

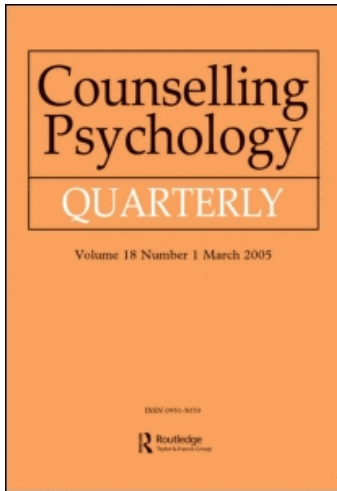
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Patrizia Collard ^a; Nadav Avny ^a; Ilona Boniwell ^a

^a School of Psychology, University of East London, London, UK

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RESEARCH REPORT

Teaching Mindfulness Based Cognitive Therapy (MBCT) to students: The effects of MBCT on the levels of Mindfulness and Subjective Well-Being

Patrizia Collard, Nadav Avny* and Ilona Boniwell†

School of Psychology, University of East London, London, UK

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This study aimed to address the gap in the literature considering empirical evidence in support of the assumption that Mindfulness is the mediating factor in the positive outcomes of Mindfulness Based Cognitive Therapy (MBCT) and Mindfulness Based Stress Reduction (MBSR) programmes, and to further examine the link between Mindfulness and Subjective Well Being. The research question was whether MBCT would increase participants' levels of Mindfulness and Satisfaction with Life and decrease participants' level of Negative Affect. A Repeated Measures (Test – Retest) within participants design was employed and fifteen Counselling students at the University of East London provided data anonymously at the beginning and end of MBCT programme by completing the Freiburg Mindfulness Inventory (FMI) (Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006), Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larsen & Griffin, 1985) and Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988). The results indicated that by the end of the MBCT programme: participants' level of Mindfulness significantly increased; Positive Affect remained unchanged; Negative Affect significantly decreased; a strong trend in the data indicated an increase in participants' Satisfaction With Life but failed to reach a statistically significant level; Mindfulness and Negative Affect were significantly negatively correlated, while Mindfulness and Satisfaction With Life were not found to be associated. A longer practice time of Mindfulness during the programme was found to be significantly correlated with a higher level of Mindfulness at the end of the programme. The results were interpreted in support of the assumption that Mindfulness has an important role as a mediating factor in symptoms relief and positive outcomes following participation on Mindfulness programmes. The results also support of Brown and Ryan's (2003) conclusion regarding the role of Mindfulness in enhancing Well Being. A Positive Psychology framework was applied in interpreting the data and it was suggested that there was ground to believe that Mindfulness can be integrated well, as a concept and as a therapeutic intervention, into the field of Positive Psychology.

Keywords: mindfulness; positive and negative affect; satisfaction with life; well being

Introduction

Mindfulness is a deeply rooted idea within the Buddhist tradition; it is considered one of the eight components in the Noble Eightfold Path which defines the road that leads to the

*Corresponding author. Email: nadavny@yahoo.com

†This paper was written jointly by the three authors who contributed equally.

end of suffering and spiritual enlightenment. Brown and Ryan (2003, p. 822) state that Mindfulness “is most commonly defined as the state of being attentive to and aware of what is taking place in the present”. As part of the growing influence of Eastern philosophies on Western thinking, Mindfulness, its application and related research has come to the foreground from the mid 1980s.

The main two areas in which Mindfulness research was conducted were in evaluating the outcomes of Mindfulness Based Stress Reduction (MBSR) and later Mindfulness Based Cognitive Therapy (MBCT). Both these approaches defined structured training programmes, usually spread over an eight week period with weekly sessions of approximately two hours. John Kabat-Zinn, the founder of MBSR, and other researchers reported throughout the years the positive outcomes using MBSR over many studies. To name a few, improvement of pain, body image, anxiety and depression was demonstrated following the use of ten weeks MBSR with 90 patients. A follow up study indicated most improvements were maintained fifteen months following the programme (Kabat-Zinn, Lipworth, & Burney, 1985). Following MBSR a decrease in anxiety and depression was reported for people suffering from General Anxiety disorder or Panic disorder – with or without agoraphobia (Kabat-Zinn, Massion, Kristeller, & Peterson, 1992). Thirty seven patients suffering psoriasis showed a significantly faster improvement in their skin condition following listening to Mindfulness meditation tapes while undergoing phototherapy (UVB) and photochemotherapy (PUVA) compared to patients suffering psoriasis undergoing the same treatments but without listening to the Mindfulness meditation tapes (Kabat-Zinn et al., 1998). Shapiro, Schwartz and Bonner (1998) found that reduced psychological distress, increased empathy levels and spiritual experiences among 73 pre-medical and medical students following the MBSR programme. Speca, Carlson, Goodey and Angen (2000) found lower scores in anger, anxiety, depression and stress amongst patients suffering from cancer following the MBSR programme, compared with a control group who did not participate in such a programme.

