Evaluation of Outcomes from Sussex Partnership MBCT Service User Groups

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Clara Strauss & Megan Hughes

Background

Mindfulness-Based Cognitive Therapy (MBCT) is an eight week course where participants are guided through mindfulness practices in each session and at home and experiences of mindfulness are discussed in course sessions with the mindfulness teacher. MBCT can reduce the risk of relapse for people who are currently well but who have experienced multiple episodes of major depression in the past in comparison to anti-depressant medication (Kuyken et al., 2016) and MBCT can also reduce the severity of depression for people who are currently clinically depressed (Strauss et al., 2014; Goldberg et al 2019). There is also evidence that MBCT can reduce the severity of anxiety symptoms in mental/physical health populations (Hofmann et al., 2010), although MBCT may not be effective for people meeting diagnostic criteria for an anxiety disorder (OCD, PTSD, social anxiety etc.) where depression is not a primary problem (Strauss et al., 2014). Sussex Partnership have been offering MBCT groups to service users for over 10 years. This report presents outcomes from MBCT groups for Sussex Partnership service users from adult primary and secondary care services between 2010 and 2019.

Method

Participants

Data was collected from 844 adult service users (558 females) with a range of mental difficulties between 12th November 2010 and 1st April 2019. Participants' ages ranged from 20 to 88 years (*M*= 49.48, *SD*= 13.01). 695 participants (82% of those who completed at least one set of measures) completed measures both before and after their MBCT group; 149 participants either completed only the baseline or only the post-MBCT measures.

Of the 695 people with complete baseline and post-MBCT data, 274 (39.4%) participants scored in the clinical range on the measure of depression (PHQ-9 score of 10 and above) at baseline and 402 scored in the non-clinical range at baseline (57.8%). (19 missing – no score for PHQ 9)

Measures

*The Five-Facet Mindfulness Questionnaire Short-Form (*FFMQ; Bohlmeijer, Klooster, Fledderus, Veehof, & Baer, 2011) and FFMQ-15 (Gu et al., 2016). The FFMQ Short Form is designed to measure levels of mindfulness. It contains 24 items within five facets; non-reactivity to inner experience, observing, acting with awareness, describing, and non-judging of inner experience. Participants are asked to respond on a rating scale from 1 (never or very rarely true) to 5 (very often or always true) how frequently they had experienced the statements in the last month. The FFMQ 15 is a shorter version containing 3 items from each of the five subscales. Scores on either the FFMQ15 or FFMQ24 were converted to item level means so they could be compared. The observe subscale was not included given its psychometric properties.

*Self-compassion Scale Short-form (*SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011). The SCS-SF is a 12-item measure of self-compassion. On a sub-scale level the it measures Self-Kindness, self-Judgment, common humanity, over identification, isolation, and mindfulness. Participants were asked to indicate how often they behave according to the statements ranging from 1- (almost never) to 5- (almost always).

*Patient Health Questionnaire for Depression (*PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 is a valid and reliable measure of depression severity. This 9-item measure requires participants to rate from 0 (not at all) to 3 (nearly every day) how often they have been affected by the stated problems in the past two weeks.

Generalised Anxiety Disorder Scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). The GAD-7 is an established item to identify anxiety and its severity with good reliability, criterion and construct validity. This 7-item measure requires participants to rate from 0 (not at all) to 3 (nearly every day) how often they have been affected by the stated problems in the past two weeks.

Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS; Stewart-Brown et al., 2009). The SWEMWBS is a 7-item scale measuring psychological and eudemonic well-being. Respondents were required to rate themselves from 1 (none of the time) to 5 (all of the time) to how that item best described their experience over the last 2 weeks.

Procedure

Service users were referred by a member of their primary care or secondary care adult mental health team and were allocated to MBCT groups in various locations around Sussex. MBCT groups were facilitated by two trust-accredited MBCT teachers, closely adhering to the MBCT manual (Segal et al., 2002) and receiving regular supervision from trust-accredited MBCT supervisors. Participants self-completed the pack of measures in the first and final session of their MBCT group with the facilitator present.

