Association of Mindfulness with Psychological Distress and Life Satisfaction in Western and Eastern Meditators

Abstract

Objective: This study investigated if meditators living in India (Eastern Meditators: EMs) differed from those living in Western countries (WMs) in self-reported levels of mindfulness, depression, anxiety, stress, and life satisfaction.

Method: The 229 participants (18-81 years, *M* = 34.7 years, *SD* = 13.3; 52% EMs) completed scales measuring depression, anxiety, stress, life satisfaction, and mindfulness and its components.

Results: WMs indicated significantly higher levels of acceptance and non-judging than EMs, levels of mindful attention. For EMs, mindful attention was negatively associated with acceptance and non-judging, while for WMs these variables were not associated. WMs reported lower levels of depression, anxiety and stress than EMs but the groups did not differ in levels of life satisfaction. Multiple regression analyses showed that, for both WMs and EMs, acceptance explained significant proportions of the variance in depression, anxiety, and stress. Acceptance and non-judging explained significant proportions of the variance in life satisfaction for WMs, but only mindful attention did so for EMs.

Conclusions: Western and Eastern conceptualisations of mindfulness and associated meditation practices may differ in critical ways. There is a need to develop valid mindfulness scales for use in Eastern collectivist cultures.

Keywords: Anxiety, Depression, Life satisfaction, Meditation, Mindfulness, Stress

Key points

Current knowledge

1. Mindfulness meditation (MM) alleviates symptoms of depression, anxiety, and stress and improves life satisfaction
2. Acceptance and non-judging components of mindfulness are negatively correlated with anxiety and stress but are positively related to life satisfaction
3. The above findings are mainly from studies that used Western samples, with limited cross-cultural studies conducted to replicate the findings in Eastern samples

The current study

1. This study found that mean self-reported levels of depression, anxiety, and stress were lower in the Western Meditators (WMs) than Eastern Meditators (EMs), but there was no difference in levels of life satisfaction
2. This study found that acceptance and non-judging correlated negatively with psychological distress in EMs, supporting the findings from previous studies with Western samples
3. Cultural and socio-economic factors may underpin these differences between WMs and EMs.

Association of Mindfulness with Psychological Distress and Life Satisfaction in Western and Eastern Meditators

To alleviate the symptoms of disorders such as stress, depression, and anxiety, many people turn to mindfulness meditation (Sedlmeier et al., 2012) and therapeutic protocols such as Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, Lipworth, & Burney, 1985) and Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2018). The common element of these protocols is *mindfulness meditation* (MM), which is training to develop an awareness of what is happening inside and outside of oneself at a given moment (Brown & Ryan, 2004).

Many meta-analyses have reported that MM mitigates the severity of disorders such as stress, anxiety and depression (Goldberg et al., 2018; Hoffman & Gomez, 2017; Hoffman, Sawyer, Witt, & Oh, 2010; Khoury, Lecomte, Gaudiano, & Paquin, 2013). Several dispositional mindfulness studies have also found that trait mindfulness and its components (attention, acceptance, and non-judging) correlate negatively with symptoms of depression (Baer et al., 2006; Bergin & Pakenham, 2016; Freudenthaler, Turba, & Tran, 2017), anxiety (Baer et al., 2006; Bergin & Pakenham, 2016; Desrosiers, Klemanski, & Nolen-Hoeksema, 2013; Freudenthaler et al., 2017), and stress (Baer, 2003); and that trait mindfulness and its components are positively related to life satisfaction and wellbeing-related variables (Iani, Lauriola, Cafaro, & Didonna, 2016).

Such studies, however, have typically used purely Western samples with limited cross-cultural comparison studies completed to date. Karl et al. (2020) identified three key differences between people living in the Western and Eastern cultures that may have a bearing on how mindfulness is understood and practiced, namely individualism/collectivism, monumentalism/flexibility, and tightness/looseness. Uz (2015) suggested that these dimensions are interrelated. While Westerners are often characterised as individualistic, stable across different situations (monumentalistic), and less tightly bound to the in-groups (looseness), people in the Eastern nations tend to be characterised as collectivistic, more adaptable to conform to societal norms (flexible) and are tightly bound to their in-groups (tightness) (Minkov et al., 2018; Uz, 2015). Triandis (2000) suggested that sanctions for deviating from societal norms, could result in poorer psychological wellbeing. These cultural differences may, in turn, influence trait mindfulness and its association with psychological variables related to wellbeing. Of the handful of cross-cultural studies that have been conducted, some have found significant differences between cultures in the mean levels of depression, anxiety, and stress (Scholten, Velten, Bieda, Zhang, & Margraf, 2017), life

satisfaction (Jovanović, Cummins, Weinberg, Kaliterna, & Prizmic-Larsen, 2019), and mindfulness (Özyeşil 2012). Other studies have, however, reported no such differences. For example, the mean levels of trait mindfulness has been reported as being similar (i.e., not significantly different) for Thai and American participants (Christopher & Charoensuk, 2009), British and Chinese participants (Chen & Murphy, 2019), and New Zealand and Thai participants (Raphiphatthana, Jose, & Chobthamkit, 2019).