Following Kabat-Zinn’s MBSR approach, a Mindfulness Based Cognitive Therapy (MBCT) was developed by Segal, Williams and Teasdale (2002). The authors suggested a step by step eight week programme, with detailed prescriptions concerning the content of each of these eight sessions. They designed this programme with an intention to assist with relapse prevention for people who have previously suffered depression. Their research findings indicated that for patients who previously experienced three or more episodes of depression, MBCT significantly reduced the relapse rates in the following 60 weeks of their baseline assessment. Similarly, psychological distress was reduced significantly amongst 53 participants on a Mindfulness meditation Buddhist course, as been recorded at the beginning of the course and three months later (Ostafin, Chawla, Bowen, Dillworth, Witkiewitz & Marlatt, 2006).

Even though many studies have evaluated the outcomes of Mindfulness training programmes, a direct measure of Mindfulness has been absent until recent years. The underlying common assumption in all Mindfulness related studies mentioned above was that the evident improvement in symptoms following participation in Mindfulness programmes was mediated by an increase in the level of Mindfulness as a result of participation on these programmes. Nevertheless, this assumption has not been examined empirically.

Having identified this gap of knowledge in the literature, Brown and Ryan (2003) devised the Mindfulness Attention Awareness Scale (MAAS) and validated its construct and measure by conducting five empirical studies. Reviewing the literature Brown and Ryan (2003) demonstrate the theoretical ground and empirical evidence for the direct and

indirect relationship between Mindfulness and psychological Well Being. They suggested that the indirect relationship between Mindfulness and Well Being is mediated by increased behavioural regulation – which was found to be associated with well being (Ryan & Deci, 2000; in Brown & Ryan, 2003). Behavioural regulation is enhanced by Mindfulness, according to Brown and Ryan, as it leads to decrease in negative automatic thoughts, negative habits and unhealthy patterns of behaviour. The direct relationship between Mindfulness and Well-being is of Mindfulness achieving the optimal positive experience of a given present situation.

In their research, Brown and Ryan (2003) found that the higher scores on MAAS were related to higher scores on other well being indicators, in particular to higher levels of Positive Affect and lower levels Negative Affect as measured by Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988). Higher scores on MAAS were found to be associated with higher levels of Life Satisfaction in both college students and adults. They found that following MBSR programme, patients in early-stage breast and prostate cancer demonstrated higher levels of Mindfulness which were related to lower levels of mood disturbance and stress. Thus, Brown and Ryan (2003) concluded that their results support the role of Mindfulness in enhancing Well-being. Their study covered what is traditionally considered to be the primary components of Subjective well being: Positive and Negative Affect and Satisfaction with Life. For the purpose of the present study Subjective Well-being was defined as a combination of these three variables.

The MAAS (Brown & Ryan, 2003) construct validity was criticized by Walach, Buchheld, Butenmuller, Kleinknecht and Schmidt (2006) who stated that “the scale places a focus on attention and awareness, and thus leaves out some other aspects of mindfulness, like the non-judgmental, accepting attitude, dis-identification, insightful understanding, or an attitude of having no specific goals” (Walach et al., 2006; p. 1545). Subsequent to this, Walach et al. (2006) developed a new measure of Mindfulness – the Freiburg Mindfulness Inventory (FMI) – aiming to capture some of these unrepresented components. They reported high levels of validity and reliability for their long version inventory (30 items) and for their short version inventory (14 items).

