

Participation in an Adapted Version of MBCT in Psychiatric Care

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Abstract Mindfulness-based cognitive therapy (MBCT) groups are challenged by high attrition particularly in early sessions. This leads to disturbances in the composition of the groups and potential dissatisfaction. In order to support patients in their decision about participation and to accommodate the program to psychiatric patients, an adapted version of MBCT was developed with nine instead of 8 weekly units, reduced duration of some exercises, and patients invited to make an active decision about continuing with the program or leaving the group after an introductory phase of the first three sessions. 120 participants joined the program, 35 % decided to leave the program before the advanced stage started, and 50.8 % completed it. In a multiple logistic regression model, neither the degree of depression and mindfulness at onset nor sociodemographic variables could predict if participants would complete the program. The only significant predictor was the number of sessions attended in the introductory phase. In bivariate analyses, having participated in group therapies earlier strongly predicted if a person would complete sessions 1 to 3. The therapist's assessment of the patient's motivation and her/his predictions if the patient would leave the group preterm and if the patient would finalize the program regularly were also related to attrition. The modified version of MBCT has proved to be feasible and useful to stabilize the participants' presence in the later sessions. Particular attention should be paid to patients who miss sessions in the introductory phase and for which the therapist recognizes low motivation or risk of dropping out.

Keywords Mindfulness · Participation · Attrition · Compliance · Outcomes · Psychiatry

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Introduction

In the last two decades, mindfulness-based interventions have been incorporated into the treatment of a variety of psychological disorders. The mindfulness-based stress reduction (MBSR) program developed by Kabat-Zinn (1990) consists of 8 weekly classes of 2.5 h each plus an all-day 6-h class on a weekend day. Mindfulness-based cognitive therapy (MBCT; Segal et al. 2002) is an 8-week group intervention program that integrates mindfulness training with elements of cognitive behavioral therapy (CBT). Its purpose is the prevention of relapse in patients who have recovered from depression. While most of the first episodes of depression are triggered by major life events, ruminative thinking style in reaction to low mood appears to be relevant for relapses (Nolen-Hoeksema et al. 2008). Previous studies have demonstrated that MBCT, when taught to nondepressed patients with a history of three or more episodes of depression, reduces the rate of relapse by 50 % (Ma and Teasdale 2004; Teasdale et al. 2000). Kenny and Williams (2007) showed that even treatment-resistant depressed patients showed good response to the MBCT program and experienced an improvement in depression scores. Kingston et al. (2007) applied MBCT to patients with active depression with moderate severity and found improvements in depression and reductions in rumination. The application of MBCT therefore was expanded to include patients whose depression took a chronic course (Kenny and Williams 2007).

Variations of the MBCT Program

The duration of the MBSR and MBCT programs was designed to be long enough that participants could learn the principles of mindfulness and mindfulness practice. But for some clinical groups, such as inpatient populations, the severity of their condition might exclude them from

participation in longer sessions. Therefore, an increasing number of authors published abbreviated versions of the two programs for particular clinical groups such as cancer patients or patients with active depression (Finucane and Mercer 2006). Finucane and Mercer (2006) shortened some of the longer meditations and found that this form of MBCT training was both acceptable and beneficial to the majority of patients that suffered from active depression and anxiety. Carmody and Baer (2009) investigated if the number of in-class hours in MBSR programs were related to the extent of improvement in psychological functioning. They found no evidence that shortened versions of the MBSR program are less effective than the original format in reducing psychological distress and that shortened versions of the program merit further study.

Compliance with the Program

The research on MBCT is still in its infancy, and outcome studies are suffering from diverse methodological restrictions (Coelho et al. 2007). Even less is known about the determinants of participation in MBCT groups, predictors of attrition from the standardized group programs, and factors that contribute to the therapeutic effects.

As regards the psychological processes, individuals with high levels of cognitive reactivity, brooding, and depressive rumination had a higher chance to drop out from MBCT; although if they remained in the class, they were likely to have the most to gain from the development of mindfulness skills (Crane and Williams 2010). Regarding the severity of the disorder, having a history of two rather than three or more episodes of depression and having a history of attempted suicide were associated with increased likelihood of dropout.

In their qualitative study, Langdon et al. (2011) found that older people initially were less open to mindfulness than younger participants. Previous therapeutic experience helped to establish the practice, and perseverance and increased practice improved the motivation to continue. Mindfulness practice was generally seen as requiring effort and discipline, with many obstacles reaching from resistance, stress, tiredness, anxiety, and depression, over the beliefs about the effectiveness of mindfulness to the influence of significant others.

