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What Do Meditators Do When They Meditate? Proposing a Novel Basis for Future Meditation Research

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Abstract

Objectives Meditation is an umbrella term for a vast range of contemplative practices. Former proposals have struggled to do justice to this variety. To our knowledge, there is to date no comprehensive overview of meditation techniques spanning all major traditions. The present studies aimed at providing such a comprehensive list of meditation techniques.

Methods In a qualitative study, we compiled a collection of 309 meditation techniques through a literature search and interviews with 20 expert meditators. Then, we reduced this collection to 50 basic meditation techniques. In a second, quantitative study, 635 experienced meditators from a wide range of meditative backgrounds indicated how much experience they had with each of these 50 meditation techniques.

Results Meditators' responses indicated that our choice of techniques had been adequate and only two techniques had to be added. Our additional statistical and cluster analyses illustrated preferences for specific techniques across and within diverse traditions as well as sets of techniques commonly practiced together. Body-centered techniques stood out in being of exceptional importance to all meditators.

Conclusions In conclusion, we found an amazing variety of meditation techniques, which considerably surpasses previous collections. Our selection of basic meditation techniques might be of value for future scientific investigations and we encourage researchers to use this set.

Keywords Meditation techniques · Variety · Diversity · Preferences · Qualitative · Cluster analysis

Meditation has become one of the most popular and widely researched mental training techniques, and meditation and mindfulness are often treated as panaceas for almost anything (Van Dam et al., 2018). However, with its increasing popularity it has become clear that, in fact, "meditation" is not one specific technique but an umbrella term that encompasses a great variety of different techniques (Awasthi, 2013; Dorjee, 2016). These techniques range from the well-known observance of the breath to the far less common humming meditation or contemplation on death and mortality. This variety makes it difficult to define meditation and do justice to the vast range of practices associated with it (Bond et al., 2009; Schmidt, 2014). Thus, researchers and practitioners alike would benefit from a comprehensive overview of meditation techniques that would give them insight into what meditators actually do when they are meditating.

Benson (1975) was one of the first researchers to describe the effects of meditation. He investigated the effects of Transcendental Meditation (whose main technique is a form of mantra meditation) and concluded the main effect of meditation was the "relaxation response" it elicited. As the field of meditation research grew, it became clear that this view was shortsighted, as there were other meditation techniques that did not elicit relaxation in practitioners (Amihai & Kozhevnikov, 2014; Lumma et al., 2015). An initial and now widespread differentiation distinguished "focused attention" and "open monitoring" as two styles of meditation (Lutz et al., 2008). This differentiation was opened up and extended to include more styles, such as loving-kindness and compassion meditation, which were considered mixtures of focused attention and open monitoring (Lippelt et al., 2014).

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Recently, new collections and classification systems encompassing a greater variety of meditation techniques have been proposed (Dahl et al., 2015; Lutz et al., 2015). Nonetheless, these collections and classification systems have still been derived mostly from the top down and they omit several important meditation techniques, especially from the Hindu context (Matko & Sedlmeier, 2019).

A growing body of research has acknowledged the need to differentiate between different styles of meditation. Meta-analyses have found differential effects for several types of meditation in clinical (Goyal et al., 2014) as well as healthy (Fox et al., 2016; Sedlmeier et al., 2012, 2018) populations. Comparative studies have begun to distinguish the effects of mantra meditation, breathing meditation, body scan, open monitoring, observing-thoughts meditation, loving-kindness meditation, and compassion meditation. Obviously, these studies did not compare all but rather selections of the abovementioned techniques. In doing so, they found differences in, for example, attention (Lee et al., 2012), affect (May et al., 2014), concentration and emotion regulation (Kropp & Sedlmeier, 2019), creativity (Colzato et al., 2012), decentering (Feldman et al., 2010), mindfulness (Cebolla et al., 2017), heart-rate variability and perceived effort (Lumma et al., 2015), personal preference (Burke, 2012; Tang & Braver, 2020), phenomenological experience (Przyrembel & Singer, 2018), and brain activation and deactivation patterns (Fox et al., 2016).

Yet, despite these attempts to acknowledge and do justice to the variety of meditation techniques, the selection of techniques has still been limited to the few abovementioned, well-known styles of meditation. Additionally, the selection of techniques has often been arbitrary rather than guided by a sound theory or classification system. To date, only a few studies have investigated the effects of meditation techniques that are less well known but still very important and prevalent in their specific traditions. These techniques include visualization (Amihai & Kozhevnikov, 2014; Lou et al., 1999), nondual awareness (Josipovic, 2010), supine/relaxation meditation (Gul & Jahangir, 2019; Kjaer et al., 2002), chanting (Harne et al., 2019; Wolf & Abell, 2003), analytical meditation (van Vugt et al., 2020), contemplation (Bach & Guse, 2015), energy meditation (Venkatesh et al., 1997), dynamic meditation (Bansal et al., 2016), or whirling meditation (Cakmak et al., 2017).

As can easily be seen from this rather arbitrary collection, these techniques partly originate from cultural, spiritual, or religious contexts other than the nowadays most prevalent forms of mindfulness meditation. For an introduction and comparison of different meditative practices in various spiritual traditions see Komjathy (2015) and Shear (2006). Visualizations are commonly used in the context of Hindu or (Tibetan) Buddhist meditation. Chanting as a form of meditation can be found in Hindu, Buddhist, and Sufi traditions.

Energy meditation is commonly practiced by Hindu, Tantric, and Qigong meditators. To date, these various techniques have received a lot less attention in research.

However, one problem that arises with growing variety in the field is finding a definition that reconciles all these different forms of meditation. Definitions of meditation that have been brought up so far are almost as diverse as the techniques described above. Some authors have emphasized the relevance of particular aspects such as mental training, self-regulation, and attention (Lutz et al., 2008; Tang et al., 2015), while others have differentiated between meditative states and techniques (Bond et al., 2009; Nash & Newberg, 2013). The purpose of meditation also differs across definitions (for a detailed discussion see: Bond et al., 2009; Matko & Sedlmeier, 2019). According to some of these definitions, meditation can be practiced for either general well-being, alteration of consciousness, or spiritual insight. This variety in definitions represents the lack of consensus among experts on when or when not to label a practice meditation. Some authors have argued that finding an overarching definition of meditation might be close to impossible (Ospina et al., 2007; Schmidt, 2014). Others, in turn, have suggested that there might be commonalities across all techniques such as a common goal of reaching a "natural meditative state" (Reddy & Roy, 2019, p. 4), or that all meditation techniques share a somatic, embodied component (Matko & Sedlmeier, 2019).

To better identify and comprehend the defining features and working mechanisms of meditation, it is imperative to open up meditation research and investigate meditation in its many forms (Dahl et al., 2015; Ospina et al., 2007). This might also be helpful in developing one or several overarching theories of meditation (Dorjee, 2016; Sedlmeier et al., 2016). To achieve this, first we need to obtain a good overview of the meditation techniques, which exist throughout different spiritual and cultural contexts and traditions. Although some researchers have pointed out and described a great variety of meditation techniques (Dahl et al., 2015; Travis & Shear, 2010), as of this writing we know of no compilation that is truly comprehensive.

Additionally, in the past, many techniques were labeled with a couple of words, for instance, breathing meditation, without being given concise descriptions of what meditators were actually doing while meditating. However, "breathing meditation" can imply completely different techniques depending on the context. Some meditators count their breaths, some observe their abdomen while breathing, and still others combine breathing with visualizations of light and smoke. It is, thus, essential to describe the specific techniques that meditators are using during meditation in detail. In response to this issue, some researchers have developed taxonomies and frameworks to help researchers and practitioners describe what they are doing during meditation (Nash & Newberg, 2013; Schmidt, 2014).

Another issue repeatedly raised in the literature is the need to investigate basic meditation techniques that do not include confounding factors, such as supportive exercises or a religious context, to draw accurate causal inferences (Chiesa & Malinowski, 2011; Isbel & Summers, 2017). Research has shown that practicing meditation in the specific framework of a belief system can tremendously influence the outcomes of meditation (Amihai & Kozhevnikov, 2014; Bayot et al., 2020). Yet, little is known about the differential effects of basic meditation techniques, let alone their interaction with context factors or the effects of combined techniques.

We decided to approach the abovementioned issues from a different perspective, using qualitative and quantitative methods. In our first study, we deduced a set of basic meditation techniques that was as complete as possible, and then in a second study, we evaluated this set in a large sample of experienced meditators. Drawing on these data, we explored the question "What do meditators do when they meditate?" from three different perspectives. First, we approached the question in the most general way by identifying the most popular meditation techniques practiced by a large variety of meditators. Second, we looked at different meditative traditions to see which of these basic techniques are most commonly practiced in each tradition. And third, we focused on the question of which meditation techniques were commonly practiced together by meditators, irrespective of their tradition.

Study 1

One aim of this qualitative study was to capture as many meditation techniques as possible through a bottom-up empirical investigation. We looked for a practice-based, straightforward answer to our main question: "What do meditators do when they meditate?" We expected to find a large number of different answers in our primary collection of techniques. Therefore, a second aim of this study was to reduce this primary collection to a manageable number of basic meditation techniques.

Method

To obtain an exhaustive list of meditation techniques, we chose a combination of two approaches. On the one hand, we interviewed a large sample of expert meditators representing a wide range of different meditative traditions and schools in Germany. On the other hand, we conducted an extensive literature search. The literature search included meditation manuals from different traditions (Adyashanti, 2006; Anālayo, 2003; Austin, 1998; Bäumer, 2008; Bodian, 2016; Chinmoy, 2013; Kornfield, 2009; Mahasi, 1970;

Main, 2013; Nandamalabhivamsa, 2013; Osho, 1983; Ott, 2010; Rinpoche Dagsay Tulku, 2002; Saradananda, 2011; Schimmel, 1992; Shear, 2006; Sivananda, 1975) as well as research papers that included detailed descriptions of meditation practices (Amihai & Kozhevnikov, 2014; Cebolla et al., 2017; Dahl et al., 2015; Fox et al., 2016; Ospina et al., 2007; Peng et al., 2004; Shannahoff-Khalsa, 2004).

