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Schizotypy and mindfulness: Magical thinking without suspiciousness characterizes mindfulness meditators

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ABSTRACT

Despite growing evidence for demonstrated efficacy of mindfulness in various disorders, there is a continuous concern about the relationship between mindfulness practice and psychosis. As schizotypy is part of the psychosis spectrum, we examined the relationship between long-term mindfulness practice and schizotypy in two independent studies. Study 1 included 24 experienced mindfulness practitioners (19 males) from the Buddhist tradition (meditators) and 24 meditation-naïve individuals (all males). Study 2 consisted of 28 meditators and 28 meditation-naïve individuals (all males). All participants completed the Schizotypal Personality Questionnaire (Raine, 1991), a self-report scale containing 9 subscales (ideas of reference, excessive social anxiety, magical thinking, unusual perceptual experiences, odd/eccentric behavior, no close friends, odd speech, constricted affect, suspiciousness). Participants of study 2 also completed the Five-Facet Mindfulness Questionnaire which assesses observing (Observe), describing (Describe), acting with awareness (Awareness), non-judging of (Non-judgment) and non-reactivity to inner experience (Non-reactivity) facets of trait mindfulness. In both studies, meditators scored significantly lower on suspiciousness and higher on magical thinking compared to meditation-naïve individuals and showed a trend towards lower scores on excessive social anxiety. Excessive social anxiety correlated negatively with Awareness and Non-judgment; and suspiciousness with Awareness, Non-judgment and Non-reactivity facets across both groups. The two groups did not differ in their total schizotypy score. We conclude that mindfulness practice is not associated with an overall increase in schizotypal traits. Instead, the pattern suggests that mindfulness meditation, particularly with an emphasis on the Awareness, Non-judgment and Non-reactivity aspects, may help to reduce suspiciousness and excessive social anxiety.

1. Introduction

Mindfulness is a translation of the Pali term *sati* that in meditation context refers to remembering to keep awareness of one's practice. *Mindfulness* practice normally proceeds in stages, starting from the mindfulness of bodily sensations to awareness of feelings and thoughts, ultimately aimed at developing a present-centered awareness without an explicit focus. These stages are apparent in most schools of Buddhism, as well as in Mindfulness-Based Interventions (MBIs) such as Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002). Mindfulness practice as incorporated in MBIs is often contrasted with more effortful concentration-based practices such as those taught in Theravada Buddhism (Bishop et al., 2004). The traditions of Buddhism most closely aligned with mindfulness as taught in MBSR and MBCT are Dzogchen and Mahamudra, which take a gentle approach to practice by letting go of any striving to achieve a particular mental state, and simply resting in a present-centered awareness free of emotional reactivity and conceptual elaboration (Dunne, 2011; Kabat-Zinn, 2011).

MBSR has been shown to reduce stress, depression, and anxiety, and to improve general wellbeing in a number of physical and psychological conditions (meta-analysis, Hofmann et al., 2010; Zainal et al., 2013), as well as in healthy populations (meta-analysis, Khoury et al., 2015). MBCT has been reported to prevent depression relapse (Teasdale, 2000), and to be at least as effective as anti-depressants (Kuyken et al., 2015). Mindfulness as a trait also inversely correlates

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with anxiety and depression in healthy individuals (Baer et al., 2004). Despite this transdiagnostic efficacy of MBIs, the relationship between mindfulness and psychosis is currently unclear.

There are persistent concerns that mindfulness might induce psychosis in vulnerable individuals and even in people with no previous history or known vulnerability to psychosis based on a number of single-case studies that appear to suggest that meditation can induce acute psychotic episodes in individuals with a history of schizophrenia (Walsh and Roche, 1979), as well as in people without a history of psychiatric illness (Sethi and Subhash, 2003; Yorston, 2001). However, as discussed in more detail by Shonin et al. (2014), in all these cases the individuals were involved in intensive meditation retreats, and it is unclear to what extent the meditation practices that the described cases were engaged with are in line with the approach employed in MBIs. A number of MBIs for psychosis conducted to date, although mostly preliminary, suggest that mindfulness practice of short duration can actually alleviate the distress associated with psychotic symptoms, such as hearing voices, and reduce depression and anxiety (Abba et al., 2008; Chadwick et al., 2008, 2009; Escudero-Perez et al., 2015; Moritz et al., 2015; Randal et al., 2015; Strauss et al., 2015; Tong et al., 2015; Ubeda-Gomez et al., 2015).

With a clinical prevalence of about 7 per 1000 in the adult population, psychosis is more common among the general population than previously assumed (Johns et al., 2004) and is expressed along a continuum (Verdoux and Van Os, 2002). Schizotypy is a psychological construct, encompassing a range of personality traits and cognitions that are similar to psychosis but less severe in nature (Ettinger et al., 2014). According to Raine et al. (1995), schizotypy is characterized by nine dimensions: ideas of reference, excessive social anxiety, magical thinking, unusual perceptual experiences, eccentric behavior or appearance, no close friends or confidants, odd speech, constricted affect and suspiciousness. Schizotypy clearly encompasses both psychosis-like symptoms and symptoms related to anxiety and depression.

