Mindfulness (2017) 8:1055–1063
DOI 10.1007/s12671-017-0681-6

ORIGINAL PAPER

Mindfulness and Meditation Practice as Moderators of the Relationship between Age and Subjective Wellbeing among Working Adults

Tammy D. Allen[1] · **Tyler G. Henderson**[1] · **Victor S. Mancini**[1] · **Kimberly A. French**[1]

Published online: 10 February 2017

Abstract Promoting the health and wellbeing of an aging and age-diverse workforce is a timely and growing concern to organizations and to society. To help address this issue, we investigated the relationship between age and subjective wellbeing by examining the moderating role of mindfulness in two independent studies. In study 1, trait mindfulness was examined as a moderator of the relationship between age and vitality and between age and work-family balance in a sample of 240 participants. In study 2, data from the second phase of the Midlife Development in the USA (MIDUS II) project was used to investigate mindful-practice (i.e., meditation) as a moderator of the relationships between age and multiple measures of subjective wellbeing (life satisfaction, psychological health, physical health) in a sample of 2477 adults. Results revealed that mindfulness moderates the relationship between age and multiple indicators of subjective wellbeing. In addition, study 2 results indicated that individuals who reported that they mediated often combined with those who reported they meditated a lot reported better physical health than those who reported that they never meditate. The findings suggest that cultivating mindfulness can be a proactive tool for fostering health and subjective wellbeing in an aging and age-diverse workforce.

Keywords Mindfulness · Age · Wellbeing · Health · Lifespan · Meditation

✉ Tammy D. Allen
tallen@mail.usf.edu

[1] Department of Psychology, University of South Florida, 4202 E. Fowler Ave., PCD 4118G Tampa, Tampa, FL 33620, USA

Introduction

Buoyed by a growing body of research demonstrating a variety of benefits, the study of mindfulness has garnered considerable attention in recent years among organizational scholars (e.g., Allen and Kiburz 2012; Glomb et al. 2011; Good et al. 2016; Reb et al. 2014). Moreover, a diverse array of organizations have begun to implement mindfulness-based training programs as a tool to improve employee wellbeing, further fueling the study of mindfulness among working adults (Allen et al. 2015).

Mindfulness has been described as the ability to be present in the moment through attention and awareness, and it involves the cultivation of an attitude of non-judging, non-striving, and patience (Brown et al. 2007; Kabat-Zinn 1990). Two primary streams of mindfulness research include a focus on trait-like mindfulness as an individual difference (e.g., Brown and Ryan 2003) and a focus on mindfulness-based training as a therapeutic intervention, often incorporating meditation practice (e.g., Kabat-Zinn 1990). Both types of studies show mindfulness is associated with positive outcomes such as reductions in stress, depression, and physical health symptoms, as well as improvements in sleep quality and interpersonal relationship quality (see Brown et al. 2007 and Glomb et al. 2011 for reviews).

Mindfulness may be particularly beneficial for older adults. Older adulthood is often associated with declining health, social losses, and other forms of psychological stressors (Gallegos et al. 2013; Truxillo et al. 2015). Because of the risks of losses in physical health, social capital, and cognitive competence, subjective wellbeing may decline as one ages. Indeed, there is evidence of a negative relationship between chronological age and subjective overall health (Stephan et al. 2012). However, meta-analytic evidence suggests that whereas older workers report more clinical health problems (e.g.,

high blood pressure) compared to younger workers, observed relationships are small or non-significant for self-reports of physical and mental health (Ng and Feldman 2013). Ng and Feldman suggest that individuals may find active ways to mitigate the negative effects of aging on health. For example, age can bring improved emotional regulation, which may help to alleviate age-related stressors and losses (Scheibe and Carstensen 2010).

The variation in wellbeing trajectories across the lifespan underscores the need to examine moderating individual difference variables. For example, Kooij (2015) found successful aging at work depends on the ability of the individual to engage in proactive behaviors. Thus, rather than focusing on main effects between age and wellbeing, research that identifies individual variables that moderate the relationship between age and wellbeing is needed. It is likely that mindfulness is a personal resource that can enable individuals to buffer losses and amplify gains in wellbeing across the lifespan.