The interviews took place in a multitude of meditation and yoga centers all over Germany via telephone, and personally in Dresden and Bad-Meinberg. The first author is an experienced interviewer and interviewed altogether 20 expert meditators from the following traditions: different schools of Tibetan Buddhism (Kadampa, Kagyu, and Nyingma), Theravada Buddhism, Zen Buddhism, Yoga, Hinduism, Tantra, Sri Chinmoy, Kundalini Yoga, Osho meditation, Christian meditation, Sufi meditation, Brahma Kumaris, and Qigong.

The semi-structured interviews focused on one central question: "When you meditate, what exactly do you do?" This question was asked in an open manner to elicit a free response. The interviewer guided interviewees with repeated inquiries and questions to obtain the most detailed description of each meditation technique they employed during their meditation sessions. Then, the interviewer asked whether there were any more techniques that the interviewees used less often and, in the case of the interviewee being a meditation teacher, whether there were any more techniques that they taught to their students. All responses were instantly written down by the interviewer. The resulting transcripts were then double-checked by the interviewees to prevent any misunderstanding. Finally, all transcripts and the gathered meditation literature were qualitatively analyzed by extracting all mentions of meditation techniques and their corresponding descriptions. During this process, we decided to segment combined techniques into primary and secondary techniques. The primary technique represented the main practice, whereas the secondary technique(s) represented optional auxiliary or combinable practices, or variations of the main practice.

Results

This exhaustive search resulted in a list of overall 309 meditation practices (see Supplementary Material A—Table A1). Approximately two thirds of these techniques were reported during the interviews, and one third originated from literature and manuals. This extensive list was reduced in a systematic process involving several steps (see Fig. 1).

First, we removed all duplicates of identical techniques, for example, identical forms of observing the breath. Second, the first author sorted all remaining techniques into 14 intuitive categories to get a general overview. These categories were (1) breath, (2) observing thoughts, contemplation,
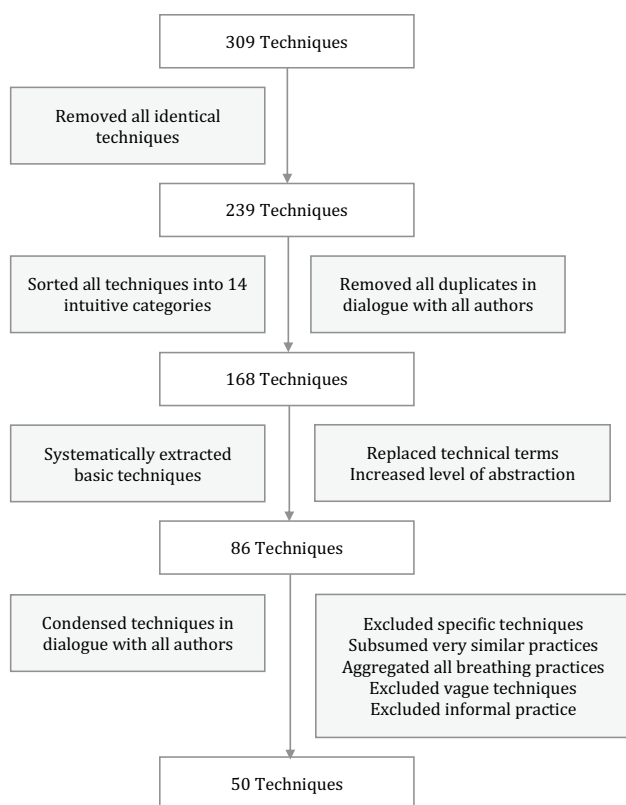
Fig. 1 Flow chart depicting the reduction process of gathered meditation techniques

insight, (3) prayer, opening up, grace, mysticism, (4) visualizations, (5) repeating a mantra or an affirmation, (6) observing the body, (7) sensing/feeling of energy, emotions, or affect-centered objects, (8) chanting, singing, humming, music, (9) open monitoring or doing nothing in particular, (10) experiencing nonduality or emptiness, (11) concentrating on an object, (12) cultivating virtues, positive attributes, or good wishes, (13) moving the body, and (14) informal practice. Then, all authors examined the 239 meditation techniques in these categories and collectively searched for duplicates. In the case of disagreement, all authors engaged in constructive discussions until consensus was reached. This reduction led to a list of 168 meditation techniques (see Supplementary Material A—Table A2).

Because we considered 168 techniques to be still too many to be used in the second study, the next step focused on the deduction of a manageable number of representative basic meditation techniques. Again, all authors engaged in constructive discussions to deduce systematic rules that would guide this process. Additionally, we consulted two external researchers to review and, if necessary, modify these rules. First, all practices were reread carefully and their basic techniques were extracted referring to two rules: (1) technical terms were replaced by more commonly used

words, for example, "chakra" was replaced by "energy center" and (2) the level of abstraction was increased for practices that were too specific, for example, "visualizing a rose blossom in the heart" and "visualizing an expanding light in the heart" were subsumed under "visualizations associated with the opening of the heart." This process resulted in a list of 86 basic meditation techniques (see Supplementary Material A—Table A3).

In order to further reduce the number of techniques, we consensually developed another set of guidelines: (1) We decided to remove techniques that were still too specific, for example, "locating one's pulse and repeating a mantra following this rhythm." (2) Very similar practices were subsumed to superordinate techniques, for example, "sitting with eyes closed and allowing the body to circle around one's own axis" and "standing upright with the eyes closed and allowing the body to move smoothly without intervening" were subsumed under "sitting or standing upright with the eyes closed and allowing the body to move smoothly without intervening." (3) Techniques that involved direct manipulation of breath, for example, rapid breathing or decelerating the breath, were subsumed under one category, as in some traditions they are considered preparatory rather than meditation practices. (4) Furthermore, we decided to remove techniques that were too vague in their description to be understood by people not familiar with this specific practice, for example, "letting go of all suppressed emotions ('catharsis')" or "detaching from all techniques, methods and goals and relaxing into a state of silent listening and profound stillness." These were considered general labels rather than precise descriptions of meditation techniques. (5) In addition, we agreed to exclude meditation or mindfulness as a practice of daily life ("informal practice" such as "mindful eating" or "repeating a mantra in everything one does"), as it was not considered a "formal" meditation technique comparable to the other basic techniques. This systematic process led to a final list of 50 basic meditation techniques, depicted in Table 1.

Study 2

This study addressed the question "What do meditators do when they meditate?" in a broader sense. We wanted to see whether our selection of techniques had been adequate and whether experienced meditators from all kinds of different contemplative traditions would be able to identify their personal practice in our selection of meditation techniques. At the same time, by obtaining their traditional background and the amount of experience they had with each technique, we were able to draw conclusions on the popularity and prevalence of each technique, generally and tradition-wise. With this, we were able to answer the above question from

Table 1 The 50 basic meditation techniques and their abbreviations utilized in the present paper

Basic meditation technique	Abbreviation
Being mindful of the rise and fall of the abdomen while breathing	Abdomen_Breath
Combining inhalation and exhalation with visualization of energy, qualities, light, smoke, etc	Breath_Visualization
Accumulating energy in specific centers (e.g., abdomen) and channeling it through certain pathways (e.g., spine)	Channel_Energy
Cultivating compassion, sympathetic joy, equanimity, loving kindness (for oneself, friends, neutral people, enemies, the whole world)	Compassion
Concentrating on a location in the body (e.g., abdomen or an "energy center" like chakra, Dan Tien) or on a series of locations in the body/ "energy centers"	Concentrate_Energy
Contemplating the conditional emergence of experiences (cause and effect)	Contemplate_Condition
Contemplating death and one's own mortality	Contemplate_Death
Contemplating a spiritually important question (e.g., "Who am I?")	Contemplate_Question
Concentrating the mind on something contradictory without thinking about the contradiction	Contradiction
Counting breaths	Count_Breath
Creating a visual representation of a deity and then merging with this visualization	Deity_Merging
Trying to feel one's heartbeat	Feel_Heartbeat
Fixating on an object without blinking/ "staring" (candle flame, picture, hand)	Fixate_Object
Looking at/focusing on a sacred object (picture of the master, sacred geometric pattern, etc.)	Focus_Object
Droning or humming continuously with optional corresponding hand movements	Humming
With a specific intention (e.g., open one's heart, raise one's mood) selecting and repeating a mantra, combining it with associated hand postures or arm movements	Intention_Mantra
Focusing on internal sounds and vibrations	Internal_Sounds
Labeling mental experiences with words that describe these experiences	Labeling
Listening to the sound of singing bowls or a gong and feeling the corresponding vibrations inside the body	Listen_Sounds
Lying down and going into a state of deep relaxation while being fully conscious	Lying_Relaxing
Voluntary manipulation of breath, e.g., reducing the strength of breathing or "pranayama" with holding one's breath	Manipulate_Breath
Repeating a mantra while focusing on corresponding points in the body	Mantra_Bodypoints
Repeating a mantra using a mnemonic (e.g., prayer beads)	Mantra_Mnemonic
Carrying out predetermined, meditative sequences of movements while allowing the breath to flow naturally	Meditative_Movement
Sitting or standing upright with the eyes closed and allowing the body to move smoothly without intervening	Move_Smoothly
Being mindful of the sensations arising in the nose during inhalation and exhalation	Nose_Breath
Observing how bodily sensations arise without adhering to them	Observe_Body
Observing emotions without adhering to them	Observe_Emotions
Observing how thoughts arise in the mind without adhering to them	Observe_Thoughts
Opening oneself up to blessings and inspiration	Opening_Up
Focusing on the pauses between inhalation and exhalation, carefully observing what happens	Pause_Breath
Focusing on one point of the body and letting the breath flow through this point of concentration	Point_Breath
Reading certain paragraphs of a text over and over again and taking them in	Read_Text
Reciting a mantra loudly, in a whisper, and silently	Recite_Mantra
Perceiving, then releasing emotions and tensions (e.g., with the help of the breath), while scanning the body	Release_Tensions
Repeating an affirmation (e.g., "I am patient")	Repeat_Affirmation
Mentally repeating syllables or words while connecting them to the rhythm of breathing	Repeat_Words_Breath
Being mindful of the respiratory flow in the entire body	Resp_Flow
Scanning the entire body	Scan_Body
Singing sutras/mantras	Singing_Sutras_Mantras
Fostering and focusing on a spiritual connection created by singing together	Singing_Together
Sitting and gazing at the wall, observing oneself doing nothing	Sitting_Do_Nothing
Spinning around one's own axis with the arms spread out	Spinning
Visualizing how the dead human body slowly decays and decomposes	Visualize_Decay
Visualizing the body expanding in all directions	Visualize_Expanding
Visualizations associated with the opening of the heart (e.g., rose blossom)	Visualize_Heart_Opening