Given this paucity of research, combined with sometimes conflicting results, the current study will further explore cross-cultural differences in the associations between trait mindfulness and psychological wellbeing by comparing meditators living in India (Eastern Meditators, EMs) with those living in Western countries (Western Meditators, WMs). India was chosen as representative for EMs due to its large population, ease of access, long-standing associations with the practice of Buddhist-influenced (Eastern) MM and high level of English language skills. First, group differences in levels of trait mindfulness and its components, depression, anxiety, stress, and life satisfaction, are examined. Next, bivariate associations between mindfulness and psychological wellbeing variables are explored in WMs and EMs. Finally, multiple regression analyses were conducted to determine the collective and individual contributions of mindfulness components to explaining variance in psychological wellbeing variables. Due to the exploratory nature of the study, no *a priori* hypotheses have been proposed.

Method

Participants

Using G*power (Faul, Erdfelder, Buchner, & Lang, 2009) with a medium effect size (.05), a power of 0.8, and $\alpha = .05$, it was estimated that a minimum of 128 participants would be required to conduct the study. WM participants were recruited via email, online forums, meditation centres and the University of New England (UNE) campuses. EM participants were sourced from Qualtrics via paid survey panel recruitment. In both cases, participants were required to be fluent in English. In total, 229 (51% male, 48% female, 1% other) volunteered for the study, providing informed consent before participation. Ages ranged from 18 to 81 years (M = 34.7 years, SD = 13.3). Western meditators (WMs; N = 111) were comprised of participants living in Australia (54; 48%), Europe (26; 23%), and North America (31; 28%) with an age range of 18-81 years (M = 39.9 years, SD = 14.4). Eastern meditators (EMs; N = 118), all of whom lived in India, ranged in age from 18-67 years (M = 29.8 years, SD = 9.9). Additionally, the WM group skewed female (31% male, 69% female), while the EM group skewed male (70% male, 28% female, 2% other). There were significant

age and sex difference between the two groups, but they did not differ significantly in either education levels or employment status (see Table 1).

<<Insert Table 1 about here>>

Materials

An online questionnaire hosted by Qualtrics® (Provo, UT) informed the participants about the study and recorded informed consent and demographic details. Participants then completed the following scales.

Carolina Empirically Derived Mindfulness Inventory (CEDMI; Coffey, Hartman, & Fredrickson, 2010) is a 22-item scale that measures trait mindfulness. Respondents indicate on a 5-point scale how true each item is of them (from 1 = *never or very rarely true* to 5 = *very often or always true*). The CEDMI yields scores for total mindfulness (22 items) along with scores for subscales for mindful attention (8 items), acceptance (6 items), and non-judging (8 items). All scores range from 1-5, with high scores indicating higher levels of mindfulness or its components. Good internal consistency reliability has been reported for the full scale and the subscales (attention: α = .74; acceptance: α =. 90; non-judging: α = .87; trait mindfulness total score: α =. 88; Coffey et al., 2010). In Indian samples, similar internal consistency reliabilities were reported by Menon, Doddoli, Singh, and Bhogal (2014) for mindful attention and non-judging subscales (α = .71 to . 85) and George (2015) for acceptance subscale (α =. 82 to .89). These values are similar to those found in the current study for WMs (mindful attention: α =. 85; acceptance: α =. 94; non-judging: α = .94; trait mindfulness total score: α =. 90). EMs scores were also similar (mindful attention: α = .89; acceptance: α. = .85; non-judging α = .91) except for trait mindfulness total score (α = .59). Consequently, the analyses did not include the trait mindfulness total score.

Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995)**.** The DASS-21 is a 21-item scale that measures symptoms of depression, anxiety, and stress. Participants indicate on a 5-point scale how much each item applied to them over the past week (from 0 = *did not apply to me at all to* 4 = *applied to me very much or most of the time*). The scale also contains three 7-item sub-scales to assess depression, anxiety, and stress individually. Total subscale scores can range from 0 to 28, with higher scores representing higher levels of impairment. Previously reported internal consistency reliabilities were good for all three scales (depression: α = .88; anxiety: α = .82; stress: α = .93, Henry & Crawford, 2005). Similar internal consistency reliabilities were reported in Indian samples by Verma and Mishra (2020) for the DASS-21 scale (α = .95), and Singh, Junnarkar, and Sharma (2015) for depression (α = .76), anxiety (α = .73), and stress (α = .71) . The current study

obtained similar levels of internal consistency reliabilities for WMs (depression: α = .89; anxiety: α = .77 ; stress: α = .86) and EMs (depression: α = .89; anxiety: α = .83 ; stress: α = .86).

Personal Well-being Index (PWI; International Wellbeing Group, 2013)**.** The PWI is a 7-item scale that assesses life satisfaction across seven domains. Respondents indicate their level of satisfaction with each domain (e.g., '*How satisfied are you with your standard of living?'*) on an 11-point scale (0= *extremely dissatisfied* to 10 = *extremely satisfied*). Domain scores are averaged and then converted to an index score, such that total scores range from 0-100, with higher scores indicating higher levels of life satisfaction (International Wellbeing Group, 2013). Previously reported internal consistency reliability for the scale was good (α = .70 to α = .85, International Wellbeing Group, 2013). In an Indian sample, internal consistency reliability was similar (α = .82; McIntyre, Saliba, & McKenzie, 2020). These values are similar to the internal consistency reliability obtained in the current study for both WMs (α = .82) and EMs (.94).