The main aim of the present study therefore was to examine the relationship between regular long-term (>2 years) practice of mindfulness and the dimensions of schizotypy (Raine, 1991) in two independent studies. Based on the reviewed evidence for the positive effects of mindfulness on anxiety and depression, it was hypothesized that experienced meditators will score lower on the excessive social anxiety and constricted affect compared to meditation-naïve individuals. Given the lack of any direct data on this topic, no specific predictions were made in relation to other schizotypy dimensions. It was, however, anticipated that any associations present in both studies, even if with a small effect size, would represent true effects. Study 2, in addition to aiming to replicate the findings of Study 1, explored the relationship between the dimensions of schizotypy and the facets of trait mindfulness indexed by the Five Facets Mindfulness questionnaire (FFMQ) (Baer et al., 2006).

2. Methods

2.1. Participants and design

This investigation included two independent studies. Study 1 included 24 experienced lay meditators (19 males) and 24 meditation-naïve individuals (all males). The meditators were recruited from Buddhist centers across the UK via posters and advertisements. Meditators had to have been consistent in their practice for over 2 years, practicing at least 6 days a week for a minimum of 45 min a day, and were drawn from Dzogchen and Mahamudra traditions of Tibetan Buddhism. Meditation-naïve individuals had to have no experience of mindfulness-related practices including meditation, yoga, tai chi, chi gong, or martial arts and were recruited from a database of healthy volunteers as well as emails and circulars sent to the students and staff of King's College London. Study 2 included 28 experienced male meditators mainly from Zen, Theravada, Vajrayana and Triratna traditions of Buddhism, and 28 meditation-naïve male individuals, recruited in the same way as Study 1 using the same criteria.

Additional inclusion criteria for both studies included IQ > 80 as assessed by Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999), age between 18 and 60 years, non-smoking and not drinking more than 28 units of alcohol per week. Participants with diagnosis of neuropsychiatric disorders, current or past, substance abuse and/or regular prescription medication as assessed by the screening interview were excluded.

The study procedures were approved by King's College London research ethics committee. Participants provided written informed consent to their participation and were compensated for their time.

2.2. Assessment of schizotypal personality traits and mindfulness

All participants completed the Schizotypal Personality Questionnaire (SPQ) (Raine, 1991) which contains 9 subscales: ideas of reference, excessive social anxiety, magical thinking, unusual perceptual experiences, odd/eccentric behavior, no close friends, odd speech, constricted affect and suspiciousness. This 74-item assessment of DSM-III-R schizotypal personality disorder provides an overall score of individual differences in schizotypal personality in addition to the scores of the above-mentioned subscales. With high internal reliability (0.90), test–retest reliability (0.82), convergent validity (0.59) and discriminant and criterion validity (0.63, 0.68), it is considered a well-validated measure of schizotypy.

All participants of Study 2 also completed the FFMQ (Baer et al., 2006) to investigate the relationship between trait mindfullness and schizotypy. FFMQ has been derived from factor analysis performed on five of the most commonly used mindfulness measures. The five facets are observing (Observe), describing (Describe), acting with awareness (Awareness), non-judging of inner experience (Non-judgment), and non-reactivity to inner experience (Non-reactivity) as assessed using Likert scale with 39 items. FFMQ has high internal consistency, ranging from 0.75 (Non-reactivity) to 0.91 (Describe).

2.3. Data analysis

Group differences in age, IQ, FFMQ and SPQ scores were examined using independent sample t-tests, run separately for the two studies. Given the significant difference in age and IQ between the meditator and meditation-naïve groups in Study 1 (Table 1), we examined the relationship of SPQ scores with age and IQ, and then re-evaluated the group difference in one of the SPQ subscales (no close friends) that showed a positive association with IQ (in Study 1), using analysis of covariance (ANCOVA) co-varying for IQ.

In Study 2, we examined the correlations between trait mindfulness (FFMQ) and SPQ (total and subscale) scores across both samples, and then separately in the meditator and meditation-naïve groups. Given the limited range of scores on some SPQ subscales, we report Spearman correlations (the same pattern of associations was observed with Pearson's r).

All data analysis was conducted using IBM Statistical Package for Social Sciences (version 22). The alpha level of significance (two-tailed) was set at $p = 0.05$ in all analyses unless specified otherwise.

3. Results

Demographic characteristics of the meditator and meditation-naïve groups, along with the descriptive statistics and group differences in SPQ and FFMQ scores, are presented in Table 1.