Data analysis

Missing Data

Reasons for missing data were largely for logistical reasons as measures were handed out by group facilitators and there was no additional resource for data collection (e.g. research assistants). There were a number of instances where data were missing because measures were not handed out in the first or final session, or where participants missed the first or final session, but attended the remaining sessions. Multiple imputation was used to manage missing data. We also chose to conduct analysis on complete data sets by comparing demographic variables of completers and non-completers. The rationale for this was to identify any systematic reason for missing data that may suggest data completers were different from non-completers.

An independent *t*-test was used to compare baseline scores on each of the measures for those who completed both baseline and post-MBCT measures and those who did not complete both. A Chi-Square test was then carried out to see if there was a relationship between gender and whether participants completed both baseline and post-MBCT measures or not (completers or non-completers) and a t-test was used to see if completers and non-completers differed in age.

Outcome analysis

Paired *t*-tests were conducted on the imputed dataset to compare participants' baseline and post-MBCT scores - a total of 695 service users were included in the data analysis, who had completed both baseline and post-MBCT measures.

Given that the strongest evidence for MBCT is in relapse prevention (rather than symptom reduction) for people currently well but with a history of recurrent depression, we chose to examine the effects of MBCT for people experiencing clinical levels of depression. Participants were sub-divided into those who scored below 10 on the PHQ-9 at baseline and those who scored 10 or more. Scores at 10 or above would suggest they were experiencing symptoms of clinical depression at the time of completing the baseline questionnaires (Kroenke, Spitzer, & Williams, 2001). Whereas scores below 10 would suggest they were not experiencing clinical depressive symptoms (Kroenke, Spitzer, & Williams, 2001).

To explore effects on anxiety further, participants were sub-divided into those who scored below 8 on the GAD-7 at baseline and those who scored 8 or more. Scores at 8 or above would suggest they were experiencing symptoms of clinical anxiety at the time of completing the questionnaire (Spitzer, Kroenke, Williams, & Lowe, 2006), whereas scores below 8 would suggest they were not experiencing clinical anxiety symptoms (Spitzer, Kroenke, Williams, & Lowe, 2006).

Results

Service users from Health in Mind only completed measures of depression and anxiety. Results for these measures are from analysis of all (695) participants. Results for wellbeing, mindfulness and self-compassion measures are from analysis of the 354 participants that completes these measures.

Depression:

Overall, scores of depression at baseline (*M*=8.81, *SD*=6.59) decreased significantly with a medium effect size to post-MBCT (*M*=4.75, *SD*=5.70); *t* (675) = 18.769, *p*<.001, d= 0.66, 95% CI [3.63, 4.20].

Severity of depressive symptoms, for those with clinical scores of depression at baseline (PHQ-9 score of 10 or more), significantly decreased from baseline (*M* =15.47, *SD* = 4.26) to post-MBCT (*M* =8.07, *SD* = 7.00); with a very large effect size *t* (44) =19.426, *p* < .001, *d* =1.28, 95% CI [6.66, 8.15]. Additionally, severity of depression symptoms for those with non-clinical scores of depression at baseline (PHQ-9 score of 9 or less) (*M* = 4.27, *SD* = 3.13) decreased significantly to post-MBCT (*M* =2.49, *SD* = 3.00); with a medium effect size *t* (421) =9.678, *p* <.001, *d* =0.58, 95% CI [1.42, 2.14]

Anxiety:

Overall, scores of anxiety at baseline (*M*=8.86, *SD*=5.47) decreased significantly with a medium-large effect size to post-MBCT (*M*=5.03, *SD*=4.41); *t* (598) = 20.302, *p*<.001, d=0.77, 95% CI [3.46, 4.20].

Severity of anxiety symptoms for those with clinical scores on the GAD-7 at baseline (GAD-7 score of 8 or more) decreased significantly from baseline (*M* = 13.13, *SD* = 3.75) to post-MBCT (*M* = 6.87, *SD* = 5.00) with a very large effect size; *t* (55) = 23.808, *p* <.001, *d* = 1.42, 95% CI [5.74, 6.77]. Additionally, severity of anxiety symptoms for those with non-clinical scores on the GAD-7 at baseline (GAD-7 score of 7 or less) decreased significantly from baseline (*M* = 4.02, *SD* =2.12) to

post-MBCT (*M*= 2.93, *SD* = 2.29) with a medium effect size; *t* (565) = 6.297, *p*<.001, *d* = 0.49, 95% CI [-.743, 1.437].

