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Title

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Journal

Psychology of Religion and Spirituality, 1(2)

ISSN

1941-1022

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Publication Date

2009-05-01

DOI

10.1037/a0015736

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Peer reviewed

Defining a Complex Intervention: The Development of Demarcation Criteria for “Meditation”

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The authors used a 5-round Delphi study with a panel of 7 experts in meditation research to achieve agreement on a set of criteria for a working definition of “meditation” for use in a comprehensive systematic review of the therapeutic use of meditation. Participants agreed that essential to a meditation practice is its use of (a) a defined technique, (b) logic relaxation, and (c) a self-induced state. Participants also agreed that a meditation practice may (d) involve a state of psychophysical relaxation somewhere in the process; (e) use a self-focus skill or anchor; (f) involve an altered state/mode of consciousness, mystic experience, enlightenment or suspension of logical thought processes; (g) be embedded in a religious/spiritual/philosophical context; or (h) involve an experience of mental silence. The results of this study provide insight into the challenges faced by researchers who want to demarcate meditative practices from nonmeditative practices, and they describe an approach to this problem that may prove useful for researchers trying to operationalize meditation in the context of comparative research.

Keywords: meditation, yoga, characteristics, CAM, mind–body techniques

Once thought of and practiced primarily as a spiritual exercise, meditation, especially in its Western context, has come to be viewed as a complementary therapeutic strategy to alleviate

the symptoms of a variety of health-related problems (Arias, Steinberg, Banga, & Trestman, 2006; Perez de Albeniz & Holmes, 2000). This shift in focus has generated an increasing

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This article arises from an evidence report prepared for the U.S. Agency for Healthcare Research and Quality under Contract No. 290-02-0023 (www.ahrq.gov; see Ospina et al., 2007).

We thank the peer reviewers of *Psychology of Religion and Spirituality* for their many helpful and insightful comments on a longer version of this article. Their comments and suggestions contributed greatly to the improvement of this article. We thank Richard L. Nahin and Catherine

Stoney from the National Center for Complementary and Alternative Medicine, and Margaret Coopey from the Agency for Healthcare Research and Quality for their insight, recommendations, and support of this work.

Most of all, we thank the members of the expert panel who agreed to participate in the Delphi process: John Astin (California Pacific Medical Center Research Institute, San Francisco, CA), Ruth Baer (Department of Psychology, University of Kentucky), Vernon Barnes (Georgia Prevention Institute of the Medical College of Georgia, Augusta, GA), Badri Rickhi (Canadian Institute of Natural and Integrative Medicine and Faculty of Medicine, University of Calgary, Calgary, Alberta, Canada). (Linda E. Carlson, Jeffrey Dusek, and David Shannahoff-Khalsa were also members of the expert panel.)

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interest in conducting primary and secondary research regarding the therapeutic efficacy and effectiveness of meditation practices and techniques. Researchers seeking to develop these criteria face a variety of difficulties. The term *meditation* both designates a state (one is in a state of meditation) and refers collectively to the thousands of techniques that one can practice, each of which may have different effects on the brain, metabolism, and psyche (Shannahoff-Khalsa, 2006).

The differences and similarities among these techniques is often explained in the Western meditation literature in terms of the direction of mental attention (Koshikawa & Ichii, 1996; Naranjo, 1971; Orenstein, 1971): A practitioner can focus intensively on one particular object (so-called *concentrative meditation*), on all mental events that enter the field of awareness (so-called *mindfulness meditation*), or both specific focal points and the field of awareness (Orenstein, 1971). The kinds of attention used in different practices are contrasted in various ways (Cardoso, De Souza, Camano, & Roberto-Leite, 2004; Naranjo, 1971; Orenstein, 1971; Perez de Albeniz & Holmes, 2000), and it is not always clear in just what ways these contrasts and the terms used to describe them are synonymous.

Despite the apparent difficulties and continuing disagreement about how to best define meditation and how best to classify the myriad practices that are described as meditative (Manocha, 2000; Perez de Albeniz & Holmes, 2000), researchers engaged in comparative studies of meditation recognize the importance of appropriate demarcation criteria (Ross, 2005) to help them distinguish meditation practices from non-meditation practices (Caspi & Burleson, 2005). Although some researchers have focused their efforts on the development of criteria for particular aspects of techniques (e.g., for mindfulness; Bishop et al., 2004), in general, researchers have attempted to identify necessary and sufficient criteria for broad definitions of meditation using only one or a few closely related techniques in the development of their definitions (Cardoso et al., 2004; Davidson & Goleman, 1977; Manocha, 2000). This diversity of practices and variables considered important by researchers has given rise to a number of competing definitions that overlap in various ways. Consider the following five representative def-

initions of meditation drawn from the published scientific literature.