In actual review articles (Chiesa and Serretti 2011; Klainin-Yobas et al. 2012; Piet and Hougaard 2011), dropout-rates are not reported. Attrition rates reported in original articles vary considerably between values of 33 % (Godfrin and van Heeringen 2010), 15–17 % (Crane and Williams 2010), 10 % (Bondolfi et al. 2010), and 1 % (Kenny and Williams 2007).

Particularly in the first sessions, participants may be confronted with a discrepancy of their first experiences with meditation from what they had expected (Sears et al. 2011). Early dropout is also identified as a common finding for MBSR (Dobkin et al. 2012).

Attrition and Processes of (Self-)selection

Attrition rates are strongly dependent on the processes and criteria by which patients decide to apply for participation or by which patients are selected for participation in an MBCT program. With very strict inclusion and exclusion criteria, Kenny and Williams (2007) yielded a rate of 49 out of 50 (98 %) participants who completed the course. Besides certain diagnostic criteria, only patients with long-lasting, strong, treatment-resistant depressive symptoms were admitted; their depressive symptoms had to be related to the presence of ruminative thought patterns. Participants had to undergo a clinical interview in which their motivation to use meditation as a means to manage their mental health was checked. Beyond a strong motivation, they had to be prepared to attend all classes and to practice between classes for 1 h per day. Substance abuse that might interfere with meditation in clear consciousness was excluded. Nearly all participants were outpatients referred to the program by external general practitioners or psychiatrists (Kenny and Williams 2007). In their uncontrolled trial with patients who, besides the MBCT groups, received additional other antidepressive treatment, highly significant reductions in depression were recorded (Beck depression inventory (BDI) pre-MBCT: $M=24.3$, $SD=9.8$; post-MBCT: $M=13.9$, $SD=9.7$, $p>0.0001$).

In the study by Eisendrath et al. (2008), the participants were equally homogeneous with actual strong, treatment-resistant depressive symptoms. Fifty-one out of 55 participants completed the whole program consisting of eight 2-h weekly sessions. All participants had been outpatients, having willingly chosen to learn MBCT, and therefore were ascribed a potentially high motivation by the authors. Other inclusion criteria or details of the admission process were not reported. The patients benefited from the course; although due to the single-group study design and parallel other treatments, the effects could not be attributed to the MBCT program alone: depression and anxiety levels decreased significantly (BDI pretreatment: $M=23.96$, $SD=10.00$; posttreatment: $M=14.61$, $SD=9.28$, $p<0.001$). Mindfulness increased (Freiburg mindfulness inventory (FMI) pretreatment: $M=67.26$, $SD=11.7$; posttreatment $M=73.55$, $SD=11.6$, $p<0.01$). Increased mindfulness was associated with decreased depression levels.

Crane and Williams (2010) reported dropout rates of 15–17 % of patients allocated to MBCT before their fourth session, thereof about 50 % even before the first treatment session. The sample of outpatients was recruited as a part of a randomized controlled trial (RCT) on MBCT delivered to patients with bipolar disorder in remission with a history of serious suicidal ideation or behavior. Inclusion criteria were at least one prior episode of major depression accompanied by serious suicidal ideation, NIMH criteria for recovery at the time of participation (not more than 1 week of minimal depressive symptoms in the

past 8 weeks), and no manic episodes for at least 6 months. One hundred twenty-eight persons contacted the group and were interested in participating, 83 thereof were eligible, and 15 of these did not attend their first assessment or withdrew directly after it (Williams et al. 2008). Thus, 60 of the 128 persons interested (47 %) did not enter the program. The remaining 68 participants were randomized to either immediate treatment with MBCT ($n=33$) or to the waitlist ($n=35$). Ten out of the 33 MBCT participants (30 %) dropped out of treatment (Crane and Williams 2010).

Patients who participated in the RCT by Godfrin and van Heeringen (2010) were treated at the outpatient clinic of the University Department of Psychiatry of the University Hospital Ghent. They had deliberately applied for participation because of their interest in the program, thus a positive attitude towards MBCT can be assumed. Despite that, the dropout rate of 33 % within the MBCT group was relatively high. In the framework of RCTs, strict inclusion criteria are defined to improve internal validity (e.g., homogeneous patient groups); this results in high participation of persons who will potentially benefit from the treatment. After public information through media announcements and mailings to psychiatrists and general practitioners, 600 persons signaled interest in participation in the study of Bondolfi et al. (2010); only 142 persons remained. The main reasons for exclusion were that participants had an ongoing acute depressive episode, had less than three previous depressive episodes, were too old or too young, were not able to discontinue the antidepressant medication, met diagnostic criteria for a bipolar mood disorder, and were not interested in being a research participant. In the course of further selection interviews, additional 71 potential participants were excluded mainly because they did not meet the diagnostic criteria. Eleven more dropped out in the 3-month run-in phase during which mood had to remain stable. Of the 31 participants in the MBCT program, 90 % completed the treatment.

