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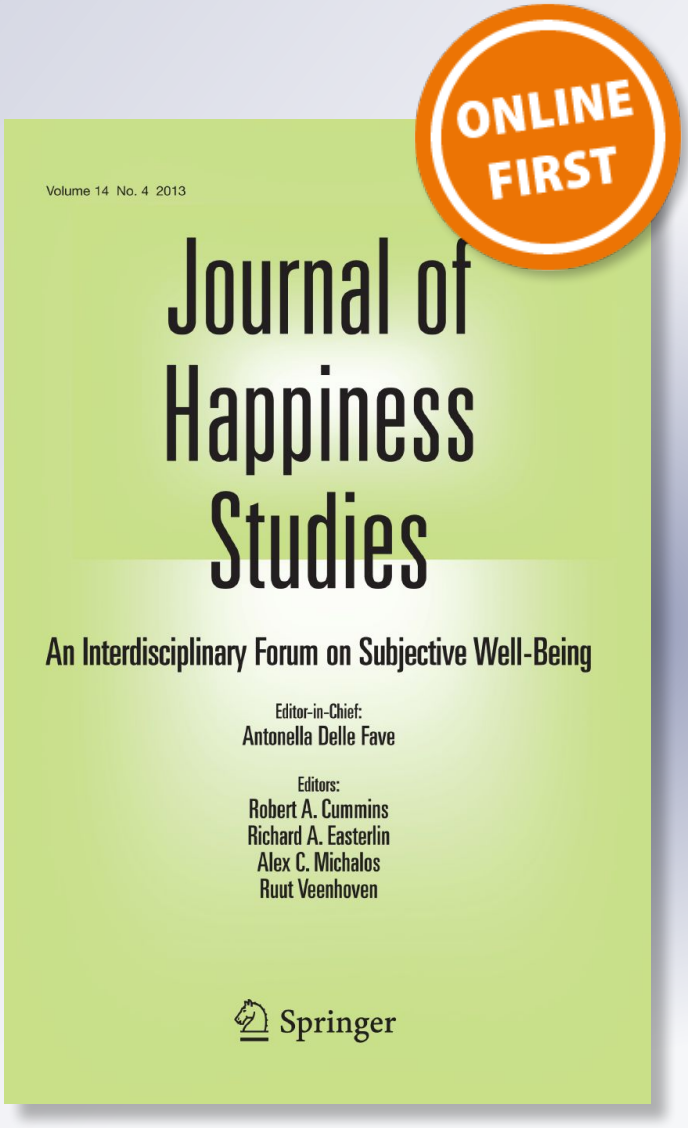

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RESEARCH PAPER

Mindfulness Based Flourishing Program: A Cross-Cultural Study of Hong Kong Chinese and British Participants

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Abstract The Mindfulness Based Flourishing Program (MBFP) is an online 8-week intervention developed for enhancing wellbeing with the use of mindfulness practices, through targeting a range of positive variables. The efficacy of the MBFP has been demonstrated in a randomized controlled trial, and in order to further establish it as an intervention with widespread application, cross-cultural validation is warranted. The current study was conducted with the primary aim of testing the validity of the MBFP with a Hong Kong Chinese population, as well as verifying its positive effects. A randomized wait-list controlled design was adopted with 115 participants (92 females, mean age = 31.50). Intervention outcomes were compared between Hong Kong Chinese and British participants. Five positive variables were examined (self-compassion, meaning in life, positive and negative emotions, gratitude, and mindfulness), and measures were taken pre- and post-intervention. Significant gains in wellbeing measures were observed in both the Hong Kong Chinese and the British experimental groups. Levels of wellbeing post-intervention were also higher for the two experimental groups as compared to their control counterparts. The current study provides preliminary evidence for the MBFP's cross-cultural validity, and strengthens previous claims for its efficacy as a new, accessible alternative for enhancing wellbeing.

Keywords Positive psychology · Mindfulness · Cross-cultural · Wellbeing · Randomized controlled trial

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1 Introduction

Mindfulness can be broadly defined as a state of sustained awareness of the present moment with an attitude of non-judgmental acceptance of what is happening in one's own mind and body, as well as in the immediate environment (Grossman et al. 2004). Mindfulness is most commonly cultivated through meditation but can be enhanced through any activity which involves focusing on the present with the appropriate attitude (Kabat-Zinn 1990). In a state of mindfulness, internal and external stimuli are non-judgmentally observed, and habitual reactions to them are reduced. This deliberate dissociation between perception and response enables an individual to be reflective, rather than reflexive (Bishop et al. 2004).

Mindfulness has its roots in Buddhist meditative practices, in which it is believed to be important for the mind, as well as the body, through the understanding of human experience (Mikulas 2011). Within Buddhism, mindfulness has historically been regarded as an innate capacity which people possess to varying extents. The purpose of Buddhist mindfulness practices is to elicit this innate capacity, and develop it for spiritual growth (Kabat-Zinn 2003) and psychological wellbeing (Shapiro 2009) including positive psychological experiences such as joy, awareness and compassion (Garland et al. 2015).

Traditional Mindfulness practices have been adapted by Western Psychology, in which the primary purpose has been altered towards clinical interventions for psychological distress and maladaptive behaviour (Shapiro 2009). For instance, Mindfulness Based Stress Reduction (MBSR), which is an approach that integrates meditation and yoga, was developed to assist with chronic pain (Kabat-Zinn 1982). Other Western programs include the Mindfulness Based Cognitive Therapy (MBCT; Segal et al. 2002), Dialectical Behavior Therapy (DBT; Linehan 1993), and Mode Deactivation Therapy (MDT; Swart et al. 2014). These programs have been widely applied to a range of psychological difficulties, such as anxiety disorders (Grossman et al. 2004) and suicidal behavior (Linehan 1993). There is considerable evidence for the effectiveness of mindfulness practices in treating symptoms of mental illnesses, preventing relapse, and alleviating psychological distress associated with long-term health problems (e.g. Teasdale et al. 2000; Zainal et al. 2013). But there have been few mindfulness programs targeting positive variables such as wellbeing.

