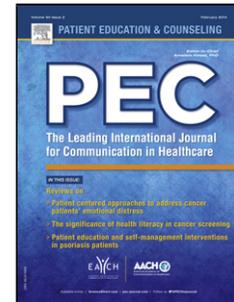


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**PERSPECTIVES OF HEALTHCARE PROFESSIONALS AND PATIENTS ON THE
APPLICATION OF MINDFULNESS IN INDIVIDUALS WITH CHRONIC
OBSTRUCTIVE PULMONARY DISEASE**

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Highlights

1. Mindfulness appears to be an attractive therapy for individuals with COPD
2. Individuals with COPD were comfortable using breathing to reduce anxiety
3. Stigma and negative preconceptions were considered barriers to participation
4. Short sessions delivered by experienced trainers were preferred
5. A combination of methodologies should be used to examine effectiveness

ABSTRACT

Objective: To explore the views of healthcare professionals (HCPs) and patients towards mindfulness for individuals with COPD.

Methods: A qualitative study design informed by and analyzed using deductive thematic analysis. Twenty HCPs, with at least one year's clinical experience in COPD management and 19 individuals with moderate to severe COPD participated in semi-structured interviews.

Results: Analysis revealed seven themes. 1. Mindfulness is difficult to articulate and separate from relaxation. 2. Mindfulness has a role in disease management. 3. Mindfulness therapy should be optional. 4. Preferred techniques include; breathing meditation, music and body scan. 5. Mindfulness should be delivered by knowledgeable, enthusiastic and compassionate trainers. 6. Preferred mode of delivery is shorter sessions delivered alongside pulmonary rehabilitation, with refresher courses 7. Efficacy should be assessed using psychological outcome measures and qualitative methodologies.

Conclusions: Mindfulness appears to be an attractive therapy for individuals with COPD. An understanding of the perspectives of HCPs and patients should inform the delivery of such programs.

Practical implication: Individuals with COPD were comfortable using breathing to reduce anxiety. Stigma and negative preconceptions were considered barriers to participation. Short sessions delivered by experienced trainers were preferred. A combination of methodologies should be used to examine effectiveness.

Key words: COPD; mindfulness; qualitative; psychotherapy

1. INTRODUCTION

Mindfulness is a therapeutic modality which may be well suited to the needs of individuals with Chronic Obstructive Pulmonary Disease (COPD), given their high prevalence of anxiety and depression [1,2]. Using breath as a focus, mindfulness promotes a moment-by-moment non-judgmental awareness of thoughts, feelings, body sensations and environment [3].

Mindfulness reduces stress, anxiety and depression in individuals with chronic physical or mental health conditions [4]. Its positive impact on fatigue, self-efficacy and quality of life has been reported in; heart failure, arthritis and asthma [5-7]. The lack of effect of mindfulness in individuals with COPD has been ascribed to poor adherence [8], with improvements in emotional function being observed in those who completed six or more sessions [9].

The success of any intervention is helped by the knowledge, skills and beliefs of the persons who deliver it. Although the lack of specialist training in the delivery of any self-management intervention in COPD has been noted, the views of health care professionals (HCPs) or patients towards mindfulness have not been reported [10].

In this qualitative study we report the views of HCPs and patients towards the application of mindfulness for individuals with COPD. Such information will inform the development of successful mindfulness interventions.

2. METHODS

A qualitative study design was employed. Approval was obtained from the local hospital research ethics board and all participants provided written informed consent.

A purposeful sampling strategy was used to identify HCPs with at least one year's clinical experience managing individuals with COPD. Participants were identified via personal contacts, posters, emails, advertisements and hospital announcements as well as through interviewees suggesting other peers. All HCPs who volunteered to take part in the study completed.

Purposeful sampling was used to gain a wide diversity of attitudes from patients with COPD currently enrolled in pulmonary rehabilitation (PR). Eligible individuals had; COPD confirmed by spirometry [11] and a smoking history greater than 20 pack years. Individuals were excluded if they were unable to communicate because of language skills, hearing or cognitive impairment. Twenty-nine patients were approached, nine refused to take part in the study due to time commitments (n=8) and not wishing to return to the hospital (n=1), one patient was excluded due to limited language skills.