As for the research evidence cited in the literature concerning the relationship between the practice time of Mindfulness and the level of Mindfulness, this evidence seem to be inconsistent. Brown and Ryan (2003) found that the number of years of Mindfulness practice (not the actual practice time during Mindfulness programme) is positively correlated to the scores on MAAS. Significant difference was noticed in their research between MAAS scores of Zen practitioners and a comparison group, suggesting that the high scores of people practicing Mindfulness is due to training. Nevertheless, they found that the daily/weekly/monthly amount of Mindfulness practice time by Zen practitioners was not related to their scores on MAAS. Different to this, Speca et al. (2000) found that the number of practice minutes significantly predicted improvement in Total Mood Disturbance in cancer patients. However, the negative correlation that they found between the number of minutes of meditation practice and stress demonstrated a trend in the data towards significance, but did not reach a significant level.

As previously mentioned, the assumption that the evident improvement in symptoms relief following participation in Mindfulness programmes is mediated by an increase in the level of Mindfulness was not examined empirically until Brown and Ryan’s (2003) research. The current study aimed to address this existing gap in the literature and sought further support to Brown and Ryan’s (2003) conclusion regarding the role of Mindfulness in enhancing Well Being by using a more comprehensive Mindfulness measure, FMI developed by Walach et al. (2006). Accordingly, the research question of this

study was: Would MBCT programme increase participants' levels of Mindfulness and Satisfaction with Life and decrease Participants' level of Negative Affect?

In light of the literature review above, four hypotheses were made. *The first* was that participants' level of Mindfulness will increase following MBCT programme. *The second* was that participants' Satisfaction with Life will increase following MBCT. *The third hypothesis* was that participants' level of Negative Affect will decrease while level of Positive Affect will remain unchanged following MBCT. The distinction made in this prediction was based on Boniwell and Henry (2007) suggesting that PANAS uses an active description of affectivity rather than using more passive affective adjectives, for example: excited, enthusiastic, inspired, determined, active, etc. instead of: calmer, serene, peaceful, etc. This results in an activation and excitement bias in which an increase in positive affect as measured by PANAS might be left undetected. *The fourth hypothesis* was that longer weekly practice time of Mindfulness during the MBCT programme will be associated with a higher level of Mindfulness at the end of the programme. As previously discussed the literature indicates inconsistent evidence regarding this matter. Nevertheless, this prediction was based on two grounds. Firstly, a significant difference was noticed in Brown and Ryan (2003) between MAAS scores of Zen practitioners and a comparison group, suggesting that the high scores of people practicing Mindfulness are due to training. Secondly, Speca et al. (2000) findings indicated that the number of minutes practicing Mindfulness significantly predicted improvement in the Total Mood Disturbance in cancer patients. Following this trend it seemed plausible and reasonable to assume that a longer Practice time during the programme would be positively correlated with the level of Mindfulness at the end of the programme.

Method

Design

A Repeated Measures (Test–Retest) within participants design was employed. This design had one Independent variable: Time of measurement, with two levels: measurement on the first session of the MBCT course (“Before”) and measurement on the final session of the MBCT course (“After”). This design had four Dependent variables: Mindfulness, Satisfaction with Life, Positive affect and Negative affect.

Participants

This eight week “MBCT for Depression” course was run during the winter term 2006/2007 at the University of East London/Stratford. All participants were students on the Diploma course of Integrative Counselling and Psychotherapy and had expressed particular interest in Cognitive Therapy, not however which aspects of CBT they would want to focus on. As the course integrates a number of different schools of psychotherapy, we only had about 13 double sessions available throughout their second year of training. Dr. Patrizia Collard decided thus (for the first time ever on this course) to run the eight week MBCT course in full, having only done short introductions to MBCT in previous years. Prior to attending the MBCT programme the students (all post-graduates aged 24 to 56) had had a basic introduction to the theory and practice of Cognitive Behavioural Therapy (around ten hours of teaching and experiential learning). The MBCT programme was then offered as a continuation of their CBT training. This highlights a significant difference to the usual client group participating in such courses.

In the first data collection, 7 November 2006, 20 participants (16 women and 4 men) provided data. In the second data collection, 23 January 2007, 13 participants provided data (11 women and 2 men). Three further women participants who were not present at class on the second data collection provided their data 2–4 weeks later, after receiving the questionnaires by post along with a self addressed stamped envelope for their return. Therefore a total of 16 participants provided data on the second data collection.

