, you're not racing. You've got your pace'. I slow down. I do it. (M, COPD,7)

In addition to the analyses reported above, we reflected on the differences between participants with asthma and COPD.

Participants with asthma and COPD described a new relationship to their breathlessness, both in general terms and in terms of episodes of potential panic when there is a sudden restriction of air flow or coughing. For both groups of patients, this involved a new ability to 'step back' from the panic and see it as a mental event. There was no obvious link between the number of weeks attended and reported benefits. For example, one participant struggled to name any benefits after attending 7 weeks whilst other participants named substantial benefits and shifts in mood and activity after as little as 4 weeks.

Participants Who Struggled with the Course or Perceived Little Benefit

In our analyses, we looked for disconfirming cases in terms of participants who experienced difficulty with the course content. One participant who completed the 8-week course, having engaged fully with the home practice both during and since the course ended reported overcoming a period of resistance during the course:

> I was a bit poorly and I didn't come for that one week, it sort of coincided, I was feeling quite angry about the course, like 'oh I have to write things down, I have to do these things and I'm just feeling so angry'…probably a by-product of how the course was starting to help. I don't know. So I started to feel a bit resistant to it and then I thought 'no', you know, 'keep at it', so I forced myself to keep going. (F, asthma, 7)

One participant reported no benefit of the course at all. However, this participant left the 8-week MBCT course after week 2 saying she found the time and length of the course inconvenient and lacked motivation to do the practices or attend the course. Two participants who were admitted to little home practice during or after the course seemed to report less perceived benefits in interview, suggesting perceptions of change may have a relationship to a certain threshold of engagement in the course. Another participant admitted to not really getting what the course was about but was committed to working through the course again on her own.

Discussion

In this study, we explored the experiences of patients with COPD or asthma who attended an MBCT course, whether it has helped them, and their awareness of any meaningful changes in relation to their breathlessness, activity levels, anxiety and low mood. The qualitative interviews found that MBCT could facilitate a greater acceptance of respiratory illness and a reduced sense of perceived disease-related stigma.

Participants developed skills in noticing subtle bodily sensations and learnt to detect earlier warning signs of breathlessness and rising feelings of panic. Some participants were able to make links between pulmonary rehabilitation advice and MBCT, resulting in them putting into practice pulmonary rehabilitation advice for the first time. Participants described a new relationship to their breathing and associated anxious thinking, which for some had resulted in increased levels of reported activity and involvement in the world (e.g. shopping in town, gardening) as well as reduced anxiety whilst doing day-to-day activities (e.g. getting dressed). Participants who found the course helpful reported a greater sense of control that seemed to be based upon two paradoxical shifts: a greater awareness of experience as it happens and a parallel process of 'stepping back' and disentangling oneself from the content of what is being observed.

Our purposive sampling strategy meant that a third of participants interviewed attended half or less of the 8-week intervention. Some participants were able to perceive benefits after attending four sessions, whilst others still struggled to find benefits after attending seven sessions. However, in our data, there was no obvious link between the number of weeks attended and reported benefits. This may be due to the fact that the number of weeks attended did not necessarily match the level of reported engagement with the course themes.

Research interested in the links between class contact hours and outcomes has been conducted (Carmody and Baer 2009). Carmody and Baer concluded adaptations that include less class time may be worthwhile for populations for whom reduction of psychological distress is an important goal and for whom longer time commitment may be a barrier to their ability or willingness to participate. However, the authors also warn that the standard mindfulness format has accrued the most empirical support for its efficacy and session time may be important to the development of other kinds of programme outcomes. We also noted that a period of resistance to the practices being taught may show up during the 8-week course for participants. A shortened mindfulness course may interpret a process of overcoming and working through resistance to challenging parts of the MBCT course, such as cultivating an 'accepting mode of response'. Therefore, unlike Carmody and Baer (2009), we would be more tentative in suggesting shortening the 8-week course of mindfulness for chronically ill patients.

Our findings give encouraging support to the systematic review and meta-analysis of non-pharmacological interventions for COPD (Coventry et al. 2013) that suggest mindfulness may be helpful. Specifically, our findings have shown that acceptance is a key theme in participants' descriptions of removing psychological barriers to activity, as well as increasing their sense of control and efficacy.

Our findings show that mindfulness changed participants' psychological relationship with their breathing difficulty which for some had resulted in increased levels of reported activity and engagement in the world as well as a greater ability to perform day-to-day activities with less anxiety. These changes may be associated with a greater quality of life and so resonate with Pbert's study (2012) which found mindfulness has a positive impact on asthma QOL and reduced scores on perceived stress scales.