Recruitment was considered to be complete once data saturation was reached; following 17 interviews with HCPs and 15 interviews with patients and confirmed by three more HCPs interviews and four more in individuals with COPD.

Demographic data including gender, age and any involvement in mindfulness, yoga or meditation was recorded. Profession and experience working in COPD was recorded for HCPs. Spirometry, smoking history and years diagnosed were recorded for individuals with COPD.

Face-to-face semi-structured interviews with HCPs and patients were conducted by a post-doctoral trainee (SH). SH is a registered physiotherapist in the UK with experience managing patients with COPD. The interviews lasted approximately 30 minutes and took place in a quiet private, room with only the interviewer and interviewee present. The content of the interview schedules were informed by a systematic review exploring the effect of mindfulness for individuals with a respiratory diagnosis [12] and were revised throughout data collection to encompass any additional topics which arose and to improve clarity and flow (supplements 1 and 2). The first question asked participants to describe what they understood about mindfulness. They were then shown a five-minute you-tube video (<https://www.youtube.com/watch?v=HmEo6RI4Wvs>) on mindfulness.

All interviews were recorded and transcribed verbatim by a professional transcriber. The data was stored and organized using a computer software programme (QSR NVivo version 9; QSR International, Doncaster, Australia) and analyzed using Deductive Thematic Analysis (DTA)

which adopts a framework approach where there are pre-identified issues but new themes are uncovered.

The analysis followed the six step procedure of Braun and Clark 2006 [13]. Two researchers familiarized themselves with the data before developing a preliminary list of codes. SH organized units of text under each code, creating additional codes if new issues were identified. AL verified the coding in two transcripts before the two researchers organized the codes into overarching ‘candidate themes’. The candidate themes were presented and discussed with a third researcher (DB). SH and AL read all the data extracts coded under each theme to consider if the themes were coherent and the data extracts appropriate. The researchers (SH, AL) used thematic mapping to consider the validity of the themes in the context of the entire data set. They provided a description of each theme and discussed the definitions with a third researcher (DB). SH selected data extracts to support each theme before writing up the final report.

3. RESULTS

Demographics of the HCPs and patients interviewed can be found in Tables 1 and 2 respectively. Seven overarching themes on the delivery of a mindfulness program were identified.

Mindfulness is difficult to articulate and separate from relaxation

Difficulties articulating a definition of mindfulness were described by both groups “*it’s a weird thing to describe*” HCP ID. 6. “*It’s hard to explain*” patient ID. 2. Understanding of mindfulness varied with some communicating detailed knowledge and others expressing total naivety “*It’s a way of sort of centering your attention back onto yourself without there being a particular*

thought process” HCP ID. 4 *“being aware of what’s around you today, being aware of what was said today then not trans... not putting it into the past or the future which is what we do”* patient ID. 14 *“Mindfulness? What’s a mindfulness first of all?”* patient ID. 10. Misconceptions of mindfulness were portrayed by many HCPs who found it difficult to separate from relaxation techniques, yoga and tai chi *“The relaxation techniques that we have with just slowing down your breathing, the stuff that we are already currently doing”* HCP ID. 12. The video was considered by most to be useful and verbalized or confirmed their understanding of mindfulness *“I mean the video was very good”* HCP ID. 12 *“it’s so true what he said”* patient ID. 11 although a few HCPs expressed concern about the depth of content *“Not everyone can watch a video as sophisticated as that and understand immediately what it’s all about.”* HCP ID. 16.

