

This is a post-peer-review, pre-copyedit version of an article published in *Explore: The Journal of Science and Healing*. The final authenticated version is available online at: <https://www.sciencedirect.com/science/article/pii/S1550830718302623?via%3Dihub>

The reference of the final published version is: Van Gordon, W., Shonin, E., Dunn, T., Saphiang, S., Kotera, Y., Sheffield, D., & Garcia-Campayo, J. (2018). Effects of emptiness meditation on spiritual awareness and psychological wellbeing in advanced Buddhist meditators. *Explore: The Journal of Science and Healing*, DOI: 10.1016/j.explore.2018.12.003.

**Exploring Emptiness and its Effects on Non-Attachment, Mystical Experiences, and
Psycho-spiritual Wellbeing: A Quantitative and Qualitative Study of Advanced
Meditators**

William Van Gordon*¹, Edo Shonin², Thomas J. Dunn³, Supakyada Sapthiang⁴, Yasuhiro
Kotera¹, Javier Garcia-Campayo⁵, & David Sheffield¹

¹Human Sciences Research Centre, University of Derby, Kedleston Road, Derby, Derbyshire,
DE22 1GB

²Awake to Wisdom Centre for Meditation and Mindfulness Research, Ragusa, Italy

³Psychology Division, Bishop Grosseteste University, Lincoln, United Kingdom

⁴Awake to Wisdom Centre for Meditation and Mindfulness Research, Ragusa, Italy

⁵Miguel Servet University Hospital, University of Zaragoza, Zaragoza, Spain

*Corresponding Author: w.vangordon@derby.ac.uk

Conflicts of Interest

The authors declare that they have no conflict of interest.

Exploring Emptiness and its Effects on Non-Attachment, Mystical Experiences, and Psycho-spiritual Wellbeing: A Quantitative and Qualitative Study of Advanced Meditators

Abstract

Wisdom-based Buddhist-derived practices (BDPs) are concerned with transmuting suffering by cultivating insight into the ultimate nature of both the self and reality. Arguably the most important wisdom-based BDP is emptiness (Sanskrit: *śūnyatā*) that implies that although phenomena are perceptible to the human mind, they do not intrinsically exist. Despite its significance in Buddhism, emptiness has received little empirical attention. Advancing scientific understanding of emptiness is important as it may yield novel insights not only into the nature of mind and reality, but also in terms of helping human beings realise more of their capacity for wisdom and wellbeing. This study recruited 25 advanced Buddhist meditators and compared emptiness meditation against a mindfulness meditation control condition within the same group of participants. Qualitative analytical techniques were also employed to investigate meditators' experiences of emptiness. Compared to the mindfulness control condition, emptiness meditation resulted in significantly greater improvements in non-attachment to self and environment, mystical experiences, compassion, positive affect, and negative affect. No significant relationship was observed between duration of emptiness meditation and any of the aforementioned outcome measures. Qualitative outcomes demonstrated that participants (i) combined concentrative and investigative meditation techniques to induce emptiness, (ii) elicited spiritually meaningful insights both during and following the meditation on emptiness, and (iii) retained volitional control over the content and duration of the emptiness meditation. Cultivating emptiness appears to be a means of reconnecting advanced Buddhist meditators to what they deem to be the innermost nature of their minds and phenomena.

Keywords: Emptiness; Non-self; Non-attachment; Meditation; Spirituality; Buddhism

Introduction

There is growing scientific interest into the applications of Buddhist-derived practices (BDPs) in applied psychological settings. Consistent with the traditional Buddhist ‘three trainings’ (Sanskrit: *trishiksha*) principle, Shonin and colleagues (2014a) categorised BDPs into those concerned with (i) meditation, (ii) ethics, and (iii) wisdom. This three-fold conceptualisation also corresponds to the chronological order that research into, and the subsequent implementation of, BDIs has followed. More specifically, a first phase of empirical investigation commenced in the early 1980s and involved exploring the construct and applications of mindfulness along with related meditative attentional processes (Shonin et al., 2015). This was followed at the turn of the 21st century by a second phase of empirical investigation into BDPs concerned with empathetic and ethical awareness, such as compassion and loving-kindness meditation. In the last five years, it appears that there has gradually originated a third phase of empirical enquiry concerned with understanding wisdom-based BDPs along with their applications in applied settings.

Wisdom-based BDPs are concerned with developing experiential knowledge of contemplative concepts such as emptiness, non-self, impermanence, interconnectedness, and non-attachment (for an in-depth explanation of such terms, see Shonin et al., 2014a). A primary purpose of so doing is to cultivate insight into the ultimate nature of both the self and reality (Tsong-Kha-pa, 2004). Indeed, there are many reasons why an individual might engage in meditation but from a traditional Buddhist perspective, the cultivation of insight represents the primary goal (Trungpa, 2003). The reason for this according to certain systems of Buddhist thought, is that while mindfulness and related concentrative processes can help to centre, calm, and focus the mind, they do not directly elicit the requisite insight that reveals reality’s ultimate nature and thus severs the roots of suffering (Tsong-Kha-pa, 2004). In other words, meditative concentration, and the regulation of that concentration using mindfulness, are necessary to cultivate a state of profound mental calm and clarity. This clarity can then be focussed and directed such that it ‘penetrates’ reality by eradicating misconceptions concerning the manner in which the self and phenomena exist (Van Gordon et al., 2015a). Ethical awareness (i.e., one of the three components of the ‘three trainings’ principle) enters the equation because for the mind to abide in a state of meditative calm and clarity, the Buddhist teachings assert that it must be free of distraction and tensions caused by behaviour that is unethical or concerned solely with mundane objectives (e.g., accruing wealth and/or reputation) (Dalai Lama, 2006). Thus, in summary, the three components of the ‘trishiksha’ interact and cooperate with each other because ethically

wholesome behaviour helps to cultivate meditative calm and clarity, and this in turn, serves as a basis for the cultivation of meditative wisdom.

Empirical investigation of wisdom-based BDPs is still at an early stage (i.e., when compared with, for example, mindfulness) but emerging findings indicate a role for such techniques in advancing psycho-spiritual wellbeing and psychosocial functioning. For example, non-attachment – that refers to the ability to accept but at the same time let-go of life events, mental processes, and possessions – is positively correlated with non-reactivity, mindfulness, self-compassion, subjective wellbeing, eudaimonic wellbeing, and prosocial behaviour (Sahdra et al., 2015; Sahdra et al., 2010). Furthermore, non-attachment has been shown to mediate the treatment effects of meditation on chronic pain conditions such as fibromyalgia (Van Gordon et al., 2017a). Likewise, increasing awareness of impermanence (i.e., the fact that it is certain that at some uncertain point, all phenomena – including the self – will ultimately die and cease to be) can facilitate the earlier-onset of the recovery and restorative phases of the grieving process (Cacciatore et al., 2014; Wada and Park, 2009).

Mindfulness-based interventions (MBIs) that employ wisdom-based BDPs (i.e., in addition to mindfulness) invariably correspond to what have been termed the second-generation of MBIs. Second-generation MBIs follow a more traditional approach to mindfulness by teaching it in the context of the ‘three trainings’ principle (i.e., second-generation MBIs generally teach mindfulness in conjunction with ethical and wisdom-based meditative techniques) (Van Gordon et al., 2015b). Studies of second-generation MBIs – such as those involving the eight-week intervention known as Meditation Awareness Training (MAT) – have shown that second-generation MBIs can improve levels of work-related wellbeing and job performance (Shonin et al., 2014b). Studies have also shown that MAT can be an effective treatment for fibromyalgia (Van Gordon et al., 2017a), workaholism (Shonin et al., 2014c; Van Gordon et al., 2017b), sex addiction (Van Gordon et al., 2016a), co-occurring schizophrenia and pathological gambling (Shonin et al., 2014d), and stress, anxiety, and depression (Van Gordon et al., 2014). Furthermore, qualitative studies using MAT have demonstrated that participants associate engaging in wisdom-based BDPs with improvements in psychological and spiritual wellbeing, as well as with the undermining of maladaptive egoistic constructs (Shonin et al., 2014e; Shonin and Van Gordon, 2015; Van Gordon et al., 2016b).

Although promising findings have been elicited from studies involving MBIs that incorporate wisdom-based principles, in such multi-component interventions, wisdom-based techniques are invariably introduced in conjunction with other psychotherapeutic agents (e.g., mindfulness training, compassion and loving-kindness techniques, group discussion, psycho-education, etc.). Consequently, in MBI intervention studies, it is difficult to

ascertain the specific effects of wisdom-based BDPs as well as how participants cultivate and relate to such practices during meditation.