Procedure

Participants clicking on the questionnaire URL were presented with a Participant Information Sheet, and an Online Implied Consent form. Those who continued to the questionnaire were asked to provide demographic information and report whether they engaged in meditation that included mindfulness. They were then presented with the various scales. The questionnaire took approximately 30 and 35 minutes to complete. The study received approval from the UNE Human Research Ethics Committee (approval number: HE 18-040).

Results

Comparison of Western and Eastern meditators

For initial analysis, WMs and EMs were compared in terms of self-reported levels of mindful attention, acceptance, non-judging, depression, anxiety, stress, and life satisfaction by conducting a one-way analysis of covariance (ANCOVA) with age and sex as the covariates. WMs had higher levels of acceptance, $F_{(1, 225)} = 12.26$, $p = .001$, $\eta_p^2 = .05$, and non-judging, $F_{(1, 225)} = 11.59$, $p = .001$, $\eta_p^2 = .05$ than EMs. WMs had lower levels of depression, $F_{(1, 224)} = 22.79$, $p < .001$, $\eta_p^2 = .09$; anxiety, $F_{(1, 224)} = 34.74$, $p < .001$, $\eta_p^2 = .13$; and stress, $F_{(1, 225)} = 4.20$, $p = .042$, $\eta_p^2 = .02$ than EMs. There was no significant difference in the levels of attention and life satisfaction between the two groups (see Table 2).

<<Insert Table 2 about here>>

Correlation Analysis

The strength and direction of associations between key variables for WMs and EMs were subsequently calculated using partial correlations controlling for age and sex (see Table 3). In WMs, the mindfulness components of acceptance and non-judging were significantly positively correlated with life satisfaction and significantly negatively correlated with depression, anxiety, and stress. For EMs, the mindfulness components of acceptance and non-judging were also significantly negatively correlated with depression, anxiety, and stress. In the EMs, in contrast to the WMs, mindful attention displayed a significant positive correlation with depression, anxiety, stress, and life satisfaction (see Table 3). Further analysis of the correlation patterns in both groups using the Fisher r-to-z transformation on an online calculator (vassarstats.net/rdiff.html) found no significant difference between the strength of the associations evident for WMs and EMs.

<<Insert Table 3 about here>>

Multiple Regression Analyses

Hierarchical multiple regression analyses were conducted for WMs and EMs separately. The analyses assessed the contribution of the mindfulness components, mindful attention, acceptance, and non-judging to the variance in depression, anxiety, stress, and life satisfaction. In all cases, age and sex were included in the regressions to control for any associated effects.

Depression. For WMs, the model included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2), and explained 52% of the variance in depression: $F_{(5, 105)} = 22.97$, $p < .001$, $\eta_p^2 = .52$. Mindful attention, acceptance and non-judging explained an additional 41% of variance over Step 1: R^2 change = .41, F change $_{(3, 105)} = 30.24$, $p < .001$. Only acceptance and age made significant unique contributions to explaining the variance in depression scores in the final model, accounting for 11% and 2% of the variance, respectively (see Table 4). In other words, those with higher levels of acceptance and older age have lower depression scores.

For EMs, the model which included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2) explained 34% of the variance in depression: $F_{(5, 111)} = 11.44$, $p < .001$, $\eta_p^2 = .34$. Mindful attention, acceptance, and non-judging explained an additional 33% of variance over Step 1: R^2 change = .33, F change $_{(3, 111)} = 18.40$, $p < .001$. In the final model, only acceptance made a significant unique contribution to the variance in depression scores (14%), indicating that those with higher levels of acceptance levels had lower depression scores (see Table 4). An interesting

observation relating to this regression for EMs was that while non-judging had negative zero-order correlation with depression, it had positive regression weight (see Table 4). This could be a case of negative suppression. Maassen and Bakker (2001) describe a negative suppressor, such as non-judging, as having less relevant information in common with the dependent variable (depression) compared to common irrelevant information it shares with the other predictor (acceptance). McNemar (1945, as cited in Maassen & Bakker, 2001) suggests that when the suppressant (non-judging) and the predictor (acceptance) are positively correlated, the suppressant assumes a negative weight in the regression analysis and increases the regression weight of the predictor. Further analysis revealed that the absolute value of the regression coefficient of acceptance which is -.97 (Table 4) decreased to -.55 when non-judging was excluded from the model.

<<Insert Table 4 about here>>

Anxiety. For WMs, the model which included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2) explained 35% of the variance in anxiety: $F_{(5, 105)} = 11.46$, $p < .001$, $\eta_p^2 = .35$. Mindful attention, acceptance, and non-judging explained an additional 26% of variance over Step 1: R^2 change = .26, F change $_{(3, 105)} = 14.26$, $p < .001$. In the final model, acceptance and age made significant unique contributions to the variance in anxiety scores, accounting for 6% and 2% of the variance, respectively, indicating that those with higher levels of acceptance and older age had lower anxiety scores (see Table 5).