Mindfulness has a role in disease management

Mindfulness can reduce psychological symptoms

The importance of mindfulness in diminishing rumination, feelings of depression, stress, worry and fear, was acknowledged by both groups *“I think there is a lot of fear, there is a lot of anxiety, a lot of thinking about what’s going to happen.”* HCP ID. 12. *“I would hope it would help alleviate some of the stress that is associated with COPD”* patient ID. 7. The role of mindfulness as a pre-emptive approach to prevent the onset of psychological symptoms was expressed by HCPs *“I would think that it would have some use for when you are not in that situation as well kind of as a preventative or a proactive approach”* HCP ID. 14. Mindfulness was reported to promote a more positive outlook towards the future, bringing acceptance through heightened understanding, by those patients with some experience of mindfulness *“you become*

very aware of everything that's going on and instead of worrying about everything you kind of have an introspective and things don't scare me" patient ID. 9.

Mindfulness can control clinical symptoms

The role of mindfulness in enhancing awareness and concentration, particularly on bodily sensations, which facilitates breathing control and reduces dyspnea, was emphasized by both groups. *"it might help decrease anxiety, have clarity of thought, really focus on what's important to them" HCP ID. 14. "It [mindfulness] allows your body to ... and mind to absorb all the things that you are supposed to do with the breathing" patient ID. 1. Patients also voiced expectations surrounding the extra-pulmonary benefits of mindfulness on pain and fatigue. "if I can use it it would also make it a lot easier to try to control the pain" patient ID.17.*

Promoting 'buy in' can be challenging

Mindfulness considered "airy fairy" by some

Concerns about patients' attendance in the absence of benefit were voiced by HCPs *"the real issue is will they experience some sort of feeling better or equivalent of feeling better" HCP ID. 16. "I wouldn't think is particularly rewarding. So that's very hard for our clients to keep going to things that are not rewarding" HCP ID. 5. Whilst a willingness to participant in mindfulness was expressed by most patients "I don't want to sit and listen to mind music and just I find it a waste of time...I would rather go into a course like this." patient ID. 15, others conveyed reluctance "It's just not something that I'm sort of ... that I lean towards." patient ID. 6. Social stigma and negative preconceptions of mindfulness were identified as the greatest barriers for attendance by both groups "I think people pass judgment quickly about oh its some sort of an*

airy fairy new age thing” HCP ID. 3, *“people think it’s a religion, it’s not a religion”* patient ID. 1, in addition to practical barriers *“they [patients] are quite busy.”* HCP ID. 13.

Mindfulness should be offered as an ‘opt in’ therapy

A preference for mindfulness to be offered as an opt-in therapy was expressed by most patients *“I mean, and I think it should be voluntary.”* patient ID. 16, *“It should be offered with it [PR] but not a prerequisite sort of thing”* patient ID. 8. Short introductory sessions and having other patients describe their experiences were strategies suggested by patients to promote active buy in. Few recommendations were made by HCPs, although targeting those with anxiety was identified as important *“the type of people for whom anxiety is an issue and who want to seek answers for it then yes they would be not just willing but happy participants”* HCP ID. 1.

Meditation to music, body scan and breathing

Meditation to music, body scan and breathing meditation were chosen as the most appealing mindfulness techniques for individuals with COPD by both groups of participants *“the silent meditation, the meditative breathing and the music listening would certainly be ... I think applicable.”* HCP ID. 1 *“the all-around body relaxation and the energizing of the body, that is fabulous because that one works. That works beautifully.”* patient ID. 2. The relevance of focusing on the breath was emphasized by HCPs and patients *“I think obviously the breathing would be the key,”* HCP ID. 15, *“Well because breathing exercises with my COPD are really important. To be able to learn how to breathe properly. So anything to do with breathing, yes it’s definitely of interest to me.”* patient ID. 15. Both groups expressed concerns that physical activity, such as walking and drumming, may aggravate breathlessness *“the walking I wouldn’t,*

not until I get my time up on it.” patient ID. 12. “the problem with the drumming is it depends on the patient. You know, that expends energy.” HCP ID. 12.