In recent years, Mindfulness has become increasingly influential in the field of positive psychology (Ivtzan and Lomas 2016); a relatively recent branch of psychology that investigates the facilitation of flourishing lives (Lomas et al. 2014). Positive psychology focuses research on positive variables such as wellbeing. Shapiro et al. (2002) suggest the field can offer perspectives in better alignment with the original Buddhist aims of mindfulness. In line with this suggestion, the Mindfulness Based Flourishing Program (MBFP) was developed by Ivtzan et al. (2016) to integrate mindfulness practices with positive psychology into an 8-week online program, designed to enhance wellbeing. In addition to targeting overall wellbeing, each of the 8 weeks focuses on a positive variable. For example, five of the positive variables are based on the Psychological Wellbeing model (Ryff and Keyes 1995): autonomy, meaning in life, self-compassion, positive relations with others, and self-efficacy. These are all considered important dimensions of Eudaimonic wellbeing, which emphasises the wellbeing that comes from living in a meaningful and deeply satisfying manner (Ryan and Deci 2001). In addition, two variables, gratitude and engagement, were included in the MBFP to enhance Hedonic wellbeing, which emphasises the attainment of pleasure and pain avoidance (Deci and Ryan 2008).

The MBFP is one of the few existing mindfulness programs developed with the intention of enhancing positive variables. In the context of mindfulness, intentions are an

individual's goals in practicing mindfulness, and it is argued that they significantly influence the outcomes of the practice (Shapiro et al. 2006). Shapiro et al. (2006) emphasize this in their IAA model of mindfulness, which posits intention as a key aspect which connects practitioners with their goals, visions and aspirations. Intention is similarly an important component of positive psychology interventions (PPIs) which focus, by definition, on the goal of increasing positive variables (Sin and Lyubomirsky 2009; Parks and Biswas-Diener 2013). The MBFP incorporates mindfulness with PPIs and positive psychology theory with the explicit intention of increasing wellbeing and positive variables. Both Mindfulness and PPIs enhance positive variables in their own right, and the MBFP is designed so they mutually enhance each other, leading to improvements in Hedonic and Eudaimonic well-being. The mutually supportive relationship between PPIs and Mindfulness is described in the 'positive Mindfulness cycle' which forms the theoretical basis for the MBFP (Ivtzan et al. 2016).

The positive Mindfulness cycle suggests that PPIs shape the intention for mindfulness practice. While existing Mindfulness programs (e.g. MBSR and the MBCT) aim to decrease negative variables; the MBFP utilizes PPIs to set positive intentions. As part of the MBFP, each PPI includes a talk on the positive variable targeted and an invitation to increase this variable through an evidence-based activity. The focus on positive intentions aligns with Positive Psychology's focus on flourishing, which goes beyond the mere elimination of psychological distress and can be achieved only if positive variables are involved (Keyes 2002). Thus the PPIs in the MBFP set positive intentions for the mindfulness component of the program and support increases in wellbeing.

In turn, the 'positive Mindfulness cycle' proposes that mindfulness supports the use of PPIs through the process of savouring. Savouring relates to generating and prolonging enjoyment and appreciation (Bryant and Veroff 2007) and has been identified as a potential pathway through which mindfulness enhances positive variables (Garland et al. 2015). Mindfulness is a key dimension of savouring (Ritchie and Bryant 2012) and allows practitioners increased awareness of positive emotions and outcomes triggered by PPIs. While PPIs often lead to the experience of positive events or emotions, without savouring, the practitioner may not be able to appreciate or prolong these positive outcomes. Mindfulness promotes savouring, which is required to fully utilise the benefits of PPIs. Thus, through the positive mindfulness cycle, Mindfulness and PPIs, in the MBFP, continuously enhance each other, leading to greater increases in wellbeing than their impact as separate practices.

The efficacy of the MBFP is promising as demonstrated through a recent randomized controlled trial with a non-clinical population (Ivtzan et al. 2016). While the wait-listed control group showed no significant changes, the experimental group showed significant increases in a range of positive variables, including gratitude, self-compassion, meaning, and strengths. In addition, experimental group participants showed significant decreases in depression and perceived stress, indicating the MBFP is also effective in reducing psychological distress.

The MBFP was developed in the UK by researchers from Western backgrounds. In the original study of the MBFP, participants came from 20 countries, with the majority from Western cultures including the United Kingdom (29.8%), Canada (27.8%), United States (12.6%) and Australia (10.6%). It is therefore important to test the efficacy of the program cross-culturally, to examine whether or not similar effects would be found, since the experience of mindfulness differs across cultures.

Cross-cultural studies show that people with distinct cultural backgrounds might have different conceptualizations or experiences of mindfulness. For example, a cross-cultural

mindfulness study by Özyesil (2012) found that American students had greater psychological needs and were more mindful than Turkish students. In a separate study of mindfulness measures, Christopher et al. (2009b) found that Thai students had greater ability to focus with undivided attention, while American students appeared to be more accepting of events that occurred around them. The same study also identified that these populations had different conceptualizations of mindfulness, as the predominantly Buddhist Thai population sees mindfulness as only one component of a larger system of teachings; whereas Western secular mindfulness is not necessarily connected to a wider system of wisdom and morality (Christopher et al. 2009a, b). More broadly, Özyesil (2012) proposed that collectivist cultures might hamper attempts to be more mindful due to cultural norms that put much emphasis on the society's approval or disapproval, and thus hinder the adoption of a non-judgmental life view.

These studies exemplify how Mindfulness can vary among cultures and it is also important to note that Western Mindfulness interventions and scales have adapted mindfulness to fit with Western ideals and tastes (Kabat-Zinn 2003). As such, it is important that Western mindfulness interventions are culturally validated before being put to use elsewhere. Systematically assessing a mindfulness program in a target culture facilitates the identification of areas that need to be adjusted (e.g. mode of delivery, format) for the purpose of proper adaptation, and is therefore a vital step before the test or program can be implemented with the population concerned (e.g. Woods-Giscombé and Gaylord 2014). There have been a number of such cross-cultural studies on mindfulness interventions; for instance research on the MBSR (Roth and Robbins 2004) which suggest the intervention can be used successfully in different cultures, but as yet, there is no cross-cultural study on the MBFP.

