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The happy face of mindfulness: Mindfulness meditation is associated with perceptions of happiness as rated by outside observers

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The last decade has witnessed an enormous increase in research examining the effects of mindfulness meditation. One of the basic assumptions guiding this research is that meditation ultimately makes people happier. In this article, in two studies we tested whether meditators actually *look* happier. To address this question, outside raters judged the happiness of meditators and non-meditators based on a 15-s video clip of their behaviour. Study 1 demonstrated that novice meditators looked happier after an intensive 9-day meditation retreat (as compared to before the retreat), while Study 2 demonstrated that experienced mindfulness meditators looked happier as compared to controls. The interpersonal implications of these findings are discussed.

Keywords: mindfulness; happiness

Introduction

The past decade has witnessed an enormous increase in research examining the potentially beneficial effects of mindfulness meditation (Brown & Ryan, 2003; Kabat-Zinn, 2003). Mindfulness, as defined by Kabat-Zinn (2003), is the awareness that emerges through purposely paying attention, in the present moment and non-judgmentally, to the unfolding of experience moment by moment. Moving beyond the question of the subjective changes that take place within the meditator, the current research addresses the question whether mindfulness meditation affects how one is *perceived* by outside observers. Specifically, we examine whether the practice of mindfulness meditation (specifically Vipassana meditation) can cause meditators to actually look happier.

Mindfulness is the English translation of the Pali word 'sati'. Sati is described in the Buddhist scripts as constant presence of mind (Davids, 1881). Vipassana meditation is a traditional Buddhist practice that involves focusing on present-moment sensory awareness in a non-reactive manner, a practice that has been implemented in contemporary mindfulness meditation techniques (Kabat-Zinn, 2003). Development of greater awareness of and non-reactivity to sensory stimuli during mindfulness meditation is predicted to enhance self-awareness such that automated non-adaptive reactions are more easily recognized and overruled. The ability to inhibit such automatized responses should promote more successful management of stressful life situations, which may ultimately result in greater happiness.

There is research evidence to suggest that mindfulness meditation can indeed increase happiness of meditators. For example, Davidson et al. (2003) found that meditation practice was associated with significantly greater activity in the left prefrontal cortex, an area of the brain often associated with positive emotional experience. A study by Smith, Compton, and West (1995) demonstrated that even short meditation practices can positively affect self-reports of happiness. Also, individual differences in mindfulness are positively associated with happiness, and interventions that increase mindfulness relate to decreases in self-reported mood disturbances and stress (Brown & Ryan, 2003). Moreover, mindfulness-based therapeutic interventions have shown to be effective in the treatment of psychological symptoms (e.g., depression; Segal, Williams, & Teasdale, 2002; obsessive–compulsive disorders; Schwartz, Stoessel, Baxter, Martin, & Phelps, 1996) and physical symptoms such as chronic pain, panic disorder, psychological hardiness and coherence, immune function, and skin clearing in psoriasis (Baer, 2003; Bishop, 2002; Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003).

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An interesting question is whether meditation not only results in increased *subjective* happiness, but also whether meditators are actually perceived as happier by their social environment, that is, whether they *look* happier. This is an important issue for at least two reasons. First, it is common to assess happiness with self-reports, which are prone to several biases, including self-serving biases, demand characteristics or social desirability. In this research, outside observers rated meditators' and non-meditators' happiness levels – without the observers knowing that this study was investigating the effects of meditation. Such ratings should be less prone to these biases. Importantly, previous research suggests that outside observers can be fairly accurate in judging a target person's happiness or mood level (Beer & Watson, 2008; Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004). Internal mood states, including happiness, can be objectively observed in an individual's appearance (e.g., through facial muscle activity; Schwartz, Fair, Salt, Mandel, & Klerman, 1976).

Second, the perception of happiness by others has potentially important interpersonal implications; in general, people tend to avoid and respond negatively towards unhappy people (Coyne, 1976; Sacco, 1999). In other words, 'looking happy' may have a profound impact on success in social life, which in turn may benefit psychological well-being (Dush & Amato, 2005). For example, Harker and Keltner (2001) demonstrated that people displaying more happiness on pictures in a college year-book were rated more favourably on several personality dimensions, and raters expected interactions with them to be more rewarding. A recent study demonstrated that happier people are perceived as more sociable and friendly by their interaction partner, which induces the interaction partner to be more friendly in return (Dyrenforth et al., 2010). Thus, increases in perceived happiness of meditators may eventually extend to how interaction partners respond to them.