Lifespan theories of aging have emerged to help guide research on age-related changes (Truxillo et al. 2015). A basic premise of lifespan theories of aging is that aging brings physical, cognitive, and affective changes that require adaptation (Truxillo et al. 2015). Mindfulness may act as a moderator of the age and subjective wellbeing relationship because mindful attention and awareness can help individuals adapt to and experience these changes without automatically perceiving them as threats to their wellbeing. That is, more mindful individuals may be more likely to accept age-related changes with less judgment and be able to shift their awareness to other aspects of the present moment than their less mindful counterparts.

Several tenets of socioemotional selectivity theory (SEST), a lifespan developmental theory, further support the potential of mindfulness as a moderator. SEST states that when a person is more concerned and motivated toward present experiences and less toward future expectations, s/he tends to be more focused in attending to positive stimuli, and to perceiving neutral stimuli in a positive way; that is, positivity bias occurs (Carstensen et al. 1999). This positivity bias contributes to subjective wellbeing (Bastian et al. 2014). Similarly, trait mindfulness and regular participation in mindfulness-based practices have consistently been related to an increased attention to present moment experiences and to positive affect (e.g., Garland et al. 2015). Therefore, mindfulness can act as a catalyst of positivity bias by allowing individuals to more easily pivot their attention toward present experiences.

Self-regulation plays a key role in both SEST and mindfulness. Benefits associated with mindfulness have been attributed to improved self-regulation (e.g., Brown and Ryan 2003), which has been defined as the capacity to exercise control over thoughts, emotions, or behavior and to align these states with personal goals (Baumeister and Heatherton 1996). Mindfulness facilitates effective self-regulatory behavior through enhanced attentiveness to and acceptance of one's needs (Brown and Ryan 2003; Deci and Ryan 1985). Effective self-regulation is consistently linked with successful goal attainment (Oettingen et al. 2000). In the SEST theoretical framework, as individuals become focused on emotionally meaningful goals, enhanced self-regulation could further facilitate successful goal attainment. This is important in that goal attainment has long been associated with wellbeing (Diener et al. 1999). SEST also posits that perceived limitations on time result in motivational shifts that direct attention toward emotionally meaningful goals, which results in improved regulation of emotions in everyday life (Carstensen et al. 2003). As noted by Geiger et al. (2016), mindfulness is consistent with the natural emotional regulation strategies of older adults. By strengthening mindfulness, the self-regulation skills of adults could be further enhanced.

Existing research supports the notion that mindfulness could be considered a personal resource that helps adaptation to age-related losses. For example, a mindfulness-based cognitive therapy course (MBCT) was shown to significantly reduce depression, anxiety, and stress among 22 adults aged 49 to 79 (Splevins et al. 2009). In another study involving adults aged 55 to 85, loneliness was reduced among those who attended an 8-week mindfulness-based stress reduction program compared to those who were on the wait-list control group (Creswell et al. 2012). Furthermore, in their review of 15 studies investigating mindfulness-based interventions in older adults, Geiger et al. (2016) found reasonably consistent support for improved emotional wellbeing among older adults.

Trait mindfulness also has been shown to be beneficial in older adults. Specifically, trait mindfulness in older adults has been associated with increased default-mode network (DMN) connectivity in the dorsal posterior cingulate cortex and the anterior and medial precuneus cortex (e.g., Prakash et al. 2013). The DMN represents a higher-order brain system associated with executive functioning that becomes poorly organized with age, resulting in cognitive impairments (Andrews-Hanna et al. 2007; Park et al. 2010). In addition, older adults are less able to modulate default activity in response to changes in task difficulty (Persson et al. 2007). Thus, by increasing the functional connectivity of important brain systems, the cultivation of mindfulness may be a way to help with the aging process. Moreover, trait mindfulness has been negatively associated with the use of memory compensation strategies (de Frias 2013). This is important in that the use of more frequent memory compensation strategies has been linked with poor mental and physical health. Cognitive resources are essential for work ability and health, particularly in the context of an aging workforce (Ihle et al. 2015).