For EMs, the model which included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2) explained 30% of the variance in anxiety: $F_{(5, 111)} = 9.51$, $p < .001$, $\eta_p^2 = .30$. Mindful attention, acceptance, and non-judging explained an additional 29% of variance over Step 1: R^2 change = .29, F change $_{(3, 111)} = 15.23$, $p < .001$. In the final model, acceptance and non-judging made significant unique contributions to the variance in anxiety scores, accounting for 13% and 3% of the variance, respectively. The suppression effect discussed above was also apparent in this analysis of the EMs data. Non-judging was negatively correlated to anxiety but the regression coefficient was positive. Furthermore, the absolute value of the regression coefficient of acceptance which is -.95 (Table 5) decreased to -.50 when non-judging was excluded from the model. This suggests that those with higher levels of acceptance had lower anxiety scores.

<<Insert Table 5 about here>>

Stress. In WMs, the model included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2), and explained 45% of the variance

in stress: $F_{(5, 105)} = 17.42$, $p < .001$, $\eta_p^2 = .45$. Mindful attention, acceptance and non-judging explained an additional 31% of variance over Step 1: R^2 change = .31, F change $_{(3, 105)}$ = 19.57, $p < .001$. In the final model, acceptance and age made significant unique contributions to explaining the variance in stress scores accounting for 6% and 4% of the variance, respectively. This indicates that those who are more accepting and older in age had lower stress scores (see Table 6).

In EMs, the model included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2), and explained 47% of the variance in stress: $F_{(5, 111)} = 19.40$, $p < .001$, $\eta_p^2 = .47$. Mindful attention, acceptance and non-judging explained an additional 46% of variance over Step 1: R^2 change = .46, F change $_{(3, 111)} = 32.11$, $p <$ .001. In the final model, acceptance and non-judging made significant unique contributions to explaining the variance in stress scores accounting for 17% and 4% of the variance, respectively. The suppression effect discussed above was apparent. Non-judging was negatively correlated to stress but the regression coefficient was positive. Furthermore, the absolute value of the regression coefficient of acceptance which is -1.10 (Table 6) decreased to -.64 when non-judging was excluded from the model. This indicates that those with higher levels of acceptance had lower stress scores.

<<Insert Table 6 about here>>

Life satisfaction. In WMs, the model included age and sex (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2), and explained 26% of the variance in life satisfaction: $F_{(5, 104)} = 7.41$, $p < .001$, $\eta_p^2 = .26$. Mindful attention, acceptance and non-judging explained an additional 24% of variance over Step 1: R^2 change = .24, F change $_{(3, 104)} = 11.14$, $p < .001$. In the final model, acceptance and non-judging made significant unique contributions to the variance in life satisfaction scores accounting for 13% and 4% of the variance, respectively. This indicates that those with higher levels of acceptance and non-judging had higher life satisfaction scores (see Table 7).

In EMs, the model included age, sex, and social desirability (entered at Step 1), and mindful attention, acceptance, and non-judging (entered at Step 2), and explained 22% of the variance in life satisfaction: $F_{(5, 91)} = 5.02$, $p < .05$, $\eta_p^2 = .22$. Mindful attention, acceptance and non-judging explained an additional 19% of variance over Step 1: R^2 change = .19, F change $_{(3, 91)} = 7.32$, $p < .001$. In the final model, only mindful attention made a significant unique contribution to the variance in life satisfaction (12%), indicating that those who possess higher levels of mindful attention had higher levels of life satisfaction (see Table 7).

Once more, the suppression effect discussed above was also apparent in this analysis for EMs. Non-judging was negatively correlated to life satisfaction but the regression coefficient was positive. Furthermore, the absolute value of the regression coefficient of mindful attention which is .58 (Table 7) decreased to .41 when non-judging was excluded from the model. Non-judging correlated strongly negatively with mindful attention (see Table 3).

<<Insert Table 7 about here>>

Discussion

As an exploration of cross-cultural differences, the current study aimed to examine differences between WMs and EMs in relation to mindfulness and psychological wellbeing, including the associations between these variables. Several differences were found between the two groups, such as mean levels of depression, anxiety, and stress being significantly lower in WMs than in EMs. However, similarities were also evident, including that acceptance and non-judging were negatively correlated with psychological distress for both WMs and EMs. These and other study findings will be discussed in turn.

Mindfulness and its Components

Examination of group differences indicated that WMs reported significantly higher levels of acceptance and non-judging than EMs, but the two groups did not differ in relation to mindful attention. The latter finding is consistent with Christopher and Charoensuk (2009), who found no differences in mindfulness between Thai and American participants, and Chen and Murphy (2019), who found no differences in mindfulness between British and Chinese participants. The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) was used to measure mindfulness in both these studies. The MAAS is a single factor scale assessing attention to experiences in the present moment. Hence, it is equivalent to the mindful attention scale of the CEDMI. Similar results were evident in Raphiphatthana et al.'s (2019) investigation of mindfulness in New Zealand and Thai participants, using a multifaceted mindfulness measure, the short form version of the Five Facet Mindfulness Questionnaire (FFMQ-SF; Bohlmeijer et al., 2011). Consistent with the present study, the two groups' mean scores did not differ significantly for the *observe* subscale, which is equivalent to the mindful attention subscale of the CEDMI. Also consistent with the present study, Raphiphatthana et al. (2019) found that New Zealanders scored higher on non-judging than the Thai participants. The New Zealand participants also scored higher on the describing subscale. The Thai participants scored higher on acting with awareness, and the groups did not differ in levels of non-reactivity towards inner experiences.