Table 1 (continued)

Basic meditation technique	Abbreviation
Visualizations associated with light or fire at different body parts	Visualize_Light_Fire
Visualizing that thoughts are inherently restless and focusing on the silence and the vastness that lies beyond them	Visualize_Thoughts_Silence
Walking, dividing the walking process into parts, and internally labeling each partial movement	Walking_Labeling
Walking and being mindful of sensory perceptions (movement of the feet, legs, clothing, air, hair, etc.), coordinating it with the breath if necessary	Walking_Senses

Techniques are arranged in the alphabetical order of their abbreviations

three different perspectives: What do meditators do when they meditate in general?; What do they do in their specific tradition?; and What do they do with respect to combining several techniques?

Method

Participants

To answer these questions, we devised a four-part online survey using the SoSci Survey platform (Leiner, 2019). The survey addressed "experienced meditators" from any spiritual or meditative tradition or background with any level of meditation experience. We deliberately chose to approach a broad range of meditators as we were interested in the variety of practice and the diversity of practitioners. Altogether 878 experienced meditators responded to the survey, and 661 completed the survey. We excluded all participants who did not provide any data on their lifetime experience with meditation and/or on the tradition in which they were practicing. Two participants had to be excluded because they rated having the same amount of experience with all meditation techniques, which we deemed very unlikely. The final sample was composed of 635 participants, 60.9% women. The mean age was 52.32 years ($SD = 10.71$; range 21–92 years). At the time of the survey, 92.3% of the participants were living in Germany.

Participants had practiced meditation for 6 months up to 57 years ($M = 15.01$ years, $SD = 11.11$). On average, they reported practicing meditation 6.03 times a week ($SD = 3.61$) for 31.35 min per session ($SD = 22.89$). The majority of participants reported having taught meditation occasionally (40.8%) or regularly (23.0%) and described their meditation practice as very (30.4%) or fairly (42.4%) regular. Participants reported affiliations with a great variety of meditative traditions and schools, which we subsumed under 19 categories of major meditative traditions (see below).

Of all participants, 48.7% reported holding a university degree, 19.5% had graduated from high school, 6.8% had completed their doctorate, and 12.8% had acquired a professional qualification. Regarding employment, 32.9% of participants were working as employees, 37.0% were self-employed, and 8.5% were retired.

Procedure

In the survey, meditators were first asked to answer questions regarding their meditation experience and their current or past meditation practice/routine. Second, they were asked to name all traditions the meditation techniques they practiced were derived from, in reverse chronological order, that is, the most recent first. Third, they were given the list of 50 basic meditation techniques and asked to rate how much experience they had with each of the 50 techniques on a 6-point Likert scale (from 1 = no experience at all to 6 = a lot of experience). If an important technique they were practicing was missing, they had the opportunity to add up to two techniques to the list and rate their experience with these. Last, they answered a few sociodemographic questions.

We used snowball sampling to reach as many experienced meditators from as many traditions as possible. The internet was searched extensively for schools, centers, societies, and associations of meditation, yoga, or contemplation in Germany, Austria, and Switzerland. We identified around 100 contacts in this way. Then, we sent the online survey to these contacts with the request to spread the survey and forward it to as many meditators as possible. Most meditation centers and societies agreed to do so.

Results

We performed multiple analyses to provide a multifaceted response to each question. One set of analyses was based on all 50 meditation techniques to obtain a complete picture of the adequateness of our selection and the distribution and clustering of the techniques. A second set of analyses focused on the top 10 preferred techniques of all participants or of subsets of participants. This was done in an attempt to simplify and reduce the vast number of techniques under investigation. The two types of analyses complement each other in supplying an in-depth examination of what meditators do when they are meditating.

Data were analyzed quantitatively by employing descriptive, correlational, and cluster analyses. All statistical analyses were performed using R 4.0.2 (R Core Team, 2020). Bar charts were generated with the statistical package ggplot2 (Wickham, 2016), and dendrograms with the package ggdendro (de Vries & Ripley, 2020). Results on all three research questions will be reported consecutively in the following.

What Do Meditators Do When They Meditate: the Commonalities

Do experienced meditators agree with our selection of basic meditation techniques? Which meditation techniques are especially popular among meditators of all traditions? We relied on the two analytic approaches described above to answer these two questions. The first question was analyzed encompassing all 50 techniques, whereas the second question aimed at simplifying our selection by extracting the top 10 preferred techniques of all meditators.

We descriptively evaluated the ratings of all participants on all meditation techniques. If our list of techniques included irrelevant ones, we would anticipate that none of the experienced meditators would have a lot of experience with this specific technique. If we had omitted important techniques, we would expect them to appear consistently in the further added techniques. At the same time, these added techniques should not be variations of our already present 50 basic techniques. To deduce the most popular techniques, we calculated mean experience scores across all participants for each meditation technique and built a ranking sequence based on these scores.

Adequateness of 50 Meditation Techniques

In general, all 50 meditation techniques were commonly used. Every technique received all possible rating scores, ranging from the minimum of 1 (no experience at all) to the maximum of 6 (a lot of experience). On average, each technique had around 129 meditators (20.4% of the sample; $SD = 10.5\%$) who reported having a lot of experience with that particular technique. The most popular technique in this regard, that is, the one with the highest rating score (scanning the body), had 277 meditators, while the least popular technique (visualizing decay) still had 13 meditators reporting having a lot of experience with it. At the same time, each technique had an average of 147 participants (23.2% of the sample; $SD = 14.5\%$) who had no experience practicing it. The techniques with the highest (419) and lowest (23) number of participants with no practice experience were the same as above—visualizing decay and scanning the body, respectively.

This means that for every meditation technique, there were at least 23 experienced meditators who had never used

it and at least 13 who used it a lot, which speaks to our selection of practices. A more detailed exposition on how rating scores were distributed across all meditation techniques can be found in the Supplementary Material (Table B1).

Next, we looked at the average number of meditation techniques our participants were acquainted with. On average, meditators from our sample reported having no experience at all with 11.6 ($SD = 9.7$) techniques, a little experience with 7.7 ($SD = 5.2$), some experience with 6.4 ($SD = 4.3$), more experience with 6.9 ($SD = 4.2$), quite a lot of experience with 7.3 ($SD = 5.8$), and a lot of experience with 10.2 ($SD = 9.4$) meditation techniques. Consequently, participants reported already having practiced 38 of the 50 meditation techniques, at least to some extent. This further validates our list of techniques as they, indeed, seem to be widely practiced.

Of all meditators, 6.6% reported having employed all techniques at least once in their life. The absolute minority of respondents, 0.8%, reported having used only 10 or fewer meditation techniques over the course of their practice. Thus, it seems that most experienced meditators did have accumulated experience with quite a few different meditation techniques over their lifetime of meditation practice. However, most meditators seemed to have a set of around 10 preferred techniques they most engaged with in their practice.

Furthermore, participants had the opportunity to add any meditation technique they felt was missing from the list. Altogether 240 techniques were added (list available on request). Again, we analyzed these techniques descriptively by extracting and grouping similar techniques. The analysis revealed four main groups of techniques: (1) Osho (or similar) techniques, for example, "catharsis" ($n = 18$), which we had considered in our first list of 309 techniques but excluded because they fell under the criterion of being too vague in their description to be understood by people not familiar with this specific practice; (2) sitting in silence ($n = 35$), which we had considered in our first list but excluded as a "vague" practice; (3) Koan, Mahavakya, or similar techniques ($n = 9$), which we had included in our list but for which we probably had not chosen the right wording; and (4) other techniques ($n = 178$) that (a) either fell under one of the exclusion criteria mentioned above, that is, they were either too general (e.g., "Zen", "Yoga"), too specific (e.g., "heart chakra meditation," "tree meditation"), or an informal practice (e.g., "mindfulness as a practice of daily life"); or (b) or were already included in the list (e.g., "mantra meditation," "observing thoughts and emotions").

Subsequently, we made three slight adjustments to our original list (depicted in Table 1). We decided to reword one technique and to extend our list by including two more basic techniques. Specifically, we included "sitting in silence" and "expressive practices," such as catharsis or shaking, which

are often employed in the context of Osho meditation. To aid understanding, we reworded Technique 8 ("concentrating the mind on something contradictory without thinking about the contradiction") to "concentrating the mind on something contradictory, a paradox, or a sentence of wisdom without thinking discursively about it (e.g., Koan, Mahavakya)." Thus, our final set included 52 basic meditation techniques. Yet, all of the following analyses are based on the 50 techniques we explicitly had requested participants to rate in this study.