To examine mindfulness as a moderator of age and subjective wellbeing, we conduct two studies. In study 1, we

Table 1 Correlations, means, and standard deviations of study 1

Variable	Mean	SD	1	2	3	4
1. Age	37.77	10.15	–			
2. Mindfulness	4.25	0.88	0.21**	–		
3. Work-Family Balance	3.35	1.05	0.01	0.26**	–	
4. Vitality	4.26	1.28	−0.05	0.42**	0.56**	–

**$p < .01$

examine trait mindfulness as a moderator of the relationship between age and vitality and between age and work-family balance. In study 2, we investigate mindfulness-based practice (i.e., meditation) as a moderator of the relationships between age and subjective physical health, psychological health, and life satisfaction. Consistent with the notion of conceptual replication (Stroebe and Strack 2014), our measures of subjective wellbeing across the two studies are unique but are conceptually linked. Work-family balance captures satisfaction with two major life domains and thus maps well with life satisfaction, which assesses satisfaction with life overall, health, and finances in addition to work and family. Vitality has elements of both physical and psychological health, which matches well with psychological and physical health. We expect that trait mindfulness moderates the relationship between age and work-family balance such that those with greater trait mindfulness demonstrate less of a decline in work-family balance (hypothesis 1) and in vitality (hypothesis 2) across age than those who report less trait mindfulness. In addition, we expect that meditation practice moderates the relationship between age and life satisfaction such that those who practice more frequently demonstrate a greater increase in life satisfaction (hypothesis 3) and in psychological health (hypothesis 4) across age than those who practice less frequently. Finally, we predict meditation practice moderates the relationship between age and physical health such that those who practice more frequently demonstrate less of a decline in physical health across age than those who practice less frequently (hypothesis 5).

Study 1

Method

Participants

The sample consisted of 240 participants recruited from alumni (n = 180) and from current students (n = 60) of a large southeastern university in the USA who worked 20 or more hours a week. Participants were between the ages of 18 and 63 (mean = 37.77, median = 37.00, SD = 10.15). The majority of participants were female (n = 170). In addition, the majority of the participants were Caucasian (n = 196). Participants worked in a variety of jobs (e.g., WAN engineer, nurse's aid, computer technician, and analyst). Average weekly work hours was assessed on a five-point scale such that 1 = less than 10, 2 = 10–19, 3 = 20–29 h, 4 = 30–39 h, and 5 = 40 + h (median response = 5.00; SD = .74). Annual income was assessed on a nine-point scale (1 = < $15,00 and 9 = > $150,000) (median response = 4.00; SD = 2.11, which corresponded with an annual income that ranged between $45,001 and $60,000). Participants completed an online survey that included the study measures.

Procedure

Alumni were recruited through e-mail and current students were recruited through a university psychology department participant pool. All participants completed an online survey.

Measures

Trait Mindfulness Mindfulness was assessed with the 15-item Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003). A sample item is "It seems I am 'running on automatic' without much awareness of what I'm doing" (reverse-coded) (1 = *almost never* to 6 = *almost always*). Coefficient alpha = 0.90. Higher scores indicated greater mindfulness.

Work-Family Balance Work-family balance was measured with a five-item scale used by Allen and Kiburz (2012) (e.g., "I am able to balance the demands of my work and the demands of my family"). Responses were based on a five-point rating scale that ranged from "strongly disagree" to "strongly agree." Alpha = 0.88. Higher scores indicated greater work-family balance.

Vitality Vitality was measured with the seven-item subjective vitality scale (Ryan and Frederick 1997) (e.g., "I feel alive and vital."). Responses were made on a seven-point scale that

Table 2 Hierarchical regression results—study 1

Variable	Work-family balance			Vitality		
	b	*SE*	*β*	*b*	*SE*	*β*
Age	−0.10	0.03	−0.98**	−0.10	0.03	−0.82**
Mindfulness	−0.50	0.26	−0.42	−0.08	0.30	−0.05
Age × mindfulness	0.02	0.01	1.29**	0.02	0.01	0.94*
R^2		0.12			0.22	
F		10.23**			22.39**	

*$p < .05$; **$p < .01$

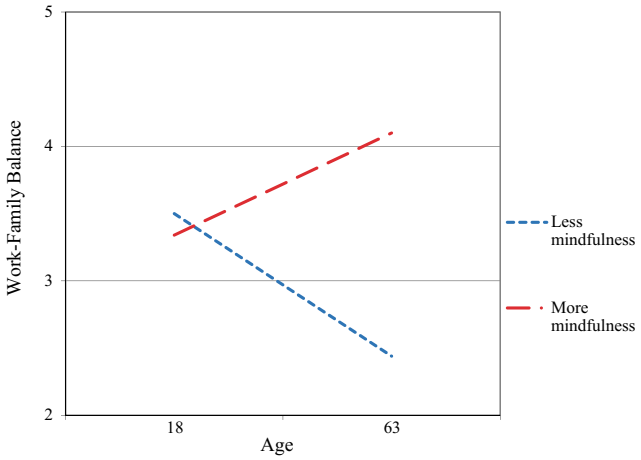

Fig. 1 Age by mindfulness interaction on work-family balance

ranged from "not true at all" to "very true." Alpha = 0.91. Higher scores indicated greater vitality.

