

NHS Staff Mindfulness (MBCT) Evaluation 2011 to 2014: Large Reductions in Staff Sickness Rates during Year Following Course

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Data on sickness absence rates was provided by Lancashire Care NHS Foundation Trust
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Word Count: 2903

Abstract

Although mindfulness-based stress reduction (MBSR) has been used widely for health professionals, few studies appear to have explored the use of mindfulness-based cognitive therapy (MBCT) for stress in health care professionals (see meta-analysis, Virgili, M., 2013). Between 2011 and 2014, 240 members of staff from an NHS Foundation Trust enrolled on an 8-week Mindfulness-based Cognitive Therapy course (MBCT). Of these 204 attended four or more sessions. Post course analysis of responses to standardised questionnaires suggested general reductions in symptoms of depression, anxiety and stress (Smith-Payne, & Smith, 2013), however missing post-course data due to administrative oversight prevented dependable statistical analysis. A qualitative study of one course offered support for the hypothesis that attending the 8-week Mindfulness course reduced sickness absence (Morgan, 2014). Data on sickness absence was obtained for 166 of those 204 staff. The number of working days lost due to sickness absence in the year preceding the course (4715), compared to days in the year following the Mindfulness course (2920), equates to an average of 28.5 days sick leave in the year prior to the mindfulness course, and 17.5 days in the year following the course. Staff sickness data identified very large reductions in days lost to sickness absence when the reason was mental health/stress (pre-course – 2278, average of 14 days; post-course 457, average of 3 days) or due to unknown causes (pre course – 1008, average of 6 days; post course – 283, average of 1.5 days). A comparison of working days lost due to stress the year before and after attending the MBCT course due to stress or mental health problems yielded a total cost saving of £109,414. It is imperative to address clinically significant stress in the workplace with practical, effective, and easily implemented interventions. These clear reductions in sickness absence rates and the associated cost savings offer compelling evidence that MBCT for NHS Staff may deliver swift and significant public service savings. Further controlled research is necessary to confirm these striking results and to clarify which groups of staff, with which mental health issues, may benefit most.

Introduction

In 2013 131 million days were lost due to sickness absences in the UK (Office of National Statistics, 2014). The leading cause of sickness absence in the UK is mental ill health, accounting for 70 million sick days. Each year between 2010 and 2014, a million people took sick leave for longer than four weeks (Davies, 2014). Since 2009 the number of sick days lost to stress, depression and anxiety has increased by 24% and the number lost to serious mental illness has doubled (Davies, 2014). Many public sector workforces are particularly affected including the NHS (one of the five biggest employers in the world) which has higher sickness absence rates than any other large public sector organisation, with 3.4% of worker hours lost to sickness in 2013 (Office of National Statistics, 2014). The financial cost of stress-related sickness absence in the NHS has been estimated at £1.4 billion per annum (NHS Employers, 2014). The indirect costs to the UK of mental ill health in unemployment, absenteeism and presenteeism (any the resulting costs to productivity) are estimated at between £70 and £100 billion with employers paying £9 billion of that in sick pay and related costs (Davies, 2014).

Healthcare workers are known to be vulnerable to stress and burnout (Maslach & Goldberg, 1998). This has a detrimental impact on the quality of care provided (Boorman, 2009). Highly stressed individuals are at greater risk for multiple health conditions including cardiovascular disease (Hemingway & Marmot, 1999), cancer (Antoni et al., 2006), diabetes (Hu et al, 2004), depression and anxiety (Garcia-Bueno et al, 2008), fatigue (Van Houdenhove et al, 2009), obesity (Black, 2003) and musculoskeletal pain (Finestone et al, 2008). In fact, psychological stress and the associated chronic inflammatory response have been implicated in virtually all chronic conditions (McEwan, 1998; Black, 2006). Further, highly stressed employees incur productivity losses and health care costs above those with normal levels of stress (Baime et al, 2011; Goetzel et al., 1998).

Mental distress adversely impacts physical and mental health. In addition to the health effects cited above, psychological stress is also widely recognized as a major contributor to poor morale, absenteeism, high staff turnover, and reduced productivity at work (Michie & Williams, 2003). High stress also has been shown to significantly impair memory and the ability to learn (Lupien et al., 2005). Stressed, chronically unwell employees are expensive, both in terms of health care costs and decreased productivity (Baime et al, 2011).

There have been major reports on how to improve wellbeing at work with recommendations including fair pay, clearly defined roles, job security and good management (NICE, 2009). Many organisations are well aware of the importance of encouraging employee wellbeing, but are unsure of how to prevent mental health problems developing. The research on effective prevention of mental ill-health is at an early stage (The Mindfulness Initiative, 2015).