To address the question of whether meditators indeed look happier, we conducted two studies. Study 1 was designed to test our main hypothesis concerning the direct impact of mindfulness meditation on outside observers' impression of happiness of the meditators. We made short video clips of meditators (and a control group of non-meditators) before and after a nine-day intensive mindfulness meditation course, where meditators train in mindfulness up to 100 h continuously. Afterwards, these video clips were rated by independent observers on the level of happiness exposed. In Study 2, we compared long-time meditators with non-meditators. Previous research suggests that, even with short excerpts of social behaviour, outside observers can draw fairly accurate inferences about states, traits and other personal-relevant characteristics (Ambady and Rosenthal, 1992).

Study 1

Method

Participants

In this study, 13 meditators participated and were recruited as they applied for a place in a nine-day Vipassana (mindfulness meditation) retreat in Denekamp, the Netherlands. Among the 20 retreat applicants, 15 volunteered to be subjects for this study, and two were excluded for not completing the required questionnaire prior to the retreat. All participants were novice meditators, with a maximum of only one previous meditation retreat. A consent letter was sent by e-mail and completed by each of the participants before the retreat. Meditators consisted of three men and 10 women, aged 25–62 years ($M = 41.30$, $SD = 12.16$). Thirteen gender-, age-, and education-matched controls with no prior meditation experience were recruited. They consisted of three men and 10 women, aged 25–63 years ($M = 41.46$, $SD = 12.37$). All participants were native Dutch speakers and of Caucasian ethnicity. The subjects received a €15 check for the participations.

Video raters (outside observers)

For the evaluation of the video clips of the subjects, 80 students from the Radboud University were recruited. Students taking psychology courses received extra course credit or a €5 check for participation, and were informed that the study was about emotion and facial expression. Members of this group are referred to as 'Outside observers' (N: men = 9, women = 71, age; $M = 21.54$, $SD = 4.20$). All raters were native Dutch speakers and 98% Caucasian (2% Dutch-Moroccan).

Procedure

The mindfulness intervention was a nine-day intensive Vipassana retreat during which participants meditated from 6:30 in the morning to 22:00 in the evening. It is noteworthy that the intervention took place during a winter holiday period of the Christmas and the New Year; participants in the control condition all had holidays.

Video clips of the meditators and non-meditators were made before and after the retreat. These videotapes were later presented to outside observers who had never met the participants before. To obtain reliable and valid observational measures of the participants' behaviours, they were individually videotaped while engaged in an approximately 7-min

structured interview with the following assignments; introducing oneself (0 ~ 1–2 min), describing their lives over the previous year and their hobbies (~4.5 min), and describing the weather of current day and their activities that day (4.5–7 min). To control the environment of the videos, interviews were conducted in the same room, with a white background screen. The camera was angled to frame each participant from the chest up. Each video clip was cut at the 5th of the 7-min interview for a 15-s-length video slice without sound (Carney, Colvin, & Hall, 2007).

Eighty students were then recruited as outside observers (N: male = 9, female = 71) to rate one of two sets of the 15-s video slices. The first set contained T1 video slices of both meditators and controls. The second set contained video slices from T2 of both groups. Raters were randomly assigned to only one set of video slices, and were blind to conditions (in fact, they did not know that the target persons consisted of meditators and non-meditators). In this manner, observers did not rate a target person twice (at T1 and T2), so as to prevent consistency effects. The observers' work stations were equipped with a computer monitor, a keyboard and a mouse. Video clips were presented in a random order. The instructions were to carefully watch the participants in the video slices and to answer presented questions following each video. Raters evaluated the targets' happiness with three questions: (1) a 7-point pictorial 'smiley – frowny faces' scale, (2) 'I think this person looks happy' (10-point scale, 1 = strongly disagree to 10 = strongly agree) and (3) 'I think this person looks satisfied' (10-point scale, 1 = strongly disagree to 10 = strongly agree). The reliability of outside observer ratings for each of the 15 s video slices was computed by means of intraclass correlations for all the judges combined (Shrout & Fleiss, 1979), and ranged for each item from 0.96 to 0.98. We therefore averaged scores of the raters for each item, and then created an index of *observed happiness* by averaging the three items, $\alpha = 0.97$, into one average score.

Results

To test our main prediction, namely that meditation may lead to *looking* happier, an analysis of variance revealed a significant interaction between group and time, $F(1, 24) = 10.36$, $p < 0.001$, $\eta^2 = 0.30$. There were no significant main effects of group or time, both Fs < 1. Within the meditator group, and in line with our central prediction, observed happiness significantly increased from T1, $M = 17.03$, SD = 2.82 to T2, $M = 18.65$, SD = 2.74, $F(1, 12) = 5.02$, $p < 0.05$, $\eta^2 = 0.29$. Unexpectedly, within the control group, happiness significantly decreased, T1 $M = 18.52$, SD = 3.02, T2 $M = 17.26$, $SD = 2.86$, $F(1, 12) = 5.66$, $p < 0.05$, $\eta^2 = 0.32$.