A review of RCTs (Fjorback et al. 2011) concluded that results are often biased due to self-selection. The participation in an MBCT program requires a certain amount of active involvement; therefore, it is regarded worthwhile that patients make an active decision for the treatment. In the largest part of the existing studies, the participants are thoroughly selected based on their motivation to participate and openness to the method (e.g., Kenny and Williams 2007). The authors therefore presume that the results from such studies can only be generalized to persons who dispose of interest and the necessary preconditions for participation in an MBSR/MBCT program (Fjorback et al. 2011).

Aim of the Present Study

In order to ameliorate some of the participants' difficulties especially in the first phase of an MBCT course, a modified

version of the MBCT program was developed at the Psychiatric University Clinics in Basel, Switzerland in 2007 (Hänny and Bader 2008). The program consisted of nearly all elements of the original. Besides a reduction of the session duration to 1.5 h in recognition of the frequent attention deficits of the target group, the main specific feature was the introduction of an initial phase with three sessions after which the patients were asked for an active decision to stop or continue their participation. Depression and mindfulness states were measured and reasons for drop-out were monitored.

The aim of this study was to investigate the acceptability of the adapted version of the MBCT program in routine psychiatric care for inpatients and outpatients with recovered or active depressive symptoms or other psychiatric disorders. Of special interest were the determinants of attrition from the treatment and the characteristics of patients who continued with the advanced course after attending the introduction part.

Method

Procedure

In primary care, most of the patients do not suffer from recovered depression but from active depression and often from additional psychiatric disorders like anxiety disorders, substance abuse, or personality disorders. These patients have a range of ongoing symptoms like concentration deficit, loss of interest, or psychomotor agitation, that may be a barrier to their ability or willingness to practice mindfulness. Because of this, we decided to adapt the original MBCT program for this special group of patients. The sessions were shortened from 2 to 1.5 h weekly, and the duration of the longer meditations, for example, the body scan and the guided sitting meditations, was reduced to a maximum of 20–25 min. In addition, we extended the program from 8 to 9 weeks.

In order to lower the barrier for patients to join the course, it was divided into two parts: the *introduction course* consists of 3 weekly classes followed by the *advanced stage* (six sessions). Patients who were interested in the MBCT program were offered a precourse interview after which they gave their commitment to participate in the introduction course. After three sessions, they were asked if they wanted to continue with mindfulness practice and attend the advanced stage. In giving the patients the opportunity to continue with the group course after they left or entered the inpatient treatment, we treated inpatient and outpatient within the same course. The scheme indicating the modifications of the Basel vs. the original program as well as the scheme for evaluation can be found in Table 1. More information is found in Hänny and Bader (2008) and can be obtained from the authors.

Table 1 The adapted version of MBCT group program and evaluation scheme

Section	Session	Adapted MBCT program	Original MBCT program
Precourse interview: anamnesis, information; baseline evaluation: BDI ^a , FMI ^b , MAAS ^c			
Introduction	1	Automatic pilot	Automatic pilot
	2	Dealing with barriers	Dealing with barriers
Interim Evaluation: BDI, FMI, MAAS			
	3	Allowing/letting be ^d (practice: body scan (20 min); seeing meditation (10 min); breathing space (3-min))	Mindfulness of the breath
Decision about continuation			
Advanced	4	Staying present	Staying present
	5	Thoughts–mood–body ^d (practice: sitting meditation (20 min); mindful walking (15 min))	Allowing/letting be
	6	Thoughts are not facts	Thoughts are not facts
	7	How can I best take care of myself	How can I best take care of myself
	8	Early warning signs ^d (practice: 3-min breathing space; body scan (20 min))	Using what has been learned to deal with future moods
Final evaluation: BDI, FMI, MAAS, exercise protocols, patient satisfaction			
	9	Using what has been learned to deal with future moods	–

^a Beck depressions-inventar (BDI-II) (Hautzinger et al. 2006)^b Freiburg mindfulness inventory short form (Walach et al. 2006)^c Mindfulness attention awareness scale (German version; Michalak et al. 2008)^d New elements

Participants

In total, 120 patients were treated in 14 consecutive MBCT courses which were provided by the outpatient CBT department of the Psychiatric University Hospital in Basel, Switzerland. The first patient entered the group in June 2007, the last patient reported on here started in January 2011. All interested persons underwent an orientating interview. Most of our patients were in outpatient psychiatric treatment ($n=87$, 72.5 %), either at the outpatient CBT department ($n=49$) or in psychiatric ambulatory practices ($n=38$).