Data Analyses

Hierarchical regression was used to test mindfulness as a moderator of the relationships between age and subjective wellbeing. Significant interactions were depicted based on levels of the moderator one standard deviation below and above the mean. Specific points for plotting age were based on upper and lower observed values.

Results

Means, standard deviations, and intercorrelations among the study variables are reported in Table 1. Regression results are shown in Table 2.

Consistent with hypothesis 1, mindfulness moderated the relationship between age and work-family balance ($\Delta R^2 = 0.04$, $p < .00$). As shown in Fig. 1, the nature of the interaction was such that for those higher in mindfulness, the slope of the relationship between age and vitality was positive (simple slope $b = 0.02$, $p = .71$), whereas for those lower in mindfulness, the sign of the slope between age and vitality was negative (simple slope $b = -0.02$, $p = .53$). Because the simple slopes were not significant, we conducted a region of significance test using the online tools referenced in Preacher et al. (2006). The region of significance on mindfulness ranged from 1.71 to 12.01 indicating that simple slopes outside of this range would be statistically significant. Given that actual values of mindfulness can range from 1 to 6 and that observed values one standard deviation below and above the mean were 3.37 and 5.13, respectively, the negative relationship between age and work-family balance is significant only for low values of mindfulness (i.e., 1.00–1.70), corresponding to "almost never" engaging in mindfulness behavior.

In support of hypothesis 2, trait mindfulness moderated the relationship between age and vitality ($\Delta R^2 = .02$, $p = .01$). As shown in Fig. 2, vitality remained stable among those who were higher in mindfulness (simple slope $b = -0.00$, $p = .98$) whereas the slope between age and vitality was negative in sign for those lower in mindfulness (simple slope $b = -0.04$, $p = .40$). The region of significance on mindfulness ranged from 1.61 to 25.83 indicating that simple slopes outside of this range would be statistically significant. That is, the negative relationship between age and vitality is only significant for individuals who almost never engage in mindfulness.

Study 2

Method

Participants

Study 2 was based on data from the MIDUS II General Survey (Ryff et al. 2006). The MIDUS project was conducted with the intent to investigate age-related variations in health and wellbeing in a national probability sample of Americans. A total of 4963 individuals participated in the study. From that sample, we excluded those who were not currently employed ($n = 1777$) and those who were missing data on one or more of the variables of interest ($n = 709$), for a final sample of 2477. Participants ranged in age from 30 to 81 (mean = 51.29, median = 51.00, $SD = 9.76$). Approximately half of 1218 (49.2%) of the participants were male. The majority of participants that provided racial background data were white (90.4%). Mean number of hours worked per week was 39.45 (SD = 14.31). Annual income was reported on a 42-point scale (1 = less than $0 to 42 = $200,000 or more). Median income reported was 21, which was $40,000–$42,499.

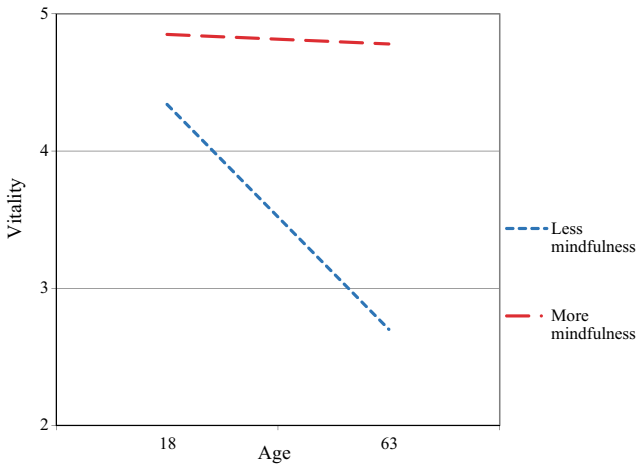

Fig. 2 Age by mindfulness interaction on vitality

Table 3 Means, standard deviations, and intercorrelations—study 2

Variable	Mean	SD	1	2	3	4	5
1. Age	51.29	9.76	–				
2. Meditation	1.52	1.01	0.02	–			
3. Life satisfaction	7.52	1.11	0.17**	0.00	–		
4. Psychological health	3.94	0.86	0.03	−0.02	0.40**	–	
5. Physical health	3.76	0.89	−0.06**	0.03	0.37**	0.55**	–