We also examined whether meditators looked happier, or perhaps unhappier, as compared to non-meditators, both at T1 and T2 separately. Separate t-tests revealed that at T1, there was no difference between the meditators and non-meditators, $t(26) = -1.30$, $p = 0.20$. Also, at T2, there was no difference between the groups, $t(26) = 1.26$, $p = 0.21$.

Discussion

Thus, we found evidence in line with our prediction that meditation practice is associated with increases in looking happy (although meditators did not significantly look happier than non-meditators after the retreat). We should also mention the unexpected finding that the group of non-meditators looked actually unhappier at T2 compared to T1. Although it is difficult to pin down why this was happening, there is some previous evidence suggesting that Christmas holidays may actually be associated with decreases in happiness (Kasser & Sheldon, 2002). Christmas and New Year holidays appear to be risk factors for deaths from many diseases (Phillips, Barker, & Brewer, 2010), for higher psychiatric admissions (Velamoor, Cernovsky, & Voruganti, 1999), and suicide attempts (Jessen et al., 1999). Although we can only speculate about the reason for this drop in happiness among the control group, it does not undermine our central finding that meditators did look happier at T2, as observed by strangers.

Study 2

The findings of Study 1 provided initial evidence that mindfulness meditation is associated with observed happiness. In line with our central hypothesis, outside observers rated meditators significantly *happier* after the mindfulness meditation retreat, based on only a 15-s video clip of their behaviour. In Study 2, we sought to extend Study 1 by focusing on long-term experienced and skilful meditators, examining whether experienced mindfulness meditators were perceived as happier compared to a control group of non-meditators in their daily lives.

Method

Participants

We recruited 10 long-term meditators from the Dutch Vipassana meditation communities, who had practised mindfulness meditation extensively, and who were considered and evaluated to be skilful in mindfulness by their meditation teachers. On average, participants had 17.1 ± 7.85 years of meditation experience. All the

meditators have normal professions, and teaching and practising mediation is not their livelihood, but rather they incorporate their meditation practice into a daily routine with a regular base practice. We recruited a control group of healthy non-meditators with no prior meditation experience, matched on gender and age. Each group consisted of six men and four women, and all participants were native Dutch speakers. All respondents received a €10 check for their participation.

For the evaluation of the video clips of the subjects, 46 students participated as 'outside observers' (age; $M = 22.26$, $SD = 5.53$). They are different observers from Study 1, and they received extra course credit or a €5 check for participation. All outside observers were native Dutch speakers and Caucasian.

Materials and procedure

Video clips were made and all outside observers rated the video clips of both the 10 meditators and the 10 non-meditators, thus 20 video clips of 15 s in total that were randomly presented. Procedure and materials were identical to Study 1. The interrater-reliability for each item was high, ranging from 0.96 to 0.99. The three-item happiness scale was again highly reliable, $\alpha = 0.98$.

Results

To examine our main prediction, a paired *t*-test was conducted to test whether observers rated meditators as looking happier than non-meditators. Average scores of ratings on all videos of meditators and non-meditators by each observer were used for this analysis. In line with our main hypothesis, the analysis showed that outside observers rated meditators ($M = 17.21$, $SD = 1.70$) as happier than non-meditators ($M = 16.24$, $SD = 1.62$), $t(45) = 4.96$, $p < 0.001$, $d = 0.58$.

General discussion

This research investigated the relationship between practising mindfulness meditation and an individual's *observed* happiness. In Study 1, meditators looked significantly happier after a 9-day mindfulness meditation retreat (while we did not observe this effect in a control group); Study 2 showed that experienced meditators were rated as looking significantly happier than non-meditators. Remarkably, these findings are based on the observation of behaviour in video clips of merely 15 s. Also, observers had no idea that the study was about effects associated with meditation. Although it is important to note that the present findings are based on a quasi-experimental (Study 1) and cross-sectional (Study 2) study, which prevents drawing conclusions about causality, together these findings provide compelling evidence that meditation practice is associated with looking happier.