Across the past decade, several randomized controlled trials of MBI's have found positive effects on burnout, wellbeing and stress (Chiesa and Serretti, 2009; Jain et al, 2007; Pidgeon et al 2014; Manotas et al, 2014). Mindfulness training can assist with focus and a range of cognitive skills. Studies have shown that those using mindfulness report lower levels of stress during multi-tasking tests and are able to concentrate longer without their attention being diverted (Jha, et al, 2010; Zeidan et al, 2010; Mrazek et al, 2013) with improved reaction times, comprehension scores, working memory functioning and decision-making.

A range of trials demonstrate the effectiveness of mindfulness meditation training to enhance coping skills, promote feelings of well-being, and effect favourable changes in physiology such as better immune functioning (Davidson et al., 2003; Greeson, 2009; Jung et al., 2010). Similar findings have been demonstrated in observational trials in diverse populations ranging from community samples (Evans et al., 2010) to organ-transplant recipients (Gross et al., 2010).

Research has documented the beneficial effects of mindfulness training on conditions related to work stress. It has shown that mindfulness training decreases perceived stress, improves sleep quality, and heart rhythm coherence (index of emotion regulation) in employees (Wolever et al., 2012). Learning to be more intentionally mindful reduces perceived stress and increases mindfulness in working adults (Klatt et al., 2009). In one study HR staff who completed mindfulness courses showed better memory for tasks, more concentration on a task and less switching between tasks (Levy et al., 2011). A meta-analysis of intervention studies examining whether Mindfulness-Based Interventions (MBI's) reduce psychological distress in working adults supported using MBIs in organisational settings to reduce psychological distress (Virgili, 2013). MBIs have a robust medium to large effect on psychological distress in working adults. Effects at post-treatment are largely maintained at follow-up. Transport for London offered mindfulness with CBT to staff and this yielded 71% reduction in days off for stress, anxiety and depression over five years (Daily Telegraph, 13.09.14).

Other research suggests that employees of leaders in a range of other settings who are more mindful (trait mindfulness) have less emotional exhaustion, better work-life balance and better job-performance ratings. They are also more likely to show concern towards co-workers and express opinions honestly (Reb, Narayanan and Ho, 2012 & 2013)

Although mindfulness-based stress reduction (MBSR) has been used widely across organisational settings, no studies have explored the use of mindfulness-based cognitive therapy (MBCT) for stress in health care professionals and/or other workers in health care organisations. MBCT is the only NICE Guidance recommended NHS intervention for recurring depression in clinical populations (NICE, 2009). For more information about MBIs in organisational settings see meta-analysis by Virgilli, (2013).

Stress was identified as a significant problem by staff of the Trust concerned in the 2010 annual NHS staff survey, alongside the large amount of change and transformation happening within the organisation (LCFT, 2010).

In 2011 the NHS Foundation Trust's Executive Management Team supported a pilot study of mindfulness training for staff who self-identified as experiencing stress, depression or anxiety which may cause sickness absence or impair performance at work. Further funding and support from service managers released trained mindfulness practitioners to facilitate staff mindfulness courses, supporting a further 12 courses for NHS staff between 2012 and 2014. These were funded by Health Education North West.

Post course analysis from the first five courses (Smith-Payne & Smith 2013) suggested that MBCT was effective in reducing stress and/or distress for most participants, however missing post course data hampered statistical analysis of post-course and follow-up data. A qualitative analysis of data from one of these courses pointed to increases in well-being and indicated that some course participants asserted that their efficiency and effectiveness at work had benefited (Morgan, 2014). This evaluation also suggested that attending an MBCT course reduced sickness absence and confirmed that many members of staff experience levels of distress which are likely to impair their effectiveness and efficiency even where they do not cause sickness absence. These NHS staff also described increased personal well-being in addition to enhanced presence when relating to others leading to enhanced compassion and a sense of shared humanity (Morgan. 2014). In other words, mindfulness training benefitted both NHS staff and those they cared for. In the wake of the Francis Report (Mid Staffordshire NHS Foundation Trust Public Enquiry, 2014) interventions offering these benefits to both staff and patients are likely to become important components of a holistic approach to health at work (Black, 2008). Evidence already suggests that mindfulness training may promote improved ability

to deliver care by enhancing self-awareness and sensitivity to others as well as promoting self-acceptance and acceptance of others (Bruce et al, 2010).

This report describes an evaluation of sickness rates in NHS staff one year before taking an MBCT course and compares this with sickness absence in the same staff members one year following completing the mindfulness course.

Method

Participants

Participants were self-selected through advertising Staff Mindfulness Courses in an organisational newsletter. Between 2011 and 2013 staff worked in mental health, human resources or specialist services. In 2013 the Trust expanded to become an NHS provider of Community Services, staff from Community NHS Services then also accessed courses. Participants completed an application form and pre-course measures, gained permission to attend the course from their line-manager, then emailed this to human resources. All participants gave their written consent during the application process for their data to be included in the evaluation of staff mindfulness courses, including sickness absence information. Courses were usually full within a week of being advertised. For the brief follow-up survey, participants were included in the sample where valid email addresses were available.