Materials

Freiberg Mindfulness Inventory (2006)

Mindfulness was measured using Walach et al.'s (2006) Freiberg Mindfulness Inventory (FMI). This inventory has a long form of 30 items and a short form of 14 items, with a Cronbach's alpha = 0.87 and 0.86 respectively and with a correlation of 0.95 between these two versions. Walach et al. (2006) state: "For research purposes in mindfulness contexts proper we recommend the full 30 items version. In generalised contexts, where knowledge of the Buddhist background of Mindfulness cannot be expected, the short form is more suitable" (Walach et al., 2006, p. 1552). Accordingly, we followed their recommendation and used the short form of the FMI. Thirteen out of the 14 items in this inventory are written in the Mindfulness direction (e.g., "When I notice an absence of mind, I gently return to the experience of the here and now"). Accordingly, reverse scoring was carried out for one item only. Participants rated their level of agreement with each item using a four point rating scale (ranging from "Rarely" to "Almost always"). Responses were coded such that higher scores indicated higher levels of Mindfulness.

Satisfaction With Life Scale (SWLS)

An early measure of life satisfaction was the question used by Campbell, Converse and Rodgers (1976) "How satisfied are you with your life as a whole nowadays?" However, as there are some doubts over how adequate single item measures of life satisfaction are (Argyle, 2001; Diener, 1984), it was decided to use a multi-item measure in the current study. The SWLS developed by Diener, Emmons, Larsen and Griffin (1985) was chosen to measure the cognitive component of well-being. This instrument was selected because of its clear prominence in previous studies of psychological well-being and adjustment (Argyle, 2001). Following the traditional operationalization of the concept of well-being as a combination of life satisfaction, high positive and low negative affect, SWLS is often offered as the primary measure of the life satisfaction component (e.g., Diener, Lucas, & Oishi, 2002). Accordingly life satisfaction was measured using the SWLS (Deiner et al., 1985).

Deiner et al. (1985) have validated their scale collecting data from undergraduate students twice. In test-retest design with an interval of two months they found correlation coefficient of 0.82 and alpha coefficient of 0.87. They reported moderate to high correlations (generally not exceeding 0.70) between SWLS scores and other Subjective Well-being measures. It also has adequate criterion validity coefficients, in terms of correlations between satisfaction with life scores as self-reported by participants and as estimated by the experimenters who interviewed them. In one subsequent study Lucas, Diener and Suh (1996) considered the discriminant validity of SWLS through the use of several methods. Their analysis showed that life satisfaction is clearly discriminable from

positive and negative affect, as well as from conceptually similar constructs such as optimism and self-esteem.

The SWLS is comprised of five questions, for example: "If I could live my life over, I would change almost nothing". Each question is marked by scores 1–7, 1 indicating "Strongly disagree" to 7 indicating "Strongly agree".

Positive and Negative Affect Schedule (PANAS)

Positive and Negative Affect, the second and third components of Subjective well being, were measured using PANAS (Watson, Clark, & Tellegen, 1988). The PANAS includes 20 emotion adjectives (10 positive and 10 negative). These are evaluated on a 5-point scale (1 – "Very slightly or not at all" to 5 – "Extremely") that indicates the extent to which the responders experienced these positive and negative affects (e.g., excited, strong, scared, hostile, etc.) during a defined period of time: "Today", or in the "Past few days", or in the "Past few Weeks", etc. In the present study participants were asked to rate their feelings in the "Past few weeks" – Watson et al. (1988) reported for this time reference ("past few weeks") Alpha coefficient of 0.87 for both Positive and Negative Affect. Other high psychometric properties were reported to this schedule. Test retest reliability (with an eight week interval – as it is the case in the current study) for the "Past few weeks" time reference, provided correlation coefficients of .58 for Positive Affect and .48 for Negative Affect.

Watson et al. (1988) also provide evidence of convergent and discriminant validity. PANAS has strong convergent correlations with appropriate but lengthier measures of similar underlying factors (0.76 to 0.92), with the exception of the Bradburn scales. Overall, PANAS is offered as a valid and reliable instrument, widely used in many studies.