The 10 Most Popular Meditation Techniques

We calculated the mean score of rated experience with each meditation technique across all participants to build a ranking sequence of preferred techniques. Our underlying assumption was that the meditation techniques that meditators rated as having "a lot of experience" with were being practiced more often in the present or had been practiced quite a lot in the past. Thus, it can be assumed that these techniques were more popular and important in meditators' regular meditation practice than other techniques. Table 2 shows the top 10 meditation techniques that received the highest mean scores across all meditators from all traditions.

As can be observed from Table 2, the three most popular meditation techniques across all participants were scanning the body, observing the abdomen while breathing, and observing thoughts. Consistently, these are possibly the three most widely known meditation practices.

In this list of 10 techniques, five others stand out as having a clear body-oriented focus, that is, observing the breath in the nose and in the body, observing bodily sensations, releasing tensions in the body, and supine meditation (lying down and being relaxed but conscious). Therefore, body-centered techniques seem to be of particular importance for meditation. Only observing thoughts, singing sutras/mantras, and cultivating compassion or similar virtues refer to techniques not exclusively linked to the body.

Next, we looked at the preferred techniques of the most experienced meditators in our sample. Ninety-eight meditators in our sample had more than 30 years of meditation experience. Nonetheless, the top 10 preferred techniques of these very experienced meditators did not vary significantly from the general top 10. When we looked at the top 15 preferred techniques, there was only one technique that was considerably more popular among very experienced meditators compared to the overall sample, that is, "contemplating on a spiritual question."

We also had a look at the least popular meditation techniques, that is, techniques that only a few meditators reported having much experience with. The three least popular meditation techniques across all participants were visualizing how the body slowly decays ($M=1.69$), spinning around one's own axis ($M=1.80$), and concentrating the mind on something contradictory ($M=2.02$). Perhaps this is not surprising, as these techniques are considered very advanced and/or specific to certain traditions that might have been underrepresented by our sample of meditators. Whereas the first of these three techniques is commonly practiced by Theravada Buddhist monks and nuns, the second is considered a typical Sufi technique. The third was the technique we chose to reword because some meditators might have misinterpreted its description (see above). Thus, to provide a more differentiated picture of the variety of practices, we decided to run a few tradition-specific analyses.

What Do Meditators Do When They Meditate: the Differences

After gaining some general insight into the preferred techniques across a diverse sample of meditators, we were interested in how these findings would generalize across preferences in specific meditative traditions. For this reason,

Table 2 Mean rating scores and standard deviations of the 10 most popular meditation techniques across all participants ($N=635$)

Meditation technique	M	SD
Scanning the entire body	4.71	1.48
Being mindful of the rise and fall of the abdomen while breathing	4.68	1.50
Observing how thoughts arise in the mind without adhering to them	4.66	1.44
Being mindful of the respiratory flow in the entire body	4.54	1.53
Perceiving, then releasing emotions and tensions (e.g., with the help of the breath), while scanning the body	4.41	1.56
Cultivating compassion, sympathetic joy, equanimity, loving kindness (for oneself, friends, neutral people, enemies, the whole world)	4.34	1.54
Observing how bodily sensations arise without adhering to them	4.28	1.59
Singing sutras/mantras	4.21	1.76
Lying down and going into a state of deep relaxation while being fully conscious	4.19	1.76
Being mindful of the sensations arising in the nose during inhalation and exhalation	4.13	1.68

we first evaluated which traditions were represented in our sample. Second, we compared preferred techniques in our two largest groups of meditators, that is, Buddhist and Hindu meditators. And third, to obtain an even more accurate picture, we subdivided our sample into 12 major groups of meditative traditions and compared their preferred meditation techniques with one another.

Meditative Traditions in the Sample

Participants were provided with a free input field to list all meditative traditions they were affiliated with and to provide the name of any prominent teacher in their school. Then, we examined and processed all enumerated traditions in three consecutive steps. First, we extracted and categorized all unique names of traditions and spiritual teachers until the list was complete and no new names could be added. Second, we aggregated these names into larger groups of related traditions and teachers. And third, we generated a final categorization of superordinate traditions by carefully grouping them into as many categories as necessary and as few as possible. This process was guided by three different considerations: (1) clustering similar traditions (e.g., Soto and Rinzai Zen into "Zen Buddhism"); (2) representing the highest possible diversity in philosophical, cultural, or geographical origin (e.g., Indian, Abrahamic, Chinese); and (3) retaining distinctive traditions, which were strongly represented in our sample (e.g., Sivananda vs. Kundalini Yoga).

We identified 18 superordinate traditions in this way. In a final step, we allocated participants to these superordinate traditions based on the descriptions they had given in the questionnaire. They could be assigned to several groups of traditions if they had been practicing in different meditative traditions. Table 3 gives the superordinate traditions and the number of participants having practiced in these.

Several participants reported having practiced in different meditative traditions. Therefore, the total number of allocated traditions ($n = 1107$) surpasses the total number of participants. On average, participants reported practicing in 1.74 ($SD = 1.04$, range 1–6) of these traditions. The majority of participants had practiced in either Buddhist ($n = 462$) or Hindu ($n = 449$) meditative traditions.

Hindu Versus Buddhist Meditators

Participants who reported practicing in one or more Buddhist traditions (i.e., Zen, Theravada, Vipassana, or Tibetan schools) but in no tradition from another spiritual background were allocated to the group of Buddhist meditators ($n = 216$). Participants practicing in one or more Hindu traditions (i.e., Yoga traditions, Osho, and other Hindu masters) but in no other spiritual tradition formed the group of Hindu meditators ($n = 204$). Participants of any other spiritual or mixed spiritual backgrounds were not included in the following analyses.

Table 3 List of superordinate traditions present in the sample and number of experienced meditators (*n*) practicing or having practiced in these traditions

| Superordinate tradition	Number of meditators (*n*)
Zen	219
Sivananda Yoga	156
Theravada, Vipassana	144
Other Hindu traditions: Vaishnavism, Sri Chinmoy, Sri Aurobindo, Mother Meera, Ramana Maharshi, Deepak Chopra, Transcendental Meditation, and others	116
Tibetan Buddhism	99
Yoga (other)	84
Kundalini Yoga	47
Osho meditation	46
Mindfulness-based stress reduction	32
Sufism	29
Christianity	26
Qigong/Tai Chi	17
No tradition/free meditation	11
Tantra	11
Shamanism	5
Anthroposophy	3
Merkabah/Jewish	3
Other, e.g., Acem, hypnosis	24

Table B2 in the Supplementary Material gives the number and percentage of subgroups of traditions in both groups. Practitioners of Zen Buddhism and Sivananda Yoga were slightly overrepresented in our sample. However, we know of no representative survey giving reliable base rates of meditators practicing in the respective traditions. Still, both abovementioned traditions are very popular in Germany.

As for the previous analysis, we calculated the mean score of each meditation technique for both groups, that is, Hindu and Buddhist meditators, and built ranking sequences. Higher scores indicate more overall experience in practicing the respective technique. To ease comparison between the two groups of meditators, we visually present their top 10 preferred techniques in a comparative bar chart (Fig. 2). This figure depicts 17 techniques that appeared in any of the two top-10 lists with their corresponding mean ratings in both groups. It is ordered according to the top-10 list of Buddhist

meditators to enhance comparability. Stars and daggers indicate the top 10 preferred techniques for Buddhist and Hindu meditators, respectively. Tables showing the top 10 preferred techniques separately for Buddhist and Hindu meditators can be found in the Supplementary Material (Tables B3 and B4).

Looking at the stars and daggers in Fig. 2, very clear distinctions in preferred techniques appear between Buddhist and Hindu meditators. Both top-10 lists have only three meditation techniques in common: observing the respiratory flow, observing the abdomen while breathing, and scanning the body. All other techniques differ and reflect tradition-specific preferences for techniques. Buddhist meditators prefer techniques such as observing thoughts or emotions, walking meditation, and cultivating compassion or loving-kindness. Hindu meditators, on the other hand, practice singing or reciting mantras, concentrating on locations in the body or "energy centers," and manipulating the breath.