Measures

Courses in 2011 and 2012 recruited staff members who self-identified as struggling with stress anxiety and depression. The assessment and outcome measure was the Depression, Anxiety and Stress Scale - DASS (Lovibond & Lovibond, 2006). Informal feedback to the author, indicated that some staff felt stigmatised in making a self-referral to a course for staff experiencing significant stress or mental health problems. Others indicated that their jobs were already "at risk" during Trust reorganisation and they felt unable to make a self-referral and discuss their mental health with management during a time of reorganisation. Other staff members reported that although they did not have significant stress or mental health problems they wanted to complete a course to help develop a personal mindfulness practice, build resilience and improve their well-being.

In 2013, staff Mindfulness course recruitment shifted its focus to developing staff resilience, health and well-being; a new poster led to an increase in self-referral rates and demand for MBCT by staff, reported by HR. The outcome measures from 2013 included changes in resilience and ability to bounce back during times of distress (Brief Resilience Scale: Smith et al, 2008) and mental well-being (Warwick-Edinburgh Mental Wellbeing Scale: Tennant et al, 2007), as well as depression, anxiety and stress.

Sickness absence data was assessed by a data analyst within Trust headquarters. They provided data on sickness absence days for the year prior to and for the year following attending the mindfulness course. Costs were calculated based on staff grade and salary and reason for sickness absence provided.

MBCT Course

The course hand-outs reflected a focus toward improving health and well-being through better recognising, allowing and investigating perceived stress, reactivity and habitual patterns of thinking and behaviour through training in mindfulness meditation. The course format remained consistent with the Mindfulness-based Cognitive Therapy (MBCT) manualised intervention, Mindfulness-based Cognitive Therapy for Depression (Segal, Williams and Teasdale, 2002 & 2013).

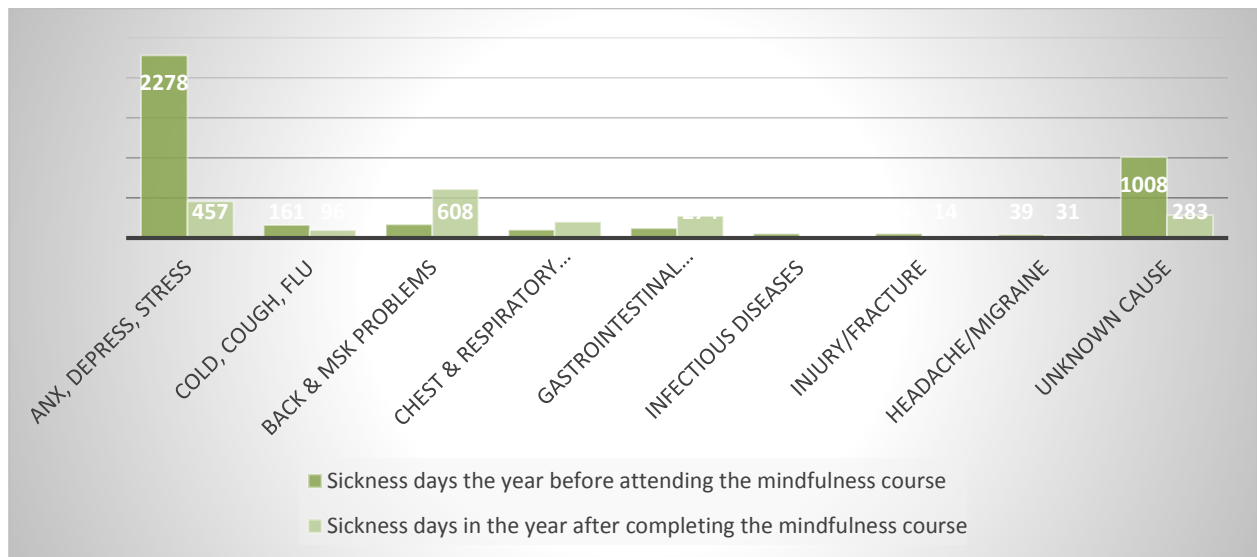
Results

Since 2011, 240 NHS staff attended one or other of 13 MBCT courses; 199 attendees were female, 41 were male. Of these 240 staff, 204 attended 4 or more sessions, which for the purposes of this study constitutes course completion. Of the 204 who completed the course, 38 participants were had left the organisation/retired or were employed by another organisation, so sickness rates for the year before and after the course were available for only 166 participants

Post course results showed overall reductions in symptoms of depression, anxiety and stress (Smith-Payne & Smith, 2013). However, due to administrative problems post-course data were not collected from some participants, so dependable analysis of the significance of these results was not possible.