Definition 1: Any procedure that comprises: (a) a specific, clearly defined technique, that is, a “recipe” for meditation; (b) muscle relaxation in some moment of the process; (c) logic relaxation; (d) a self-induced state; and (e) a self-focus skill or anchor (Cardoso et al., 2004) (Logic relaxation is defined by the authors as “not ‘to intend’ to analyzing (not trying to explain) the possible psychophysical effects,” “not ‘to intend’ to judging (good, bad, right, wrong) the possible psychophysical [effects],” and “not ‘to intend’ to creating any type of expectation regarding the process.” (Cardoso et al., 2004, p. 59)

Definition 2: A discrete, well-defined experience of “thoughtless awareness” (Crisp, Pelletier, Duffield, Adams, & Nagy, 1997; Manocha, 2000; Devananda, 1981). Techniques that fail to provide the key experience of mental silence or thoughtless awareness, including techniques that use constant repetition of syllables, visualizations, or other thought forms, are considered “quasi-meditation” (Manocha, 2000).

Definition 3: Techniques that seem to restrict awareness to a single, unchanging source of stimulation for a definite period of time (Orenstein, 1971).

Definition 4: An exercise in which the individual turns attention or awareness toward a single object, concept, sound, image, or experience, with the intention of gaining greater spiritual or experiential and existential insight or of achieving improved psychological well-being (West, 1987).

Definition 5: A family of self-regulation practices that focus on training attention and awareness to bring mental processes under greater voluntary control and thereby foster general mental well-being and development and/or specific capacities such as calm, clarity, and concentration (Walsh & Shapiro, 2006).

These five representative definitions have important similarities and differences (see Table 1)

Table 1
Characteristics of Representative Definitions of Meditation

Characteristic of definition	Definition				
	1	2	3	4	5
i. Specific technique, practice, or exercise	◆	◆	◆	◆	◆
ii. Discrete (i.e., not a constant process or state)	◆	◆	◆		
iii. Self-induced technique	◆				
iv. Directed attention or restricted awareness	◆		◆	◆	◆
v. Phenomenological or intentional component	◆	◆			
vi. Functional component (i.e., used to achieve a purpose such as “clarity mind”)				◆	◆

and, because of their differences, they may circumscribe different practices.

The substantial variation in how meditation is defined in the scientific literature can lead to particular difficulties when evaluating the therapeutic efficacy and effectiveness of meditation practices and techniques. We present here the results of a systematic process in which a group of experts in meditation research reached general agreement on a set of criteria for a working definition of meditation and on the relative importance of these criteria in defining a practice as a meditation technique. The process described here formed but one part of a multicomponent approach to study selection in a comprehensive systematic review on the therapeutic efficacy and effectiveness of meditation practices for health care (Ospina et al., 2007).

Method

Study Design

A five-round Delphi study (Linstone & Turoff, 1975) was conducted from August to December of 2005. The Delphi technique is a method of eliciting and refining group judgments to address complex problems with a high level of uncertainty (Dalkey, 1969; Dalkey & Rourke, 1971; Linstone & Turoff, 1975) to obtain accurate and reliable guidance from a group of experts on a particular topic (Dalkey, 1969; Hasson, Keeney, & McKenna, 2000). Although initially developed for making long-range forecasts in technology development and decision making (Linstone & Turoff, 1975), it has since been applied in health care research to develop quality criteria (Elwyn et al., 2006), performance indicators (Beattie & Mackway-Jones,

2004), educational requirements (Broomfield & Humphris, 2001), and operational definitions (Petry, Maes & Vlaskamp, 2007) and to help define outcomes (Burns, Fiander, & Audini, 2000; Taylor, 2005). The characteristics of the Delphi technique that distinguish it from other consensus techniques are its use of anonymity, iteration, controlled feedback, and statistical group response (Sackman, 1974). The technique involves recruiting a group of experts to participate in an iterative process of answering a questionnaire, receiving controlled feedback regarding group responses, and revising their opinions in light of this feedback (Crisp et al., 1997; Dalkey, 1969).