**$p < .01$

Procedure

Data were collected from a nationally representative sample via phone and mail surveys. MIDUS II was conducted from 2004 to 2006.

Measures

Meditation Meditation was measured with one item that asked participants how frequently they used meditation techniques over the past 12 months. Responses were made on a five-point scale that ranged from "1 = a lot" to "5 = never." We reverse coded the item so that higher scores reflect more frequent meditation. Responses were obtained via the mail survey.

Life Satisfaction Life satisfaction was measured on the mail survey with six items on a scale that ranged from "0 = the worst possible" to "10 = the best possible" (Prenda and Lachman 2001). Higher scores reflect higher levels of life satisfaction. The scale assessed life overall, work, health, family (2 items), and finances. Coefficient alpha = 0.69.

Psychological Health Psychological health was measured with one item, "Would you say your mental or emotional health is excellent, very good, good, fair, or poor?" Higher scores indicate better health. This question was asked on the phone survey.

Physical Health Physical health was measured with one item, "Would you say your physical health is excellent, very good, good, fair, or poor?" Higher scores indicate better health. This question was asked on the phone survey.

Data Analyses

Hierarchical regression was used to test mindfulness as a moderator of the relationships between age and wellness outcomes. Significant interactions were depicted based on levels of the moderator one standard deviation below and above the mean. Specific points for plotting age were based on upper and lower observed values.

Results

Means, standard deviations, and intercorrelations among the study variables are reported in Table 3. Regression results are shown in Table 4.

Results supported hypothesis 3, which stated that meditation moderates the relationship between age and life satisfaction ($\Delta R^2 = 0.002$, $p < .05$). The nature of the interaction is shown in Fig. 3. The positive relationship between age and life satisfaction was stronger for those who meditated more frequently (simple slope $b = 0.03$, $p < .001$) than for those who meditated less frequently (simple slope $b = 0.02$, $p < .001$). Hypothesis 4 stated that meditation moderates the relationship

Table 4 Hierarchical regression results—study 2

Variable	Life satisfaction			Psychological health			Physical health		
	b	*SE*	*β*	*b*	*SE*	*β*	*b*	*SE*	*β*
Age	0.01	0.00	0.11*	−0.01	0.00	−0.08*	−0.01	0.00	−0.10*
Meditation	−0.24	0.12	−0.22*	−0.35	0.10	−0.42**	−0.08	0.10	−0.09
Age × meditation	0.01	0.00	0.23*	0.01	0.00	0.42**	0.00	0.00	0.13
R^2		0.03			0.01			0.01	
F		26.02**			5.40**			4.37*	