More than one fourth ($n=33$, 27.5 %) were in inpatient treatment at the Psychiatric University Hospital (department for privately insured patients). Fifty-five persons (45.8 %) were male, 65 (54.2 %) were female, the age ranged from 22 to 79 years (mean age $M=48.9$ years, $SD=13.75$).

The diagnostic spectrum was broad, largely representing the relatively unfiltered access of psychiatric patients to the program. At admission, 49 (40.8 %) of the participants were diagnosed with a primary depressive disorder. Most frequent diagnoses besides the depressive syndromes, of which six were remitted, reached from anxiety disorders (17, 14.1 %), seven (5.8 %) disorders due to psychoactive substance use, six (5 %) personality disorders, and various less frequent disorders. Only patients suffering from acute psychosis or mania, current substance abuse, or severe personality disorders were excluded from the program. Table 2 compares the characteristics of the study sample with the two largest

Table 2 Participants compared to populations of origin

	MBCT program sample (%) (2007–2010)	Inpatient population (%) (2008–2010 ^a)	Outpatient CBT population (%) (2007–2010)
Main diagnosis (ICD-10)			
Unknown ^b	34.2		13.8
F0		5.7	0.2
F1	5.8	13.9	0.9
F2		6.8	0.8
F3	40.8	63.4	10.7
F4	17.5	8.8	51.4
F5	1.7	0.3	11.1
F6		0.9	8.1
F7		0.3	
F8			0.2
F9			0.6
Other (G, H, I, S, Z)			2.1
Total	100	100	100
Male	45.8	43.9	37.5
Female	54.2	56.1	62.5
Age, M (SD)	48.9 (13.75)	56.1 (20.87)	37.6 (12.71)

^a Data for 2007 are not available for inpatients due to changes in the clinical information system^b Diagnoses according to ICD-10 unknown for externally referred patients

populations from which the participants were recruited (inpatients from Psychiatric University Hospital without geriatric rehabilitation and outpatients from the CBT department) to illustrate the process of recruitment and (self-) selection. No valid reference data are available for the third population of origin (outpatients treated by psychiatrists in private practice).

Though most participants were in outpatient treatment, the sample in the MBCT program resembles much more the inpatient than the outpatient population. A considerable proportion of the inpatients and outpatients in this study had already received CBT in a one-to-one setting before entering the MBCT program. All other treatments in parallel to MBCT were continued.

Materials

The data collection consisted of three measurements: before entering the program, in week 2 after beginning (assessed between sessions 2 and 3), and in week 8 (assessed between sessions 8 and 9). Instruments used were a guidance for the preclass interview collecting sociodemographic characteristics, diagnoses, actual use of pharmaceuticals, and preexisting experience with mindfulness exercises.

Preclass interview data, besides information on earlier and actual treatments and meditation experience, included the therapist's assessment of the patient's motivation on a rating scale (1–6) and the therapist's prediction if the patient would leave the program early (yes–no).

As most of the participants suffered from depressive symptoms and because MBCT was originally designed to prevent relapse in depression, the BDI (Beck et al. 1961; Hautzinger et al. 2006) was used as outcome measure. The BDI is one of the best established measures of depressive symptomatology; 21 statements refer to the presence of typical depressive symptoms within the preceding 2 weeks.

In order to assess status and progression in mindfulness, a short form with 14 items of the German version of the FMI (short form; Walach et al. 2006; Walach et al. 2009) and the German version of the mindfulness attention awareness scale (MAAS; Brown and Ryan 2003; Michalak et al. 2008) were applied at the three points of measurement.

The FMI asks for openness for the experience of the moment, feeling one's body, returning to the experience of the moment after absence, self-esteem, regard of one's motives for action, unjudging view on one's mistakes and problems, contact with one's experiences, acceptance of unpleasant experiences, being friendly to oneself when things go wrong, watching emotions without losing oneself within them, ability to pause in difficult situations, experience of inner silence and serenity even when there is external pain and inquietude, being impatient with one's fellows, and the ability to smile when seeing how many difficulties

one introduces into the own life. The instrument has been confirmed as a construct valid (significant correlation with relevant constructs as self-awareness, dissociation, global severity index, meditation experience in years) and a reliable questionnaire for measuring mindfulness (Cronbach's $\alpha=0.86$; Walach et al. 2006).