Fig. 2 Comparative bar chart depicting the top 10 preferred meditation techniques of Buddhist ($n = 216$) and Hindu ($n = 204$) meditators and corresponding mean ratings in both groups. Note. *, top 10 preferred techniques of Buddhist meditators; †, top 10 preferred techniques of Hindu meditators. Whiskers represent standard deviations. See Table 1 for descriptions of technique codes
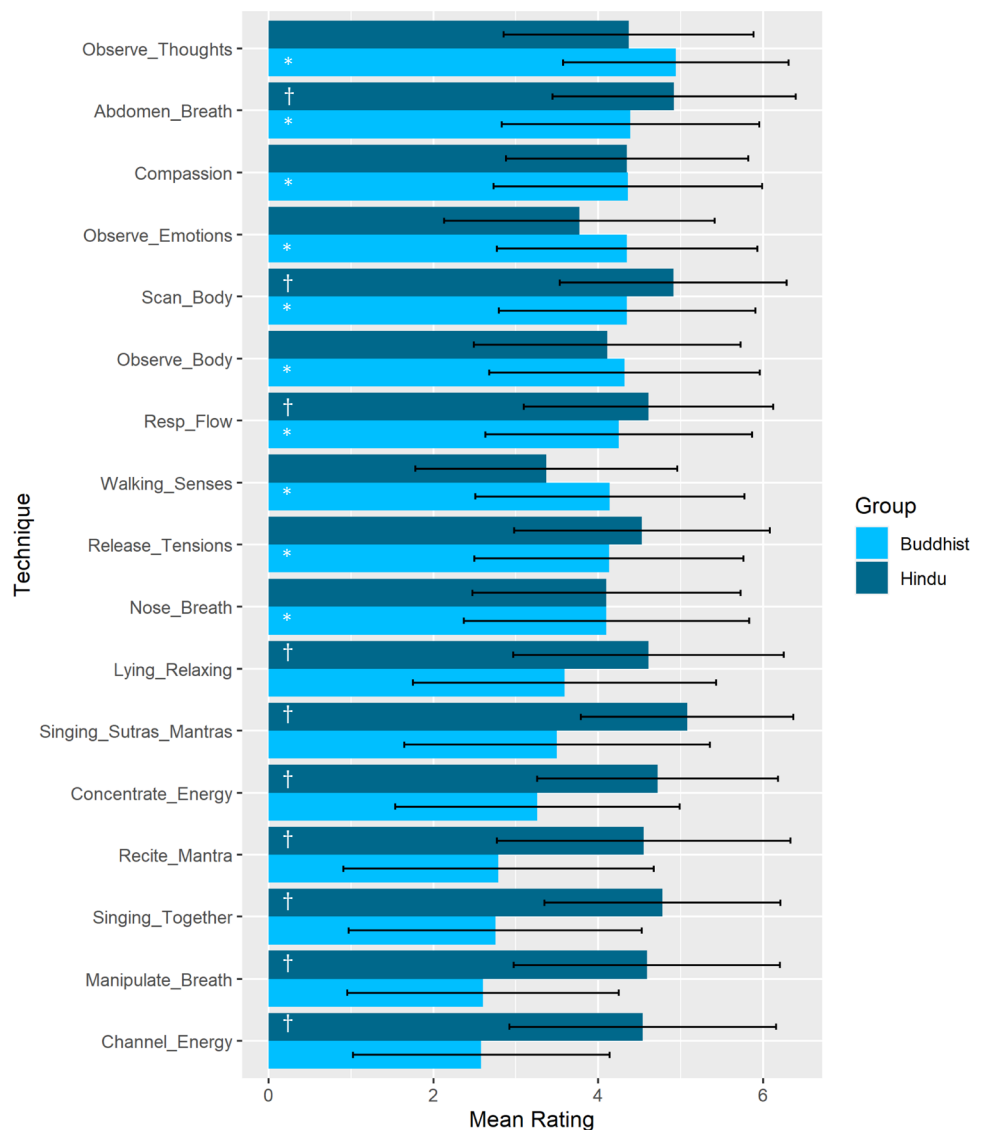
These preferences correspond to both statements of experienced meditators from Study 1 as well as meditation manuals from the respective traditions (Bodian, 2016; Chinmoy, 2013; Kornfield, 2009; Mahasi, 1970; Nandamalabhivamsa, 2013; Saradananda, 2011; Sivananda, 1975). Moreover, it seems that Hindu meditators also practice techniques preferred by Buddhist meditators quite a lot, but not vice versa.

Comparing these results to the overall top 10, the latter seem like a mixture of preferred meditation techniques from Buddhist and Hindu traditions. All three techniques that overlap in both traditions reappear in the top 10, as well as four more techniques from Buddhist traditions (observing bodily sensations or thoughts, cultivating compassion, etc., releasing tensions in the body) and three more techniques from Hindu traditions (singing sutras/mantras, supine meditation, concentrating on a location in the body).

As both groups of meditators, Buddhist and Hindu, represent a substantial proportion of meditators in our sample, 34.0% and 32.1%, respectively, it might well be that the abovementioned general top-10 list is slightly skewed. Nonetheless, it might also be possible that these techniques represent techniques actually preferred by many meditators independent of their tradition, which we checked in the following.

Preferred Meditation Techniques in 12 Major Traditions

To make our results more discernible, we decided to allocate each participant to one single tradition. If meditators reported practicing in more than one tradition, we allocated them to the tradition they described as their current one. If two traditions were mentioned as equally important, we tossed a coin to determine the allocation. Thereafter, we excluded all traditions with fewer than five

meditators allocated to them, for example, shaman, anthroposophical, or Jewish meditators. As the "other" category was far too heterogeneous to be interpreted meaningfully, we refrained from including it in our analyses. We also excluded meditators with "no tradition."

As a result, we obtained 12 categories of major meditative traditions. Respective sample sizes, gender ratios, mean ages, and mean meditation experiences of participants in each of the 12 traditions can be found in Table B5 in the Supplementary Material. We are well aware that subgroups with smaller sample sizes (such as the five designated Qigong/Tai Chi meditators in our subsample) provide less reliable estimates than subgroups with larger sample sizes. Therefore, the results should be interpreted with care.

Following the procedure described above, we built ranking sequences for each tradition. Then, we performed three analyses to generate a precise picture of differences and commonalities between traditions. First, we extracted the 10 most popular meditation techniques within each tradition and calculated the percentage of overlap in preferred techniques across all traditions. Second, including all 50 techniques, we used hierarchical clustering to determine the proximity/distance between the mean ratings in diverse traditions. And third, we identified distinctive meditation techniques that were uniquely preferred by one specific tradition, relying on their top 10 techniques.

To calculate the percentage of overlap, we divided the number of techniques shared in two traditions by 10. Resulting percentages are given in Table 4. As only the top 10 ranked meditation techniques were compared to each other, a score of 0.3, for instance, indicates that three of 10 techniques overlapped in two traditions. The mean percentage of overlap between all traditions was 44.4% ($SD = 17\%$). Full

Table 4 Percentage of overlap between ranking sequences of the top 10 preferred techniques in 12 major meditative traditions

Technique	Zen	Theravada	Tibetan	Sivananda	Kundalini	Yoga	Hindu	Osho	MBSR	Christian	Sufi	Qigong/Tai Chi
Zen	1											
Theravada	0.7	1										
Tibetan	0.5	0.6	1									
Sivananda Y	0.3	0.3	0.3	1								
Kundalini Y	**0.1**	**0.1**	**0.2**	0.6	1							
Yoga other	0.6	0.6	0.4	0.7	0.4	1						
Hindu	**0.2**	0.3	0.4	0.6	0.5	0.3	1					
Osho	0.7	0.7	0.6	0.6	0.4	0.7	0.4	1				
MBSR	0.7	***0.8***	0.5	0.4	**0.2**	0.7	0.3	0.7	1			
Christian	0.5	0.6	0.3	0.4	**0.1**	0.4	0.4	0.4	0.6	1		
Sufi	0.3	0.4	0.4	0.6	0.4	0.4	0.6	0.4	0.3	0.3	1	
Qigong/Tai Chi	0.6	0.5	0.4	0.3	**0.2**	0.5	0.3	0.5	0.5	0.3	0.3	1

Bold type indicates overlap of 20% or less. Bold italic indicates overlap of more than 80% of techniques. *MBSR*, mindfulness-based stress reduction; *Y*, yoga

ranking sequences for all traditions can be found in Supplementary Material C.

Interestingly, Table 4 indicates that each meditative tradition has at least one prominent overlapping technique with each other tradition. Again, the two most popular techniques in almost all traditions were observing the breath in the abdomen and scanning the body (both found in 11 of the 12 traditions), followed by observing the respiratory flow (8 traditions). This finding corresponds to prior results presented in this paper, both the general top 10 as well as the top 10 of Buddhist and Hindu meditators. Thus, it seems these techniques are indeed practiced by many meditators irrespective of their current meditative tradition.

Remarkably, we found the least overlap between Kundalini Yoga and other traditions. Although some overlap exists with other Yoga or Hindu traditions, the overlap to other traditions' preferred meditation techniques is minimal. A similarly small overlap was observed for techniques of Hindu and Zen meditators. The traditions with the highest overlap are Theravada Buddhism and mindfulness-based stress reduction (MBSR), which might reflect the strong influence of Kabat-Zinn's Theravada practice on the development of MBSR (Kabat-Zinn, 2013).

Next, we used cluster analysis to identify similarity in groups of traditions based on their ratings of all 50 meditation techniques. Cluster analysis maximizes homogeneity within as well as heterogeneity between clusters of objects and is performed with a proximity matrix (Kaufman & Rousseeuw, 2009). This proximity matrix can represent either similarities (correlations) or dissimilarities (distances) between objects. We considered the distances between ratings to be more relevant for our research question than their covariation. Therefore, we calculated Euclidean distances between the mean ratings across all 50 techniques of all traditions and submitted them to a Ward's hierarchical agglomerative cluster analysis. The resulting dendrogram is presented in Fig. 3.

Dendrograms are analyzed visually by inspecting the relative lengths of their bars. Shorter bars indicate a smaller distance between objects whereas longer bars represent a greater distance. Thus, similar traditions appear closer to each other in the dendrogram in Fig. 3. After careful inspection, we identified two clusters of traditions that emerged from the data: (1) Hindu meditative traditions, also including Sufi and Tibetan meditators; and (2) Buddhist meditative traditions, also including Christian and Qigong/Tai Chi meditators. However, Qigong/Tai Chi meditators are relatively far from the remaining traditions in the Buddhist cluster. Within the Hindu cluster, one could differentiate a yoga cluster and a broader Hindu cluster, yet the distances between these two clusters are rather short.