Study Participants

Seven individuals participated as members of an expert panel (EP) for a report on the state of the research of meditation practices in health care. EP members were chosen on the basis of their publication record of research on the therapeutic use of meditation, their knowledge of and training in traditional or clinically developed meditation techniques, and their affiliation with universities and research centers (member affiliations are listed in the Author Note). Each member had specific expertise and training in at least one of the following meditation practices: kundalini yoga, Transcendental Meditation, relaxation response, mindfulness-based stress reduction, and vipassana meditation.

Item Generation

An initial list of potential criteria for a working definition of meditation was generated from

a list of key articles (e.g., Bishop et al., 2004; Cardoso et al., 2004; Manocha, 2000) identified by preliminary searches in MEDLINE, EMBASE, and PsycINFO, using the terms *meditation\$.mp.* or *exp Meditation/* or *exp Yoga/* or *yoga.mp.* or *pray\$.mp.* or *(visual or mental) imagery.mp.* or *exp Breathing Exercises/* or *qigong.mp.* or *qi gong.mp.* or *exp Tai Ji/* or *tai chi.mp.* Items from these publications and any additional definitions identified by members of the EP were compiled into a set of potential criteria for use in a definition.

Study Procedures

Round 1. The EP members were sent electronically a questionnaire in which they were asked to indicate the importance of nine criteria for a working definition of meditation using three categories (i.e., *not important at all*, *important but not essential*, and *essential*). They were also invited to suggest any other essential criteria.

Round 2. Participants were provided feedback on their own and the group's responses from Round 1. The participants were asked to reflect on their responses from the first round in light of the group responses and to either confirm or change their responses accordingly. On the basis of first-round comments, the wording of some criteria was modified, and a new criterion (No. 10) was added.

Rounds 3 to 5 followed the same process as Round 2, with the exception of modifying and adding criteria. These rounds were used to encourage consensus on items for which disagreement persisted.

Participants were given up to 1 week to respond to each questionnaire, and nonresponders were sent reminders throughout the process.

Data Analysis

Categorical data were collected from each survey round and expressed as frequencies. The frequency of endorsement was tabulated for each criterion. Recognizing that reaching complete agreement for any single item may be difficult, if not impossible, it was established a priori that general agreement on any single item would be a frequency of endorsement of five out of seven for any one of three categories (i.e., *not important at all*, *important but not essential*,

and *essential*). A "don't-know" category was used to signal that a participant required more information to make an informed decision.

Results

The response rate in all rounds of the survey was 100%. Tables 2 and 3 show the initial and final responses regarding the importance of various criteria for defining meditation. Participants in the study agreed that essential to a meditation practice is its use of (a) a defined technique, (b) logic relaxation, and (c) a self-induced state/mode. Participants also agreed that a meditation practice may (d) involve a state of psychophysical relaxation somewhere in the process; (e) use a self-focus skill or anchor; (f) involve an altered state/mode of consciousness, mystic experience, enlightenment, or suspension of logical thought processes; (g) be embedded in a religious/spiritual/philosophical context; or (h) involve an experience of mental silence. More detailed definitional information is provided in Table 2. After five rounds, participants did not reach general agreement on whether bringing about mental calmness and physical relaxation by suspending the stream of thoughts was best categorized as essential or as important but not essential to defining a practice as meditation. The involvement of a "self-paced systematic desensitization" (Criterion 9) was considered not important at all by the final round.

Discussion

Using a conventional Delphi methodology, we sought to develop general agreement on a working definition of meditation. The resulting definition contains three components thought to be *essential* and five components believed to be *important but not essential* to a definition of meditation.

When compared with the five representative definitions examined in Table 1, the criteria developed here are arguably both more sensitive (i.e., likely to include the majority of practices that are authentic meditation techniques or that incorporate a meditation component) and more specific (i.e., unlikely to include practices that are not authentic meditation techniques). Criterion a of the working definition characterizes meditation as essentially a defined technique

Table 2

Initial Responses for the Importance of Criteria for an Operational Definition of Meditation

Criteria	Not important at all	Important but not essential	Essential	Don't know
1. Uses a defined technique	0	1	5	1
2. Involves logic relaxation; not “to intend” to analyze the possible psychophysical effects, not “to intend” to judge the possible results, not “to intend” to create any type of expectation regarding the process	0	1	6	0
3. Involves a state of psychophysical relaxation installed somewhere during the process	2	4	1	0
4. Involves a self-induced state/mode. It refers to a therapeutic method that can be taught by an instructor but self-applied by the individual himself/herself. It must, for instance, be feasible to be done at home, without the presence of the instructor. There must not be any relationship of dependence	0	4	3	0
5. Uses a self-focus skill or anchor. A concentration (“positive anchor”) or a turning off (“negative anchor”) focus is used to avoid sequels of undesirable thinking, torpor, sleep	0	4	3	0
6. Involves altered states/modes of consciousness, mystic experiences, “enlightenment” or suspension of logical thought processes	2	5	0	0
7. Embedded in a religious/spiritual/philosophical context	1	6	0	0
8. Involves an experience of mental silence	1	4	2	0
9. Involves a self-paced systematic desensitization	3	2	0	2
10. Brings about mental calmness and physical relaxation by suspending the stream of thoughts that normally occupy the mind				