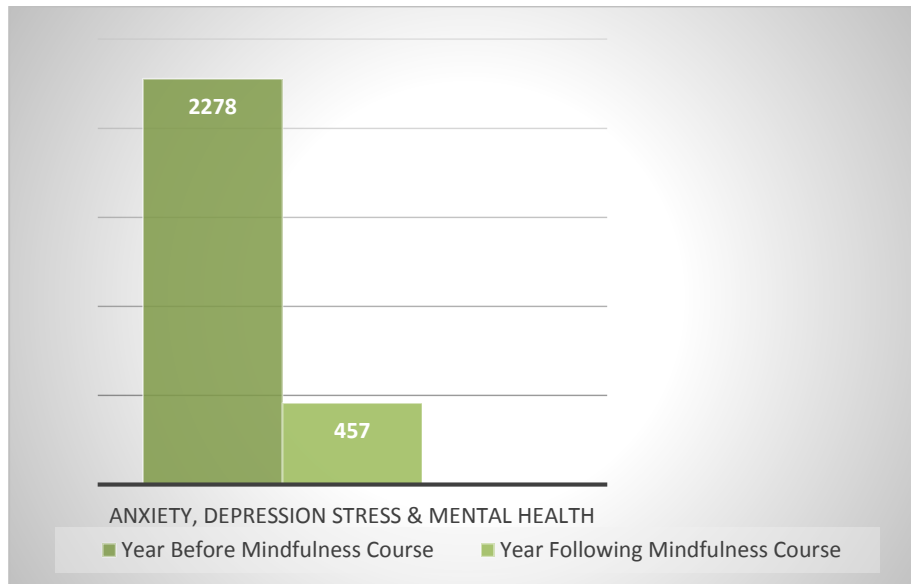
A comparison of pre and post course sickness absence across all causes indicated a reduction from 4715 days lost in the year before the course and 2920 the year after. This equated to an average of 28.5 days sick leave in the year prior to the mindfulness course, and 17.5 days in the year following the course.

Table 1: Working days lost to sickness absence for various causes for one year before, and for one year after, mindfulness training.



These data show large reductions in sickness absences due to mental health/stress (pre-course – 2278, average of 14 days; post-course 457, average of 3 days) or unknown causes (pre course – 1008, average of 6 days; post course – 283, average of 1.5 days).

Table 2: Working days lost to sickness absence for reason of anxiety, depression, stress or other mental health issues for one year before, and for one year after, mindfulness training.



Cost calculations for days off sick due to stress, anxiety and depression showed a cost of £177,226 during the year prior to the mindfulness course. For the year following the mindfulness course the cost was £67,812, indicating a saving of £109,414.

Follow-up questions were asked of the 166 participants included in staff sickness reports. Of these 75 responded, this survey was sent to correspond with presenting data at the Mindfulness All Party Parliamentary Group at Westminster in November 2014:

- 73 said "YES" the course had benefitted their health and wellbeing (2 said NO)
- 71 said "YES" learning mindfulness had improved the way they respond to stress (4 said NO)
- 65 said "YES" their work performance had improved since completing the mindfulness course

CASE STUDY 1: Sue Brown A&E Liaison Nurse

I applied to undertake the 8 week mindfulness course due to curiosity as I had read a lot about mindfulness and how it seemed to make a positive difference to people's lives in a variety of ways.

I attended the course with an open mind, I had no particular stress related issues which I felt I wanted solutions to, simply to find out more about this phenomenon which seemed to be gaining momentum in the press.

The first session had quite an impact on me immediately. We did a body scan which initially I felt slightly disappointed about as I didn't really enjoy any sort of relaxation sessions thinking them to be a bit boring and generally a waste of time – for me at any rate. However I had signed up for this so I thought I'd best do it properly and the scan lasted about 40 minutes. I remember feeling able to focus and concentrate on the instructions and all was fine. I left the course venue and on getting in my car I was suddenly aware of a feeling of calm which felt like a physical sensation in my chest. Over the coming weeks I continued to practice daily as instructed using the mp3 tapes supplied on the course; I remember there were about 10 different recorded instructions varying from the body scan lasting 40 minutes to brief practices only lasting three minutes which could be used at any time during the day.

I remember a few weeks into the course feeding back to Lisa that my thinking patterns seemed to be changing for the better, a change occurring after only a short space of time.

This was back in May 2013. Since then I continue to practice mindfulness and I sit daily for varying amounts of time.

I have joined other mindfulness groups since then to reinforce my practice and now I don't use any tapes but set my own goals. This may typically be to focus on the breath sensations in the abdomen, whilst maintaining an awareness of sensations in my peripheral awareness. I also check in from time to time during the practice to monitor the quality of my attention and to prevent me from drifting off into thought.