The MAAS consists of 15 items which cover difficulties in being mindful in different circumstances: having a feeling which only later becomes conscious, breaking or pouring out things because of inattentiveness, difficulties to remain concentrated, neglecting the experiences while being underway, inability to recognize feelings of distress, forgetting names quickly, functioning automatically, rushing through activities without really paying attention, losing contact to processes, doing tasks automatically, listening "with only one ear," driving to places without knowing how one came there, ruminating about future or past, doing things without attention, and eating without being conscious. Concerning reliability and validity, the German version of the MAAS shows indices comparable to the original scale (single factor structure, internal consistency of Cronbach's $\alpha=0.83$, associations with symptom distress and subjective well-being (Michalak et al. 2008). The items of all three questionnaires can be integrated into one general score each.

Finally, at the last measurement, the participants were asked to complete questions about how often they had practiced the different forms of formal and informal meditation in the last 6 weeks, how important the course was for them, and if they would recommend it to other people. Remarks were allowed, and as far as possible, the reasons for dropouts were noted.

Data Analysis and Statistics

The data analysis was carried out with IBM SPSS Release 19.0.0 (International Business Machines Corp. 2011). Main method of analysis was a multiple logistic regression of the conceptually most relevant variables to predict completion of the course. The latter was defined as participation in sessions 8 or 9. Bivariate nonparametric correlations (Spearman-Rho) and χ^2 tests were utilized to further elucidate the covariation of further interesting ordinal or nominal variables from the preclass interview with the completion of the introductory course or the full program.

Results

Overall, the MBCT program, together with the "treatment as usual" continued in parallel, resulted in reduced severity of the depressive symptoms as measured by the BDI and increased mindfulness as measured by the FMI and MAAS (Table 3).

Table 3 Patient-related outcomes of the program

	Precourse (<i>M</i> , SD)	Week 2 (<i>M</i> , SD)	Significance (pre vs. week 2) ^a <i>p</i> value	Postcourse (<i>M</i> , SD)	Significance (pre vs. post) ^a <i>p</i> value
BDI (<i>n</i> =47)	14.2 (8.48)	10.7 (8.08)	0.005	8.34 (6.01)	<0.001
FMI (<i>n</i> =48)	33.2 (7.49)	35.4 (7.10)	<0.001	39.0 (6.97)	<0.001
MAAS (<i>n</i> = 28)	54.5 (11.10)	57.3 (11.6)	0.001	64.7 (10.55)	<0.001

^a Paired *t* test, two-sided

The values of Table 3 reflect a good overall effectiveness of the program both regarding the reduction of depressive symptoms as well as on mindfulness between precourse and postcourse measurements. The differences between the precourse measurement and the measurement at session 3, however, are all highly significant as well. This is a further indicator for self-selection processes in a way that patients with higher values in depression and with lower values in mindfulness decided not to continue their participation and dropped out of the program after sessions 1 or 2.

Of the total 120 patients, 61 (50.8 %) completed the program, 59 (49.2 %) left their group before the eighth session. As expected and facilitated by the interim interview after session 3, most patients who left the program did this after the first three sessions. The numbers of program leavers after the respective sessions are depicted in Fig. 1.

Thirty-five percent of all participants had decided to leave the course before the advanced stage started. Completion of the introductory phase, at best having visited all three sessions, was a good predictor for finalizing the whole program in the bivariate analysis ($\chi^2=15.430$, *df*=1, $p<0.001$). Only 17 (21.8 %) of those 78 persons who had decided to continue after the introductory phase left the group before the eighth session, and 61 (78.2 %) of the participants in the advanced stage completed the course. The results of the multiple logistic regression analysis to determine predictors for completing the group program are shown in Table 4.

The overall model is not statistically significant ($\chi^2=13.049$, *df*=9, and $p=0.160$), as is the Hosmer–Lemeshow

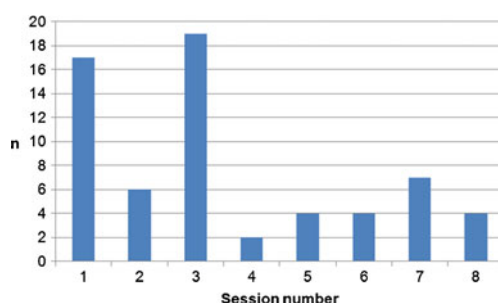
test with $\chi^2=4.009$, *df*=8, and $p=0.856$, both implying that the model's estimates fit the data at an acceptable level.

The only predictor that was statistically significant at the 0.05 level was the number of sessions that had been attended in the introductory phase. Neither demographic characteristics of the patients nor the degree of mindfulness or depression at onset allowed foreseeing if a participant would drop out of the program. The high, although nonsignificant, regression weight for sex means that, tentatively, more women than men left the program before the eighth session.