In terms of transmuting suffering and fostering insight into the ultimate nature of self and reality, perhaps the most important wisdom-based BDP is emptiness. Although some authors have argued that the term emptiness does not adequately capture the essence of the original Pāli or Sanskrit term (*suññatā* and *śūnyatā*, respectively) (Lomas, 2018), the essential meaning is that although phenomena are perceptible to the human mind, they do not intrinsically exist. There are numerous Buddhist metaphysical standpoints from which emptiness can be examined and interpreted (for a comprehensive overview see Van Gordon et al., 2016d), but at an elementary level, a useful means of comprehending emptiness is to apply the Buddhist principle of interconnectedness. For example, the human body is composed of, and exists in dependence upon, water (e.g., from rivers, rain, and the ocean), air (e.g., from the wind and the out-breath of other living beings), animals, plants, minerals, and nutrients (i.e., consumed during eating), and the heat of the sun (i.e., that is directly and indirectly absorbed by the body), etc. Thus, it can be said that the human body (or for that matter any other phenomenon) is ‘full’ of all things but ‘empty’ of a self that exists either inherently or independently (Nhat Hanh, 1999). Furthermore, emptiness relates closely to the Buddhist concepts of non-self and non-attachment because if a subject (i.e., an individual or phenomenon) is without an inherently-existing self, then by logical default, it cannot apprehend, or become attached to, an object (i.e., because subject and object are mutually dependent constructs and if one is deemed to be empty of self, then so must the other).

Notwithstanding the use of emptiness in some second-generation MBIs, the scarcity of research specifically investigating the phenomenon means that it currently remains unclear how (i) emptiness influences non-attachment, mystical experiences, and psycho-spiritual wellbeing, (ii) time spent meditating on emptiness correlates with profundity of the emptiness experience (i.e., as measured by indices of non-attachment and mystical experience), (iii) advanced meditation practitioners conceptualise and relate to emptiness, (iv) insight into emptiness is cultivated during meditation, and (v) emptiness interacts and cooperates with other meditative techniques and processes. The present study sought to address these questions by recruiting advanced Buddhist meditation practitioners and employing quantitative and qualitative methods to conduct the first ever empirical investigation to directly explore the emptiness phenomenon in human participants.

Study 1

Method

Participants

Some advanced meditators in the present study were also recruited into a parallel investigation into a phenomenon known as the meditation-induced near-death experience (findings reported elsewhere as Van Gordon et al., 2018a). A frequently-overlooked constraint of studies involving advanced meditation practitioners is that there do not exist validated assessment measures or easily observable criteria to establish the level of competency of a given meditation practitioner (Van Gordon et al., 2018a). Indeed, being ‘advanced’ in terms of meditation experience is not simply a function of years spent training, self-rated ability, and/or titles conferred by a given meditation or spiritual tradition (Van Gordon et al., 2018a). A further difficulty is that some advanced meditators have been known to conceal or remain discrete as to their meditative insights and capabilities (Van Gordon et al., 2018a). Therefore, based on the professional opinion of the first and second authors (that have over 40 years’ collective experience as Buddhist meditation teachers), purposive sampling was preferred over an open call for participants (i.e., as the latter approach would likely exert unrealistic demands on the research team’s resources and result in a large proportion of participants not meeting the screening criteria).

Thus, participant recruitment occurred by (i) contacting individuals known by the research team’s network to be at an advanced stage of meditation practice, (ii) contacting individuals known by the research team’s network to have engaged in emptiness meditation, and (iii) providing information about the study to Buddhist teachers (i.e., known by the research team’s network for being astute in terms of appraising an individual’s meditative competency) in lay and monastic practicing Buddhist communities and asking them to forward the contact details of the research team to appropriate individuals. Participant recruitment spanned all three of the major Buddhist traditions (i.e., Theravada, Mahayana, and Vajrayana) and was global in terms of geographical scope. Given that some advanced Buddhist meditation practitioners have limited access to communication media and/or choose to live in seclusion, the recruitment window remained open for 12 months.

Eligibility Criteria

As part of the screening process, participants were required to complete a 30-minute semi-structured interview in which they were asked questions about their experience of emptiness (interviews using internet-based video

conferencing media were permitted). The screening questionnaire was based on an encompassing and pan-Buddhist perspective of emptiness, and followed the model of emptiness outlined in Van Gordon et al. (2016c). For example, the questionnaire encompassed principles outlined in key Theravada and Mahayana, and Vajrayana Buddhist scriptures on emptiness such as the (i) Greater Discourse on Emptiness (Pali: *Mahāsuññata Sutta*), (ii) Lesser Discourse on Emptiness (Pali: *Culasuññata Sutta*), and (iii) Heart Sutta (Sanskrit: *Prajna Paramita Hridaya Sutra*). Rather than assess participant's theoretical knowledge of these scriptures, the questions were formulated such that they provided an indication of participant's experiential understanding of the concepts to which the scriptures pertain (i.e., no direct reference was made to any of the scriptures). Participants were deemed to have an experiential understanding of emptiness where there was at least a 75% agreement between their own and the aforementioned pan-Buddhist elucidation of emptiness. Furthermore, to be included in the study, participants had to be (i) aged 18 years or older, (ii) able to speak and read English, (iii) planning to practice a meditation on emptiness during the period that the study was conducted, (iv) not currently diagnosed with a psychotic disorder, and (v) not currently using psychopharmacological or recreational drugs.

Procedure

Participants were requested to complete a battery of well-established psychometric scales (see below) no more than 24 hours prior to undertaking a meditation on emptiness, and then once more within 24 hours of the meditation concluding (and prior to engaging in any other form of formal meditation practice).

Control Condition

Participants were also requested to complete psychometric tests in respect of a mindfulness meditation practice. More specifically, the mindfulness meditation involved a formal seated meditation session that (i) was at least 45 minutes in duration, (ii) did not involve any form of contemplation on emptiness or emptiness-related themes, and (iii) primarily involved cultivating concentration and mindfulness as opposed to practicing more analytical forms of meditation. As with the meditation on emptiness, participants were requested to complete the assessments no more than 24 hours prior to undertaking the mindfulness meditation, and then once more within 24 hours of the meditation concluding (and prior to engaging in any other form of formal meditation practice). Participants were requested to practice the mindfulness meditation in the same month that they practiced the meditation on emptiness.

Due to the very small number of advanced meditators that can cultivate emptiness, recruiting a control group with comparable meditative capabilities was a logistical challenge. Indeed, even though recruitment was global in scope and spanned a twelve-month period, only 25 individuals were identified that could cultivate emptiness according to the pre-defined screening criteria (i.e., and whom consented to participate in the study). Consequently, a within-participants control condition was deemed to be the most effective means of comparing the effects of emptiness against other forms of meditation practiced by individuals with equivalent meditative capabilities.

Ethics

Ethical approval was provided by the researchers' university research ethics committee. As part of the informed consent procedure, participants were required to acknowledge that they understood the scope of the study was limited to them sharing information about conducting an emptiness meditation that they would in any event be undertaking as part of their spiritual/religious training or beliefs (i.e., as opposed to undertaking the practice solely for the purposes of providing data for the present study). Participation in the study was on a voluntary basis and participants did not receive any financial incentive for their participation.

Measures

For both the meditation on emptiness and the mindfulness meditation, participants were requested to complete the following assessment tools:

- (i) *Non-Attachment Scale* (NAS; Sahdra et al., 2010): The 30-item NAS is based on Buddhist philosophy and assesses the degree to which an individual becomes attached to their experiences on the psychological, social, and environmental plane. The NAS also assesses the degree to which a person is 'attached to themselves' because as previously discussed, according to Buddhist theory attachment to psychological or environmental phenomena arises due to a firm sense of selfhood (Shonin et al., 2016). The scale is constructed upon the Buddhist notion that the self is empty of inherent existence and that attachment to self and environment thus constitutes a maladaptive condition. The NAS is scored on a six-point Likert scale (from 1 = *disagree strongly* to 6 = *agree strongly*) and features items such as "I can admit my shortcomings without blame or embarrassment" and "When pleasant experiences end, I am fine moving on to what comes next". The maximum score is 180 and higher scores reflect lower levels of attachment (higher levels of non-attachment). The Cronbach's alpha in the current study was 0.84.