Procedure

First phase of the research

The first phase of the research took place in the first session of the MBCT course. The participants were given a copy of the Invitation letter to participate in the study, which included the description of the research, contact details of the researcher and other information aimed to assist them in taking an informed decision regarding their participation in the study. Along with the invitation letter the participants received a Consent form. After allowing time to read through the invitation letter, the researcher offered the participants the opportunity to raise any questions they had with regard to the information they received. The participants retained the Invitation letter for their own records and all participants decided to take part in the study and signed the Consent form accordingly.

Following this the questionnaire handout was given to the participants. The cover sheet of the handout provided the participants with brief instructions of what was required from them. In half of the handouts the order of the questionnaires was as follows: FMI, SWLS, PANAS and in the other half: SWLS, PANAS, FMI. This was in order to counterbalance any effect possibly created by the order in which the questionnaires were filled in by the participants. This same ordering of the questionnaires was applied in the second data collection as well.

In order to maintain anonymity the consent forms were collected separately from the questionnaires. For statistical analysis purposes, to allow pairing of the "Before" and

“After” questionnaires, a number appeared on the top of each handout of questionnaires and also on an attached sticker. The participants were requested to stick the sticker with the number in their course notebook or in any other place that would ensure that it would be available for them in the last session of the course, when the final data collection was to take place. The participants were also advised to record their participant number on their mobile phones under a new entry: “MBCT”.

After the collection of the questionnaires by the researcher the participants were asked to express any stress, related questions or concerns that they had had subsequent to their participation on the first part of the research. As two participants requested to have a photocopy of their consent form, photocopies of all consent forms were made and given to all participants three weeks later.

Second phase of the research

In the second phase of the research the participants were asked to retrieve their “participant number” and write it on their forms in the designated space.

After the collection of the questionnaires the researcher debriefed the participants, providing them with information about the research in order to clarify the research purpose and hypotheses. The participants were informed that they would receive a copy of the research report upon its completion. The participants were informed that they had the right to withdraw from the research at any time and to request their data to be destroyed by contacting the researcher and providing their participant number, without the need to identify themselves.

As only 13 of the original 20 participants attended the last session of the course, the other participants were asked via email whether they would agree to take part in the second data collection by receiving the questionnaires by post and returning them by post in a self addressed stamped envelope. Following this three more participants provided data. Their data was kept anonymous by mixing their data, once received, into the data already collected, without inspecting it.

Results

Dependent t-tests were applied for analysing the data. *Kolmogorov-Smirnov test* indicated normal distribution of the four dependent variables: Mindfulness, Positive Affect, Negative Affect and Satisfaction with life. These variables were all at least at an interval level. Thus the conditions for conducting *dependent t-tests* were met. The data analysis

Table 1. Descriptive statistics.

	<i>N</i>	Mean	SD
Mindfulness – 1st session	15	36.87	7.56
Mindfulness – last session	15	40.27	5.74
Positive Affect – 1st session	15	33.73	8.08
Positive Affect – last session	15	34.80	7.66
Negative Affect – 1st session	15	21.20	6.82
Negative Affect – last session	15	17.10	6.06
Satisfaction with Life – 1st session	15	23.73	5.82
Satisfaction with Life – last session	15	26.13	6.29

Table 2. Dependent *t*-tests.

	Paired differences					
	Mean diff	SD	Std. error mean	95% Confidence interval of difference		Sig (one-tailed)
				Lower	Upper	
Pair 1 – Mindfulness 1st and last sessions	-3.40	6.68	1.73	-7.10	0.30	0.035*
Pair 2 – Positive affect: 1st and last sessions	-1.07	6.47	1.67	-4.65	2.52	0.267
Pair 3 – Negative affect: 1st and last sessions	4.07	6.56	1.69	0.43	7.70	0.016*
Pair 4 – Satisfaction with life: 1st and last sessions	-2.40	5.34	1.38	-5.36	0.56	0.052

* $p < 0.05$.

used only 15 out of 16 participants who provided data both on the first and last MBCT sessions. The data of the 16th participant was excluded from the data analysis as this participant did not indicate her/his participant number on the second data collection; subsequently it was not possible to match the participant's data from the first and second data collection. Similarly, data provided by four other participants only on the first MBCT session was excluded from the statistical analysis.