Besides the limited number of variables that had been seen as potential predictors of attrition, more characteristics especially from the preclass interview were tested for bivariate correlation with completion of the MBCT program.

From the interview data, the therapist's assessment of the patient's motivation correlated with the number of attended sessions ($\rho=0.524$, $p<0.001$, $n=51$). In addition, the therapist's prediction if the patient would leave the group preterm was also related to completing all three sessions of the introductory part ($\chi^2=5.205$, *df*=1, $p=0.023$) and if the patient would finalize the whole program regularly ($\chi^2=10.871$, *df*=1, $p=0.001$).

Having participated in group therapies earlier strongly predicted if a person would complete sessions 1–3 ($\chi^2=8.855$, *df*=1, $p=0.003$). Those who had participated in group therapies earlier were less likely to drop out from the MBCT group. For the finalization of the whole program, the preexisting experience with group therapies had no predictive value ($\chi^2=0.899$, *df*=1, $p=0.343$).

**Fig. 1** Drop-out after session number

Discussion

Neither sex, age, or other demographic variables, nor the intensity of the depressive symptomatic (as measured by the BDI) or of preexisting mindfulness (as assessed by the FMI) are able to predict preterm leave from the Basel MBCT program. Except for the number of sessions attended in the introductory phase (sessions 1–3), none of the variables included in the multiple regression was found to be a predictor for completing the group program. In the additional

Table 4 Results regarding predictors of attrition

	<i>B</i>	<i>SE</i>	<i>P</i>	<i>OR</i>	95 % Confidence interval for <i>OR</i>	
					Lower limit	Upper limit
Sex	−1.089	0.629	0.083	0.336	0.098	1.154
Age	0.036	0.028	0.200	1.037	0.981	1.096
Education ^a	−0.375	0.326	0.249	0.687	0.363	1.301
Marriage	0.138	0.283	0.625	1.148	0.659	2.001
Occupation ^b	−0.096	0.177	0.588	0.909	0.643	1.285
FMI precourse	−0.040	0.046	0.384	0.961	0.879	1.051
BDI precourse	−0.054	0.042	0.195	0.947	0.872	1.028
In/outpatient	0.236	0.519	0.649	1.266	0.458	3.503
Sessions attended in introductory phase	0.819	0.409	0.045	2.267	1.018	5.051
Constant	1.629	2.596	.530	5.101		

B regression coefficient, *SE* standard error of the coefficient, *P* probability that the regression coefficient equals 0, *OR* odds ratio

^a Education: highest qualification in categories (secondary school, apprenticeship, general qualification for university entrance, polytechnic/university degree)

^b Occupation: actual situation in categories (apprenticeship, household, part-time employment, full-time employment, retired, unemployed, sick leave, invalidity pension, accident pension, social security benefits, etc.)

analyses, variables that were able to identify participants who will potentially drop out from the course were her or his experience with participation in group therapies and the therapists' assessment of their motivation and their probability to drop out.

As motivation seems to be one of the most influencing variables, therapists should emphasize this point in detail in the preclass interviews. In particular, participants who have not attended all three sessions in the introductory phase, who had no earlier experience with group therapies, or for whom the therapist questions their motivation or expects preterm leave do probably need more support than others to remain in the program.

If this relevance of the therapist's prediction is not an example of self-fulfilling prophecies, it would be worth to investigate more deeply the implicit assumptions leading to the therapist's prediction, probably leading to further variables being relevant for attrition. Our results show that other factors than sociodemographic characteristics, illness-related symptoms (BDI), or mindfulness (FMI) at the beginning of the program exist that may give the therapist a "gut feeling," but that we were not yet able to assess objectively.

Of those patients who had started with the MBCT group as inpatients, a considerable yet not systematically documented number were dismissed from the hospital into ambulatory care during the 9 weeks of MBCT group training. Nevertheless, there was no difference in attrition between inpatient and outpatient participants. This indicates that many of the inpatients continued their participation in the MBCT group after discharge from the hospital. Thus, the MBCT program can be a good means to bridge the gap between inpatient and outpatient treatment. Further, as some

patients report, using mindfulness-based elements in the patients' single setting treatment seems to support the overall therapeutic process.

Our results can be compared to other studies in many aspects. In the very small treatment group of Crane and Williams (2010), 10 out of 33 participants (30 %) had dropped out. Individuals who dropped out had been significantly younger. This contradicts the finding of Langdon et al. (2011) that older people initially were less open to mindfulness than younger participants. Our study with a larger sample does not support age-specific attrition rates in neither direction. As Crane and Williams (2010), we found no difference in BDI scores between those who completed the program and those who left early. Moreover, initial mindfulness had no effect on the probability to stay in the course.