Despite the research suggesting the MBFP is a viable new alternative to enhance wellbeing, the breadth and width of its reach could remain limited without an assessment of its cross-cultural validity. The primary aim of the current study is to test the effectiveness of the program in the context of an Eastern culture. Specifically, the MBFP will be tested with a sample of Hong Kong Chinese, and their intervention outcomes will be compared to those of a British sample.

Hong Kong was chosen as a comparison culture as it is distinct from the Western cultures tested in the original study (Ivtzan et al. 2016). While Hong Kong was previously under British rule, the two cultures are very different. Approximately 94% of Hong Kong's population are ethnically Chinese and 96% speak Cantonese (Census and Statistics Department 2011). Most people in Hong Kong follow Buddhist, Taoist or Confucian faiths (Hong Kong Yearbook 2015) and align with traditional Chinese culture and customs (Ralston et al. 1993). These demographics have led researchers to treat Hong Kong as a representative of Eastern culture (e.g., Gökçen et al. 2014; Maxwell et al. 2005; Ralston et al. 1993). A variety of studies highlight the differences between the UK and Hong Kong; for example Hofstede (2001) found Hong Kong has a more pragmatic and collectivist culture than Britain: while British citizens tend to score higher in terms of indulgence, Hong Kong adults scored lower on extraversion and higher on social desirability and Psychoticism than British adults (Eysenck and Chan 1982) and higher on anger rumination (Maxwell et al. 2005). In addition to the cultural differences the two populations are situated in vastly different geographical regions and were chosen to represent Western and Eastern cultures as per previous research (e.g., Gökçen et al. 2014; Maxwell et al. 2005).

While there are many studies on the differences between Hong Kong and Britain, there is no documented research that directly compares Hong Kong and Britain in terms of mindfulness. As such, while this study aims to test the MBFP across the two cultures, it

may also shed light on any differences or similarities in the two populations regarding mindfulness in general. Another motivation for the current study is the lack of interventions designed to enhance wellbeing available for Eastern populations. Mindfulness programs tested on Asian populations (e.g. Chien and Thompson 2014; Lee et al. 2011), have generally focused on reduction of negative variables (e.g. stress, schizophrenic symptoms). Mindfulness-based interventions for improving positive variables have not yet been empirically tested in an Eastern culture. This study aims to test the MBFP as a potential evidence-based approach for achieving flourishing in an Eastern culture.

The main objective of this study is to assess the cross-cultural validity of the MBFP. This is done in two ways; firstly, by assessing whether the MBFP was successful with the Hong Kong experimental group compared to the Hong Kong control group; and secondly by comparing the results of Hong Kong participants and British participants to ascertain whether the MBFP was equally effective in both populations. Specifically, two related hypotheses were tested. The primary hypothesis was that participation in the MBFP, as compared with participating in the waitlist condition, leads to significant improvements from pre-test to post-test in six dependent variables (mindfulness, gratitude, self-compassion, meaning in life, positive and negative effects) in both countries. The secondary hypothesis was that the MBFP is equally effective in improving the six dependent variables when comparing results of the experimental groups from Hong Kong and the UK.

2 Method

2.1 Design

The study used a randomized wait-list control trial. Balanced randomization was executed by means of a predefined list (115 numbers, range 1–2, balanced) created automatically by the study's online platform. The between-subjects independent variables were 1) condition (allocation to either the control, waitlist group, or the MBFP, experimental group, and 2) country (Great Britain or Hong Kong). The within-subject independent variable was time (pre- and post-intervention measurements). The dependent variables were: mindfulness, gratitude, self-compassion, meaning in life, positive affect and negative affect. Dependent variables were measured through quantitative, self-report scales completed online.

2.2 Participants

Participants were recruited through health-related online forums and social networks, as well as from meditation centres in Great Britain and Hong Kong. Participation was completely voluntary and no compensation of any kind was offered. Participants were only eligible if: (1) they were permanent citizens of either Hong Kong or Great Britain, and (2) they had resided in either place for no less than 5 years. All Hong Kong participants had to confirm that they were ethnically Chinese. These inclusion criteria were set to ensure that participants adequately represented the two cultures under study.

A total of 222 participants signed up for the study and were assessed for eligibility. Nine of the recruited participants were disqualified for severe signs of depression, as there is evidence that meditation can negatively affect individuals with high levels of depression (Shapiro 1992). Out of these 213 participants, 107 did not start the study. The remaining 115 participants (47% male; 53% female), with the age range from 18 to 70 ($M = 31.50$,

SD 13.50) years, commenced the study by completing at least the pre-intervention questionnaires, while 79 participants of 115 (43% male; 57% female) completed the entire study (see Fig. 1 for more details).

2.3 Procedure

Ethics approval was obtained from the Research Ethics Committee of the University of East London. Before commencing the program, all recruited individuals were emailed an invitation letter, which briefly outlined the study. Participants within each culture group were randomly allocated into either the experimental or the control group. They were then emailed a link to an online platform which hosted the questionnaires and MBFP. Participants were asked to complete the consent form and screened for depression using the Patient Health Questionnaire-2 (Kroenke et al. 2003) a 2-item validated scale with a score range of 0-6. A cut-off score of 5 was chosen as this provides a positive predictive value of 84.6% regarding depressive disorders (Kroenke et al. 2003). Participants who passed screening completed the pre-test questionnaires; comprised of demographic questions and five questionnaires to provide pre-intervention measures (see measurements).