It was found that participants' level of Mindfulness significantly increased by the end of the MBCT programme; $t(14) = -1.97$, $p < 0.05$; confirming the first research hypothesis. Participants' Positive Affect did not change by the end of the MBCT programme; $t(14) = -0.64$, $p = 0.267$; Participants' Negative Affect significantly decreased by the end of the MBCT programme; $t(14) = 2.40$, $p < 0.05$; these confirming the second research hypothesis. A strong trend in the data indicating increase in participants' Satisfaction with Life by the end of the course was found. Nevertheless, this failed to reach statistical significance and therefore did not confirm the third hypothesis; $t(14) = -1.74$, $p = 0.052$. Please see Table 1 for descriptive statistics and Table 2 for *Dependent t-tests* information.

The mean Weekly practice time of Mindfulness during the course was 1.73 hours. A longer weekly practice time of Mindfulness during the course was significantly associated with a higher level of Mindfulness by the end of the MBCT programme; $r = 0.46$, $p < 0.05$, confirming the fourth research hypothesis. In the statistical calculation of this correlation, the data of one participant (from both its first and last MBCT sessions) was excluded as the participant did not provide her/his weekly practice time of Mindfulness during the programme. Please see Table 3 for correlation information: Mindfulness level – Time of practice.

The *Pearson correlation* between Mindfulness and Negative Affect at the end of the MBCT programme was found to be significant, $r = -0.572$, $p < 0.05$. Nevertheless, *Pearson correlation* between Mindfulness and Satisfaction with Life at the end of the programme was not found to be statistically significant, $r = 0.059$, $p = 0.417$; see Table 4.

Table 3. Pearson Correlation: Level of Mindfulness – Weekly practice time.

		Weekly practice of Mindfulness during programme
Mindfulness level: end of MBCT programme	Pearson Correlation Significance (one-tailed)	0.46 0.048*

* $p < 0.05$.

Table 4. Pearson Correlation: Mindfulness – Negative Affect and Satisfaction with Life.

		Negative Affect: end of MBCT programme	Satisfaction with Life (SWL): end of MBCT programme
Mindfulness level: end of MBCT programme	Pearson Correlation Significance (one-tailed)	-0.572 0.013*	0.059 0.417

* $p < 0.05$.

Effect sizes were calculated using the method recommended by Field (2005). Field (2005) states that the most common measures for effect sizes are Cohen's *d* and *Pearson correlation coefficient*, he recommends using the latter. Accordingly the *effect sizes* of this study were: Mindfulness $r=0.47$, Negative Affect $r=0.54$. According to Cohen (1982; in Field, 2005) *effect size* of: $r=0.1$ is considered small effect, $r=0.3$ is considered medium effect, $r=0.5$ is considered strong effect, $r=0$ indicates no effect and $r=1$ indicates perfect effect. Accordingly, the *effect sizes* obtained in this study can be considered *medium-strong* for Mindfulness and *strong* for Negative Affect.

Discussion

The results of this study indicate that participants' level of Mindfulness significantly increased by the end of the MBCT programme confirming the first research hypothesis $t(14)=-1.97$, $p < 0.05$. Participants' Positive Affect did not change by the end of the MBCT programme; $t(14)=-0.64$, $p=0.267$; and Participants' Negative Affect significantly decreased by the end of the MBCT programme; $t(14)=2.40$, $p < 0.05$; thus confirming the second research hypothesis. A strong trend in the data indicating an increase in participants' Satisfaction with Life was found by the end of the course, but failed to reach a statistically significant level and therefore did not confirm the third hypothesis; $t(14)=-1.74$, $p=0.052$. A longer weekly practice time of Mindfulness during the course was significantly associated with a higher level of Mindfulness by the end of the MBCT programme confirming the fourth research hypothesis. $r=0.46$, $p < 0.05$, Mindfulness and Negative Affect at the end of the MBCT programme were found to be significantly negatively correlated, $r=-0.572$, $p < 0.05$, but Mindfulness and Satisfaction with Life were not found to be associated, $r=0.059$, $p=0.417$.