- (ii) *The Mysticism Scale* (Hood, 1975): The 32-item Mysticism Scale assesses mystical experience across the eight domains of positive affect, sacredness, noetic quality (sensation of the experience as a source of valid direct knowledge), unity in diversity, inner subjectivity, loss of selfhood, timelessness and spacelessness, and ineffability. Each domain includes four items of which two are positively worded and two negatively worded. Responses are converted to a five-point Likert scale (1 = low, 5 = high) that corresponds to the extent that participants' experiences accord with each of the 32 statements. Total scores range from 32-160 and a score of 4 or more is typically deemed to constitute a mystical experience for the item in question. The Cronbach's alpha in the current study was 0.79.
- (iii) *Santa Clara Brief Compassion Scale* (SCBCS; Hwang et al., 2008). The five-item SCBCS measures the generation of empathic feelings towards unknown others (i.e., strangers). An example item is "*I often have tender feelings towards people (strangers) when they seem to be in need*". Scoring is on a seven-point Likert scale (1 = *not at all true of me*, 7 = *very true of me*) and scores range from 5 to 35. Higher scores reflect higher levels of compassion. Based on a university student sample, the average total score is 20 (Hwang, et al., 2008). The Cronbach's alpha in the current study was 0.90.
- (iv) *Positive and Negative Affect Scale* (PANAS; Watson et al., 1988). The PANAS is a measure of mood or emotion and features ten positive affect adjectives (e.g., *interested, excited, inspired*) and ten negative affect adjectives (e.g., *hostile, upset, afraid*). Adjectives are scored on a five-point Likert scale (1 = *very slightly or not at all*, 5 = *extremely*) that records the extent to which the participant experienced such feelings in a specified time scale (the time scale 'in general' [i.e., on average] was employed in the present study). Item scores (ranging from 1 to 5) are totalled to give two separate scores for negative affect and positive affect. Scores range from 10 to 50 with higher scores representing greater degrees of affect. The Cronbach's alpha in the current study was 0.82.
- (v) *Duration of the emptiness meditation*: Participants were requested to record the duration of the emptiness meditation to the nearest minute (i.e., as measured by a wrist watch or wall clock).

Data Analysis

The study was conducted on an 'intent-to-treat' basis with missing data at end-point substituted using last-observation-carried-forward basis. Any significant differences between meditation conditions (emptiness and control) in terms of baseline scores on all measures were tested using independent samples t-tests.

Multi-level modelling was used to examine the effect of meditation (emptiness meditation and mindfulness meditation) on all five outcome measures (i.e., NAS, mysticism, SBCBS, positive affect, and negative affect). Multi-level models were specified in a way that treated Participant (within measurement Interval) as a random effect and Meditation Condition (emptiness, control) and measurement Interval (pre, post) as fixed effects (i.e., in the form of an interaction term [Meditation Condition*Interval]). This meant the *change* in outcome measure relative to baseline across measurement periods (i.e., pre- and post-intervention) could be examined.

For all significant multi-level models, further analysis was carried out using multiple regression to establish whether duration of emptiness meditation, meditation experience, age, and sex impacted the post-meditation score. In all estimated models, the pre-meditation score was included as a covariate.

Results

Recruitment, Participant Profile, and Drop-Out

Participant demographic characteristics are shown in Table 1. A total of 62 Buddhist meditation practitioners expressed an interest in the study and 37 of these were screened-out on the grounds of ineligibility. The reasons for exclusion were (i) unsatisfactory responses to the screening interview (18 participants), (ii) could not speak and/or read English (10 participants), and (iii) where unable to confirm that they planned to practice emptiness meditation during the study period (9 participants). Of the remaining 25 eligible participants, 76% were male and 60% were Buddhist monastics (i.e., with the remainder being lay Buddhist practitioners). The average age of participants was 52.32 years (SD = 7.59) and the average meditation experience was 25.32 years (SD = 9.21). The average duration of the meditation on emptiness was 76.20 minutes (SD = 17.93).

[Insert Table 1 about here]

Analysis of Outcome Measures

Analysis showed no significant differences at baseline between the intervention and within-participants control conditions for NAS ($t(48) = 0.05$, $p = 0.96$), mysticism ($t(48) = 0.13$, $p = 0.89$), compassion ($t(48) = -0.24$, $p = 0.80$), positive affect ($t(48) = -0.15$, $p = 0.88$), and negative affect ($t(48) = 0.37$, $p = 0.72$). The means and SDs for all outcome measures at both time intervals (pre and post) are shown in Table 2. Multi-level models showed significant changes in all outcome measures across measurement intervals (see Table 3). Specifically, results demonstrated a significant increase in NAS, mysticism, compassion, and positive affect scores and a significant decrease in negative affect scores for emptiness meditation compared with mindfulness meditation (see Figure 1).

[Insert Tables 2 and 3, and Figure 1 about here]

A series of linear models were specified using only the intervention data to examine whether time spent meditating on emptiness, meditation experience, age, or sex were related to post-intervention score, whilst controlling for pre-intervention scores. Results showed time spent meditating on emptiness, meditation experience, age, and sex had no impact on post-intervention scores for all outcome measures (NAS, mysticism, SBCBS, positive affect and negative affect).

Study 2

Method

Participants

Twelve participants from Study 1 were selected to undergo a semi-structured interview that posed a series of questions about the emptiness meditation. The selection process involved stratifying participants according to Buddhist affiliation (i.e., primarily Theravada, Mahayana, or Vajrayana) and then randomly selecting four participants from each of these three groups.

Procedure

Participants were requested to contact the research team as soon as possible after having completed a meditation on emptiness. To reduce recall bias due to the time-lag between emptiness meditation and the interviews, interviews using internet-based video conferencing media were permitted. The interview questions focussed on (i) *cultivation* (e.g., What meditative process did you follow to induce the experience of emptiness? How long did it take to complete this process? After having given rise to the experience of emptiness, what steps did you take to maintain that experience?), (ii) *content* (e.g., What did you experience during the meditation? Did you remain aware of time and space? Did you remain aware of your body whilst experiencing emptiness? Did you retain a sense of self? What insights arose during the meditation?), (iii) *feelings* (e.g., How did you feel during the meditation? How long did these feelings endure following the meditation? What bodily sensations arose?), (iv) *volitional control* (e.g., Did you have control over how long you remained in a state of emptiness? Did you choose to terminate the meditation or did it terminate of its own accord? What prompted you to terminate the meditation? How did you terminate the meditation?), and (v) *meaning* (e.g., Why do you choose to undergo the emptiness meditation? What prompted you to undergo the practice on this particular occasion? How did the practice help in terms of your spiritual development?). Open questioning was employed in order to encourage participants to freely

express themselves, and Socratic questioning was used to elicit further clarification as required (Wortel and Verweij, 2008). The interviews were audio recorded and then transcribed verbatim.

Data Analysis

Study 2 employed the same analytical procedure described in the aforementioned parallel study on the meditation-induced near-death experience (Van Gordon et al., 2018a). Grounded theory (Glaser and Strauss, 1967) was used to generate an inductively-derived theory concerning participants' experiences of the emptiness phenomenon (Mason and Hargreaves, 2001). Transcripts were read several times and coded to identify and isolate components, experiences, and meaningful events. *In vivo* codes (i.e., extracted directly from participants' accounts) were used wherever possible in order to capture participants' experiences using their own words (Strauss, 1987). Categories, concepts, and patterns of meaning were subsequently identified and transcripts were assessed for divergence and convergence. The researchers continuously interacted with the data, identifying the relationships between concepts and posing questions to formulate a theory (Strauss and Corbin, 1990; Mackenzie et al., 2007). From the initial generation of codes until the emergence of master and subordinate themes, 'bracketing' (Creswell, 2007) was employed to minimise bias arising from the researchers' assumptions relating to emptiness. Grounded theory requires sufficient raw evidence to establish the validity of the constructed theory (Henwood and Pidgeon, 1993; Mason and Hargreaves, 2001). Consequently, the 'Results' section that follows makes moderate use of direct excerpts from participant transcripts. For the purposes of validation, the entire analytical process, from reading the raw data through to identifying themes, was repeated iteratively until saturation was achieved (Van Gordon et al., 2016b). As a form of independent audit, the analytical process was repeated by a second member of the research team. Additional validation techniques such as grounding in examples and requesting feedback from participants on the final thematic structure were also employed (Creswell, 2007).