After completing pre-tests, the procedure differed for the experimental and control groups. Participants in the control groups (from both Great Britain and Hong Kong) were wait-listed for 8 weeks. After this time, they were asked to complete the same five questionnaires to provide post-test results. They were then able to begin the MBFP. The

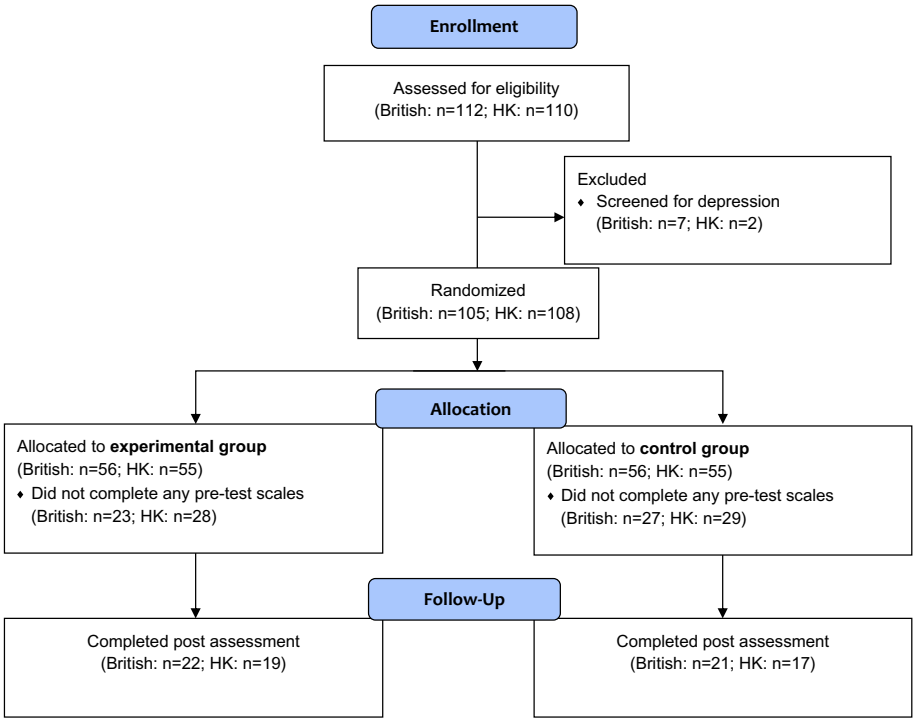

Fig. 1 Participant flow diagram

MBFP was presented in English as it is one of the official languages of Hong Kong (Bolton 2000).

Participants in the experimental groups were immediately allowed to start the 8-week MBFP following the pre-tests. The MBFP lasted 8 weeks, and each week focused on a different theme: (1) self-awareness, (2) positive emotions, (3) self-compassion, (4) autonomy, (5) self-efficacy, (6) meaning in life, (7) positive relations with others, and (8) engagement. Each week, participants were provided with a short video (approximately 10 min) that explained the theory of the topic that week and invited them to undertake activities to increase the relevant positive variable. They were also provided with an audio file (12-15 min) which contained a guided meditation and a daily practice. The daily activity was related to the week's topic, and was to be performed outside of meditation sessions. A written transcript of the audio file and the daily activity was also available for download. Participants were asked to watch each video once and complete the meditation and daily activity each day for the following week. Table 1 summarizes the program throughout the 8 weeks.

At the end of each week, participants received an email with a link to the following week. They were also sent reminder emails 3 days into each week to encourage adherence. Upon starting each subsequent week, they were asked to report the number of times they had meditated and completed the daily activity during the past week. The above procedure was repeated for 8 weeks.

Upon completion of the MBFP, participants were asked to complete the same five questionnaires to provide post-intervention measures. All experimental and control participants were given a debrief letter that concluded the program. Figure 1 shows a flow chart of the procedure and participant numbers.

2.4 Measures

Depression was screened by using the Patient Health Questionnaire-2 (PHQ-2; Kroenke et al. 2003), which comprises two questions about the frequency of anhedonia and depressive mood over the last 2 weeks. The two items are answered with rating scales ranging from 0 ("not at all") to 3 ("nearly every day"); where a score of ≥ 5 is considered a severe depression screening cut-point (Kroenke et al. 2003; Yu et al. 2011). The PHQ-2 has also been found valid and reliable using the Chinese version of the PHQ-2 in a Hong Kong sample (Yu et al. 2011). The internal reliability for the PHQ-2 was (alpha = .66, omega = .67) for the UK sample and (alpha = .32, omega = .32) for the Hong Kong Chinese sample.

Mindfulness was measured using the Freiburg Mindfulness Inventory, Short Form (FMI), which has 14 items scored on a 4-point Likert scale and good internal reliability (Walach et al. 2006). The FMI has been tested cross-culturally and a translated version was validated with a Chinese population (Chen and Zhou 2014). The internal reliability for the FMI was good in both the UK (pre-test: alpha = .88, omega = .88; post-test: alpha = .93, omega = .93) and Hong Kong (pre-test: alpha = .84, omega = .84; post-test: alpha = .81, omega = .81) samples.

Positive Affect and *Negative Affect* were assessed with the Positive and Negative Affect Schedule (PANAS), which contains two 10-item mood scales, both with high internal consistency (Watson et al. 1988). The PANAS has been validated cross-culturally with a Chinese population using a translated version (Weidong et al. 2004). The internal reliability for the positive affect scale was good in both the UK (pre-test: alpha = .90, omega = .91; post-test: alpha = .91, omega = .91) and Hong Kong (pre-test:

Table 1 Topics, materials and activities each week of the MBFP

Week	Target variable	Content of video	Meditation	Daily activity
1	Self-awareness	Introduction to mindfulness, self-awareness, positive psychology and meditation	Introductory meditation focused on awareness of breath, body and emotions	Being aware of thoughts and reactions throughout the day and returning to the breath
2	Positive emotions	Explanation of the benefits of positive emotions and gratitude	Gratitude meditation focused on who or what one appreciates	Expressing gratitude for positive situations
3	Self-compassion	Explanation of self-compassion concept and research; and methods to increase self-compassion	Adaption of Loving-Kindness meditation focused on self-compassion (Neff and Germer 2013)	Replacing internal criticism with statements of kindness
4	Self-efficacy	Introduction to character strengths and self-efficacy including enhancement methods	Meditation focused on a time when participant was at their best and using character strengths	Completing the VIA character strengths questionnaire (Peterson and Seligman 2004) and using strengths
5	Autonomy	Introduction to autonomy and connection with wellbeing	Meditation on authentic self and action	Taking authentic action and noticing external pressure on choices
6	Meaning	Talk on meaning and wellbeing. Completion of writing exercise, "Best Possible Legacy" adapted from the Obituary Exercise (Seligman et al. 2006)	Meditation on future vision of self, living one's best possible legacy	Acting according to best possible legacy. Choosing meaningful activities
7	Positive relations with others	Talk on benefits of positive relationships and methods for enhancing	Loving-Kindness Meditation	Bringing feelings of loving-kindness into interactions
8	Engagement	Introduction to engagement and savouring and their connection to positive emotions	Savouring meditation focused on food	Using savouring to engage with experiences
	Conclusion	Summary of the program. Discussion of personal growth and invitation to continue meditations		

alpha = .89, omega = .90; post-test: alpha = .90, omega = .91) samples. The internal reliability for the negative affect scale was also good in both the UK (pre-test: alpha = .92, omega = .92; post-test: alpha = .91, omega = .91) and Hong Kong (pre-test: alpha = .91, omega = .92; post-test: alpha = .92, omega = .92) samples.

Gratitude was assessed with the Gratitude Questionnaire-6-Item Form (GQ-6) which has six items on a 7-point Likert scale and good internal reliability (McCullough et al. 2002). The GQ-6 has been noted as valid and reliable in a study with the Hong Kong

Chinese population (Chan 2010). The internal reliability for the GQ-6 was mostly good in both the UK (pre-test: alpha = .76, omega = .74; post-test: alpha = .73, omega = .71) and Hong Kong (pre-test: alpha = .80, omega = .83; post-test: alpha = .68, omega = .65) samples.

Self-Compassion was measured with the Self-Compassion Scale, Short Version (SCS; Raes et al. 2011). The SCS has 12 items on a 5-point Likert scale and good internal reliability (Raes et al. 2011). The SCS (translated) were used in a cross-cultural study in Taiwan, Thailand and United States, and were found to have good internal consistency in all three populations (Neff et al. 2008). The internal reliability for the SCS was good in both the UK (pre-test: alpha = .90, omega = .91; post-test: alpha = .92, omega = .92) and Hong Kong (pre-test: alpha = .84, omega = .84; post-test: alpha = .87, omega = .88) samples.

Meaning in Life was assessed using the Meaning in Life Questionnaire-Presence Subscale (MLQ-P) which has 5 items scored on a 7-point Likert scale and good internal reliability (Steger et al. 2006). A translated MLQ was used within a sample of Hong Kong Chinese caregivers and found to have the same factor structure as the original version of MLQ (Chan 2014). The internal reliability for the MLQ-P was good in both the UK (pre-test: alpha = .91, omega = .92; post-test: alpha = .86, omega = .87) and Hong Kong (pre-test: alpha = .94, omega = .95; post-test: alpha = .93, omega = .94) samples.

Demographic questions encompassed asking for gender, age, household income in US dollars, and highest level of education.

2.5 Statistical Analyses

Chi square and t-tests were used to compare the experimental and the control groups within each cultural stratum as well as between the two countries on demographic variables. To assess the program efficacy in the two countries, we used mixed 2 × 2 × 2 design ANOVAs (Between Countries: Great Britain and Hong Kong) × (Between Groups: Experimental and Control) × (Within Group Repeated Measures: Pre-intervention, Post-intervention). We included partial eta squared as an indicator of effect size whenever possible to reflect the proportion of variance that the independent variable accounted for. We used values of .010, .059, and .138 as indicators of small, medium, and large effect sizes (these are approximately equivalent to Cohen's ds of 0.2, 0.5, and 0.8, respectively). A significant two-way interaction (Condition × Time) was interpreted as evidence for a differential intervention effect irrespective of country, while a significant three-way interaction (Country × Condition × Time) was interpreted as evidence for a differential intervention effect between the two samples from different countries. The six dependent variables were the outcome measures. The preliminary analyses are based on all participants that completed the interventions; but intention-to-treat with last values carried forward was also examined as an alternative, more conservative analysis approach. All analyses were completed with alpha set at .05.

3 Results

There were significant demographic differences between the Great Britain and Hong Kong samples in terms of gender, household income, level of education as well as age. There were no significant differences between the experimental and control groups in either

Table 2 Baseline demographics and tests on differences between countries and the experimental and the control groups for participants completing pre- and post-tests (N = 79)

Demographics	British (n = 43) n (%)			Hong Kong Chinese (n = 36) n (%)			Difference tests
Comparison between countries							
Gender (male)	12 (27.9)			22 (61.1)			$\chi^2(1) = 8.81$, $p = .003$
Household income (less than $25 k per year)	14 (32.6)			19 (52.8)			$\chi^2(7) = 18.39$, $p = .010$
Level of education (bachelor's degree)	15 (34.9)			24 (66.7)			$\chi^2(4) = 14.91$, $p = .005$
	M (*SD*)			*M* (*SD*)			
Age	39.79 (15.24)			24.33 (8.46)			$t(77) = 5.42$, $p < .001$
	Experimental (n = 33) N (%)	Control (n = 29) N (%)	Difference tests	Experimental (n = 27) N (%)	Control (n = 26) N (%)	Difference tests	
Comparison between experiment and control groups within countries							
Gender (male)	5 (22.7)	7 (33.3)	$\chi^2(1) = 0.60$, $p = .438$	13 (68.4)	9 (52.9)	$\chi^2(1) = 0.91$, $p = .342$	
Household income (less than $25 k per year)	7 (31.8)	7 (33.3)	$\chi^2(5) = 1.68$, $p = .892$	12 (63.2)	7 (41.2)	$\chi^2(5) = 8.10$, $p = .151$	
Level of education (bachelor's degree)	7 (31.8)	8 (38.1)	$\chi^2(4) = 2.71$, $p = .607$	11 (57.9)	13 (76.5)	$\chi^2(4) = 9.42$, $p = .051$	
	M (*SD*)	*M* (*SD*)		*M* (*SD*)	*M* (*SD*)		
Age	39.86 (17.30)	39.71 (13.18)	$t(41) = 0.03$, $p = .975$	23.37 (4.78)	25.41 (11.34)	$t(34) = -0.719$, $p = .477$	