Added after Round 1

(see Table 1, characteristic i), and Criterion b characterizes meditation as one that involves an attitude of nonintention (Table 1, characteristic iv). The definition thus captures two important aspects of meditation: It has a specific method that is codified in some manner and it uses (or is) a mental exercise as evidenced by the requirement that one's attitude throughout the process be of a particular kind; namely, non-judgmental and nonexpectational. The working definition also recognizes that (e) in many cases a meditative technique has important characteristics of attention being directed in a particular way (Table 1, characteristic iv), as well as (Criteria f and h) having a unique phenomenology (Table 1, characteristic v), and (Criterion g) being used to achieve a particular purpose (Table 1, characteristic vi). This definition also recognizes, as did Definition 1 (Cardoso et al., 2004), that (Criterion d) a meditative state and the process that brings it about are self-induced (Table 1, characteristic iii). This latter criterion clearly demarcates most meditative practices from techniques that use guided imagery and visualization and from some forms of hypnosis.

The identification of psychophysical relaxation as a characteristic that is important but not essential is congruent with the fact that some researchers have argued that deactivation of the sympathetic nervous system (as seen by, e.g., a decrease in heart rate, decrease in blood pressure, decreased respiratory rate, and reduced cortisol levels) is a necessary, but not sufficient, characteristic of meditation (Jevning, Wallace, & Beidebach, 1992). However, the necessity of this feature is challenged by the observation that the demanding postural alignment of seated meditation in Zen Buddhism (and of that in other meditation practices) is not a posture of reduced muscular activity, at least for beginners (Brown, 1977). In spite of the clear need to elucidate the nature of the psychological and physical states that are associated with different levels of practice in different meditative practices and to compare these states with paradigmatic states of relaxation, comparative meditation research has used relaxation controls infrequently (Ospina et al., 2008). There is substantial overlap between our definition and Definition 1 (the most comprehensive and explicit of the cited definitions);

Table 3
Final Responses for the Importance of Criteria for an Operational Definition of Meditation

Criteria	Not important at all	Important but not essential	Essential	Don't know
1. Uses a defined technique	0	0	7	0
2. Involves logic relaxation; not "to intend" to analyze the possible psychophysical effects, not "to intend" to judge the possible results, not "to intend" to create any type of expectation regarding the process	0	0	7	0
3. Involves a state of psychophysical relaxation installed somewhere during the process	1	5	1	0
4. Involves a self-induced state/mode. It refers to a therapeutic method that can be taught by an instructor but self-applied by the individual himself/herself. It must, for instance, be feasible to be done at home, without the presence of the instructor. There must not be any relationship of dependence	0	1	6	0
5. Uses a self-focus skill or anchor. A concentration ("positive anchor") or a turning off ("negative anchor") focus is used to avoid sequels of undesirable thinking, torpor, sleep	0	5	2	0
6. Involves altered states/modes of consciousness, mystic experiences, "enlightenment" or suspension of logical thought processes	1	5	1	0
7. Embedded in a religious/spiritual/philosophical context	0	7	0	0
8. Involves an experience of mental silence	0	5	1	1
9. Involves a self-paced systematic desensitization	6	1	0	0
10. Brings about mental calmness and physical relaxation by suspending the stream of thoughts that normally occupy the mind	0	3	4	0

however, there are also some notable differences between the two. The most striking difference is that, although our EP identified what they believed to be necessary conditions, no set of sufficient conditions was formally identified. A main difficulty then is how to interpret the criteria considered to be important but not essential. It appeared that experts believed that, although these may be components crucial to some practices, they were not applicable to all and so should not be considered in the list of essential criteria. It should be noted, however, that even if a set of necessary and sufficient demarcation criteria were identified, this would not in itself identify some core or essential aspects of the phenomenon of meditation (Ross, 2005).