Results

The analysis of participants' transcripts generated four master themes, each with a different number of subordinate themes. The final hierarchical thematic structure is shown in Table 4, and a description of the emerging master and subordinate themes (including illustrative verbatim extracts) is provided below. Participants 1, 6, 7 and 10 described their primary Buddhist affiliation as being Theravada, participants 2, 5, 8, and 11 described it as being Mahayana, and participants 3, 4, 9, and 12 considered themselves to be primarily Vajrayana practitioners.

[Insert Table 4 about here]

Master Theme 1: Transition from Concentration to Insight

This master theme reflects a transition described by all participants of progressing from a concentrative to a more investigative form of meditation. The master theme comprised two sub-themes that correspond to these two forms of meditation accordingly.

Sub-theme 1.1: Focussing the mind

All participants reported that the emptiness meditation began with them bringing the mind into a state of heightened concentration. Some participants (Participants 1, 4, 5, 7, 10, 11 and 12) achieved this by resting their awareness on the natural flow of their thoughts or on the present moment more generally. Other participants (2, 3, 8, and 9) reported that they employed visualisation techniques as a means of concentrating the mind. Participants used words such as “*resting*”, “*settling*”, “*collecting*”, and “*concentrating*” to describe the process of meditatively focussing their mind. All participants explained that focussing their mind gave rise to feelings of profound calm that they used as a basis for engaging a more investigative form of meditation. Participant 4 explained this process as follows:

- I watch the mind more intently than [when not in formal meditation] and allow it to go where it likes. There is no effort from me to control it. I allow thoughts to roll through the mind. I watch them ... The mind relaxes and everything is calm. This is the point where I start to investigate [the nature of] my thoughts and mind. (Participant 4)

Sub-theme 1.2: Investigating and letting go of self

Participants reported that their meditation on emptiness continued with a second phase that involved trying to “*investigate the nature of self and reality*” (Participant 1). Most participants did this by actively searching for a self that intrinsically exists. Participants explained that the more they attempted to find an intrinsically-existing self, the more they were left with no alternative other than to conclude that the self is absent of inherent existence (i.e., and must thus be let go of):

- You keep peeling away new layers of wrapping and each time you do, there's nothing to find. When I look I see all things, but I don't see [a self]. (Participant 6)
- Meditation is a sword that strips away misunderstanding ... And nothing remains, absolutely nothing. But that nothingness has everything. (Participant 8)
- This phase [of meditation] helps me to let go of self. (Participant 10)

Participants 4 and 9 reported following a slightly different process of meditative investigation that involved them identifying and examining the source and underlying nature of internal experiences and external objects. These two participants explained that this process of investigation led them to the understanding that “*all we experience is made of mind*” (Participant 4), “*mind is everything, everything comes from within*” (Participant 4), and “*the mind – and therefore everything that exists – doesn't have substance*” (Participant 9).

Master Theme 2: Dwelling in Emptiness

This master theme corresponds to the phase of meditation that transpired after participants had undergone the preparatory processes described in sub-themes 1.1 and 1.2. More specifically, it relates to the main body of the meditation in which participants encountered or dwelt in emptiness. Two sub-themes were identified that reflected transcending concepts of time and space, and experiencing wisdom infused with unconditional compassion.

Sub-theme 2.1: Altered perception of time and space

All participants reported that after they had let go of self (i.e., by following the processes described in master theme 1), an experience of emptiness, that commenced with an altered perception of time and space, arose. More specifically, participants explained they experienced that time and space are relative phenomena that ultimately do not exist. Participants' sentiments concerning their altered perception of time and space are best captured by the following excerpts from Participant 3 and 11:

- The self is the reference point from where people conduct their lives. But if you take it away, then all other points of reference – including time and space – fade away ... [During meditation] you are no longer limited by concepts [such as space or time] ... Time no longer exists. How can it? The past is gone and you can't touch it. The future doesn't exist. So where is this present moment that I keep hearing about? (Participant 3)

- Everything flows freely. Things just happen. There's no need to try to connect events with a time or place. Ideas such as near and far or before and after must be let go of. Emptiness means that all things happen right here and right now. (Participant 11)

Sub-theme 2.2: Compassionate farsightedness

All participants explained that when dwelling in emptiness, their perspective enlarged and became more encompassing. Participants used terms such as “*big mind*” (Participants 2, 5, and 12), “*farsightedness*” (Participants 2, 4, and 6), “*universal mind*” (Participants 1 and 3), and “*superior seeing*” (Participants 7 and 9) to refer to this experience. As captured by the following excerpts from Participant 1 and 5, participants reported that during this phase of the emptiness meditation, they had the experience of being everywhere and nowhere, and of being everything and nothing:

- I'm nowhere but I'm everywhere. I see that I'm all things and that all things are me. (Participant 1)
- You melt into your surroundings. There's no separation. When I breathe in, the universe breathes in with me, and when I exhale [the universe exhales with me]. (Participant 5)

Participants (all except Participant 10) reported that along with this experience of farsightedness, arose feelings of profound compassion and a wish to care for all that exists. They clarified that this sense of compassion arose spontaneously and was not contrived. Participants 2 and 8 elucidated their experience as follows:

- A sense of responsibility and love springs up. It requires no effort. Its love for all things. Its compassion for all things ... Its unconditional because it's infused with wisdom, with not being attached to self. (Participant 2)
- Existence is happening. It's unfolding in front of you and you're watching it. But you're also part of it. You are it. You're dancing with it. Oh, it's so beautiful. All things and life forms are included in your view. And the sense of love and compassion is overwhelming. It comes naturally. Do you see? You touch every mind and atom with your heart and mind. (Participant 8)

Master Theme 3: Maintaining Volitional Control

This master theme did not comprise any sub-themes and corresponds to reports by all participants that whilst experiencing emptiness, they retained volitional control over the content and duration of the meditation. More specifically, participants explained that although they were deeply absorbed in emptiness, they (i) remained aware of their physical body and surroundings, (ii) could terminate the meditation at any stage, and (iii) could direct

their view of emptiness to any phenomenon or situation of their choosing. Participants 5 and 12 described this experience as follows:

- I'm in control of the meditation. I may lose track of time a bit but I decide when to conclude. I decide where the meditation goes. I can let [the experience of] emptiness [arise] and remain big and global, or I can channel it to a specific thing or place. (Participant 5)
- Emptiness isn't about zoning out. It's about tuning in ... Of course, you remain aware of the body. Why wouldn't you. If you're losing awareness, your experience of emptiness isn't genuine. (Participant 12)

Participants reported that they concluded the meditation "*when I felt it was time to do so*" (Participants 3 and 7), "*when I was ready*" (Participants 1 and 10), or "*when I reached the point I could carry [the meditation] with me during the day*" (Participant 9). Participants explained that they terminated the meditation by simply re-focussing their awareness on their physical body and mental processes.

Master Theme 4: Spiritually Meaningful Insights

All participants shared their view that compared with all other forms of meditation they practiced, the meditation on emptiness elicited the most spiritually meaningful insights. Furthermore, participants distinguished between the spiritual insights they derived during the emptiness meditation (sub-theme 4.1), and those that arose after it (sub-theme 4.2).

Sub-theme 4.1: Spiritual insights during meditation

Participants reported that dwelling in emptiness allowed them to discard any "*emotional or conceptual baggage*" (Participant 3) that they may have accumulated between meditation sessions. They explained that their intention was to retain the experience of emptiness post-meditation (see sub-theme 4.2) but that they were unable to achieve this on every occasion. Consequently, when referring to the experience of emptiness during meditation, participants used words such as "*recharging*" (Participants 3, 7, 9 and 11), "*checking in*" (Participants 1, 6 and 12), "*returning home*" (Participants 2, 8, and 9), "*replenishing*" (Participants 5 and 6, and "*renewing*" (Participants 4 and 10). Participants explained that the emptiness meditation acted as a form of "*spiritual reboot*" (Participant 7) that helped to re-establish the 'universal mind' referred to in sub-theme 2.2. Participant 8 explained this experience as follows:

- You never lose the experience of emptiness. It's always with you. But sometimes it's not as strong as it should be ... [Formal meditation] is a way of reminding yourself. It's a bit like returning home to the source. You bathe in emptiness. It's where everything begins and everything ends. You reconnect with the universe. (Participant 8)