Considering the first research hypothesis, the significant increase in participants' Mindfulness following the MBCT programme demonstrated in this study confirms Brown and Ryan (2003) findings of early-stage breast and prostate cancer patients who demonstrated significantly higher levels of Mindfulness following the MBSR programme. These higher levels of Mindfulness were also found by Brown and Ryan (2003) to be related to lower levels of mood disturbance and stress. As previously mentioned, the underlying assumption in the many studies demonstrating the benefits of MBSR and MBCT was that the positive outcomes were mediated by an increase in Mindfulness, even though this was not tested empirically. The findings of the current research provide further evidence that Mindfulness does increase following participation in Mindfulness training programmes and therefore the assumption that Mindfulness has an important role as a mediating factor in symptoms relief following participation on such programmes is strengthened.

In general participants who attend MBCT would be people who experienced two or more episodes of depression and are thus very keen to learn ways of avoiding relapse in the future. On the other hand, we find people in the therapeutic professions attending 8 week MBCT programmes as a basic requirement for continuing on teacher training/workshop-leading programmes at a later stage. At present, further training in the UK can be obtained at the Oxford Centre for Cognitive Therapy and at Bangor, Centre for Mindfulness Research and Practice. The Stratford client group had however not opted voluntarily and with a specific personal goal to attend this particular training. They rather received it as part of their Diploma course.¹ In this way they represented an unusual challenge. As the programme requires a high amount of personal input (home practice) it soon became

apparent that the students who felt less drawn to this approach either dropped out altogether or did not regularly apply the practice requirements at home. The authors were concerned by the fact that the lack of commitment and practice in some of the participants would thus influence the outcome of the study. We wondered whether we would notice any change at all, as the main input from some students had merely been attending the sessions and participating in the discussions that arose within that context. The outcome of the study was thus even more encouraging and may indicate that merely coaching people in MBCT on a regular basis can affect an improvement in their level of Mindfulness and focus of awareness and possibly even in their sense of well-being. Another anecdotal outcome the authors observed since the end of the programme is the fact that the students' use of language had shifted to using expressions like "mindful", "compassion", "in the now" etc. rather more frequently in conversation than prior to the course.

The fact that a significant increase in Mindfulness in this research was identified by the end of the programme despite the small sample might also be attributed to the participants' characteristics being counselling students. Counselling training requires a certain amount of ability and skill of self-reflection as part of the studies and practice with clients. This possible pre-disposition of the participants might have assisted them in picking up relatively quickly and effectively the skill of Mindfulness which closely relates to their professional and personal lives.

Considering the second research hypothesis, the significant decrease in Negative Affect demonstrated in this study following MBCT programme, provides further support to Brown and Ryan (2003) conclusion regarding the role of Mindfulness in increasing Well-being. The unchanged level of Positive Affect following the MBCT programme provides empirical support to Boniwell and Henry's (2007) conceptual idea that that PANAS uses active description of affectivity rather than using more passive affective adjectives, resulting in activation and excitement bias in which increase in positive affect as measured by PANAS might be left undetected. The overall increase in Subjective Well-being (significant decrease in Negative Affect and strong trend in the data in the direction of increased Satisfaction With Life) demonstrated in this study joins the big body of research demonstrating the benefits and positive outcomes of undertaking Mindfulness training programmes (e.g., Kabat-Zinn et al., 1985; Kabat-Zinn et al., 1992; Kabat-Zin et al., 1998; Segal et al., 2002; Shapiro et al., 1998; Speca et al., 2000). The results outlined above, together with the significant negative correlation found between Mindfulness and Negative Affect at the end of the MBCT programme, further strengthen Brown and Ryan (2003) conclusion that Mindfulness has an important role in increasing well being.

Considering the third research hypothesis, although a strong trend in the data indicated increase in participants' Satisfaction with Life by the end of the course, it did not reach a statistically significant level. This may be due to the small sample in this research; a larger sample would have possibly provided the ground for significant results. It is worth noting that this trend in the data is in the same direction of Brown and Ryan (2003) findings, indicating higher scores in MAAS being related to higher levels of Life Satisfaction in both college students and community adults.

Considering the fourth research hypothesis, the findings that longer weekly practice time of Mindfulness during the course was significantly associated with a higher level of Mindfulness by the end of the MBCT programme, confirm the Speca, Carlson, Goodey and Angen (2000) and Brown and Ryan (2003) findings. Speca et al. (2000) reported that the number of practice minutes of Mindfulness significantly predicted improvement in the Total Mood Disturbance in cancer patients and also noted a trend in the data indicating a negative correlation between the number of minutes of meditation time and stress in

these patients. Brown and Ryan (2003) demonstrated significant difference between MAAS scores of Zen practitioners and a comparison group, suggesting that the high scores of people practicing Mindfulness is due to training. Therefore, the evidence provided in the current study seems to suggest that a longer practice time of Mindfulness during a Mindfulness programme is an important component in enjoying the benefits of participation in such a programme.