Mindfulness should be delivered by knowledgeable, enthusiastic and compassionate trainers

A high level of knowledge, experience and a belief in the technique were expressed as important in a trainer by all participants *“Someone who is experienced at mindfulness therapy.” HCP ID. 1, “Certainly somebody who believes that it is a useful tool” patient ID. 15.* Thoughts that trainers should have knowledge of COPD were communicated by some *“I think it could be anybody well trained in the... In the... the technique but also with experience with the disease.” HCP ID. 10,* although neither group suggested mindfulness be delivered by psychologists, perceiving the profession to be too intimidating, *“anybody as opposed to the Psychologist which I think for patients can be a little bit intimidating.” HCP ID. 12.* A desire for trainer empathy and understanding was expressed *“The compassion and like if you have the right spirit then you can basically ... it’s not easy but you wont basically have a lot of judgement.” patient ID. 2. “I think somebody who has been through it themselves and uses it.” patient ID. 6.*

Mode of delivery

Shorter sessions

Two hours was articulated as being too long by most participants *“I mean, typically like when we do programmes we do them for an hour in length and we find that that works” HCP ID. 14. “But I’ll tell you, you got to make it shorter than two hours”. patient ID. 13.* Some suggested mindfulness following exercise whilst others felt it should be delivered before *“maybe before the exercises start. Like in the morning while you are still fresh and thinking and then maybe you*

could apply it to your exercises” patient ID. 4 “think if you do your physical stuff first and then you are in a better frame of mind after.” patient ID. 5.

A full day retreat; an opportunity or too demanding?

A full day retreat was described as being an opportunity to socialize and consolidate mindful practice *“maybe you might have to repeat some things so I think, yes. Oh I think a retreat is perfect.” patient ID.16* but some patients feared it would be tiring *“I think a whole day session might be very tiring.” patient ID. 18* and concerns about attendance were voiced by HCPs *“I don’t think it would fly to have it for a... for a full day” HCP ID .3.*

Group sessions with opportunity for one-on-one interaction

Mindfulness within a group setting was described by HCPs as being more feasible to deliver than one-on-one sessions *“Groups generally are easy to do... just in terms of human resources” HCP ID. 2,* although reservations about whether everyone would feel comfortable with group participation were expressed by one HCP *“I think if you just offered it in a group setting you are going to limit potentially who might be comfortable joining and I think it’s also ... not a scary topic but it’s an unknown topic or it’s a vulnerable topic for a lot of people” HCP ID.14.* Although a group setting was described by patients as facilitating the sharing of ideas and techniques *“I’d prefer in a group....Oh because I like to talk to people and to, you know, and get ideas from them” patient ID. 19,* ideally there would also be the opportunity for one-on-one conversation *“I would think on the other hand if there was something that somebody couldn’t share then there should be somebody that they could talk to privately” patient ID. 11.*

Mindfulness as part of pulmonary rehabilitation

Ways to incorporate mindfulness into PR were identified by all participants “*Actually mindful walking might be an interesting idea because we do have walks with ... as part of the exercise programme.*” HCP ID. 6 “*Part of our programme is morning exercises that are breathing exercises and I think it would be in conjunction with that.*” patient ID.6. One HCP expressed concern that mindfulness may distract from other components of PR “*I’d be afraid that it would be a compromise to some aspects of the rehab if it were ... if it were a standard part of the pulmonary rehab.*” HCP ID. 3. Mindfulness was considered to fulfill a vital function of psychological support felt to be lacking “*I think you need the exercise to help strengthen your lungs and whatever it’s supposed to do but also I think you need to do something with the mind as well*” patient ID. 18.

The importance of visual representation

Strong preferences for delivery via face-to-face remotely (such as Skype) compared to delivery over the telephone were voiced by patients “*Well I would prefer the internet than the phone*”. patient ID. 19 and supported by HCPs “*I would be apprehensive maybe over the phone just because you can’t see who you are talking with and I think it ... it potentially ... like you want that relationship I think.*” HCP ID. 14. Video conferencing was described as attractive if a program could not be attended in person “*Maybe over Skype? That definitely could be a good idea, yeah.*” HCP ID. 13. Technology was considered a barrier for most patients “*I’m a computer illiterate. I have no computer in my house.*” patient ID. 10 who preferred personal contact “*Well I personally ... cause I’m older I like personal contact.*” patient ID. 2.