Wellbeing:

Overall, scores of wellbeing at baseline (*M*=19.48, *SD*=4.58) increased significantly with a medium effect size compared to post-MBCT (*M*=22.59, *SD*=4.57); *t* (196) = -11.383, *p*<.001, d=-0.68, 95% CI [-3.64, -2.56].

For those with clinical scores of depression at baseline (PHQ-9 score of 10 or more), well-being significantly increased from baseline (M=17.30, SD=3.59) to post-MBCT (M=21.39, SD =4.45) with a very large effect size; *t* (28) = -10.237, *p*<.001, *d*=-1.01, 95% CI [-4.91, -3.27]. Additionally, for those with non-clinical scores of depression at baseline (PHQ-9 score of 9 or less) well-being significantly increased from baseline (M=23.27, SD=3.53) to post-MBCT (M=24.68, SD =3.97), with a small effect size; *t* (98) = -3.155, *p*=.003, *d*=-0.38, 95% CI [-2.32, -.507].

Mindfulness:

Overall, item level mean scores of mindfulness at baseline (*M*=3.04, *SD*=.341) increased with a small-medium effect size compared to post-MBCT (*M*=3.19, *SD*=.325), however this increase did not reach statistical significance; *t* (200) = 1.235, *p*=.241, d= 0.45, 95% CI [-.03, .98].

For those with clinical scores of depression at baseline (PHQ-9 score of 10 or more), levels of mindfulness increased from baseline (*M*= 3.06, *SD* = .35) to post-MBCT (*M*= 3.21, *SD* = .34); with a small-medium effect size, however this increase did not reach statistical significance; *t* (11) = .854, *p*=.411, *d* = .43, 95% CI [-4.91, -3.27]. For those with non-clinical scores of depression at baseline (PHQ-9 score of 9 or less), levels of mindfulness did not increased from baseline (*M*= 3.00, *SD* = .322) to post-MBCT (*M*= 2.96, *SD* = .291). However, this change was also not statistically significant; *t* (50) = 1.136, *p* =.261, *d* = 0.13, 95% CI [-.032, .116].

Self-Compassion:

Overall, scores of self-compassion at baseline (*M*=27.75, *SD*=9.08) increased significantly with a medium effect size compared to post-MBCT (*M*=33.99, *SD*=9.05); *t* (195) = -11.186, *p*<.001, d=-0.69, 95% CI [-7.34, -5.14].

For those with clinical scores of depression at baseline (PHQ-9 score of 10 or more), self-compassion scores significantly increased from baseline (*M* = 25.14, *SD* = 8.28) to post-MBCT (*M* = 32.10, *SD* = 8.62) with a large effect size; *t* (73) =-9.480, *p* < .001, *d* = 0.82, 95% CI [-5.50, -9.48]. Additionally, for those with non-clinical scores of depression at baseline (PHQ-9 score of 9 or less, self-compassion scores significantly increased from baseline (*M* = 32.38, *SD* = 8.51) to post-MBCT (*M* = 37.35, *SD* = 8.65); with a medium effect size; *t* (28) =-4.563, *p* < .001, *d* = 0.58, 95% CI [-7.20, -2.74].