As this study was conducted within the Positive Psychology framework (focusing and measuring Well Being rather than focusing and measuring psychological difficulties as Depression and Anxiety) it is necessary to interpret the findings of this study within the Positive Psychology framework. Seligman, Steen, Park and Peterson (2005) defined happiness in accordance to Seligman (2002; in Seligman et al., 2005) as a combination of three avenues: Positive emotion and pleasure (the pleasant life), Engagement (the engaged life) and Meaning (the meaningful life). They constructed the Steen Happiness Index that addresses these three components of happiness. Their focus in their study was on creating effective psychological interventions that increase individual happiness and they stated their belief that such application is the core of work in positive psychology. They were successful in demonstrating significant positive long term outcomes of increased happiness to three of their five interventions. The authors of this paper suggest that Mindfulness can be considered an additional intervention that fits well in the positive psychology field of work: it was found to be related to Subjective Well Being as was indicated by Mindfulness being significantly negatively correlated with Negative Affect following participation on Mindfulness programme. Moreover, the Construct of Mindfulness touches at least two of the three happiness avenues suggested by Seligman et al. (2005) – Positive emotion and pleasure (the pleasant life) and Engagement (the engaged life). Positive emotion and pleasure relate closely to Brown and Ryan's (2003) conclusion that the direct relationship between Mindfulness and Well-being is formed by Mindfulness achieving the optimal positive experience of a given present situation. Engagement (the engaged life) relates closely to Brown and Ryan's (2003, p. 822) definition of Mindfulness "... (Mindfulness) is most commonly defined as the state of being attentive to and aware of what is taking place in the present". Therefore there are grounds to believe that Mindfulness can be integrated well, as a concept and as an intervention, into the field of Positive Psychology.

Considering the limitations of this study four main issues arise. First, as this was a preliminary research, this study did not include a control group that did not undertake the MBCT programme. Accordingly, this study can not ensure that no confounding variables were involved in the results and can not determine a clear causal relationship between MBCT programme and increase in Mindfulness. Secondly, drop out of participants during the research poses another limitation on the research findings. Four participants who provided data on the first data collection did not provide data on the second data collection as they were not present at the MBCT last session and did not respond to an invitation to participate in the research sent to them via email following this up. The combination of the participants' absence from the last session (which for itself alone may be due to a large number of reasons) *and* not responding to an invitation to participate in the second part of the research might indicate a lower level of engagement in the course. This potentially has affected the results in a favourable direction towards confirmation of the research hypotheses. Thirdly, the small sample size and the fact that it was comprised only from university students, and that are on a very specific academic programme (vs. a representative sample of the student population of the university), make it difficult to generalize the results of this study to the wider population. Finally, a baseline period of several weeks in which random fluctuations in the variables studied could be assessed, was

not done and so the robustness of the findings cannot be asserted without further replication.

Conclusion

There are two major applications that can be derived from the tentative findings of our research. First, as previously discussed, we believe that Mindfulness can be introduced as a psychological intervention within the framework of positive psychology. Secondly, in order to enhance motivation, full engagement of participants in Mindfulness programmes and application of this skill in everyday life, it might be useful to introduce participants with the research evidence indicating significant correlation between longer weekly practice time of Mindfulness during the programme and higher level of Mindfulness at the end of the programme, along with some of the research evidence indicating positive outcomes of Mindfulness programmes.

Further research is required in order to further contribute to a more solid ground of research evidence supporting Mindfulness as the mediating factor in symptoms alleviation following Mindfulness training programmes. Research using both FMI (Walach et al., 2006) and MAAS (Brown & Ryan, 2003) is the same sample of participants can assist in clarifying the strengths and weaknesses of each of these recent measures.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Note

1. The participants received an introductory talk on the nature of MBCT interventions and were regularly offered individual therapy sessions should particular emotional issues become too difficult to deal with on their own. Two participants made use of this offer. The group was also larger than usual MBCT classes with numbers up to 12 participants.

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