Home practice is challenging and reinforcement is important

Home practice was considered challenging “*concentration in my house is hard work*” patient ID. 17. Optimism was expressed by HCPs about the use of technology to promote home practice “*it’s an app and you can follow how often or they get a reminder, like I think as the aging population changes and they become more, you know, like a lot of the patients now have Smart phones, right?*” HCP ID. 3 but patients expressed reluctance to use apps “*I: Do you have a smart phone? P: Oh yeah....I just don’t have a Smart guy with it.*” patient ID. 13. DVD guided meditation was described as an option for maintaining home practice. “*we can create a DVD and let them go home to watch the DVD and have some guideline for them to participate in the programme.*” HCP ID. 9, “*if you can put it on a video*” patient ID. 12. The need for follow-up to reinforce skills was articulated by both groups “*The refresher course, right? Because patients when they go home they tend to forget everything... everything about the programme.*” HCP ID.11. “*A follow-up. I think after a certain period of time just to refresh you*” patient ID. 16, and the telephone was suggested as a possible mode of delivery “*I don’t think it has to be done in person. I think over the phone is okay*” HCP ID. 12.

Evaluating the impact of mindfulness

Measures of psychological function were suggested by HCPs “*some measure of anxiety, some measure of panic attack severity frequency would be... would be important*” HCP ID. 1. Difficulties surrounding the measurement of patient-centered outcomes such as “*racking up more good days than bad.*” HCP ID. 4, were reported by both groups and many HCPs emphasized the importance of information gleaned from qualitative methodologies “*At least*

initially it would have to be a qualitative, narrative interview approach to get a sense for what ... what seems to be the modifiable outcomes from this type of intervention.” HCP ID. 1.

4. DISCUSSION AND CONCLUSION

4.1. Discussion

This is the first study exploring the delivery of mindfulness from the perspective of HCPs and individuals with COPD. Most interviewees had heard the term but could only provide vague descriptions of it. Expectations of improvements in psychological state were communicated, yet perceptions of mindfulness as “airy fairy” were also prevalent. Patient narratives articulated a desire to focus meditation on the breath and to have sessions delivered by knowledgeable and compassionate trainers. The importance of follow-up and evaluation were emphasized.

The importance of active engagement as a prerequisite for mindfulness was recognized by HCPs and individuals with COPD. Attendance should be optional and the program modified for older patients with chronic conditions. One to two hour sessions for eight weeks was considered too long. Of note, a study in which mindfulness was delivered for 30 minutes to critical care survivors reported an 80% completion rate and success in reducing psychological distress and improving quality of life [14].

Apprehension of what others may think about mindfulness (stigma) and negative preconceptions of mindfulness were the greatest barrier for attendance. Therefore accounts of peers’ positive experiences maybe useful in encouraging participation in mindfulness as they have been with exercise [15].

Studies evaluating the efficacy of a mindfulness program in individuals with a respiratory diagnosis have applied a number of outcomes including; quality of life, lung function, medication use, dyspnea, stress, anxiety and depression [7-9], [14]. However, the observed effects have been limited [12]. HCPs commented on the importance of including psychological outcome measures which should be combined with data collected via qualitative approaches.

Despite a high proportion of individuals who attend PR programs having symptoms of anxiety and depression [16], psychological support is rarely offered and previously applied psychological therapies in COPD have not been successful [17]. Mindfulness was viewed by patients as being an attractive adjunct to existing PR programs and many felt it could replace existing relaxation sessions.

The nature of recruitment was likely to attract individuals with positive views about mindfulness. HCPs were self-selected and likely volunteered to participate because the therapeutic intervention interested them. Furthermore, the majority of HCPs knew the interviewer (SH) in her capacity as a post-doctoral trainee, which may have introduced a small element of bias. Most patients were enrolled in PR and therefore were likely to be motivated and eager to engage with an intervention which may improve their symptoms. Interviewee transcript review to verify the accuracy of transcripts was not conducted which may have affected the rigor of the study. That said, the moderate sample size and the inclusion of three researchers in the analysis (SH, AL, DB) were designed to enhance rigor and findings informative to clinical practice.