Sub-theme 4.2: Spiritual insights post-meditation

Participants continued to derive spiritually meaningful insights from their meditation on emptiness even after the meditation had concluded. More specifically, they explained that remembering emptiness whilst engaged in everyday duties helped them to remain grounded and retain a clear and balanced perspective. However, participants explained that although they attempted to maintain a view of emptiness between meditation sessions, this was something that they allowed to happen naturally. For example, participants 4, 6, and 11 explained that a post-meditation experience of emptiness would often arise of its own accord but if they specifically directed cognitive resources towards thinking about emptiness, it would sometimes remain “*invisible*”. Participants 2 and 9 provided clarification on the post-meditation relationship with emptiness by stating as follows:

- You have to be open to emptiness. You have to know it places its mark on everything. But you don't try to force it. You don't ignore it either. You just allow it to come. (Participant 2)
- Everything is of [the nature of] emptiness but trying to find it is impossible because it means you're placing labels on something that can't be labelled. You have to *be* emptiness rather than try and find it. ... I mean, if you're skilled then it is possible to look for it in meditation. But its better just to know it's there and allow it to arise. It's often when you're not looking [for emptiness] when it appears. (Participant 9)

Theory Building

Compared to all other forms of meditation they practiced, participants deemed meditating on emptiness to be the most important. In essence, they considered emptiness to be their staple source of spiritual nourishment. Participants attempted to carry the experience of emptiness with them as they engaged in normal daily activities following a formal meditation session. The experience of emptiness was elicited by undertaking an initial phase of concentrative meditation (with or without visualisation) followed by a phase of investigative meditation. This latter phase involved participants searching for an intrinsically existing self or examining the underlying nature

of their experiences. The main experience of emptiness during meditation arose subsequent to this preparatory two-stage process (i.e., concentrative followed by investigative meditation) and commenced with participants realising that time and space are relative concepts. This transcending of conceptual boundaries (i.e., such as those imposed by perceiving in terms of space and time) gave rise to a farsighted or universal outlook that was infused with a compassionate intention. Furthermore, whilst experiencing emptiness, participants retained volitional control over the duration and content of the meditation, and likewise remained aware of their physical body and environment. A working model, delineating the interaction of process, content, and cognitive and meta-cognitive functions, is shown in Figure 2.

[Insert Figure 2 around here]

Discussion

The present study employed mixed-methods and recruited advanced Buddhist meditators to investigate the effects of emptiness on non-attachment, mystical experiences, and psycho-spiritual wellbeing, as well as how participants cultivate, experience, and relate to emptiness. Compared to a mindfulness meditation control condition, meditation on emptiness resulted in significantly greater improvements in non-attachment, mystical experiences, compassion, positive affect, and negative affect. No significant relationship was observed between duration of emptiness meditation and any of the aforementioned outcome measures. Findings from the qualitative study demonstrated that participants (i) combined concentrative and investigative meditation techniques in order to induce emptiness, (ii) elicited spiritually meaningful insights both during and following the meditation on emptiness, and (iii) retained volitional control over the content and duration of the emptiness meditation.

The fact that emptiness meditation out-performed the mindfulness meditation based on measures of non-attachment, mystical experience, and compassion was not unexpected. If an individual ceases to perceive themselves as intrinsically existing, then it follows that they will become less attached to external objects, situations, or sensations. Indeed, as referred to previously, if there is no ‘subject’ or ‘self’ as a central referent, then logic dictates that there cannot be an ‘object’ or ‘other’ to which the non-existing self can relate or become attached to (Tsong-Kha-pa, 2004). Buddhism teaches that abandoning attachment to the idea of an inherently existing self helps the meditation practitioner transcend limitations imposed by perceiving reality in relative or dualistic terms (Van Gordon et al., 2016c). Consequently, in line with the Buddhist teachings, it seems plausible that letting go of self helped participants encounter or induce what some individuals might deem to be mystical experiences (e.g., altered perception of time and space). Consistent with findings from previous qualitative

research (Van Gordon et al., 2016b), being less self-orientated also appeared to instil a greater sense of compassion.

It is perhaps less obvious why cultivating emptiness led to improvements in positive and negative affect. Indeed, some studies have shown that concepts such as emptiness can be challenging to identify with, particularly in less experienced meditators (Lomas, Cartwright, Edginton, & Ridge, 2015). However, an explanation for the improvements observed in the current study is posited by *Ontological Addiction Theory* (OAT), in which ‘ontological addiction’ is deemed to be the underlying cause of maladaptive cognitive and behavioural processes (Shonin et al., 2016; Van Gordon et al., 2018b). More specifically, ontological addiction is defined as “*the unwillingness to relinquish an erroneous and deep-rooted belief in an inherently existing ‘self’ or ‘I’ as well as the ‘impaired functionality’ that arises from such a belief*” (Shonin et al., 2013, p.64). According to OAT – that is based on a Buddhist model of mental illness – it is the belief in an inherently existing self that propels an individual to behave in ways that they deem will preserve their self-identity and wellbeing. Examples of such behaviours might be striving to make money, accrue fame or reputation, stave off illness or hardship, or eliminate perceived threats. However, given that all phenomena and situations are impermanent, such endeavours can, at best, only yield temporary happiness and inevitably result in suffering (Ikeda, 2004; Kawada, 1973; Sogyal, 1998; Takakusu, 2010). Therefore, undermining attachment (increasing non-attachment) or addiction to the belief in a self helps to remove the loci upon which emotional and conceptual baggage can accumulate. This is in line with findings demonstrating that (i) non-attachment is negatively related to distress and symptoms of ill-health (Pande and Naidu, 1992), and positively related to various indices of adaptive psychosocial functioning (Sahdra et al., 2015), and (ii) interventions such as MAT that, through using meditation techniques to undermine ego-attachment, have demonstrated improvements in (for example) psychological wellbeing, mental health, psychosocial functioning, and pain symptoms (Van Gordon et al., 2015b).

A further noteworthy outcome of the present study is that the duration of the meditation on emptiness did not predict the profundity of the emptiness experience (i.e., as measured by non-attachment and mystical experiences) or changes in any of the other study outcomes. This is consistent with the Buddhist position that emptiness transcends relative notions such as time and space (Shonin et al., 2015) as well as with outcomes from the qualitative study arm, which demonstrated that participants experienced an altered perception of time and space.

Qualitative outcomes in the current study were also consistent with the aforementioned quantitatively-assessed increases in spiritual awareness and psycho-spiritual wellbeing, and with the Buddhist view that

emptiness is an effective means of cultivating spiritual insight and psycho-spiritual wellbeing (Sogyal, 1998). Furthermore, the qualitative findings appeared to suggest that although specific meditation techniques were employed to induce emptiness, the maintenance of this experience – both during and following the meditation – was dependent on participants permitting the mind to rest in its natural state and on not making excessive efforts to experience emptiness. Indeed, participants’ emphasis appeared to be on extending and applying the experience of emptiness to daily living. This is consistent with the qualitative outcome that participants remained aware of their physical body and retained volitional control over the content and duration of the formal meditation.

Although findings from this study provide novel insights relating to the invoking and experience of emptiness in human participants, they should be considered in light of their limitations. Most psychometric measures of spirituality or wellbeing – including those used in the present study – have not been designed with advanced meditation practitioners in mind. Consequently, while mitigated to an extent by the questions posed in the qualitative arm of this study, the degree to which such scales can indicate the depth and profundity of psychological and spiritual changes induced by emptiness remains questionable. Additional study limitations were the fact that the sample (i) was understandably of a small size (i.e., because very few individuals possess the meditative experience necessary to induce emptiness), and (ii) exclusively comprised Buddhist meditation practitioners meaning that interpretations of emptiness arising due to religious predispositions were not controlled for.

The present study demonstrated that advanced Buddhist meditators elicited improvements in spiritual awareness and psycho-spiritual wellbeing by engaging in meditation on emptiness. Furthermore, a qualitative analysis suggested that emptiness serves as a means of reconnecting Buddhist meditators to what they deem to be the innermost nature of their minds and of phenomena more generally. Future research could seek to (i) develop and validate a psychometric scale that assesses trait and/or state levels of emptiness in human participants, (ii) formulate and evaluate an emptiness-based non-pharmacological intervention that could be used to improve health and/or psychosocial functioning in individuals naive to meditation, and (iii) elicit further insights into the emptiness construct and how it relates to biological, psychological, and spiritual processes. Such further research is important because if multiple lines of scientific enquiry validate the Buddhist position that self and phenomena lack intrinsic existence, it will likely become necessary to re-examine some established beliefs relating to how both psychological and physical phenomena are understood to exist (Van Gordon et al., 2016c). More specifically, if the true nature of what is currently understood to constitute reality ultimately has no more substance than a dream, it would necessitate an evolution of perspective across multiple scientific fields of enquiry.