These results support the general commonalities identified in the analyses above while at the same time substantiating
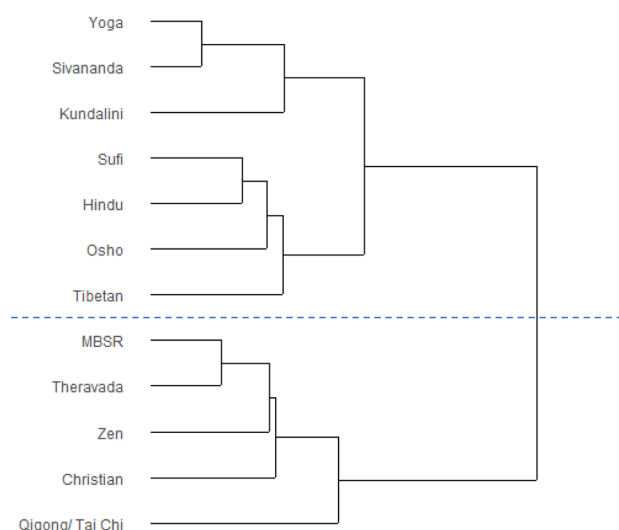

Fig. 3 Dendrogram of relative distances between ratings of 12 major meditative traditions. Note. The dashed line represents the partitioning of two clusters. MBSR, mindfulness-based stress reduction

the distinctions found between Hindu and Buddhist meditators. Interestingly, Tibetan Buddhism appeared within the Hindu cluster. This might be indicative of shared preferences in these two groups reflecting their shared past. Tibetan Buddhism incorporates many Hindu contemplative practices that other Buddhist traditions such as Zen and Theravada do not (Powers, 2007; Rinpoche Dagsay Tulku, 2002).

Last, we had a closer look at distinctive meditation techniques that appeared solely in the top-10 list of one specific tradition but in no other ranking sequence. We identified 12 distinctive techniques in six diverse traditions (see Table B6 in the Supplementary Material). In most cases, these techniques corresponded to the recollections of our interview participants in Study 1 who practiced in these specific traditions, except for Qigong/Tai Chi meditators. However, this might also be due to the relatively small subgroup of Qigong/Tai Chi meditators (n = 5) in our sample.

What Do Meditators Do When They Meditate: the Combinations

Meditators often use several meditation techniques when they practice. They might have a main practice and alternate it from time-to-time with other practices. Alternatively, they might have a certain set of techniques that are practiced in a predefined sequence, or depending on the time of day or a specific intention they have. Consequently, we were interested to find groups of techniques that are commonly practiced together. Therefore, we performed three hierarchical cluster analyses. These analyses relied on all 50 meditation techniques and complement the top-10 analyses described above. Hence, we first clustered the ratings

of all 635 participants. Second, we performed two separate cluster analyses for the two largest subgroups of participants, namely, Buddhist and Hindu meditators. In accordance with our previous descriptive analyses, we would expect marked differences between clusters of Buddhist and Hindu meditators.

Prior to each cluster analysis, we calculated Euclidean distances between the ratings of each meditation technique across all participants or across participants within each of the two subgroups in question. Then, we submitted the distance measures to a Ward's hierarchical agglomerative cluster analysis and visually inspected the resulting dendrograms. Figure 4 depicts the dendrogram of the overall cluster solution. Meditation techniques with similar experience ratings have shorter bars and appear closer to each other in the

dendrogram. Accordingly, these meditation techniques are commonly practiced together by meditators in our sample. Longer bars, on the other hand, represent greater distances between practiced meditation techniques and point to differences in the combination of certain techniques.

Looking at Fig. 4, three main clusters of techniques emerged from the data. We named them according to the context in which they are commonly practiced together—from top to bottom: (1) Hindu meditation techniques, (2) Buddhist meditation techniques, and (3) common meditation techniques.

We found meditation techniques summarized in the Hindu cluster both in the recollections from expert meditators in Study 1 as well as in the top positions in the ranking sequences of many Hindu traditions. The same is true for

Fig. 4 Dendrogram of relative distances between experience ratings of 50 basic meditation techniques across all meditators (*n* = 635). Note. Dashed lines represent the partitioning of three clusters. See Table 1 for descriptions of technique codes
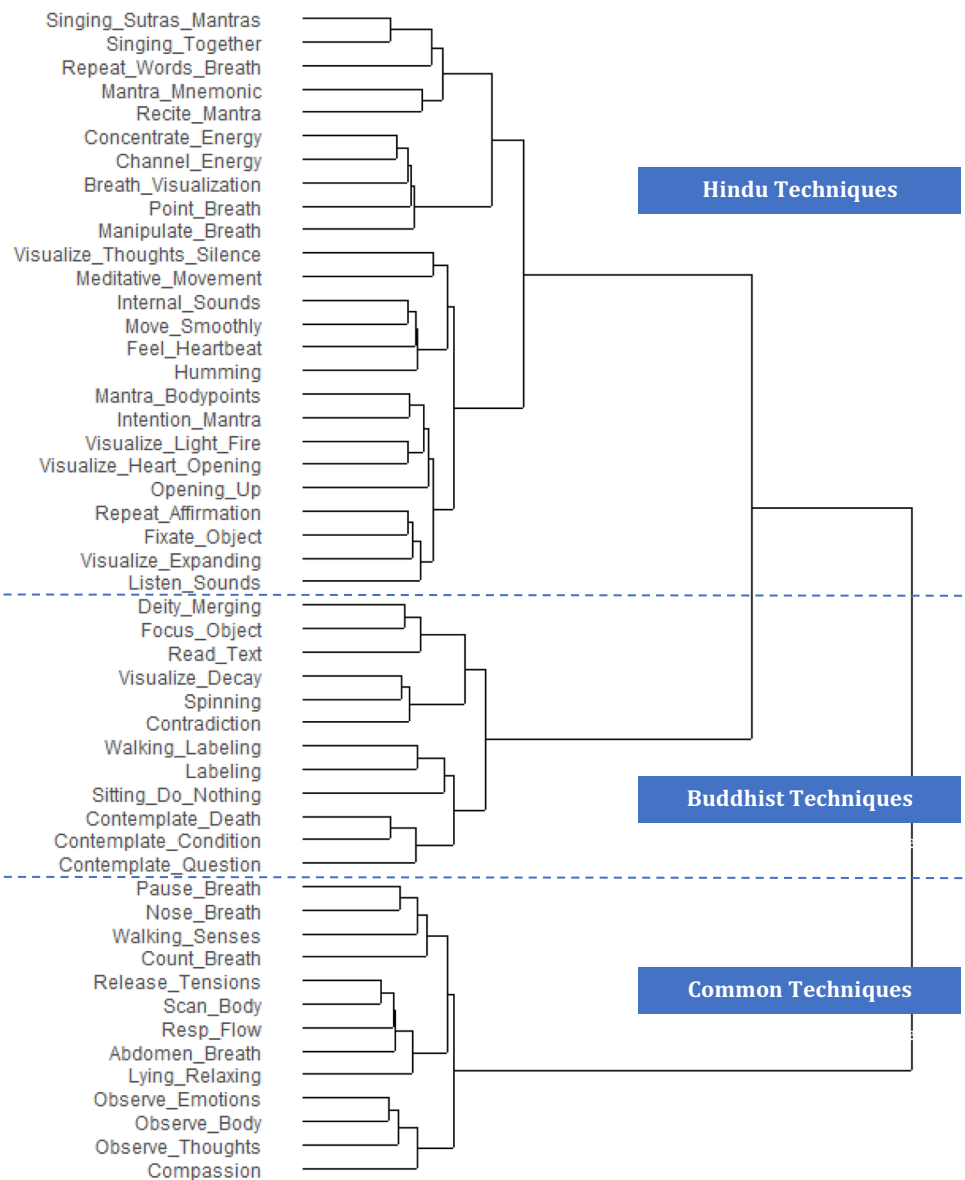
most of the techniques found in the Buddhist cluster. The last cluster, though, is different. It comprises many of the very common, more general techniques we located in many different traditions. A majority of these have a strong and prominent focus on the body. Although they correspond closely to the abovementioned top-10 list of Buddhist meditators, we nevertheless decided to call them "common" meditation techniques. This was done because all of these techniques are widely known and utilized in many different contexts, including traditional schools as well as secular meditation programs such as MBSR.

All clusters could be divided into smaller subclusters. However, the distances between these subclusters are markedly shorter than the distances between the larger clusters. One could section the Hindu cluster into three subclusters: (a) mantra meditation, (b) energy meditation, and (c) visualization and movement meditation. The Buddhist cluster is not

as easy to subdivide. One subcluster could be named "contemplation," but it is difficult to find suitable names for other possible clusters. The common cluster could be segmented into (a) body-centered meditation and (b) mindful observation and compassion/virtue meditation. Yet, the lengths of the lines in the dendrogram would suggest a three-subcluster solution that we could not make sense of.

Subsequently, we conducted two cluster analyses for Buddhist and Hindu meditators. Figures 5 and 6 give the respective dendrograms.