Table 3 Pearson correlations among dependent variables pre-intervention for the Hong Kong Chinese (lower triangle) and the British (upper triangle) samples

Measure	1	2	3	4	5	6
1. Mindfulness (FMI)	–	.29*	.70***	.47***	.21	−.40**
2. Gratitude (GQ-6)	.47***	–	.32*	.36**	.26*	−.05
3. Self-compassion (SCS)	.57***	.49***	–	.69***	−.05	−.52***
4. Meaning in life (MLQ-P)	.47***	.70***	.52***	–	.17	−.32*
5. Positive affect (PANAS)	.29*	.18	−.03	.13	–	.07
6. Negative affect (PANAS)	−.28*	−.32*	−.55***	−.28*	.34*	–

$N_{\text{Hong Kong Chinese}} = 53$; $N_{\text{British}} = 62$; * = $p < .05$; ** = $p < .01$; *** = $p < .001$

country (see Table 2). These results were similar when also including those participants that started but did not complete the study (See Table S1 in the supplementary material).

There were no significant differences among the examined demographic variables between participants completing and those not completing the study. (See Table S2 in the supplementary material) However, at the pre-test, those completing the study reported significantly less self-compassion and presence of meaning in life as well as significantly more positive and negative affect than those not completing the study. The correlations among the six dependent variables are presented in Table 3.

Overall, the MBFP had a significant and considerable large effect on the outcome measures (see Table 4 and Fig. 2 for more details). The interactions between Condition (MBFP or waitlist) and Time (pre- and post-intervention) in the mixed three-way ANOVAs for the six dependent variables, revealed significant ($p < .001$) increases in mindfulness, gratitude, self-compassion, and presence of meaning in life, and decrease in negative affect. Positive affect did not change significantly ($p = .571$). All effect sizes were large: for mindfulness ($\eta_p^2 = .147$), self-compassion ($\eta_p^2 = .432$), negative affect ($\eta_p^2 = .379$), meaning in life ($\eta_p^2 = .303$) and gratitude ($\eta_p^2 = .276$). The intention-to-treat analyses yielded similar results, with medium effect size for mindfulness and large (although somewhat smaller) effect sizes for the other four constructs (See Table S3 in Supplementary Material).

No significant three-way interaction (Country × Condition × Time) effects were found for the six dependent variables. This indicates that the MBFP tends to have a similar effect in both countries. Large effect sizes were found for experimental groups within both Great Britain and Hong Kong for mindfulness, self-compassion, meaning in life and negative affect; whereas the effect sizes for gratitude were large in Hong Kong and moderate (almost strong) in Great Britain. For gratitude, there was a tendency ($p = .057$) for a significant interaction effect with a small effect size ($\eta_p^2 = .047$). However, it is also worth noting that the experimental group in Hong Kong reported considerably lower levels of gratitude than all other groups at pre-test, which is likely to influence the interaction rather than cross-cultural differences in the effects of the MBFP. The intention-to-treat analyses yielded similar statistically non-significant results. In addition, controlling for age, gender, household income and level of education did not change any of the reported interactions considerably (See Table S4 in supplementary material).

Table 4 Mean (SD) for dependent variables and the relevant interactions from the mixed three-way ANOVAs with time (within-subjects), condition (between-subjects) and country (between-subjects) (N = 79)

Dependent Variable	Country	Condition	Pre-score M (SD)	Post-score M (SD)	2-way interaction: Time * Condition	3-way interaction: Time * Condition * Country	Cohen's d for within-country pre-post scores in exp. groups
Mindfulness (FMI)					$F(1,75) = 12.88$, $p = .001$, $\eta_p^2 = .147$	$F(1,75) = 0.27$, $p = .607$, $\eta_p^2 = .004$	
	Great Britain	Exp.	31.6 (8.6)	40.8 (6.0)			−1.25
		Cont.	31.0 (7.1)	32.8 (7.8)			
	Hong Kong	Exp.	32.0 (6.7)	37.8 (5.5)			−0.95
		Cont.	36.6 (6.9)	36.9 (6.3)			
Gratitude (GQ-6)					$F(1,75) = 28.56$, $p < .001$, $\eta_p^2 = .276$	$F(1,75) = 3.81$, $p = .055$, $\eta_p^2 = .048$	
	Great Britain	Exp.	32.7 (5.6)	36.3 (3.8)			−0.76
		Cont.	34.0 (3.8)	33.1 (5.0)			
	Hong Kong	Exp.	24.6 (7.8)	33.3 (4.5)			−1.41
		Cont.	31.2 (3.9)	30.3 (5.0)			
Self-compassion (SCS)					$F(1,75) = 57.02$, $p < .001$, $\eta_p^2 = .432$	$F(1,75) = 1.37$, $p = .245$, $\eta_p^2 = .018$	
	Great Britain	Exp.	30.9 (8.5)	45.6 (5.2)			−2.17
		Cont.	35.2 (10.0)	33.3 (9.4)			
	Hong Kong	Exp.	32.9 (7.9)	45.2 (4.9)			−1.93
		Cont.	37.5 (5.8)	37.6 (7.9)			
Meaning in life (MLQ-P)					$F(1,75) = 32.59$, $p < .001$, $\eta_p^2 = .303$	$F(1,75) = 0.70$, $p = .406$, $\eta_p^2 = .009$	
	Great Britain	Exp.	21.4 (7.6)	29.8 (3.0)			−1.59
		Cont.	24.3 (6.2)	22.4 (5.6)			
	Hong Kong	Exp.	17.7 (9.4)	25.0 (6.0)			−0.95
		Cont.	24.7 (5.5)	24.4 (6.0)			