Two things I have taken from this course is that my thoughts are not necessarily reality and so I don't tend to ruminate so much; and also the lesson that any difficulties are only temporary and they all pass.

Obviously I feel a lot of benefit from mindfulness otherwise I wouldn't still be practicing it consistently and in summing up I would say that my mood is overall happier and stable, I feel more able to weather emotional difficulties and anxiety levels are much reduced. I also feel overall more optimistic and I get more joy from life.

CASE STUDY 2: Kevin Donohoe: Corporate Analyst

I came to mindfulness on the back of a Trust workshop where the themes of increased pressures in the NHS, "doing less with more" and lean working kept recurring and people were saying they felt their resilience was being eroded; the trust Mindfulness course was mentioned and I decided to investigate further.

I did not consider myself a "natural fit" for Mindfulness, though on reflection that was probably due to ignorance of Mindfulness more than anything else. My background in Information Technology and Performance Management I thought would make Mindfulness a "tough sell" for me, but during the 8 week course there were a number of moments that struck deeply resonant chords.

In an inquiry session after a week of practicing the body scan I asked about a couple of body scans that had left me emotionally brittle for no readily apparent reason.

"Isn't it interesting how you want to control your emotions?" Lisa asked me. Slightly taken aback I responded

"Not control them, just understand them"

"What's wrong with just feeling them?" was her response and the first of many pennies dropped.

Less surprising challenges included "Don't react to the feelings, but respond to the facts" which fits neatly with my performance management world view. While constructing a narrative is often a helpful exercise in my work to understand the data and the associated impact, there is a need to constantly return to "What do we know for certain?"

I do still struggle with daily practice and the notion I should be "better" at it by now. I really miss the discipline or energy of taking part in a group practice when practicing at home on my own.

I have had more success however in incorporating principles of Mindfulness into everyday life. I have perfected the Mindful cup of coffee, being totally present, noting the warmth in my hand, the curve of the cup, the smoothness of the ceramic, the bitterness of the coffee, the sweetness of the cream. It becomes a bit of a ritual, but as a result I drink a lot less coffee, usually now just one cup a day, but when I am drinking the coffee, I am *only* drinking coffee and it becomes an immersive experience.

On a slightly less frivolous note I had a bit of a health scare last year. I was referred on the 2 week suspected cancer pathway, due to protracted presentation of symptoms and family history. I attended the hospital for a pre-screening for the procedure that had been scheduled for the next day. I was informed by the nurse that they would be "stopping the clock" referring me back to my GP and placing me on a watchful wait as my blood pressure was 178 over 115 and they would not countenance performing the procedure with such a reading.

I happened to bump into Lisa on my way back from the appointment and explained what had occurred.

"How is your daily practice?" she questioned.

"A bit slapdash." I confessed.

"Body scan every day for the next 2 weeks and see how your numbers look".

I was referred back into the service almost immediately. On the morning of the procedure my blood pressure was 135 over 78 going into surgery.

A few weeks later I got the letter telling me everything was fine – I actually remember thinking as I put the letter down "Well that wasn't very pleasant, glad I didn't spend a lot of time worrying about it though..."

Table 3: Qualitative feedback provided by participants at session 8 of the course

- When I'm in a difficult situation, instead of just reacting, I use grounding mindfully and when I feel better I am able to respond in a more helpful way.
- I am able to focus on my breathing, be more aware of how I am reacting and my thought processes
- I know how to use the skills taught on the course
- Things do not appear as stressful and appear easier to manage
- Have learned valuable coping strategies and manage stress much better. The course was the most enjoyable and beneficial that I have attended. Fantastic.
- I feel more able to detach from stress and have techniques available to manage stress in a different way
- It has taught me how to deal with things better and given me lots of strategies to help and think differently about things as and when they arise, I am no longer as stressed as I was before the course.
- It has helped me to cope a lot better with certain situations which have had an impact on my life for the past year and are continuing to do so and not to be so hard on myself (being negative). I have learned a lot of helpful strategies which I will continue to use. I would recommend this course.
- I am able to confront stress without exacerbating existing symptoms. I work through each stage using breathing techniques and this enables me to rationalize the situation which has instigated stress.
- I think it is still early days and I need to continue to practice the techniques but I think my approach to stressful situations is different, more considered, more 'mindful' and overall more effective.
- Prevents me from overreacting and over analysing it
- It has affected the way I deal with stress, although not an immediate change it has provided me with a different way to think about the stress, and manage it.
- I step back and consider the event and level of seriousness.
- Knowing that it's fine to be upset and unhappy when unpleasant things happen helps get me back on track
- I think it has made me more aware of the feelings related to this and how it makes me feel although I haven't seen a reduction in my stress levels.

Discussion

Mindfulness-based Cognitive Therapy (MBCT) may offer a cost effective preventive intervention for health professionals. This evaluation of staff sickness rates found important reductions in days off sick in the year following the course (2556 less sick days) due to mental health or unknown causes.