Though no qualitative work has yet been published exploring Pbert trial findings, some research has looked specifically at the links between mindfulness and physical activity. Rejeski (2008) discusses why mindfulness may be particularly useful in promoting physical activity (among older adults) and how physical activity may be used as a vehicle to promote mindfulness. Rejeski (2008) posits that "physical activity can become a laboratory, providing valuable lessons about the nature and the impermanence of sensations…mindfulness is a way of living, a commitment to simply be with moment to moment sensory experience as opposed to being obsessed with doing things and going places, often finding ourselves trapped in a 'trance of unworthiness' if we cannot keep up" (p. 140). For respiratory patients in this study, most had found through mindfulness a new awareness of and a new way to relate to sensations of breathlessness and any associated anxiety or panic. As Rejeski suggests, day-to-day movements and activities became laboratories of discovery in which our participants saw, sometimes for the first time, the types of thoughts and feelings that were triggered by breathlessness. This knowledge and the experience of the practices gave participants a way to step out of the 'trance of unworthiness', to let go of "all those 'not' words" (patient with COPD) and embrace a new relationship with breathing difficulty.

Our finding that participants were able to put into practice pulmonary rehabilitation advice for the first time, suggests a rich area for future research on exploring the feasibility of integrating aspects of MBCT within existing pulmonary rehabilitation services (usually delivered as an 8-week course). There are problems with this, however. The clinical effectiveness of MBCT has been based on its delivery as an intense 8-week manualised programme designed to include a substantial commitment to home practice. It would be difficult to shorten the course in order to 'integrate it' without either loosing vital components of the programme or without overburdening patients with combined two 8-week courses. A larger study using mixed-methods design would enable researchers to empirically test whether variables such as number of weeks attended and home practice were associated with outcomes. Group-based psychological interventions for patients with respiratory illness are unusual in clinical settings. There is a need for more research on the therapeutic role of group inquiry sessions upon individuals' perceived sense of change.

The researcher carrying out the in-depth interviews was well known to the participants as she had been a participant observer on both 8-week MBCT courses. This may have made it harder for participants to speak openly about what they struggled with on the course and they may have felt an implicit impulse to 'please' the researcher who had shared the 8-week course with them. Within the anthropological discipline, familiarity can serve as a research tool and therefore a strength (Tedlock 1991). For example, observations of individual's process on the course can be reflected back to participants during interview, challenging accounts and playing devil's advocate with 'insider knowledge' based upon observations of weekly sessions. The researcher positioned herself during interview as a fellow 'participant' observer, who shared with interviewees reflections on the way the course was experienced and delivered. Another limitation is that no statistical test was carried out to ascertain whether the number of weeks attended and number of hours of home practice were associated with perceived benefits. While such tests are unusual in studies with a qualitative design, including them would strengthen the findings and provide important information for teachers and participants in terms of the level of commitment needed to obtain a benefit from the course. Another potential limitation is that some participants would have had a longer gap between their last MBCT session attended and being interviewed. This may have made it difficult for some participants to recall their experiences of the MBCT course. Lastly, the lack of bias minimisation (such as bracketing during coding) and the fact that data was not double coded is a methodological limitation of this study and means the findings presented here lack the quality assurance that double coding provides.

References

Affleck, G., Apter, A., Tennen, H., Reisine, S., Barrows, E., Willard, A., Unger, J., & ZuWallack, R. (2000). Mood states associated with transitory changes in asthma symptoms and peak expiratory flow. *Psychosomatic Medicine, 62*(1), 61–68.

Asthma, UK. (2011). *Factfile/depression* www.asthma.org.uk/all_about_asthma/factfiles/index.html.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research In Psychology, 3*(2), 77–101.

Carmody, J., & Baer, R. (2009). How long does a mindfulness-based stress reduction program need to be? A review of class contact hours and effect sizes for psychological distress. *Journal of Clinical Psychology, 65*, 1–12.

Coventry, P., Bower, P., Keyworth, C., Kenning, C., Knopp, J., Garrett, C., Hind, D., Malpass, A., & Dickens, C. (2013). The effect of behavioural interventions on depression and anxiety in COPD: systematic review and meta-analysis. *PLoS ONE, 8*, e60532.

Crane, R. (2009). *Mindfulness based cognitive therapy.* UK: CBT distinctive series. Routledge.

de Godoy, D. V., & de Godoy, R. F. (2003). A randomized controlled trial of the effect of psychotherapy on anxiety and depression in chronic

obstructive pulmonary disease. *Archives of Physical Medicine and Rehabilitation, 84*(8), 1154–1157.

Deshmukh, V., Toelle, B., Usherwood, T., O'Grady, B., & Jenkins, C. (2007). Anxiety, panic and asthma. A cognitive behavioural perspective. *Res Medicine, 101*(2), 194–202.

