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Using pictographic single-item measures to overcome psychometric challenges: A pre-registered development and validation of the Meditation Pictographic Scale (MPS)

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Oral presentation

Using pictographic single-item measures to overcome psychometric challenges: A pre-registered development and validation of the Meditation Pictographic Scale (MPS)

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Abstract

Concepual framework: Meditation and mindfulness research has encountered some psychometric challenges, among which are cross-cultural differences or linguistic biases. This has led to standard psychometric developments (based on verbal self-reports) to show unclear psychometric properties. In addition, these fields stress the importance of first-person phenomena as the main mechanisms of change. Thus, a psychometric challenge is drawn, from which we propose the use of pictographic single-item measurements as a Meditation Pictographic Scale (MPS). These way verbal and cultural phenomena could be mitigated and allow for a more precise measurement.

Methods: A three-stage pre-registered development was implemented. First, we reviewed literature and selected the most established meditation-related experiences that were translatable to items. Second, 10 expert meditators were interviewed on the items with semi-structured phenomenological and cognitive interviews to explore understandability, relevance and representativity of the items, along with response processes. Independent raters coded the interviews to extract insights, to produce a refined MPS. Third, 376 participants from the general population were randomized into four groups (control, and three different meditations) and responded to the refined MPS and other state measures pre and post. Linear models were implemented to explore sensitivity of the scale to meditation. To study internal structure, network analysis was implemented due to having single-item measures without assumptions of latent variables or reflective/formative models.

Results: Experts reported general understandability and provided critical improvements of pictographs. The MPS showed to be sensitive to meditation and concurrent with state measures, especially regarding body, self, affect, compassion, and time. Networks showed a relatively connected network with some exceptions. Exploratory Graph Analysis showed two stable communities of items (positive and negative experiences) and a more heterogeneous community (distortions). One item was revealed as reverse due to their negative associations with in-group items. Meditation also seemed to impact associations between items but not community structures.

Implications: The MPS shows stable psychometric properties regarding contents, response processes, internal structure, and relation with relevant variables. Thus, it seems to overcome psychometric challenges present in literature. Future research should explore the MPS on clinical and trained samples trained, and the impact of manualized meditation programs.

Keywords

Meditation, pictographic, self-report, psychometric scale

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