Table 4 continued

Dependent Variable	Country	Condition	Pre-score M (SD)	Post-score M (SD)	2-way interaction: Time * Condition	3-way interaction: Time * Condition * Country	Cohen's d for within-country pre-post scores in exp. groups
Positive affect (PANAS)					$F(1,75) = .32$, $p = .571$, $\eta_p^2 = .004$	$F(1,75) = 1.13$, $p = .292$, $\eta_p^2 = .015$	
	Great Britain	Exp.	30.2 (7.6)	32.4 (7.2)			−0.30
		Cont.	28.5 (7.8)	27.4 (6.8)			
	Hong Kong	Exp.	25.7 (6.4)	24.3 (7.3)			0.22
		Cont.	31.0 (7.9)	30.5 (7.3)			
Negative affect (PANAS)					$F(1,75) = 45.82$, $p < .001$, $\eta_p^2 = .379$	$F(1,75) = .97$, $p = .328$, $\eta_p^2 = .013$	
	Great Britain	Exp.	23.1 (9.7)	15.9 (5.9)			0.94
		Cont.	17.3 (5.5)	21.7 (8.1)			
	Hong Kong	Exp.	28.4 (7.6)	14.6 (4.9)			2.19
		Cont.	21.6 (7.8)	23.4 (9.0)			

$n_{(GB,\ Experiment)} = 22$, $n_{(GB,\ Control)} = 21$, $n_{(HK,\ Experiment)} = 19$, $n_{(HK,\ Control)} = 17$

Box's Tests of Equality of Covariance Matrices were significant for gratitude, self-compassion, presence of meaning in life and negative affect, therefore Pillai's Trace is presented for all tests

Exp. = Experiment; Cont. = Control

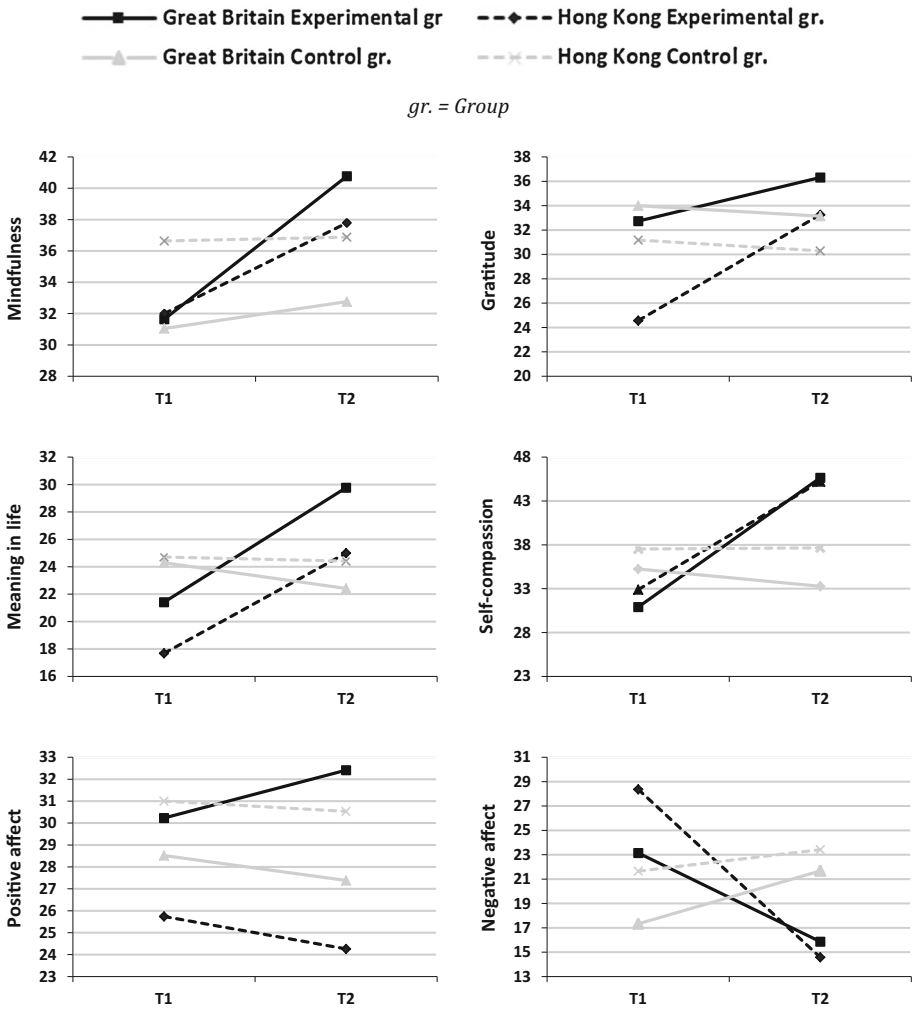

Fig. 2 The mean score for the outcome measures at pre- and post-tests for the experimental and control groups in the Great Britain and the Hong Kong samples

4 Discussion

The current study was conducted with a key objective: to test whether the MBFP is cross-culturally valid. This was represented by two hypotheses: the first was that participation in the MBFP would lead to significant improvements in six dependent variables for the experimental groups from both countries, and significantly improve scores in all dependent variables at post-test when compared to the control groups. The second hypothesis proclaimed that the MBFP would be equally effective when comparing results of the experimental group from Hong Kong to the experimental group of Great Britain. Results appear promising with regards to both cross-cultural validity and program efficacy.

Examining intervention outcomes independently within each cultural stratum, the MBFP remains effective. Both the British and the Hong Kong Chinese experimental

groups showed significant improvements, with large effect sizes, in mindfulness, gratitude, self-compassion, meaning, and negative affect, but no significant improvement in positive affect. The intention to treat analyses offers the same conclusions, with medium to large effect sizes. These results support the first hypothesis and provide preliminary support regarding the efficacy of the MBFP in the context of an Eastern culture.