The uniqueness of this research was that we applied structured behavioural observations as measurements of happiness. Almost all the prior investigations in happiness research have mainly focused on self-report (Kahneman & Krueger, 2006). Given that self-report measures have methodological limitations such as social desirability, demand characteristics and positive illusions, the present studies provide a less biased and more objective way to measure happiness. Self-reported happiness ratings may be influenced by different views among the participants as to what happiness is. Especially, after mindfulness meditation, people could develop different values related to happiness such as a eudemonic view instead of a hedonistic one. Whatever the view of happiness an individual has, rating facial appearance is a consistent method that can be maintained to assess happiness which is less influenced by personal values.

Until now, most interest in the effects of meditation has focused on individual experiential levels. The present findings may have important interpersonal implications, as an individual's appearance provides strong interpersonal information and social effects. For example, even with short exposure to facial appearance, the evaluation of faces influences our judgements of other people, such as their likeability, trustworthiness, competence (Willis & Todorov, 2006) and even voting choices in elections (Todorov, Mandisodza, Goren, & Hall, 2005). Thus, if meditation causes happier impressions to outsiders, given the previous findings that happy people are considered more attractive social company (Harker & Keltner, 2001; Umberson & Hughes, 1987), meditators may receive more positive responses in social interaction.

We should acknowledge some limitations of this research and address some remaining issues. Our study did not focus on the specific ingredients of meditation practice that may make meditators look happier. For example, one mechanism by which meditation may enhance happiness and a happy appearance is improved emotion regulation. Mindfulness meditation may enhance the awareness and acceptance of emotional experiences, and may help in managing intense emotional experiences (Coffey & Hartman, 2008; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). Adaptive emotion regulation in turn may result in greater happiness, and eventually in a happier appearance. Related to this issue, future studies should examine the exact overt behavioural and physiological mechanisms by which meditators look happier. The effects of meditation may, for example, be related to activity in facial muscles associated with happiness (e.g., decreased corrugator, increased masseter activity;

Schwartz et al., 1976), which may give meditators a happier facial expression.

Another interesting possibility is the relationship between looking happy and recall during the interview. For example, meditators may come up with more positive memories when asked about their lives during an interview (as in our study), and may even interpret the (same) weather as nicer than non-meditators. Although it is possible that these potential biases may in turn induce a more positive mood, such biases may especially occur as a *consequence* of a happier mood (Forgas, 1995). Since our studies were not specifically designed to test this possible mechanism (e.g., the 15 s videos were cut at the fifth minute, so we had no control over what exactly participants were talking about at that point) – an interesting avenue for future research is to examine the role of positive memories, thoughts and judgements in the association between meditation and (observed) happiness.

In Study 1, the meditation retreat was associated with increased happiness after compared to before the retreat. However, meditators in Study 1 did not look significantly happier than controls, while in Study 2, we did find that long-term meditators looked significantly happier than a matched control group. This seeming discrepancy might be explained by the notion that more meditation experience and skillfulness of the meditation practice would eventually lead to increased and more sustainable happiness. In Study 1, meditators indicated to have attended only one previous meditation retreat prior to the current retreat, although for most of them it was their first meditation retreat. In Study 2, we specifically selected experienced meditators, who on average had 17 years of experience with meditation, and were judged by their teachers as experienced. Thus, these findings suggest that while a meditation retreat may be associated with increases in happiness – or at least in looking happier – *within* the individual, only sustained and long-term meditation practice seems to be associated with looking happier compared to non-meditators. It should be noted, however, that our experienced participants may not only have looked happier based on their experience alone, but also on the basis of their skillfulness in meditation (and were therefore selected by their teachers).

Finally, we should mention another limitation that is more generally applicable to meditation research. In Study 1, meditators and non-meditators in the control group did not only differ in terms of time spent on meditation between T1 and T2, they did differ in other ways. For example, meditators followed a very regulated schedule during the nine days; they did not speak; they were almost constantly surrounded by other people; they probably had less sleep (as waking up time is very early during a meditation retreat); they did not drink alcohol; etc. Although it is encouraging that we found similar effects across the two studies, these differences may also have been more structural between meditators and non-meditators in Study 2. As is the case with many studies examining the effects of mindfulness meditation, ideally the present findings will be replicated in future studies using different populations, different control groups and different research methods. Finally, we should acknowledge that due to the relatively small sample size of meditators, future research should examine whether the present findings generalize to different populations of mindfulness meditators, and importantly, whether the present findings generalize to other forms of meditation.

Despite these limitations, this study suggests that the effects of meditation are not confined to intrapersonal experiences, but may have important interpersonal effects – a topic that has received surprisingly little attention in the scientific literature. We hope that the present findings will inspire future research to further examine the long-term benefits of a happy appearance, which are thus associated with mindfulness meditation.

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