The first thing that catches the eye in both figures is the presence of two distinct clusters, one smaller and one larger. The large cluster within the dendrogram of Buddhist meditators can be subdivided into three smaller subclusters. The first two of these subclusters represent a more Tibetan style of practice including a lot of mantra, visualization, and energy meditation techniques. The third subcluster, though,

Fig. 5 Dendrogram of relative distances between experience ratings of 50 basic meditation techniques across Buddhist meditators ($n = 216$). Note. Dashed lines represent the partitioning of two main clusters. Dot-dashed lines represent the partitioning of three subclusters within the larger cluster. See Table 1 for definitions of technique codes
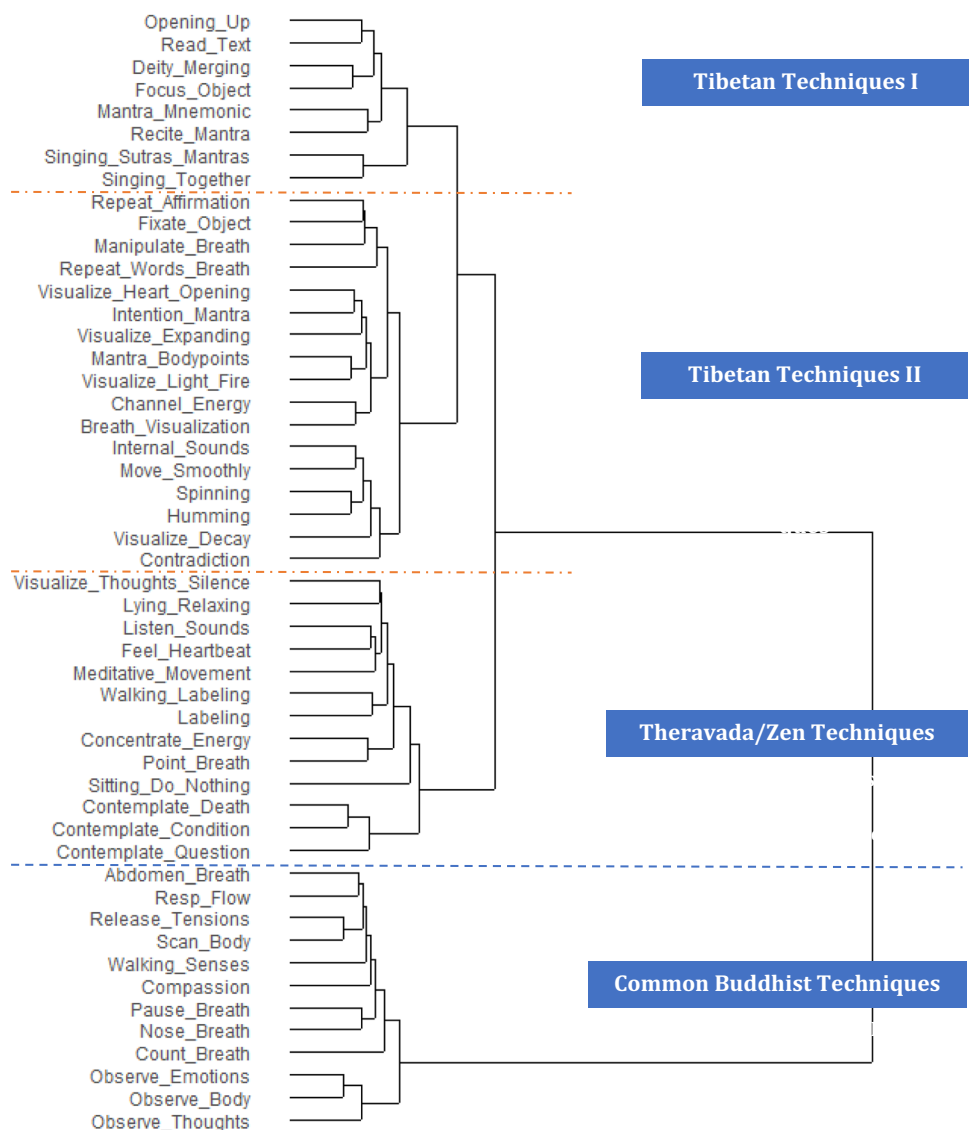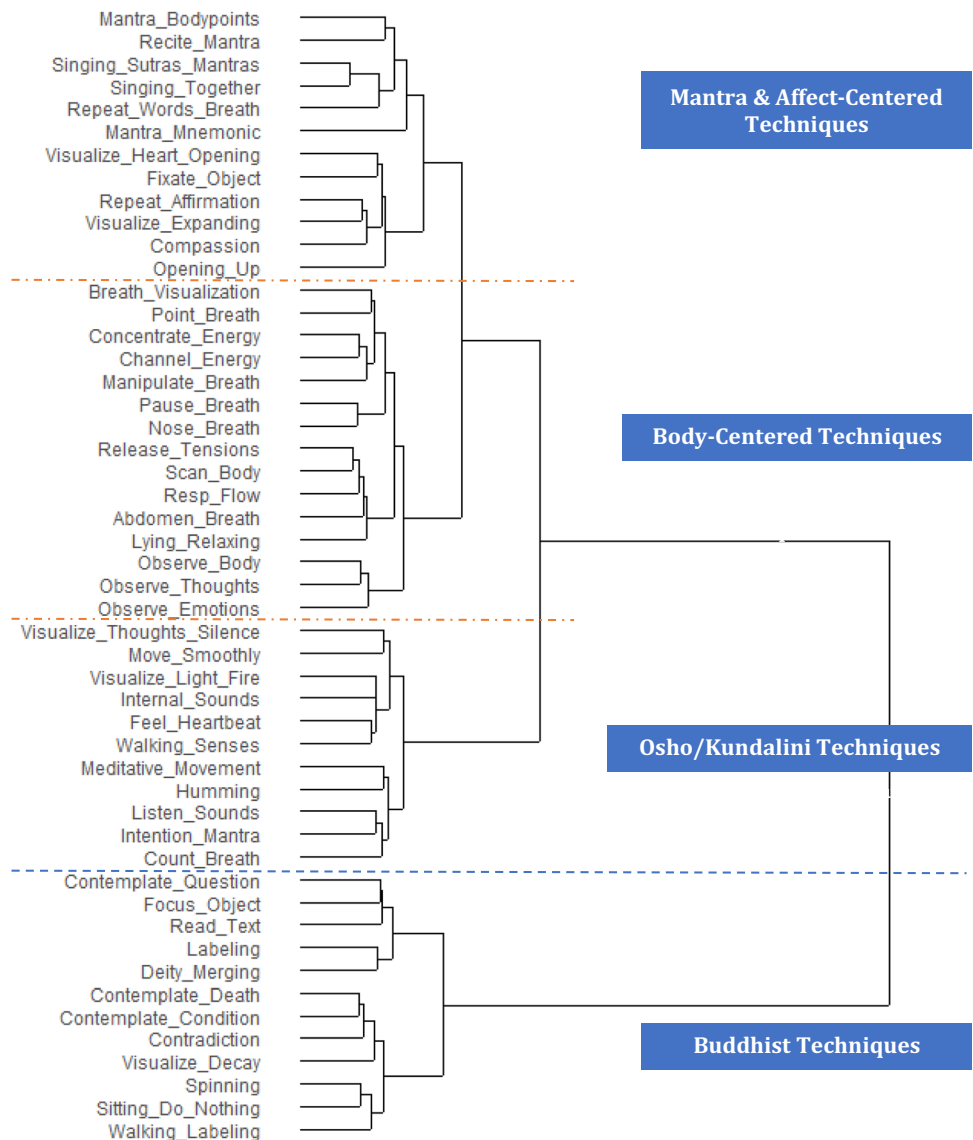
Fig. 6 Dendrogram of relative distances between experience ratings of 50 basic meditation techniques across Hindu meditators (*n* = 204). Note. Dashed lines represent the partitioning of two main clusters. Dot-dashed lines represent the partitioning of three subclusters within the larger cluster. See Table 1 for definitions of technique codes

resembles a more Theravada or Zen style of practice, including labeling, contemplation, and sitting in silence. Hence, the larger cluster indicates specific differences between various schools of Buddhism, whereas the smaller cluster at the bottom represents techniques practiced by all Buddhist meditators, irrespective of their particular school, and closely resembles the cluster of "common" meditation techniques.

In contrast, the clustering within the dendrogram of Hindu meditators looks markedly different. The larger cluster can be segmented into three subclusters. The first subcluster contains diverse forms of mantra and affect-centered meditation. The second subcluster resembles the secular cluster in the overall solution but includes more breath and body-centered meditation techniques. The third subcluster includes meditation techniques with movement or sound and other techniques that are commonly practiced in Osho or Kundalini Yoga traditions. Accordingly, the first two

subclusters represent meditation techniques commonly practiced in many Hindu traditions, whereas the third subcluster is indicative of two specific traditions. The smaller cluster at the bottom represents distinguished Buddhist meditation techniques that are very uncommon in Hindu meditation practice.

Discussion

Study 2 thoroughly evaluated the selection of 50 basic techniques that we had identified in Study 1. From the responses of our large and diverse sample of experienced meditators, we conclude that our selection of meditation techniques is comprehensive and representative for this sample. All 50 basic meditation techniques were commonly practiced and each technique had a notable number of participants

who had a lot of experience with it. A small adjustment to the original list led to a final set of 52 basic meditation techniques.

An assessment of the 10 most popular meditation techniques across all meditators reveals a certain preponderance of Buddhist and Hindu meditation techniques. This is unsurprising as these two groups formed the majority of our sample. However, comparing the preferred techniques of Buddhist versus Hindu meditators, clear-cut distinctions between these two traditions became obvious. When we compared 12 major meditative traditions, we found that all traditions had at least one preferred technique in common with each other tradition, the mean overlap being substantially higher between related traditions. A subsequent hierarchical cluster analysis revealed two clusters of traditions indicating some shared preferences between otherwise less related traditions. A closer look revealed three very popular techniques that reappeared in the top ratings of almost all 12 traditions. All three techniques were body centered, pointing to an extraordinary relevance of body-centered techniques throughout all meditative traditions. Additionally, we uncovered a great variety of meditation techniques that are commonly used in diverse traditions but are, unfortunately, consistently underrepresented in contemplative research.

Often, meditators use several techniques in their meditation practice, commonly reflecting the teachings of a certain tradition or the personal practice history of the meditator. Employing hierarchical cluster analysis, we found three large clusters of meditation techniques that are commonly practiced together. Again, there was an obvious divergence between clearly Buddhist and clearly Hindu meditation clusters. In contrast, the third cluster represented the aforementioned overarching meditation techniques spanning many meditative traditions. Two tradition-wise cluster analyses across purely Buddhist and purely Hindu meditators substantiated the presence of this general cluster in both traditions. Furthermore, both cluster analyses uncovered clusters of techniques relevant for specific subgroups of Buddhist or Hindu traditions. These clusters corresponded to our previous analyses, suggesting a greater differentiation between diverse meditative practices and traditions. Consequently, the consistent findings across a multitude of analyses increase the convergent validity of our results.