The Boorman Review estimated that prioritising staff wellbeing could deliver annual savings of £555 million nationwide from reduced absence alone (Boorman, 2009). Based upon our assumption from the evidence that a daily mindfulness practice significantly impacts on long-term mental and physical health, it is predicted that the benefits reported from attending a mindfulness course may be sustained over time. Therefore, there may be substantial ongoing financial savings year on year. Further controlled research is necessary to test this hypothesis.

Mindfulness training may improve health outcomes by modulating the stress response and subsequently preventing or lessening the inflammatory response (McEwan, 1998), thus potentially ameliorating vulnerability to stress-related disease. Finding effective ways to enable staff to modulate their stress response is of crucial importance to disease prevention, in terms of both financial and human costs.

Emerging data suggest that effective stress management programs impact health care utilization and likely cost, and improve worker productivity (Goetzel & Pronk, 2010; Soler et al., 2010). It is imperative to address clinically significant stress in the workplace with practical, effective, and easily implemented interventions.

The methodological limitations of this service evaluation means we cannot prove any direct association between attending mindfulness courses and reductions in sickness rates, however to achieve such large reductions in sickness absence at a time when rates have generally increased

for problems associated with stress and mental health strongly suggests that this cohort of NHS staff did experience important improvements in mental well-being and resilience.

This is an evaluation of an opportunity sample and may not be representative of all NHS staff members. A randomised controlled trial would be needed to better evaluate whether attending mindfulness courses may directly impact upon NHS staff sickness rates.

Key Points

- NHS staff health and well-being is vital in the delivery of high-quality person-centred care.
- A range of preventive and proactive approaches would offer a holistic approach to health at work.
- MBCT is a NICE recommended intervention for preventing recurrent depression.
- There is well documented research and meta-analyses demonstrating beneficial effects of mindfulness training on conditions related to work stress.
- MBCT may be associated with large reductions in staff sickness rates and further research is needed.
- There is a groundswell of national interest and parliamentary support for improving access to MBCT across the UK.

Acknowledgements

This work was funded by Workforce & Education, Health Education North West

Declaration of Interest

None

References

- Antoni, M. H., Lutgendorf, S. K., Cole, S. W., Dhabhar, F. S., Sephton, S. E., McDonald, P. G., Sood, A. K. (2006). The influence of bio-behavioural factors on tumor biology: Pathways and mechanisms. *National Review of Cancer*, 6, 240–248. doi:10.1038/nrc1820
- All Party Parliamentary Group (2014). *Wellbeing in Four Policy Areas: Report by the All-Party Parliamentary Group on Wellbeing Economics, September 2014*. New Economics Foundation. http://b3cdn.net/nefoundation/ccdf9782b6d8700f7c_lcm6i2ed7.pdf
- ASPIRE (Accessibility and implementation in UK services of an effective depression relapse prevention programme: Mindfulness-based cognitive therapy) (2014). Personal correspondence from the ASPIRE Research Team and selection as a fully embedded service into Phase 2 of the national research project due to be completed in 2016.
- Baime, M. J., Wolever, R. Q., Pace, W., Morris, W. M., & Bobinet, K. J. (2011, April) *Perceived stress scale correlates with health care costs*. Poster session presented at the 32nd Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Washington, DC.
- Black, P. H. (2003). The inflammatory response is an integral part of the stress response: Implications for atherosclerosis, insulin resistance, type II diabetes and metabolic syndrome X. *Brain, Behavior, and Immunity*, 17, 350–364. doi:10.1016/S0889-1591(03)00048-5
- Black, P. H. (2006). The inflammatory consequences of psychologic stress: Relationship to insulin resistance, obesity, atherosclerosis and diabetes mellitus, type II. *Medical Hypotheses*, 67, 879 – 891. doi:10.1016/j.mehy.2006.04.008
- Black, C. (2008). Working for a healthier tomorrow (<http://www.dwp.gov.uk/docs/hwwb-working-for-a-healthier-tomorrow.pdf>).
- Boorman, S. (2009). *NHS Health and Well-being review: Interim Report*, (296741). Retrieved from <http://www.nhshealthandwellbeing.org/interimreport.html>
- Bruce, N.G., Manber, R., Shapiro, S.L., & Constantino, M.J., (2010). Psychotherapist mindfulness and the psychotherapy process. *Psychotherapy: Theory, Research, Practice, Training*, 47(1), 83-97, doi: 10.1037/a0018842
- Chiesa, A. and Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *Journal of Alternative and Complementary Medicine*, 15: 593-600.
- Daily Telegraph (2014). The Right Attitude for a Head Start, Mindfulness, Independent Schools Section, Saturday September 13, 2014.
- Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65, 564–570. doi:10.1097/01.PSY.0000077505.67574.E3
- Davies, S.C. (2014). Annual Report of the Chief Medical Officer 2013, Public Mental Health Priorities: Investing in the Evidence. London: Department of Health.
- Evans, S., Ferrando, S., Carr, C., & Haglin, D. (2010). Mindfulness-based stress reduction (MBSR) and distress in a community-based sample. *Clinical Psychology and Psychotherapy*, 18, 553–558. doi:10.1002/cpp.727