Compliance with Ethical Standards

Funding: The study did not receive any funding.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

Author Contributions

WVG: was the study PI, conceived and designed the study, conducted data analysis, and wrote the first draft of the paper. ES and SS: collaborated in the conceiving and design of the study, and on the writing and editing of the final manuscript. TD: conducted data analysis, and collaborated in the writing and editing of the final manuscript. YK, JG-C, DS: collaborated in the writing and editing of the final manuscript.

References

- Baguley, T. (2012). Calculating and graphing within-subject confidence intervals for ANOVA. *Behav. Res. Methods* 44, 158-175. doi: 10.3758/s13428-011-0123-7
- Cacciatore, J., Thieleman, K., Osborn, J., and Orlowski, K. (2014). Of the soul and suffering: Mindfulness based interventions and bereavement. *Clin. Soc. Work J.* 42, 269-281. doi: 10.1007/s10615-013-0465-y
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). London: Sage.
- Dalai Lama. (2006). *The universe in a single atom: The convergence of science and spirituality*. New York: Broadway Books.
- Glaser, B. G., and Strauss, A. L. (1967). *Grounded theory techniques*. New York: Sage.
- Henwood, K., and Pidgeon, N. (1993). Qualitative research and psychological theorising. In M. Hammersley (ed.), *Social research: Philosophy, politics and practice* (pp. 14–32). London: Open University Press.
- Hood, R. W. (1975). The construction and preliminary validation of a measure of reported mystical experience. *J. Sci. Study Religion* 14, 29-41. doi: 10.1177/0269881115609019
- Hwang, J. Y., Plante, T., and Lackey, K. (2008). The development of the Santa Clara brief compassion scale: An abbreviation of Sprecher and Fehr's compassionate love scale. *Pastoral Psychol.* 56, 421-428. doi: 10.1007/s11089-008-0117-2
- Ikeda, D. (2004). *Unlocking the mysteries of birth and death* (2nd ed.). Santa Monica, CA: Middleway Press.
- Kawada, Y. (1973). *Seimeitetsugaku nyuumon* [Introduction to life philosophy]. Tokyo: Daisanbunmei.
- Lomas, T. (2018). Experiential cartography, and the significance of untranslatable words. *Theory & Psychology*, 28, 476–495.
- Lomas, T., Cartwright, T., Edginton, T., & Ridge, D. (2015). A qualitative analysis of experiential challenges associated with meditation practice. *Mindfulness*, 6, 848-860.

- Mackenzie, M. J., Carlson, L. E., Munoz, M., and Speca, M. (2007). A qualitative study of self-perceived effects of mindfulness-based stress reduction (MBSR) in a psychosocial oncology setting. *Stress and Health* 23, 59-69. doi: 10.1002/smi.1120
- Mason, O., and Hargreaves, I. (2001). A qualitative study of mindfulness-based cognitive therapy for depression. *Br. J. Clin. Psychol.* 74, 197-212. doi: 10.1348/000711201160911
- Nhat Hanh, T. (1999). *Call me by my true names*. Berkeley: Parallax Press.
- Pande, N. and Naiku, R.K. (1992). Anasakti and health: A study of non-attachment. *Psychol Dev Soc J*, 4, 89-104.
- Sahdra, B. K., Ciarrochi, J., Parker, P. D., Marshall, S., and Heaven, P. (2015). Empathy and nonattachment independently predict peer nominations of prosocial behavior of adolescents. *Front. Psychol*, 6, 263. doi: 10.3389/fpsyg.2015.00263.
- Sahdra, B. K., Shaver, P. R., and Brown, K. W. (2010). A scale to measure non-attachment: A Buddhist complement to Western research on attachment and adaptive functioning. *J. Pers. Assess*, 92, 116-127. doi: 10.1080/00223890903425960
- Shonin, E., Van Gordon, W., Singh, N. N., and Griffiths, M. D. (2015). *Mindfulness of Emptiness and the Emptiness of Mindfulness*. In: E. Shonin, W. Van Gordon, & N. N. Singh (Eds). *Buddhist Foundations of Mindfulness* (pp. 159-178). New York: Springer.
- Shonin, E., Van Gordon, W., and Griffiths, M. D. (2016). Ontological addiction: Classification, etiology, and treatment. *Mindfulness*, 7, 660-671. doi: 10.1007/s12671-016-0501-4
- Shonin, E., and Van Gordon, W. (2015). Managers' experiences of Meditation Awareness Training. *Mindfulness*, 4, 899-909. doi: 10.1007/s12671-014-0334-y
- Shonin, E., Van Gordon, W., & Griffiths, M. D. (2015). Does mindfulness work? *British Medical Journal*, 351:h6919. Doi: 10.1136/bmj.h6919
- Shonin, E., Van Gordon W., and Griffiths, M. D. (2014a). The emerging role of Buddhism in clinical psychology: Toward effective integration. *Psycholog Relig Spiritual*, 6, 123-137. doi: 10.1037/2Fa0035859
- Shonin, E., Van Gordon, W., Dunn, T., Singh, N., and Griffiths, M. D. (2014b). Meditation Awareness Training for work-related wellbeing and job performance: A randomized controlled trial. *Int J Ment Health Addict*, 12, 806-823. doi: 10.1007/s11469-014-9513-2

- Shonin, E., Van Gordon, W., and Griffiths, M. D. (2014c). The treatment of workaholism with Meditation Awareness Training: A case study. *Explore: The Journal of Science and Healing*, 10, 193-195. doi: 10.1016/j.explore.2014.02.004
- Shonin, E., Van Gordon, W., and Griffiths, M. D. (2014d). Cognitive Behavioral Therapy (CBT) and Meditation Awareness Training (MAT) for the treatment of co-occurring schizophrenia with pathological gambling: A case study. *Int J Ment Health Addict*, 12, 181-196. doi: 10.1007/s11469-013-9460-3.
- Shonin, E., Van Gordon W., and Griffiths M. D. (2014e). Meditation Awareness Training (MAT) for improved psychological wellbeing: A qualitative examination of participant experiences. *J. Religion Health*, 53, 849-863. doi: 10.1007/s10943-013-9679-0.
- Shonin, E., Van Gordon W., and Griffiths, M. D. (2013). Buddhist philosophy for the treatment of problem gambling. *J Behav Addict*, 2, 63-71. doi: 10.1556/JBA.2.2013.001.
- Sogyal, R. (1998). *The Tibetan book of living and dying*. London: Rider.
- Strauss, A. (1987). *Qualitative analysis for social scientists*. New York: Cambridge University Press.
- Strauss, A., and Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Takakusu, J. (2010). *The essentials of Buddhist philosophy*. Whitefish, MY: Kessinger Publishing.
- Trungpa, C. (2003). *The collected works of Chogyam Trungpa: Volume Four*. Boston: Shambala.
- Tsong-Kha-pa. (2004). *The great treatise on the stages of the path to enlightenment* (Vol. 1). (J. W. Cutler, G. Newland, Eds., and The Lamrim Chenmo Translation committee, Trans.) New York: Snow Lion Publications.
- Van Gordon, W., Shonin, E., Dunn, T., Sheffield, D., Garcia-Campayo, J., and Griffiths, M. D. (2018a). Meditation-induced near-death experiences: A three-year prospective study. *Mindfulness*, 9, 1794-1806. doi: 10.1007/s12671-018-0922-3
- Van Gordon, W., Shonin, E., Dunn, T., Garcia-Campayo, J., and Griffiths, M. D. (2017a). Meditation Awareness Training for the treatment of fibromyalgia: A randomised controlled trial. *Br. J. Health Psychol*, 22, 186-206. doi: 10.1556/2006.6.2017.021
- Van Gordon, W., Shonin, E., Dunn, T., Garcia-Campayo, J., Demarzo, M., and Griffiths, M. D. (2017b). Meditation Awareness Training for the treatment of workaholism: A non-randomised controlled trial. *J Behav Addict*, 6, 212-220. doi: 10.1556/2006.6.2017.021.
- Van Gordon, W., Shonin, E., and Griffiths, M. D. (2016a). Meditation Awareness Training for the treatment of sex addiction: A case study. *J Behav Addict*, 5, 363-372. doi: 10.1556/2006.5.2016.034