The Central Role of Body-Centered Meditation Techniques

Some studies comparing the effects of different meditation techniques found that breathing meditation or the body scan was experienced as less effortful and easier to learn than other techniques (Kropp & Sedlmeier, 2019; Lumma et al., 2015). Conventionally, many meditative traditions emphasize the central role of the body in meditation and recommend learning to observe the breath or the body to beginners of meditation (Ott, 2010; Sedlmeier, 2016). Accordingly, meditators in the present study, with all sorts of meditative backgrounds, preferred to place their attention on their body or basic bodily processes such as the breath. This is true even though they had experience with many other meditation techniques, too. Moreover, clusters of body-centered meditation techniques recurred in all analyses presented in this paper. Consequently, it seems that body-centered meditation techniques are of profound importance for general meditation practice.

Some studies found significant increases in body awareness or interoception (the processing of internal bodily signals) when participants practiced body-centered techniques compared to an active control activity (Fischer et al., 2017) or other meditation techniques (Kok & Singer, 2017). Developing a greater sense of body awareness and interoception has been proposed as one of the central mechanisms of meditation and mindfulness (Farb et al., 2015; Gibson, 2019). Furthermore, the insular cortex has been reliably associated with interoceptive processes (Craig, 2003). Fittingly, neuroscientific studies have shown consistent structural alterations and functional activations in the insular cortex across many different kinds of meditation (Fox et al., 2014, 2016). Thus, it seems that the focus on the body inherent in many diverse meditation techniques, but specifically in body-centered techniques, is one of the key aspects of meditation practice. This is in line with current literature emphasizing the embodied nature of meditation (Cebolla et al., 2016; Michalak et al., 2012).

A recent empirical classification system (Matko & Sedlmeier, 2019) identified two embodied dimensions along which meditation techniques could be classified. The authors posited that all meditation techniques share a somatic component and are inherently embodied. This might also apply to our selection of 52 meditation techniques. Many, if not all, meditation practices emphasize directing attention to interoceptive signals. Whether meditators visualize their heart opening like a rose blossom, focus on internal sounds and vibrations, or gaze at the wall and observe themselves doing nothing, the body remains a constant companion in all their endeavors. This may be less evident for techniques consisting of contemplating a spiritually important question or reading certain paragraphs of a text repeatedly. Nevertheless, even contemplation and reading are done with the intention to observe one's internal reactions to the content of the text or the contemplative question. Thus, it might well be that all meditation techniques are embodied.

Measuring Up to the Variety of Meditation Practice

In their classification system, Matko and Sedlmeier (2019) detected seven clusters of similar meditation techniques,

namely, mindful observation, body-centered meditation, visual concentration, contemplation, affect-centered meditation, mantra meditation, and meditation with movement. All of these clusters were also present in the current study, albeit in different combinations. It seems that meditators in this study combined techniques from several clusters of similar techniques, presumably to maximize the diversity of effects associated with these varying techniques. This appears perfectly reasonable, as meditators might practice certain sets of meditation techniques, often jointly taught by certain traditions, but for a whole range of different purposes.

Many traditions formulate guidelines about when to use which technique. Some traditions differentiate between practices for beginners and those for advanced meditators (Anālayo, 2003; Mahasi, 1970). Some even provide specific meditation techniques connected to achieving certain goals or treating certain psychological or somatic conditions (Shannahoff-Khalsa, 2004). Some teachers advise meditators on which techniques to use based on a prior assessment of their personality (Kornfield, 2009). However, actual scientific evidence for many of these claims is still scarce, and future investigations should address these issues. Additionally, more research is needed to effectively disentangle similarities, effects, and purposes of diverse meditation techniques.

The most popular techniques identified in this study quite clearly depict the most well known and most researched groups of meditative practices, that is, the body scan (Dambrun et al., 2019), observing the breath (Doll et al., 2016), observing thoughts (Lumma et al., 2015), cultivating compassion or loving-kindness (May et al., 2014), and mantra meditation (Lynch et al., 2018). Nonetheless, the repeatedly observed evident differences between Buddhist and Hindu meditation practices call for closer inspection. Currently, the focus of contemplative research lies predominantly on mindfulness meditation (Rose et al., 2020), with other meditation techniques, especially from Hindu traditions, receiving a lot less attention. However, as Hindu meditation techniques differ so strikingly from Buddhist techniques, they should be investigated in more detail.

In light of the remarkable variety of meditation techniques found in the present study, definitions of meditation should be reconsidered. All definitions brought up so far indicate a great variance in possible approaches to defining meditation and a lack of consensus among experts (Bond et al., 2009; West, 2016). It would be advisable to include the embodied aspect of meditation in future definitions of meditation. It also might even be conceivable to establish different terms and definitions for various forms of meditation. With this, researchers could contribute to a more differentiated use of the umbrella term "meditation."

Limitations and Future Research

We are well aware that our choice of meditation techniques might have been limited to the regional availability of meditation teachers and traditions in Study 1. Still, the adequateness and probably also the comprehensiveness of our selection was confirmed by a broad sample of experienced meditators with a diversity of meditative backgrounds almost unique in contemplative research. Although most meditators belonged to some Buddhist or Hindu tradition, we also reached smaller groups of meditative traditions, such as Christian, Sufi, or Qigong/Tai Chi meditators. We know of only one study that addressed a similarly large and diverse sample of experienced meditators (Vieten et al., 2018). Clearly, our sample cannot be regarded as being representative of Western European, let alone all, experienced meditators practicing the abovementioned meditation techniques. Admittedly, Qigong and Tai Chi are more prevalent in Asian countries, and recent meta-analyses have substantiated their beneficial effects (Liu et al., 2015; Zou et al., 2017). Thus, extending and repeating this research in Asian populations would provide more reliable insights on the practice of meditation in these traditions. We encourage researchers to evaluate our selection of 52 meditation techniques in other countries and contexts to examine its general validity. Additionally, we have become aware of at least one meditation technique that has to be added to our list as it has been extensively studied in prior research, that is, "passage meditation" (Oman & Bormann, 2018). This technique involves memorizing and internally repeating longer passages of spiritual texts.

The sample sizes of some traditions were relatively small, especially for Osho, Christian, MBSR, and Qigong/Tai Chi meditators. In addition, many meditators drew their meditation practices from several backgrounds or had a whole history of practicing in different traditions. It was, thus, difficult for us to determine the major tradition of some participants. Consequently, future studies should ask meditators to distinguish their major meditative tradition from possible adjunct practices explicitly. They should also approach meditators from the abovementioned, underrepresented meditative traditions.

One could argue that the 52 techniques that we evaluated in this study were artificially constructed and taken out of context. Traditionally, meditation techniques are practiced in a specific sequence, in the framework of a specific tradition, or in combination with other practices. Observing the breath, for example, is often combined with visualizations or with the repetition of a mantra. Yet, little is known about the effects of combined meditation techniques compared to basic techniques. Therefore, it seems promising to investigate and compare basic and combined techniques, to see if there are, indeed, any additive effects.

Furthermore, a specific traditional background or framework can tremendously influence the effects of meditation (Amihai & Kozhevnikov, 2014; Bayot et al., 2020). However, these effects may be very complex, specifically regarding the manifold meditation traditions. In an attempt to simplify this issue, we chose to deduce basic meditation techniques practiced in many meditative traditions. This might help clarify and disentangle genuine effects of basic meditation techniques from the effects of their traditional context. Future studies could compare the effects of basic meditation techniques to a combined intervention of meditation practice and ethical or philosophical teachings. A recent study found that the inclusion of an ethical education component significantly enhanced the effectiveness of a mantra meditation intervention on well-being (Matko et al., 2021).

Although we now have a better idea of what meditators do when they are meditating, or rather, which meditation techniques they employ, we have little access to the experiences they have during meditation. Several authors have pointed out the difference between meditative technique and meditative state or phenomenological experience (Bond et al., 2009; Nash & Newberg, 2013). Phenomenological experiences are difficult to capture and depend strongly on individual factors, such as personality or learning history (Schmidt, 2014; Tang & Braver, 2020). It seems, for example, that people who score high on the trait absorption tend to experience deep meditative states and intense feelings of self-transcendence more easily (Hölzel & Ott, 2006; Lifshitz et al., 2019). Furthermore, phenomenological experience also differs across diverse meditation techniques (Przyrembel & Singer, 2018). Recently, Lutz et al. (2015) proposed a phenomenological matrix to help describe different states and processes related to mindfulness practices. Future studies could investigate phenomenological experiences associated with the practice of a larger sample of meditation techniques and focus on possible interactions with personality factors, too. Single-case research designs (Barlow et al., 2009) seem to be a promising approach in this respect (May et al., 2014).

The research presented in this paper can contribute to future contemplative research in multiple ways. Our list of 52 basic meditation techniques potentially opens up meditation research to finding out about specific effects of hitherto hardly examined techniques. It also allows for comparing the effects of different techniques in a more thorough way. The respective results could be used for custom-tailoring the choice of meditation techniques for the specific needs of practitioners. Especially interesting might be comparisons of techniques within versus between different clusters. Moreover, it might be very informative to compare the effects of practicing a single typical technique within a cluster to practicing a combination of several or all techniques within that cluster. Researchers could also decide to pick the most common techniques (generally or in a specific tradition) depicted in our study, or compare similarly prevalent techniques in the context of different traditions. Alternatively, techniques could be chosen based on theoretical considerations. For example, if a researcher is interested in the effects of meditation on emotions, she could extract techniques that target emotions. In the long run, all of these efforts could contribute to establishing one or more theories of meditation.

Declarations

Ethics Approval The studies received ethics approval from the Institutional Review Board of the Chemnitz University of Technology.

Informed Consent Informed consent was received.

Conflict of Interest The authors declare no competing interests.

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