- Finestone, H. M., Alfeeli, A., & Fisher, W. A. (2008). Stress-induced physiologic changes as a basis for the biopsychosocial model of chronic musculoskeletal pain: A new theory? *Clinical Journal of Pain, 24*, 767–775. doi:10.1097/AJP.0b013e3181790342
- Garcia-Bueno, B., Caso, J. R., & Leza, J. C. (2008). Stress as a neuroinflammatory condition in brain: Damaging and protective mechanisms. *Neuroscience and Biobehavioral Reviews, 32*, 1136–1151. doi:10.1016/j.neubiorev.2008.04.001
- Greeson, J. M. (2009). Mindfulness research update 2008. *Complementary Health Practice Review, 14*, 10–18. doi:10.1177/1533210108329862
- Goetzel, R. Z., Anderson, D. R., Whitmer, R. W., Ozminkowski, R. J., Dunn, R. L., Wasserman, J., & Health Enhancement Research Organization (HERO) Research Committee. (1998). The relationship between modifiable health risks and health care expenditures. An analysis of the multi-employer HERO health risk and cost database. *Journal of Occupational and Environmental Medicine, 40*, 843–854. doi:10.1097/00043764-199810000-00003
- Goetzel, R. Z., & Pronk, N. P. (2010). Worksite health promotion: How much do we really know about what works? *American Journal of Preventive Medicine, 38*, S223–S225. doi:10.1016/j.amepre.2009.10.032
- Gross, C. R., Kreitzer, M. J., Thomas, W., Reilly-Spong, M., Cramer- Bornemann, M., Nyman, J. A., Ibrahim, H. N. (2010). Mindfulness-based stress reduction for solid organ transplant recipients: A randomized controlled trial. *Alternative Therapies in Health and Medicine, 16*, 30–38.
- Hemingway, H., & Marmot, M. (1999). Evidence based cardiology: Psychosocial factors in the aetiology and prognosis of coronary heart disease. Systematic review of prospective cohort studies. *British Medical Journal, 318*, 146–147. doi:10.1136/bmj.318.7196.1460
- Hu, F. B., Meigs, J. B., Li, T. Y., Rifai, N., & Manson, J. E. (2004). Inflammatory markers and risk of developing type 2 diabetes in women. *Diabetes, 53*, 693–700. doi:10.2337/diabetes.53.3.693
- Jain, S., Shapiro, S.L., Swanick, S., Roesch, S.C., Mills, P.J. et al. (2007). A randomised controlled trial of mindfulness meditation training versus relaxation training: Effects on distress, positive states of mind, rumination and distraction. *Annals of Behavioral Medicine, 33*: 11-21.
- Jha, A.P., Stanley, E.A., Kiyonaga, A., Wong, L., Gelfand, L. (2010). Examining the protective effects of mindfulness training on working memory and affective experience. *Emotion, 10*(1): 54-64.
- Jung, Y. H., Kang, D. H., Jang, J. H., Park, H. Y., Byun, M. S., Kwon, S. J., . . . An, S. C. (2010). The effects of mind-body training on stress reduction, positive affect, and plasma catecholamines. *Neuroscience Letters, 479*, 138–142. doi:10.1016/j.neulet.2010.05.048
- Klatt, M. D., Buckworth, J., Malarkey, W. B. (2009). Effects of Low-Dose Mindfulness-Based Stress Reduction (MBSR-ld) on Working Adults. *Health Education & Behavior, 36*(3), 601-614.
- LCFT, (2010). Annual NHS Staff Survey.
- Levy, D. M., Wobbrock, J. O., Kaszniak, A. W., & Ostergren, M. (2011). Initial results from a study of the effects of meditation on multitasking performance. *Proceedings of the 2011 annual conference extended abstracts on Human factors in computing systems, 2011-2016*.