Egede, L. (2007). Major depression in chronic disorders. *General Hospital Psychiatry, 29*, 409–416.

Eisner, M., Blanc, P., Yelin, E., Katz, P., Sanchez, G., & Iribarren, C. (2010). Influence of anxiety on health outcomes in COPD. *Thorax, 65*(3), 229–234.

Epstein, G., Halper, J., Barret, E., Birdsall, C., McGee, M., & Baron, D. (2004). A pilot study of mind-body changes in adults with asthma who practice mental imagery. *Alternat Therap Health Med, 14*(4), 66–71.

Hynninen, M., Bjerke, N., Pallesen, S., Bakke, P., & Nordhus, I. (2010). A randomized controlled trial of cognitive behavioral therapy for anxiety and depression in COPD. *Respiratory Medicine, 104*(7), 986–994.

Kabat-Zinn, J. (2011). *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. New York: Hatchette Books.

Kapella, M., Herdegen, J., Perlis, M., Shaver, J., Larson, J., Law, J., & Carley, D. (2011). Cognitive behavioral therapy for insomnia comorbid with COPD is feasible with preliminary evidence of positive sleep and fatigue effects. *International Journal of Chronic Obstructive Pulmonary Disease, 6*, 625–634.

Kessler, R., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K., & Wang, P. (2003). The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *Jama, 289*(23), 3095–3105.

Kunik, M., Veazey, C., Cully, J., Souchek, J., Graham, D., Hopko, D., et al. (2008). COPD education and cognitive behavioral therapy group treatment for clinically significant symptoms of depression and anxiety in COPD patients: a randomized controlled trial. *Psychological Medicine, 38*(3), 385–396.

Lamers, F., Jonkers, C., Bosma, H., Diederiks, J., & Eijk, J. (2006). Effectiveness and cost effectiveness of a minimal psychological intervention to reduce non-severe depression in chronically ill elderly patients: the design of a randomized controlled trial. *BMC Public Health, 6*, 161–170.

Lamers, F., Jonkers, C., Bosma, H., Chavannes, N., Knottnerus, J., & van Eijk, J. (2010). Improving quality of life in depressed COPD patients: effectiveness of a minimal psychological intervention. *COPD, 7*(5), 315–322.

Livermore, N., Sharpe, L., & McKenzie, D. (2010). Prevention of panic attacks and panic disorder in COPD. *European Respiratory Journal, 35*(3), 557–563.

Malpass, A., Carel, H., Ridd, M., Shaw, A., Kessler, D., Sharp, D., Bowden, M., & Wallond, J. (2012). Transforming the perceptual situation: a meta-ethnography of qualitative work exploring patients' experiences of the therapeutic process of mindfulness based approaches. *Mindfulness, 3*(1), 60–75.

NICE. (2009). Depression with a chronic physical health problem-full guideline. *Clinical Guidance 91*, 316. Accessed from guidance.nice.org.uk/cg91.

Pbert, L., Madison, J. M., Druker, S., Olendzki, N., Magner, R., Reed, G., & Carmody, J. (2012). Effect of mindfulness training on asthma quality of life and lung function: a randomised controlled trial. *Thorax, 67*(9), 769–776.

Rejeski, W. (2008). Mindfulness: reconnecting the body and mind in geriatric medicine and gerontology. *The Gerontologist, 48*(2), 135–141.

Ross, C., Davis, T., & MacDonald, G. (2005). Cognitive behavioral treatment combined with asthma education for adults with asthma and coexisting panic disorder. *Clinical Nursing Research, 14*(2), 131–157.

Segal, Z., Williams, M., & Teasdale, J. (2002). *Mindfulness based cognitive therapy: a new approach to preventing relapse*. UK: Guildford Press.

Spruit, M., Watkins, M., Edwards, L., Vestbo, J., Calverley, P., & Pinto-Plata, V. (2010). Determinants of poor 6-min walking distance in patients with COPD: the ECLIPSE cohort. *Respiratory Medicine, 104*(6), 849–857.

Tedlock, B. (1991). From participant observation to the observation of participation: the emergence of narrative ethnography. *Journal of Anthropological Research, 47*(1), 69–94.

Wilhelm, K., Mitchell, P., Slade, T., Brownhill, S., & Andrews, G. (2003). Prevalence and correlates of DSM-IV major depression in an Australian national survey. *Journal of Affective Disorders, 75*(2), 155–162.

Yellowless, P., & Kalvey, R. (1990). Psychobiological aspects of asthma and consequent research implications. *Chest, 97*(3), 628–635.

Yorke, J., Fleming, S., & Shuldham, C. (2007). Psychological interventions for adults with asthma: a systematic review. *Respiratory Medicine, 101*(1), 1–14.

Zigmond, A., & Snaith, R. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67*(6), 361–370.