Table 1: Baseline scores for participants completing and not completing measures at baseline and post-MBCT (as a proxy for intervention completion):

		N	Mean	Std. Deviation	*t*	*p*
FFMQ (item mean)	**non-completer**	115	3.08	.363	-1.696	.091
	completer	201	3.02	.321		
SCS	**non-completer**	114	28.19	9.60	-.742	.459
	completer	196	27.40	8.83		
PHQ-9	**non-completer**	109	12.55	7.14	-5.467	<.001
	completer	676	8.80	6.57		
GAD-7	**non-completer**	104	11.33	5.62	-3.177	.002
	completer	598	9.48	5.44		
SWEMWBS	**non-completer**	113	19.03	4.75	1.123	.262
	completer	196	19.63	4.50		

Table 1 shows when looking at the means of measure completers vs. non-completers, there were no significant differences between completers and non-completers on the FFMQ, SCS and SWEMWBS outcome measures, however, there were significant differences between mean scores on the PHQ-9 and GAD-7 outcome measures. Measure completers and non-completers did not differ in relation to gender (χ^2=.006, p=.940) or age (t=1.411, p=.159). This shows that individuals who failed to complete post-MBCT measures were not experiencing lower levels of mindfulness, wellbeing or compassion at baseline than individuals completing baseline and post-MBCT measures, and that the two groups did not differ in terms of age or gender, but their scores on the measure of depression and anxiety were significantly lower.

All analyses were repeated on the unimputed dataset, and a similar pattern of results was found.

Discussion

The aim of this report is to evaluate outcomes from MBCT groups for NHS mental health adult service users. Findings were that overall there were significant pre-post MBCT improvements on all measures (depression, anxiety, wellbeing, and self-compassion) except mindfulness. Pre-post course effect sizes ranged from small-medium (mindfulness) to large (anxiety), with effect sizes for changes in depression, wellbeing and self-compassion being medium. On further examination, effects on depression and anxiety symptom severity were significant for service users scoring in the clinical and non-clinical range on all measures at baseline, except mindfulness. Pre-post effects on all measures for service users scoring in the clinical range at baseline were consistently larger than those starting in the clinical range. This indicates that the courses were helpful for both groups of people, but improvements were larger for those in the clinical range at baseline, although scores for people in the non-clinical range had less scope to fall.

This study adds to the findings of Kuyken et al. (2016) and Strauss et al. (2014), by showing that MBCT can be beneficial outside of research trials and in a real-world healthcare setting for those people currently experiencing clinical symptoms of depression and anxiety. In comparison with a meta-analysis of research trials by Hofmann et al., (2010) the current evaluation's findings are very similar for anxiety and depression symptoms. In the Hofmann et al., (2010) meta-analysis participants

diagnosed with anxiety or mood disorders showed pre-post improvements with a large effect size in anxiety and depression symptom severity (g=.97, 95% CI [72, 1.22] and g=.95, 95% CI [.71, 1.18], respectively) (compared to d=1.42 and d=1.28 in the present evaluation[1]).

Limitations

A limitation of the evaluation is that significant differences were found between measure completers and non-completers in PHQ-9 and GAD-7 baseline scores. This suggests those who did not complete post-course measures may be significantly more depressed or anxious than measure completers, and that missing data may not only be for logistical reasons, (e.g. facilitators forgetting to hand out measures in the first or final session, or participants missing the first or final session). This suggests that people experiencing higher levels of depression or anxiety may be more likely to drop out of the course, although we don't know the reasons for this. In future it may be helpful to find ways to improve rates of measure completion (e.g. by asking participants who do not attend the final session to complete the measures online, or collecting qualitative data as to why participants dropped out).

Another limitation is that participants completed the measures in the MBCT group which could increase demand characteristics and inflate effect sizes. Having an independent researcher administer the measures could be a solution to this limitation. Details of service user diagnosis, condition onset, and previous treatment undertaken could be useful information to include in future evaluations in order to identify groups for whom MBCT is more/less effective.

Conclusion

Overall, this evaluation shows that adult service users attending Sussex Partnership MBCT courses show significant improvements in depression and anxiety (regardless of whether scores for depression and anxiety were in the clinical range at baseline), along with significant improvement in wellbeing and self-compassion – established mechanisms of change for MBCT (Gu et al., 2015). The degree of improvement in depression and anxiety symptoms for service users scoring in the clinical range at baseline is comparable to that found in research studies of MBCT in mental health populations, although direct comparisons are not possible. This suggests that the Sussex Partnership MBCT courses are beneficial and should continue to be offered.

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[1] Cohen's d and Hedge's g are roughly comparable, with Hedge's g being a variant of Cohen's d taking into account small sample sizes.

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