The results of this Delphi study are similar to those of a study by Koshikawa and Ichii (1996) that examined the components of 12 different types of meditation practices (excluding tai chi and including Christian meditation practices, early Buddhist meditation, Ajikan meditation, and Hotei meditation) to determine what similarities,

if any, existed among the practices. Using a non-iterative survey methodology, the investigators asked 12 experts (one for each type of meditation practice) to evaluate the degree of importance of 38 items regarding the environmental conditions required for practice, method of breathing, postures, body movement, use of mantra, object of attention, diet, training requirements for mastery of the technique, and purpose for meditation. The results indicate that, although some meditation practices may share some features in common, no two practices are identical in all features and no features of practice are universal to them. However, it should be noted that the purpose of the study was not to construct an overall definition, as in the present study but simply to collect data on the relative importance of the 38 items for each practice.

Limitations of the Study

The Delphi technique was selected partly for its ability to mitigate some of the recognized pitfalls of face-to-face deliberation, namely, the influence

of dominant individuals, the "noise" (i.e., the inclusion of individual and group interests rather than problem solving) inevitable in any consensus-building process, and group pressure for conformity (Dalkey, 1969; Linstone & Turoff, 1975). The Delphi technique also allows all group members equal participation and influence, even when separated geographically (Rowe, Wright, & Bolger, 1991). The number and representativeness of the experts is a source of concern. The size of the EP was restricted by the timing and coordination of the systematic review; of necessity, we had to seek a balance between practicality and comprehensiveness. As a result, it was not feasible to include representation of all meditation practices or techniques. We found no published guidelines describing a lower limit for group size for the Delphi method (Linstone & Turoff [1975] described the effective group size as simply "small to large"), and there is a precedent for the use of a modified Delphi technique with groups of fewer than 10 members (Fitch et al., 2001). Given the similarity of our results to those derived from groups with different expertise and size (Cardoso et al., 2004; Koshikawa et al., 1996), it is unclear in what ways and to what degree a greater diversity of participants would have influenced the final set of criteria. Cumulatively, the panel was knowledgeable of many traditions, in addition to individual areas of expertise, a fact that led to variation in opinion on the importance of the proposed criteria. Finally, Criteria 2 and 6, despite their origins in peer-reviewed articles, contain items that could be considered conceptually distinct (e.g., not to intend to analyze, not to intend to judge, and not to intend to create expectations). It may be more appropriate to decompose such complex criteria and evaluate the importance their components individually. The importance of doing so is something that should be examined in future studies.

Implications for Developing Demarcation Criteria

The variety of definitions already offered and the resistance of experts to settle on a clearly applicable set of demarcation criteria suggest that meditation techniques ought not to be thought of as all leading to a single state of mind or an experience that can be demarcated by a single set of necessary and sufficient conditions. It is surprising that, despite a persistent lack of

consensus in the literature and the fact that demarcation criteria need not be bound by this approach (Ross, 2005), to our knowledge no author has previously examined alternative approaches to defining meditation techniques despite some well-known alternative methods for establishing demarcation criteria. It is plausible that meditation is best thought of as a natural category of techniques best captured by "family resemblances" (Wittgenstein, 1968) or by the related prototype model of concepts (Rosch, 1973; Rosch & Mervin, 1975). Alternatively, researchers might investigate the use of similar, but more sophisticated, approaches to demarcation criteria suggested by Boyd (1988, 1999) and Wilson (1999). All the aforementioned approaches allow for the articulation of conceptual boundaries that are not clear cut, while simultaneously acknowledging and accounting for our ability to conceptualize diverse items as falling under the same concept. A systematic investigation of the application of these techniques to meditation may prove fruitful.

Conclusion

Currently, there is no agreed-upon definition of meditation in the scientific literature. Given the diversity of meditation practices and techniques and the seeming intractability of defining *meditation*, researchers may fail to explicitly define their object of study and risk making unwarranted assumptions about its nature. A traditional Delphi method is one process by which researchers might establish a set of criteria for demarcating meditative practices. Using this process, three main criteria have been defined as essential to any meditation practice: the use of a defined technique, logic relaxation, and a self-induced state/mode. Other criteria deemed important involve a state of psychophysical relaxation, the use a self-focus skill or anchor, the presence of a state of suspension of logical thought processes, a religious/spiritual/philosophical context, or a state of mental silence.

Bearing in mind that any overarching working definition of meditation risks artificially limiting the phenomenon and obscuring important nuances of its practice (Andresen, 2000), we believe that the Delphi method and resulting set of criteria described here may prove useful for researchers trying to operationalize medita-

tion in the context of comparative meditation research.

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Received April 7, 2008

Revision received January 30, 2009

Accepted February 3, 2009 ■