- Lovibond, P. F., & Lovibond, S. H. (1995a). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*, 335-343.
- Lovibond, S.H. & Lovibond, P.F. (1995b). *Manual for the Depression Anxiety Stress Scales* (2nd Edition). Sydney: Psychology Foundation.
- Lupien, S. J., Fiocco, A., Wan, N., Maheu, F., Lord, C., Schramek, T., & Tu, M. T. (2005). Stress hormones and human memory function across the lifespan. *Psychoneuroendocrinology*, *30*, 225–242. doi:10.1016/j.
- Manotas, M., Segura, C., Eraso, M., Oggins, J., McGovern, K. (2014). Association of brief mindfulness training with reductions in perceived stress and distress in Colombian health care professionals. *International Journal of Stress Management*, *21*: 207-225.
- Maslach, C., & Goldberg, J. (1998). Prevention of burnout: New perspectives. *Applied & Preventative Psychology*, *7*(1), 63-74. doi: 10.1016/S0962-1849(98)80022-X
- McEwan, B. S. (1998). Protective and damaging effects of stress mediators. *The New England Journal of Medicine*, *338*, 171–179. doi: 10.1056/NEJM199801153380307
- Michie, S., & Williams, S. (2003). Reducing work related psychological ill health and sickness absence: A systematic literature review. *Occupational and Environmental Medicine*, *60*, 3–9. doi:10.1136/oem.60.1.3
- Morgan, P. (2014). Mindfulness training for health care workers: A qualitative meta-synthesis. *Mindfulness*, *6*: 744-758.
- Mrazek, M.D., Franklin, M.S., Philips, D.T., Baird, B., Schoole, J.W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science*. *24* (5); 776-781.
- NHS Employers, (2014). Sickness absence rates continue to fall (<http://www.nhsemployers.org/news/2014/08/sickness-absence-rates-continue-to-fall>).
- NICE. (2009). NICE Guidelines: Promoting Wellbeing at Work. Manchester: NICE.
- NICE. (2009). *Depression in Adults. The Treatment and Management of Depression in Adults. NICE Clinical Guideline 91*. National Institute for Health and Care Excellence, UK.
- Norcross, J.C., Pfund, R.A., and Prochaska, J.O. (2013). Psychotherapy in 2022: A Delphi Poll on Its Future. *Professional Psychology, Research and Practice*, Vol 44, No. 5, 363 – 370.
- Office for National Statistics (2014). Full Report: Sickness Absence in the Labour Market, February 2014.
- Pidgeon, A.M., Ford, L., and Klaassen, F. (2014). Evaluating the effectiveness of enhancing resilience in human service professionals using a retreat-based mindfulness with Metta Training Program: A randomised controlled trial. *Psychology, Health and Medicine*, *19*: 355-64.
- Reb, J., Narayanan J., and Ho, Z.W. (2013). Mindfulness at work: Antecedents and consequences of employee awareness and absent-mindedness. *Mindfulness*; *6* (1): 111-122.

- Reb, J., Narayanan J., and Chaturvedi, S. (2012). Leading mindfully: Two studies on the influence of supervisor trait mindfulness on employee wellbeing and performance. *Mindfulness*; 5 (1): 36-45.
- Segal, Z.V. Williams, J.M.G. and Teasdale, J.D. (2013). *Mindfulness-based Cognitive Therapy for Depression*. Second Edition. Guilford Press: London.
- Smith-Payne, L. & Smith, A. (2013). Mindfulness-based Cognitive Therapy for Staff: Project Phase 2, 5 courses completed in 2012. Submitted to LCFT March 2013.
- Soler, R. E., Leeks, K. D., Razi, S., Hopkins, D. P., Griffith, M., Aten, A., Chattopadhyay, S. K., et al. (2010). A systematic review of selected interventions for worksite health promotion: The assessment of health risks with feedback. *American Journal of Preventive Medicine*, 38, S237–S262. doi:10.1016/j.amepre.2009.10.030
- Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., and Bernard. J. (2008). The Brief Resilience Scale: Assessing the ability to bounce back. *International Journal of Behavioural Medicine*, 15: 194 - 200
- Tennant, R., Hiller, L. Fishwick, L., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., Steward-Brown, A. (2007). The Warwick-Edinburgh Mental Wellbeing Scale WEMWBS. Development and UK Validation. *Health and Quality of Life Outcomes*, 5: 63. <http://www.hqlo.com/content/5/1/63>
- The Mindfulness Initiative (2015). Mindful Nation UK Report by the Mindfulness All-Party Parliamentary Group (MAPPG). http://www.themindfulnessinitiative.org.uk/images/reports/Mindfulness-APPG-Report_Mindful-Nation-UK_Oct2015.pdf
- Wolever, R. et al. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258.
- Van Houdenhove, B., Van Den Eede, F., & Luten, P. (2009). Does hypothalamic-pituitary-adrenal axis hypofunction in chronic fatigue syndrome reflect a 'crash' in the stress system? *Medical Hypotheses*, 72, 701–705. doi:10.1016/j.mehy.2008.11.044
- Virgili, M. (2013). Mindfulness-Based interventions reduce psychological distress in working adults: a meta-analysis of intervention studies. *Mindfulness* DOI 10.1007/s12671-013-0264-0
- Zeidan, F., Johnson, S.K., Diamond, B.J., David, Z., Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition*, 19 (2): 597-605.