There are significant differences between the participants in our study and those reported on in the literature. Most studies include highly preselected patients with a narrow range of diagnoses and recruited in outpatient treatment units. A substantial part of our sample was psychiatric inpatients, and the broad range of diagnoses and the socio-demography of the whole sample resembled more a heterogeneous inpatient population. This was due to the open and relatively unrestricted recruitment process. In our study, the initial phase of recruitment (gaining the patients' interest) was less restricted through recruitment criteria than in most of the studies found in the literature. Thus, a broad range of diverse patients reached the introductory phase of the training; many of them would have been precluded in advance in other studies. Based on this, after the preclass interview with information about the program and its requirements, a

strong process of self-selection followed that was finalized after session 3 with the explicitly requested decision about continuation or discontinuation. At this point or earlier, 35 % of the initial participants had decided to leave the course. After that, however, the groups remained relatively stable: the attrition rate of 22 % in the main phase of the program is better than the rate in many other studies and can be assessed as favorable particularly vis-à-vis the still heterogeneous clientele. In addition, a significant proportion of the remaining participants left the hospital during the course and could not attend the groups after that because the distance from home was too long. The effectiveness of the Basel model is equally good as in other studies, as far this can be assessed with the given study designs.

Therefore, the changes in the MBCT program in the Basel version (three introductory and six advanced sessions) make sense. The high number of persons who leave after session 3 together with the relatively low attrition in the later phase show that three sessions allow participants to gain good insight in how the program works to make a substantiated decision on further participation. The knowledge of the program transmitted in the initial phase combined with the invitation to make a clear decision makes it easier for patients to finalize the advanced sessions and leads to relatively stable participation in the later phase of the program.

Strengths and Limitations of the Study

Without a control group, it is difficult to attribute the observed selection and self-selection effects to the “fit” of the participants with the MBCT training alone because the psychiatric and psychotherapeutic treatments carried out in parallel and other external factors can interfere with the MBCT treatment. With the comprehensive interviews and assessments, we tried to cover as many potential influences as possible, but the low rate of explained variance of remaining in the program vs. dropping out of it shows that we have still missed important characteristics of the patients or of the procedures. Although our sample is quite big, compared to most other studies in the mindfulness field, only few of the analyzed relations reached statistical significance. This is due to the fact that for the core analysis, the multiple regression modeling, the sample size is still low (cf. Hosmer and Lemeshow 2000).

Overall, we think that the study contributes to the understanding of how MBCT programs can deal with the patients' expectations and, with not meeting all of them, gives useful evidence which subgroups of participants should be taken particular care of to reduce attrition from MBCT programs to a minimum.

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References

- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Arch Gen Psychiatry*, 4, 561–571.
- Bondolfi, G., Jermann, F., Van der Linden, M., Gex-Fabry, M., Bizzini, L., Rouget, B. W., et al. (2010). Depression relapse prophylaxis with mindfulness-based cognitive therapy: replication and extension in the Swiss health care system. *Journal of Affective Disorders*, 122(3), 224–231. doi:DOI10.1016/j.jad.2009.07.007.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848.
- Carmody, J., & Baer, R. A. (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(6), 627–638. doi:10.1002/jclp.20555.
- Chiesa, A., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: a systematic review and meta-analysis. *Psychiatry Research*, 187(3), 441–453. doi:DOI10.1016/j.psychres.2010.08.011.
- Coelho, H. F., Canter, P. H., & Ernst, E. (2007). Mindfulness-based cognitive therapy: evaluating current evidence and informing future research. *Journal of Consulting and Clinical Psychology*, 75(6), 1000–1005. doi:10.1037/0022-006X.75.6.1000.
- Crane, C., & Williams, J. M. (2010). Factors associated with attrition from mindfulness-based cognitive therapy in patients with a history of suicidal depression. *Mindfulness (N Y)*, 1(1), 10–20. doi:10.1007/s12671-010-0003-8.
- Dobkin, P. L., Irving, J. A., & Amar, S. (2012). For whom may participation in a mindfulness-based stress reduction program be contraindicated? *Mindfulness*, 3, 44–50. doi:10.1007/s12671-011-0079-9.
- Eisendrath, S. J., Delucchi, K., Bitner, R., Fenimore, P., Smit, M., & McLane, M. (2008). Mindfulness-based cognitive therapy for treatment-resistant depression: a pilot study. *Psychotherapy and Psychosomatics*, 77(5), 319–320. doi:DOI10.1159/000142525.
- Finucane, A., & Mercer, S. (2006). An exploratory mixed methods study of the acceptability and effectiveness of mindfulness-based cognitive therapy for patients with active depression and anxiety in primary care. *BMC Psychiatry*, 6(1), 14. doi:10.1186/1471-244X-6-14.
- Fjorback, L. O., Arendt, M., Ornbol, E., Fink, P., & Walach, H. (2011). Mindfulness-based stress reduction and mindfulness-based cognitive therapy—a systematic review of randomized controlled trials. *Acta Psychiatrica Scandinavica*, 124(2), 102–119. doi:10.1111/j.1600-0447.2011.01704.x.
- Godfrin, K. A., & van Heeringen, C. (2010). The effects of mindfulness-based cognitive therapy on recurrence of depressive episodes, mental health and quality of life: a randomized controlled study. *Behaviour Research and Therapy*, 48(8), 738–746. doi:10.1016/j.brat.2010.04.006.
- Hänny, C. M., & Bader, K. (2008). Eine achtsamkeitsbasierte Therapie zur Verhütung von Rückfällen. *InFo Neurologie & Psychiatrie*, 6(3), 33–37.
- Hautzinger, M., Keller, F., & Kühner, C. (2006). *Beck depressions-inventar (BDI-II). Revision*. Frankfurt/Main: Harcourt Test Services.

- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). New York: Wiley.
- International Business Machines Corp. (2011). *SPSS 19.0.0 for Windows*. Armonk, New York: International Business Machines Corp.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Delacourt.
- Kenny, M. A., & Williams, J. M. (2007). Treatment-resistant depressed patients show a good response to mindfulness-based cognitive therapy. *Behaviour Research and Therapy*, 45(3), 617–625. doi:10.1016/j.brat.2006.04.008.
- Kingston, T., Dooley, B., Bates, A., Lawlor, E., & Malone, K. (2007). Mindfulness-based cognitive therapy for residual depressive symptoms. *Psychology and Psychotherapy*, 80(Pt 2), 193–203. doi:10.1348/147608306X116016[doi].
- Klainin-Yobas, P., Cho, M. A., & Creedy, D. (2012). Efficacy of mindfulness-based interventions on depressive symptoms among people with mental disorders: a meta-analysis. *International Journal of Nursing Studies*, 49(1), 109–121. doi:10.1016/j.ijnurstu.2011.08.014.
- Langdon, S., Jones, F. W., Hutton, J., & Holtum, S. (2011). A grounded-theory study of mindfulness practice following mindfulness-based cognitive therapy. *Mindfulness*, 2(4), 270–281. doi:10.1007/s12671-011-0070-5.
- Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression: replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, 72(1), 31–40. doi:10.1037/0022-006X.72.1.31.
- Michalak, J., Heidenreich, T., Ströhle, G., & Nachtigall, C. (2008). Die deutsche Version der Mindful Attention and Awareness Scale (MAAS). Psychometrische Befunde zu einem Achtsamkeitsfragebogen. *Zeitschrift für Klinische Psychologie und Psychotherapie*, 37, 200–208. doi:10.1026/1616-3443.37.3.200.
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3(5), 400–424. doi:10.1111/j.1745-6924.2008.00088.x.
- Piet, J., & Hougaard, E. (2011). The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: a systematic review and meta-analysis. *Clinical Psychology Review*, 31(6), 1032–1040. doi:10.1016/j.cpr.2011.05.002.
- Sears, S. R., Kraus, S., Carlough, K., & Treat, E. (2011). Perceived benefits and doubts of participants in a weekly meditation study. *Mindfulness*, 2, 167–174. doi:10.1007/s12671-011-0055-4.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. V. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford.
- Teasdale, J. D., Segal, Z. V., Williams, J. M., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68(4), 615–623.
- Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—the Freiburg mindfulness inventory (FMI). *Personality and Individual Differences*, 40(8), 1543–1555. doi:10.1016/j.paid.2005.11.025.
- Walach, H., Rose, N., Buttenmüller, V., Kleinknecht, N., Grossmann, P., & Schmidt, S. (2009). Empirische Erfassung der Achtsamkeit – Die Konstruktion des Freiburger Fragebogens zur Achtsamkeit (FFA) und weitere Validierungsstudien. In T. Heidenreich & J. Michalak (Eds.), *Achtsamkeit und Akzeptanz in der Psychotherapie. Ein Handbuch*. Tübingen: dgvt-Verlag.
- Williams, J. M., Alatiq, Y., Crane, C., Barnhofer, T., Fennell, M. J., Duggan, D. S., et al. (2008). Mindfulness-based cognitive therapy (MBCT) in bipolar disorder: preliminary evaluation of immediate effects on between-episode functioning. *Journal of Affective Disorders*, 107(1–3), 275–279. doi:10.1016/j.jad.2007.08.022.