A reason for this pattern of similarities and differences between participant groups recruited from Eastern and Western cultures, as suggested by Raphiphatthana et al. (2019), is that people's responses to various scales can differ based on the individualistic/collectivistic dichotomy. In Western English-speaking countries, from which the WMs in this study were drawn, individualism is considered desirable and beneficial. This contrasts with the Indian culture common to the EMs, which is collectivist "in that it promotes interdependence and co-operation, with the family forming the focal point of this social structure" (Chadda & Deb, 2013; p.S299). Buddhist traditions, such as those practiced in Eastern cultures like India, commonly conceptualise mindfulness and its practice as training the mind to cultivate wholesome qualities of kindness, compassion, and empathy, while eliminating unwholesome qualities such as greed, hate, and delusion (Bodhi 2011). These wholesome qualities are other-focused, which serve community cohesion, consistent with belonging to a collectivist culture.

In contrast, the Western conceptualisation of mindfulness and its practice tend to focus on the self, which is compatible with individualism. This can be seen in the way that MM is generally considered as a means to improve the meditator's own psychological wellbeing, which is achieved by attending to their moment-to-moment experience and thoughts with an attitude of acceptance and non-judging, regardless of what the contents of their thoughts may be (Bishop et al., 2004). This differs from people living in Eastern societies who judge their experiences to ensure that they conform to the larger societal requirements. As such, non-judging is not a quality that is commonly associated with EMs. This is perhaps why non-judging was found to act as a suppressor within the regression analyses for EMs but not for WMs. That is, whatever association non-judging exhibited with depression, anxiety, stress, and life-satisfaction may be mainly due to its high correlation with acceptance and not its direct effect on those variables, with this operating differently for EMs in comparison to WMs. Evidently, this requires further investigation, and may relate to the appropriateness of the mindfulness measure for use in non-Western samples.

It is possible, for example, that such cultural differences may become evident when completing multifaceted mindfulness scales because WMs have been trained to be accepting and non-judgemental of their thoughts, while EMs have been trained to focus on replacing unwholesome thoughts with wholesome thoughts, which cannot be completed without some level of non-acceptance and judging. As noted by Raphiphatthana et al. (2019), "…where harmony within society is of the utmost importance, self-criticism may be highly endorsed and motivate… individuals to be more judging and critical of themselves" (p.154). The

mindful attention component is likely less affected by such cultural differences because its purpose and training are central to both Eastern and Western mindfulness practices. This proposition is supported by Karl et al.'s (2020) finding that, in comparing participants from 16 different countries (including India), the observing subscale of the FFMQ showed the best fit across samples.

Karl et al.'s (2020) study further found that the overall model fit of the FFMQ was better for individualistic than collectivist cultures, suggesting that it is not an appropriate measure for use in cross-cultural studies. In the present study, while model fit was not examined, the fact that the pattern of associations between the CEDMI subscales differed for WMs and EMs suggests that the measure may not be appropriate for such uses. It was developed to fit a Western conceptualisation of mindfulness that may be inconsistent with an Eastern conceptualisation. Specifically, while acceptance and non-judging were positively correlated for both groups, these variables were negatively correlated with mindful attention for the EMs, and not significantly associated with mindful attention for the WMs. It is clear from these findings that further investigation is required into cultural similarities and differences in the conceptualisation and practice of mindfulness. Given the findings from the present study, and prior studies discussed above, the clearest commonality between Eastern and Western mindfulness conceptualisations and practices appears to be mindful attention.

Psychological Wellbeing

Analysis of group differences indicated that WMs reported lower depression, anxiety, and stress levels than EMs, yet there was no significant difference between the two groups in their level of life satisfaction. Scholten et al. (2017) similarly found significant cross-cultural differences in mean levels of depression, anxiety, and stress. However, the participants in Scholten et al.'s study were drawn from Poland, Russia, the United Kingdom, and the United States of America; hence, this was not a comparison of Eastern and Western cultures. Nevertheless, Scholten et al.'s suggestion that such differences in psychological wellbeing may be associated with socio-economic factors, is relevant to the present study. For example, the median per capita annual income in India between 2006 and 2012 was just $616, while it was $15,026 in Australia and $15,480 in the USA (https://worldpopulationreview.com/country-rankings/median-income-by-country). Given these large differences in median per capita income, it is reasonable to suggest that the present study's findings may be, at least in part, attributable to India's relative poverty compared to Western countries (as it was not anticipated that socio-economic factors would play a role, individual and household income data were not collected for this study).

It is also possible that the related dimensions of monumentalism/flexibility and tightness/looseness may have influenced the results. Specifically, Triandis (2000) posited that people living in tighter societies, like the EMs, have lower psychological wellbeing levels than people living in looser societies, like the WMs. In part, this is because tighter/flexible societies inhibit individual freedoms, placing pressure on people to conform, while looser/monumental societies celebrate individuality (Raphiphatthana et al., 2019). The dimensions identified here are societal characteristics. There may be basic differences at the human level which will require further detailed research so that differences in psychological wellbeing can be more clearly elucidated.