4.2. Conclusion

Although the understanding of mindfulness is vague, its potential as a therapeutic intervention is acknowledged and an understanding of the perspectives of HCPs and patients should inform the delivery of such programs.

4.3 Practical implications

Individuals with COPD were comfortable using breathing as a modality to reduce anxiety. Social stigma and negative preconceptions were considered the major barrier to participation. There was a preference for short sessions with optional courses delivered by experienced trainers. A combination of qualitative and quantitative methodologies using patient-centered outcomes should be used to examine the impact of mindfulness as a therapeutic intervention for individuals with COPD.

Conflicts of interest: ‘none’

Role of funding: DB holds a Canadian Research Chair.

Contributors: All authors have significantly contributed to the study: SH conceived and designed the study, collected and interpreted data and wrote the manuscript. AL contributed to interpreting the data and providing critical revisions that are important for the intellectual content. RG and DB contributed to conceiving and designing the study, interpreting the data and providing critical revisions that are important for the intellectual content.

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Table 1: Demographics of the health care professionals

Participant ID.	Gender	Age	Profession	Number of years working in COPD	Any involvement in mindfulness/yoga/meditation	Years spent practicing
1	M	37	Physician	10	None	0
2	F	30	Physiotherapist	6	Current - yoga	6
3	F	47	Physiotherapist	15	Previous mindfulness	0.5
4	M	45	Nurse	4	Current - yoga	7
5	F	61	Respiratory Therapist	37	none	0
6	F	27	Occupational Therapist	2.5	Previous mindfulness	2.5
7	F	40	Occupational therapist	11	Previous - yoga	1
8	F	57	Physiotherapist	14	None	0
9	F	47	Nurse	5	Current - Yoga	2
10	M	54	Exercise physiologist	27	Previous -Yoga	0.5
11	M	35	PT/OT assistant	4	None	0
12	M	42	Respiratory therapist	17	Previous - Yoga	2
13	F	28	Recreational therapy Assistant	3.5	Current mindfulness and yoga	2
14	F	29	Recreational therapist	6	None	0
15	M	39	Physiotherapist	2	Current mindfulness	1
16	M	65	Physician	35	Previous meditation retreat	4 days
17	F	65	Physiotherapist	30	Current meditation	40
18	F	51	Occupational therapists	5	Current – Yoga and mindfulness	3
19	M	44	Recreational therapists	6	None	0
20	F	47	Social worker	5	None	0

Table 2: Demographics of the individuals with COPD

Participant ID.	Gender	Age (y)	FEV ₁ % pr	FEV ₁ /FVC (%)	Number of years diagnosed with COPD	Pack years (y)	Any involvement in mindfulness/yoga/meditation	Years spent practicing (y)
1	M	32	22	49	3	30	Current - meditation	10
2	F	78	40	37	2	54	Previous - meditation	5
3	F	84	39	31	11	54	Previous - yoga	0.5
4	F	79	37	32	37	50	none	0
5	F	83	67	54	26	20	Current-yoga	0.5
6	M	68	55	72	5	30	none	0
7	M	64	43	29	7	84	none	0
8	M	67	42	31	15	40	none	0
9	M	58	54	48	3	82	Current - meditation	15
10	M	80	31	46	2	50	none	0
11	F	53	35	41	13	80	none	0
12	M	65	20	30	4	140	Current - meditation	20
13	M	65	18	20	12	80	none	0
14	F	68	22	27	11	25	none	0
15	M	69	32	34	3	40	none	0
16	F	70	44	35	12	30	none	0
17	F	57	31	69	30	70	Current- meditation	0.5
18	F	76	79	49	11	40	Previous - meditation	1 week
19	M	72	21	36	8	40	none	0

FEV₁¹; Forced Expiratory Volume in one second, FEV₁/FVC; Forced Expiratory Volume in one second/forced vital capacity, COPD; Chronic Obstructive Pulmonary Disease