- Van Gordon, W., Shonin, E., and Griffiths, M. D. (2016b). Meditation Awareness Training for individuals with fibromyalgia syndrome: An interpretative phenomenological analysis of participant's experiences. *Mindfulness*, 7, 409-419. doi: 10.1007/s12671-015-0458-8
- Van Gordon, W., Shonin, E., and Griffiths, M. D. (2016c). Buddhist emptiness theory: Implications for psychology. *Psychology of Religion and Spirituality*, 9, 309-318.
- Van Gordon, W., Shonin, E., Griffiths, M. D., and Singh, N. N. (2015a). There is only one mindfulness: Why science and Buddhism need to work together. *Mindfulness*, 6, 49-56. doi: 10.1007/s12671-014-0379-y
- Van Gordon, W., Shonin, E., and Griffiths, M.D. (2015b). Towards a second-generation of mindfulness-based interventions. *Aust. N. Z. J. Psychiatry*, 49, 591-591. doi: 10.1177/0004867415577437
- Van Gordon, W., Shonin, E., Sumich, A., Sundin, E., and Griffiths, M. D. (2014). Meditation Awareness Training (MAT) for psychological wellbeing in a sub-clinical sample of university students: A controlled pilot study. *Mindfulness*, 5, 381-391. doi: 10.1007/s12671-012-0191-5
- Wada, K., and Park, J. (2009). Integrating Buddhist psychology into grief counseling. *Death Stud*, 33, 657-683. doi: 10.1080/07481180903012006.
- Watson, D., Clark, L., and Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scale. *J Pers Soc Psychol*, 54, 1063-1070. doi: 10.1037/0022-3514.54.6.1063
- Wortel, E., and Verweij, D. (2008). Inquiry, criticism and reasonableness: Socratic dialogue as a research method? *Practical Philosophy*, 9, 54-72.

Table 1. Participant demographic characteristics

Characteristic	<i>n</i> = 25
Age, mean (SD)	52.32 (7.59)
Male (%)	60
Monastic (%)	60
Meditation Experience (years) mean (SD)	25.32 (9.21)
Buddhist Affiliation (%)	
Theravada	28
Mahayana	4
Vajrayana (Tibetan)	16
Vajrayana (Japanese)	8
Theravada/Mahayana	16
Mahayana/Vajrayana	8
Thera/Maha/Vajra	20
Ethnicity (%)	
White (British)	28
Asian	64
Other	8

		NAS		Mysticism		SBCBS		Positive affect		Negative affect	
		Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Pre	Emptiness	154.96	5.06	134.64	4.35	28.52	2.35	39.60	1.68	16.84	1.14
	Control	155.04	5.14	134.80	4.34	28.36	2.29	39.52	1.96	16.96	1.17
Post	Emptiness	170.56*	6.88	140.32*	4.43	33.04*	2.01	43.52*	1.76	12.80*	2.29
	Control	157.48*	4.84	136.80*	3.54	29.72*	1.79	40.96*	1.95	15.80	2.18

Table 2. Means and SDs for emptiness and control meditation conditions across time intervals (pre, post) for all outcome measures

Note: “*” indicates that the score is significantly different from its corresponding ‘Pre’ score within the same condition (e.g., Pre-Post Emptiness), using a Bonferroni corrected *p*-value of 0.05 to account for multiple comparisons.

Table 3. Fixed effects estimates for Time/Condition interactions for all five outcome measures

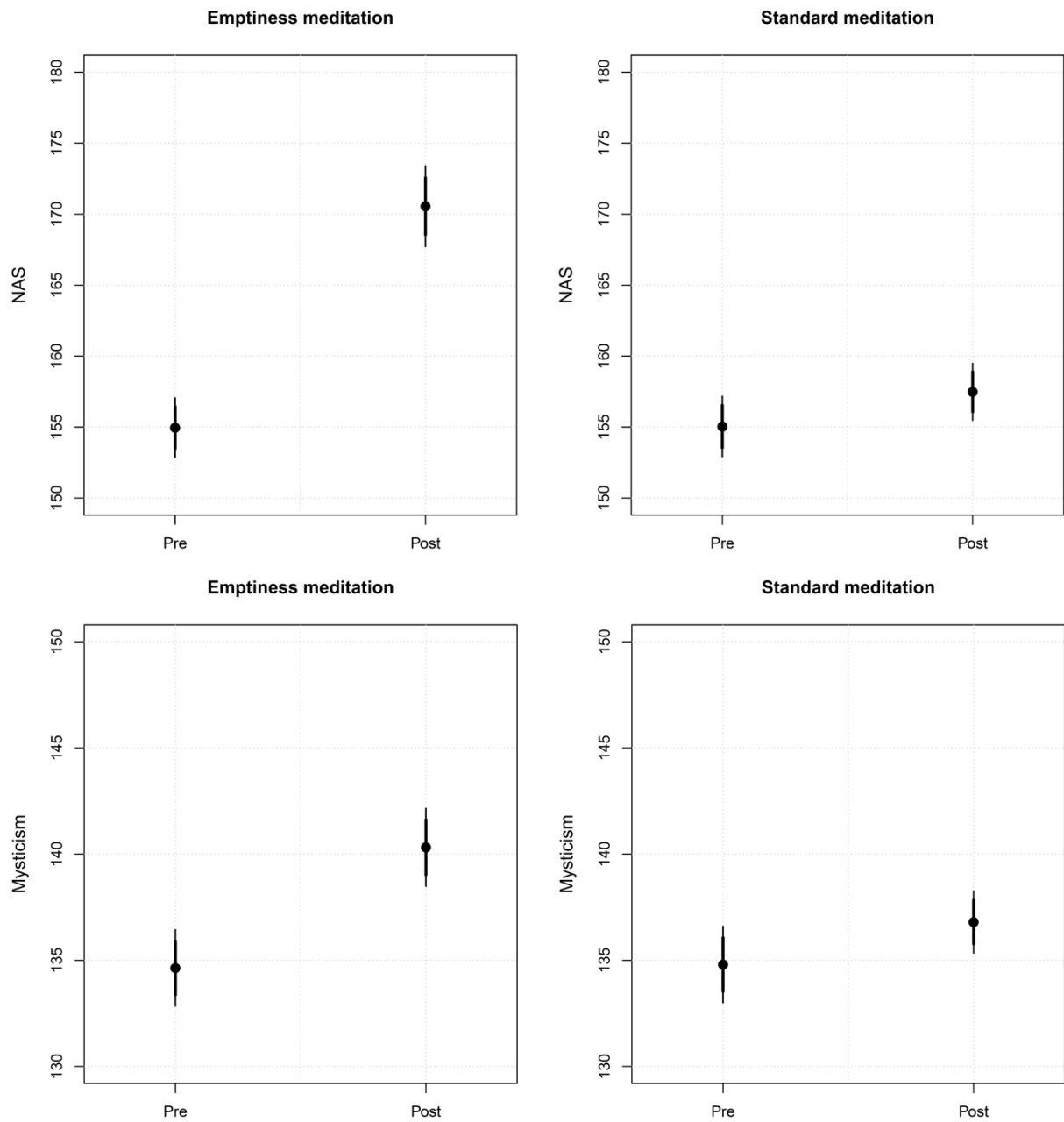
	value	SE	t-value	p-value
NAS				
(Intercept)	155.04	1.02		
Time * Condition	13.16	1.34	9.82	<0.001
Mysticism				
(Intercept)	134.80	0.87		
Time * Condition	3.68	0.60	6.11	<0.001
SBCBS				
(Intercept)	28.36	0.46		
Time * Condition	3.16	0.51	6.20	<0.001
Positive affect				
(Intercept)	39.52	0.37		
Time * Condition	2.63	0.39	6.84	<0.001
Negative affect				
(Intercept)	16.96	0.23		
Time * Condition	-3.05	0.60	-5.05	<0.001