Given the differences in levels of depression, anxiety and stress symptomology reported by the two groups it is somewhat surprising that WMs and EMs did not differ in levels of life satisfaction. This is, nevertheless, consistent with Keyes and Lopez's (2002) Complete Mental Health Model, where *flourishing* is conceptualised as having low levels of psychological distress combined with high levels of subjective wellbeing, while *struggling* is having high psychological distress combined with high levels of subjective wellbeing. The results from the present study would, therefore, suggest that the WMs are flourishing while the EMs are struggling. Such differences between the groups are likely influenced by the range of socio-economic factors discussed above.

Lastly, life satisfaction does not necessarily mean that an individual is enjoying high levels of wellbeing. Charlemagne-Badal, Lee, Butler, and Fraser (2015) identified 15 domains (e.g., cognitive health, economic health, health care, and life satisfaction), as necessary indicators of overall wellbeing. It can be seen that life satisfaction is part of overall wellbeing, and individuals may be high in the life satisfaction domain without being so on overall wellbeing. This may be particularly relevant when comparing Indian samples, for example, lacking in easy access to healthcare, with Western samples having greater access to universal healthcare.

Mindfulness and Psychological Wellbeing

Bivariate correlational analyses indicated that, for both WMs and EMs, there were negative associations between the acceptance and non-judging mindfulness components and the psychological wellbeing variables of depression, anxiety, and stress. Thus, indicating that higher levels of acceptance and non-judging were related to lower levels of psychological distress. In WMs, acceptance and non-judging were positively associated with life satisfaction. In contrast, life satisfaction was not significantly associated with acceptance for EMs. There was a negative relationship between life satisfaction and non-judging for this

group, indicating that EMs who were low on non-judging (i.e., higher judging) reported higher levels of life satisfaction. Another difference between the groups was that mindful attention was positively associated with depression, anxiety, stress and life satisfaction for EMs but, for the WMs, mindful attention was not significantly associated with any of these variables. These complex patterns of interactions between mindfulness components and psychological wellbeing variables were further explored through a series of multiple regressions, which determined the amount of variance in the psychological wellbeing variables that the mindfulness components accounted for collectively and individually.

After controlling for age and sex, the mindfulness components explained a higher proportion of the variance in depression scores for WMs (41%) than for EMs (33%), with significant unique proportions of the variance accounted for by acceptance and mindful attention for WMs, but only by acceptance for the EMs. In relation to anxiety scores, the mindfulness components accounted for similar amounts of variance for WMs (26%) and EMs (29%), with acceptance being the only significant mindfulness variable for WMs. In contrast, both acceptance and non-judging explained significant proportions of the variance in anxiety scores for EMs. Mindfulness components explained a higher proportion of variance in stress scores for EMs (46%) than for WMs (31%). Only acceptance made a significant contribution to explaining variance in stress scores for WMs, while both acceptance and non-judging made significant contributions for EMs.

Regarding life satisfaction, a higher proportion of variance was explained by the mindfulness components for WMs (24%) than for EMs (19%), with acceptance and non-judging making a significant contribution to explaining this variance for WMs, only mindful attention doing so for EMs. However, in EMs, there may not be any causal relationship between non-judging and the dependent variables. Therefore, in EMs, the observed effects of non-judging on all dependent variables may be spurious and manifest only due to its strong positive correlation with acceptance, and in the case of life satisfaction, its strong negative association with mindful attention. Hence, for WMs, variance in depression scores was best accounted for by the mindfulness components. For EMs, it was variance in anxiety scores; for both groups, the mindfulness components were least able to account for variance in life satisfaction.

While there are clearly some differences, the most apparent commonalities between WMs and EMs are that acceptance and non-judging are negatively related to depression, anxiety, and stress, and acceptance explains significant proportion of the variance in psychological distress variable scores. These findings are consistent with those of Baer et al.

(2006), Coffey et al. (2010), and Desrosiers et al. (2013), as well as several meta-analyses of intervention studies (e.g., Goldberg et al. 2018; Hoffman et al. 2010; Khoury et al. 2013; Sedlmeier et al. 2012), all of which have also found negative associations between the acceptance and nonjudging components of mindfulness and symptoms of depression, anxiety and stress. In terms of mechanisms of action, Coffey et al. (2010) and Desrosiers et al. (2013) suggest that acceptance and non-judging are associated with reduction in rumination and increased emotion regulation, which may then act to prevent or mitigate symptoms of depression, anxiety and stress. Similarly, Freudenthaler et al. (2017) posits that non-reactivity to, or acceptance of, the present moment experience results in enhanced emotion regulation, thereby mitigating symptoms associated with depression and anxiety. However, it has also been suggested that higher levels of attention might increase anxiety and psychological distress in some circumstances, such as when attention is focused on negative cognitions (Bergin & Pakenham, 2016; Desrosiers et al., 2019; Coffey et al., 2010).