Similar conclusions could be drawn from the three way interaction (Country × Condition × Time) where no significant effects were found for the six dependent variables. When comparing effect sizes for experimental groups from Britain versus those of Hong Kong Chinese participants, the results indicate a great similarity: large effect sizes were found for mindfulness, self-compassion, meaning, and negative affect, for both countries. For gratitude, there was a minor difference, whereas the effect size in Hong Kong was large versus a moderate one in Great Britain. These results clearly indicate that the MBFP had a similar effect in both countries. It could be concluded that the MBFP is associated with a cross-cultural pattern of benefits, and is valid within a Hong Kong Chinese population.

It is important to consider these results in the context of the cross-cultural literature relating to mindfulness. Past studies indicated there might be cultural differences in relation to the understanding and conceptualization of Mindfulness (e.g., Özyesil 2012; Christopher et al. 2009a, b). However, MBSR cross-cultural studies found no difference in the program's influence when cultures were compared (e.g., Roth and Robbins 2004). The results of the current study support the MBSR studies' results and indicate that structured programs lead to similar results even when the initial understanding of mindfulness might be different. This would have to be further investigated by future studies, and yet these results suggest that a structured and balanced program could overcome cultural theoretical gaps and lead to similar results.

Response analyses indicated that completers differed from non-completers in their pre-test scores of the wellbeing measures. For example, completers reported lower meaning and self-compassion, in the pre-test, compared with non-completers. It might be that participants with greater need for the program found it more relevant and thereby experienced an increased motivation to complete it. These results are in line with Ivtzan et al. (2016), where participants with greater need (lower scores of positive variables and higher scores of negative variables) were more consistent with the practice and gained more from the program. A similar point of convergence between the studies is the program's impact on negative affect. Although the MBFP's intention is to increase positive variables, it still influences variables such as stress and depression (Ivtzan et al. 2016). Similarly, the current study found significant reductions in negative affect. These are important results as they indicate that a program's intention focusing on flourishing does not mean that dysphoria is being neglected. These results are in line with other positive psychology studies where it has been shown that PPIs are highly effective for depression treatment (Sin and Lyubomirsky 2009).

In summary, not only is the MBFP a program with significant efficacies, but also one that shows potential for targeting heterogeneous populations. Its validity in the context of the Hong Kong Chinese culture implies that it is feasible to put the MBFP into practical use in Eastern cultures, after making appropriate adaptations. For example, the program could be translated into Chinese in order to reach the proportion of the Chinese population that is not proficient in English. The MBFP has many practical advantages that will promote easy implementation. For example, due to the online nature of the MBFP, participants from across different geographical locations can access it with ease. The incurred cost is also relatively low as trained personnel are not required for the delivery of the program, nor are

physical materials, such as paper notes or booklets. It is thus concluded that the MBFP is a promising wellbeing program with a high level of practicality and the potential for cross-cultural application.

Furthermore, the MBFP can be taken as a convenient tool for future research on the relationships between mindfulness and wellbeing. Since the MBFP is explicitly designed with a positive-oriented intention, it would be suitable for investigating the links between mindfulness and positive variables. Because of the multi-faceted nature of the MBFP, many different wellbeing variables can be studied in relation to mindfulness. The MBFP's cross-cultural validity also makes it possible to apply the program for the study of mindfulness in other cultures, or to identify intercultural differences in mindfulness.

Although the current study was carried out with the practical intention of testing a mindfulness-based wellbeing program, it does also serve to strengthen the existing evidence base for the positive effects of mindfulness on wellbeing measures (e.g., Brown and Ryan 2003; Carson et al. 2004). A host of positive variables were examined, and they all demonstrated responsiveness to this mindfulness-based program. The versatility of mindfulness appears encouragingly high in that in addition to its established role in alleviating mental distress (e.g. Grossman et al. 2004; Teasdale et al. 2000), it also appears very useful for human flourishing.

More importantly, findings from this study suggest the benefits of mindfulness practices are cross-cultural to an extent. While differences exist between cultures in terms of the definition, practice, and measurement of Mindfulness (e.g. Christopher et al. 2009a, b; Grossman 2011), it is increasingly evident that regardless of the conceptual fluidity of mindfulness, the positive effects of mindfulness can transcend cultural boundaries.

A limitation with the sample of this study is its potential lack of generalizability. Participants were predominantly recruited from health-related settings (i.e. mental health forums and meditation centres). It is thus possible that participants had a higher than average awareness of mental health, or greater interest in improving wellbeing. There was also notable attrition in both countries, across both the experimental and the control groups. However, the largest portion of the attrition was by participants that did not even complete the pre-intervention measures, whereas 68.7% of those that completed the pre-intervention measures also completed the post-intervention measures (which is comparable with Ivtzan et al. 2016 study).

In addition, a methodological shortcoming of the current study is its reliance on subjective, self-report measures. To assess the MBFP's efficacy from a more objective perspective, future attempts to test the program could incorporate physiological and behavioural measures that are linked to mindfulness (e.g., Campbell et al. 2012). Lastly, while the internal consistency of the dependent measures tended to be good across time and countries, the two-items measure used to screen for depression (the PHQ-2) yielded unexpectedly poor internal consistency, especially in the Hong Kong sample. This low reliability may indicate that the screening for depression was not as accurate as anticipated.

Another possible limitation is that the MBFP is delivered in English. Although English is an official and common language in Hong Kong (Bolton 2000); research indicates it is favoured by the middle class while those from lower socio-economic groups favour Cantonese (Lai 2001). This may help explain the high education levels of participants from Hong Kong. To counter this issue, future research should make the MBFP available in multiple languages. This will also make it available to a wider audience.

Future research should also focus on the underlying mechanisms of the MBFP, by measuring savouring and the incremental benefits provided by each element of the intervention. Additional future research should aim to replicate the cross-cultural findings from

the current study with a larger sample size. To present the MBFP as a truly cross-cultural intervention, research is needed in other distinctive cultures with the program delivered in the local language. A plausible starting point would be to test the program in other primarily Buddhist cultures, such as Thailand and Vietnam.

Compliance with Ethical Standards

Ethical Approval This study received ethical approval from the Research Ethics Committee of the University of East London, Water Lane, London E15 4LZ.

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