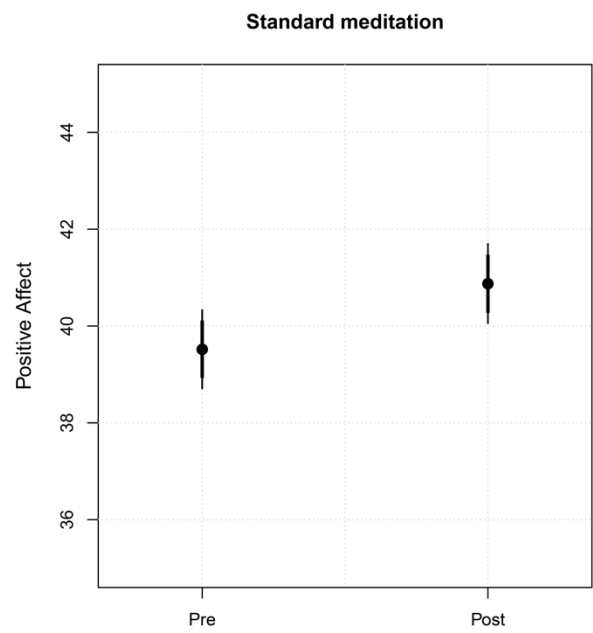
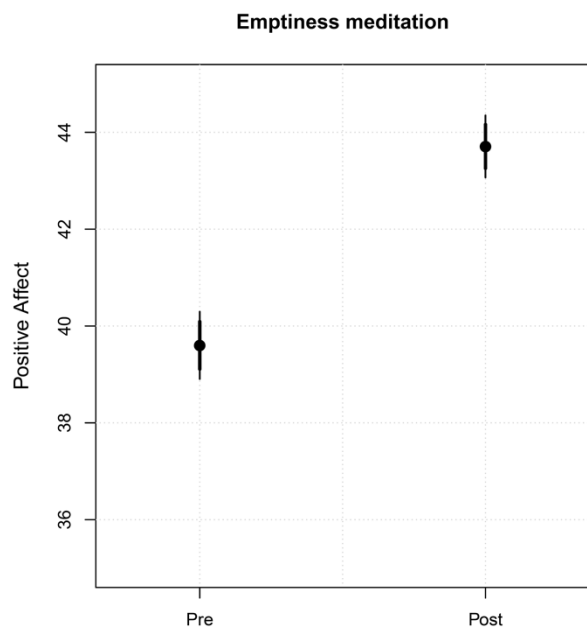
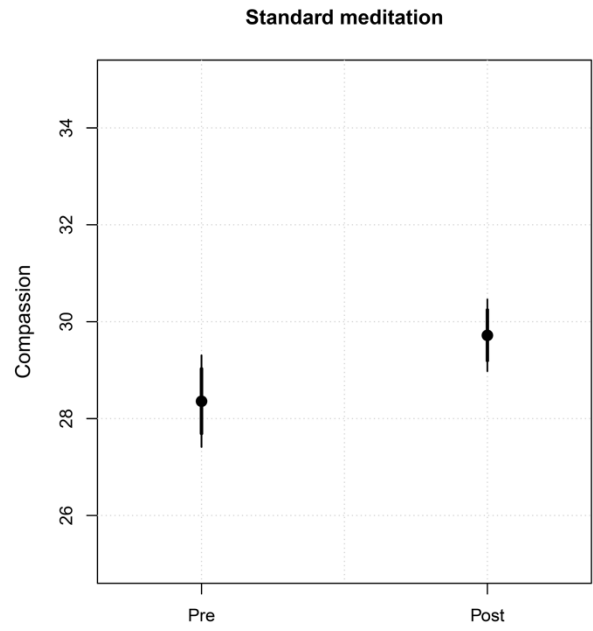
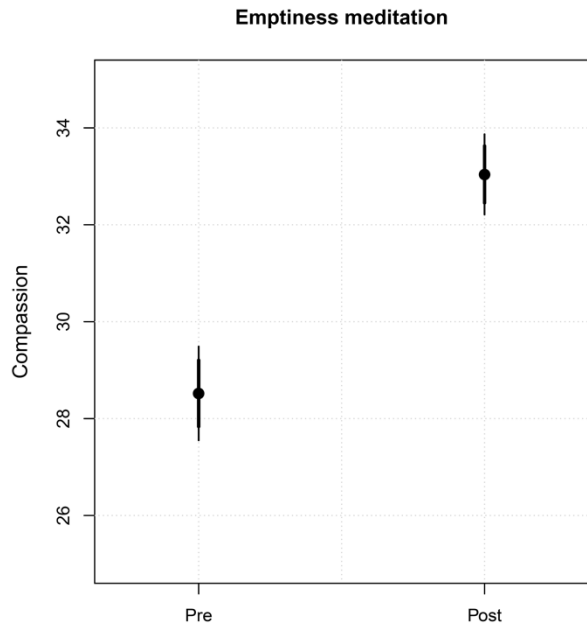
Note: The reference category for ‘Time’ is the baseline measurement (i.e., pre) and for ‘Condition’ it is the control group. This means a ‘Time * Condition’ value of 13.16 for NAS can be interpreted as a 13.16 greater increase in NAS score at the post stage for emptiness meditation compared with the control condition.

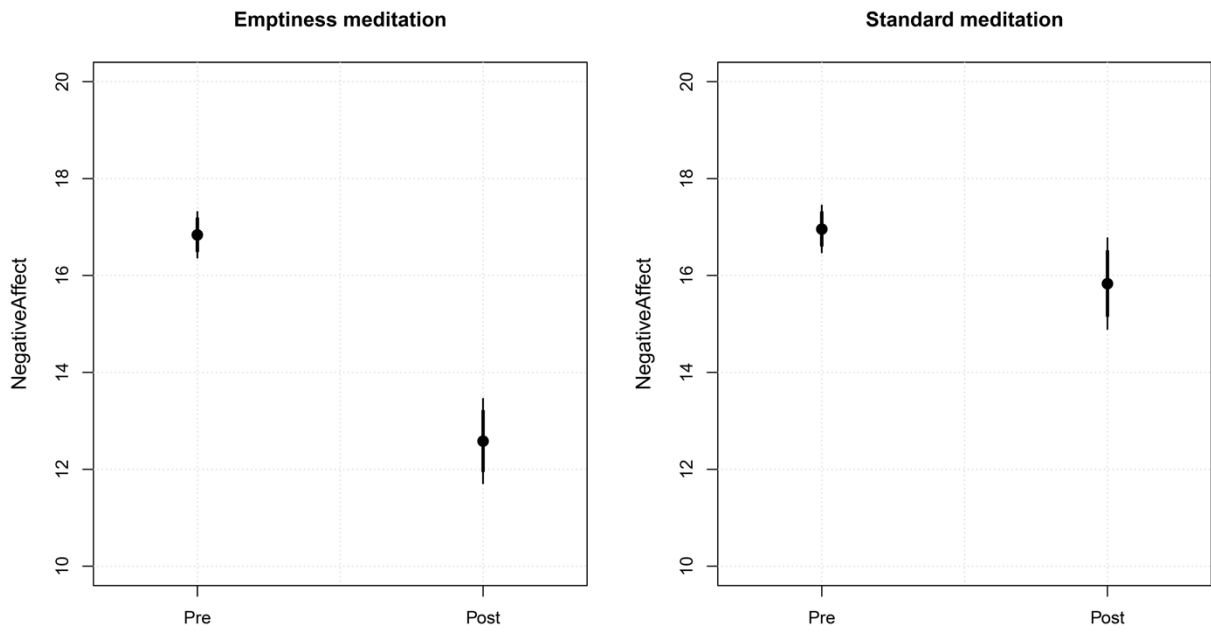
Table 4. Summary of master and subordinate themes, including example participant experts

Master Theme	Subordinate Themes	Example Participant Excerpt
1. Transition from concentration to insight	1.1 Focussing the mind	“I watch the mind”
	1.2 Investigating and letting go of self	“I try to investigate the nature of self and reality”
2. Dwelling in emptiness	2.1 Altered perception of time and space	“There’s no need to try to connect events with a time or place”
	2.2 Compassionate farsightedness	“The sense of love and compassion is overwhelming”
3. Maintaining volitional control	N/A	“I decide where the meditation goes”
4. Spiritually meaningful insights	4.1 Spiritual insights during meditation	“During meditation I experience a spiritual reboot”
	4.2 Spiritual insights post-meditation	“It’s often when you’re not looking [for emptiness] when it appears”

Figure 1. Outcome means (emptiness and control) across measurement intervals (pre and post) with two-tier 95% CIs.







Note: The inner tier of a two-tiered CI represents CIs for the mean whilst the outer tier represents a difference-adjusted CI. Difference-adjusted CIs represent the individual means but calibrates the CI to indicate whether the sample means differ (using 95% confidence in the difference as a standard) (Baguley, 2012).

Figure 2. Working model showing the interaction of process, content, and cognitive and meta-cognitive processes relating to the cultivation of emptiness during meditation