The findings relating to life satisfaction for EMs are similar to Coffey et al.'s (2010) finding that mindful attention significantly increased flourishing, including life satisfaction. Iani et al. (2016) also found that mindful attention had significant positive correlations with life satisfaction, but that it did not have any significant relationship with depression and anxiety, which is consistent with the findings relating to EMs in the current study. Iani et al. suggest that deploying attention mindfully may improve life satisfaction by enhancing the ability to relate to the present moment experience more clearly. This could, perhaps, explain the significant positive associations of mindful attention with depression, anxiety, and stress levels in EMs. The current study's findings for WMs that mindfulness components, acceptance, and non-judging, but not mindful attention, were positively associated with life satisfaction are consistent with the findings of Bergin and Pakenham (2016). Their investigation of mindfulness and life satisfaction within a sample of Australian students found that non-judging and non-reactivity (acceptance) correlated significantly positively with life satisfaction. It may be then that the results of the EMs may reflect a different perspective on life satisfaction than WMs, with this difference being attributable to differing cultural norms and expectancies. This is because subjective assessments of life satisfaction are commonly comparative in nature, being made in relation to people within the same community, such as comparing one's level achievement in various life domains to that achieved by one's friends, relatives, colleagues or neighbours. Hence, two people who report the same level of life satisfaction could have vastly different life circumstances and experiences. For example, one could live in relative poverty within a restrictive society, while

the other could be relatively wealthy, living in a culture that encourages and supports individual freedoms, yet, they could both rate their life satisfaction as being high.

Limitations and Future Research

The results reported here should be viewed with some caution due to the following limitations. First and foremost, the results reported here are based on cross-sectional data, which means that causality cannot be determined. This study's findings may have been adversely affected by the use of the CEDMI because its measurement invariance has not been established in EMs. This means that the CEDMI items may have been understood differentially by the WMs and EMs. Notwithstanding Karl et al.'s (2020) findings in relation to the FFMQ discussed above, it should be noted that both the FFMQ (attention and non-judging subscales of the CEDMI) and Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; acceptance subscale of the CEDMI) have been used extensively in Indian populations (for example, see Bhatnagar, Shukla, & Pandey, 2020; Chavan, Deshmukh, & Singh, 2017; Krishnan, Lekshmy, Anil, Sandhya, & Jayageetha, 2020; Ram, George, & Gowdappa, 2018).

It is also important to note that the findings from the current study may not be generalisable more broadly to either Western or Eastern cultures. Specifically, while nationality is often considered to be broadly synonymous with culture, there are likely to be people with individualistic attitudes living in Eastern countries and people with collectivist attitudes living in Western countries. Additionally, we cannot rule out the possibility that our interpretation of differences between WM and EM may have been confounded by participants from Western countries engaging in Eastern mindfulness practices, or vice versa. Furthermore, there is a need to recognise that the Indian population itself is not homogenous; there are many apparent differences between North and South India, including cultural differences in collectivistic attitudes and differences in psychological wellbeing levels (Sengupta & Agree, 2002).

Another indicator of cultural differences within India is that several languages are spoken. Hence, future research could use mindfulness scales that are translated into several Indian languages (e.g., Hindi, Gujarati, Bengali, and Tamil) to facilitate data collection from a broader range of Indian cultural groups. However, as discussed above, such scale development will first require a greater understanding of the similarities and differences between Western and Indian conceptualisations and practices of mindfulness to ensure construct validity. Lastly, while EMs were younger on average than WMs, there were more

females in WMs than EMs, and both or either one could have confounded the cultural differences. However, the effects of age and sex were controlled for in the analyses.

Conclusions

To summarise, WMs were found to have lower levels of psychological distress and higher levels of acceptance and non-judging than EMs, but the two groups did not differ in relation to levels of life satisfaction or mindful attention. These findings may be indicative of cultural differences relating to individualism versus collectivism, tight versus loose societies, cultural expectations relating to flexibility versus monumentalism, as well as basic socio-economic differences between the EMs and WMs. Mindful attention was differentially associated with acceptance and non-judging in the two groups, suggesting that there are important differences between Western and Eastern conceptualisations of mindfulness and associated meditation practices, which require further investigation.

In particular, there is a need to develop mindfulness measures that are appropriate for Eastern collectivist cultures due to Western measures apparently lacking validity in such populations. Such advances in the field will facilitate more nuanced cross-cultural research, which is required to fully untangle the complex relationships evident between the mindfulness components and psychological variables analysed in this study. Nevertheless, the commonalities found between WMs and EMs in the current study suggest that having an accepting attitude is associated with lower levels of psychological distress and greater life satisfaction. Therefore, developing MM interventions that focus on increasing the qualities of acceptance may prove to be useful generally and in clinical practice.

Conflict of interest

The authors declare that they have no conflict of interest

Ethical standards

The manuscript does not contain clinical studies or patient data

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Table 1. Educational and employment details of the participants in the study

	Western Meditators (*N* = 111)	**Eastern Meditators (*N* = 118)**	***t***	***χ²***	***p***
Age					
M (*SD*)	39.86 (14.40)	29.79 (9.89)	6.13		<.001
Range	18-81 years	18-67 years			
	***N* (%)**	***N* (%)**			
Sex				37.57	<.001
Female	76 (68.5)	33 (28)			
Male	35 (31.5)	82 (69.5)			
Other		3 (2.5)			
Education				11.06	.16
Year 12 and less	15 (13.5)	23 (19.5)			
Technical education (certificate/diploma, trade certificate)	5 (4.5)	3 (2.5)			
Undergraduate university degree	30 (27.0)	49 (41.5)			
Postgraduate diploma or degree	54 (48.6)	38 (32.2)			
Doctoral degree	7 (6.3)	5 (4.2)			
Employment				13.85	.08
Employed full-time	46 (41.4)	61 (51.7)			
Employed part-time/casual	26 (23.4)	21 (17.8)			
Unemployed or other (e.g., home duties)	10 (9.0)	10 (8.5)			
Student	29 (26.1)	26 (22.0)			

Table 2. Descriptive statistics for key variables

	Western Meditators (N = 111) $M(SD)$	Eastern Meditators (N = 118) $M(SD)$	F	p	η_p^2
CEDMI					
Attention	3.52 (0.72)	3.34(0.96)	0.74	.392	.00
Acceptance	3.62 (0.92)	3.02 (0.89)	12.26	.001	0.05
Non- judging	3.40 (0.95)	2.83 (1.04)	11.59	.001	0.05
DASS-21					
Depression	1.68 (1.10)	2.87 (1.45)	22.79	<.001	0.09
Anxiety	1.79 (1.27)	3.37 (1.54)	34.74	<.001	0.13
Stress	6.05 (4.41)	8.40 (5.05)	4.20	.042	0.02
PWI					
Life satisfaction	73.91 (14.14)	66.27 (21.34)	3.15	.078	0.02

Table 3. Partial correlations between the key variables in Western and Eastern meditators controlling for age and sex

	Variable	1	2	3	4	5	6	7
1	Attention	-	-.68**	-.79**	.31*	.29*	.44**	.41**
2	Acceptance	-.05	-	.92**	-.55**	-.51**	-.65**	-.16
3	Non-judging	-.06	.94**	-	-.44**	-.40**	-.54**	-.23*
4	Depression	-.14	-.65**	-.56**	-	.77**	.82**	.03
5	Anxiety	-.01	-.53**	-.47**	.69**	-	.79**	.08
6	Stress	-.09	-.58**	-.52**	.59**	.57**	-	.16
7	Life satisfaction	.10	.42**	.32**	-.56**	-.41**	-.42**	-

** p<.001, *p<.05 (2-tailed) . *Note:* Correlations for Western meditators below the diagonal and Eastern meditators above the diagonal

Table 4. Hierarchical multiple regression predicting depression for each predictor variable in Western and Eastern meditators

	Western meditators (WM)				Eastern meditators (EM)			
Predictor	Zero-order correlation (r)	β	*p*	sr^2	Zero-order correlation (r)	β	*p*	sr^2
Age	-.33**	-.17	.017	.02	-.11	-.03	.727	.00
Sex	.03	-.07	.350	.00	-.01	-.03	.748	.00
Mindful attention	-.15	-.16	.021	.03	.30*	.02	.891	.00
Acceptance	-.67**	-.98	<.001	.11	-.55**	-.97	<.001	.14
Non-judging	-.58**	.36	.070	.01	-.44**	.47	.054	.00

** $p < .001$, *$p < .05$ (2-tailed)

Table 5. Hierarchical multiple regression predicting anxiety for each predictor variable in Western and Eastern meditators

	Western meditators (WM)				Eastern meditators (EM)			
Predictor	Zero-order correlation (r)	β	*p*	sr^2	Zero-order correlation (r)	β	*p*	sr^2
Age	-.29*	-.18	.037	.02	-.07	.00	.991	.00
Sex	.01	-.07	.407	.00	-.08	-.09	.286	.00
Mindful attention	-.03	-.02	.689	.00	.27*	.05	.732	.00
Acceptance	-.56**	-.71	.003	.06	-.51**	-.95	<.001	.13
Non-judging	-.50**	-.19	.400	.00	-.39**	.51	.040	.03

** $p < .001$, *$p < .05$ (2-tailed)

Table 6. Hierarchical multiple regression predicting stress for each predictor variable in Western and Eastern meditators

	Western meditators (WM)				Eastern meditators (EM)			
Predictor	Zero-order correlation (r)	β	*p*	sr^2	Zero-order correlation (r)	β	*p*	sr^2
Age	-.38**	-.24	.002	.04	.02	.11	.141	.01
Sex	.09	-.01	.865	.00	-.05	-.07	.331	.00
Mindful attention	-.10	-.11	.131	.01	.43**	.18	.115	.01
Acceptance	-.61**	-.75	<.001	.06	-.64**	-1.10	<.001	.17
Non-judging	-.54**	-.20	.341	.00	-.53**	.61	.005	.04

** $p < .001$, *$p < .05$ (2-tailed)

Table 7. Hierarchical multiple regression predicting life satisfaction for each predictor variable in Western and Eastern meditators

	Western meditators (WM)				Eastern meditators (EM)			
Predictor	Zero-order correlation (r)	β	*p*	sr^2	Zero-order correlation (r)	β	*p*	sr^2
Age	.15	-.02	.857	.00	.13	.12	.230	.01
Sex	.08	-.04	.651	.00	.09	.03	.719	.00
Mindful attention	.11	.11	.199	.01	.41**	.58	<.001	.12
Acceptance	.44**	1.04	<.001	.13	-.14	.18	.465	.00
Non-judging	.34**	-.64	.010	.04	-.23*	.06	.835	.00

** $p < .001$, *$p < .05$ (2-tailed)