Regression weights are from the final model

*$p < .05$; ** $p < .01$

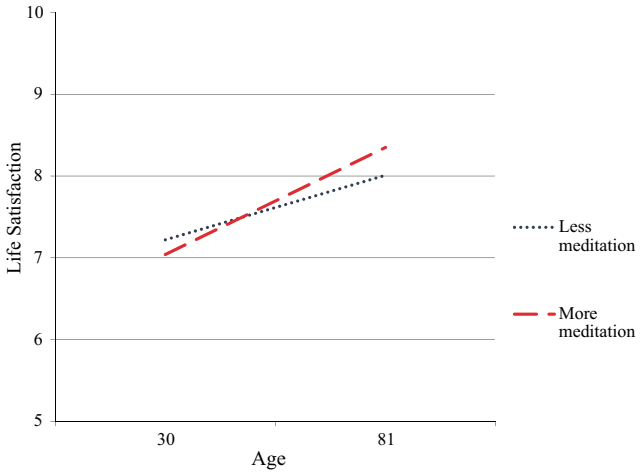

Fig. 3 Age by meditation interaction on life satisfaction

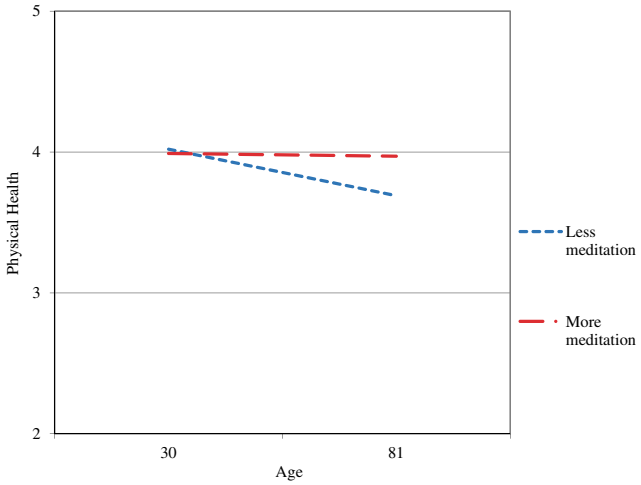

Fig. 5 Non-significant age by meditation interaction on physical health

between age and psychological health. Results supported this hypothesis ($\Delta R^2 = 0.005$, $p < .001$). As shown in Fig. 4, there was a positive relationship between age and psychological health among those who meditated more frequently (simple slope $b = 0.01$, $p < .001$), whereas the relationship between age and psychological satisfaction for those who mediated less frequently was not significant (simple slope $b = -0.00$, $p = .11$). Hypothesis 5, which stated that meditation moderates the relationship between age and physical health, was not supported ($\Delta R^2 = .001$, $p = .26$). Figure 5 depicts the non-significant interaction.

To lend further insight into the benefits of meditation, we created two groups. One group represented those who reported they never meditate ($n = 1835$). The second group represented those who reported they meditated often ($n = 109$) combined with those who reported they meditated a lot ($n = 75$). We conducted independent t tests to look at mean differences in the dependent variables across the two groups. Results indicated that the high meditation group ($M = 4.02$) reported better physical health than those in the low meditation group ($M = 3.90$) ($t = -2.06$, $p = .04$). No significant differences were detected in psychological health or in life satisfaction. We next repeated our regression analyses with the dichotomous meditation variable in place of the continuous meditation variable. In these analyses, meditation moderated the relationship between age and physical health, indicating that those who were in the high meditation group reported less decline in physical health than those in the low meditation group ($\Delta R^2 = 0.002$, $p = .04$). Moreover, the moderating effects on both life satisfaction ($\Delta R^2 = 0.004$, $p = .003$) and psychological health remained significant ($\Delta R^2 = 0.006$, $p < .001$).

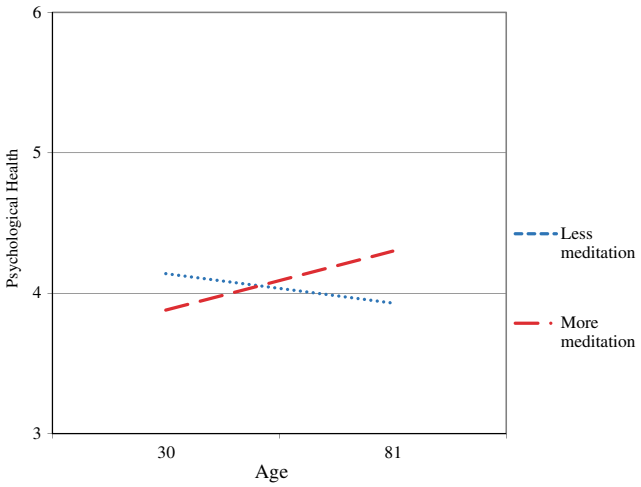

Fig. 4 Age by meditation interaction on psychological health

Discussion

The goal of the present study was to examine age and subjective wellbeing as moderated by mindfulness among working adults. Across two samples and two forms of mindfulness, we found evidence that mindfulness moderates the relationship between age and multiple indicators of subjective wellbeing. The moderating effects demonstrate that trait mindfulness and mindfulness-based practice can help protect individuals from declines in subjective wellbeing, as well as amplify positive subjective wellbeing as workers age.

We found evidence that mindfulness moderates relationships between age and work-family balance, vitality, life satisfaction, and psychological health. However, we did not find a moderating effect for the relationship between age and physical health, which is surprising given past research supporting mindfulness as a tool to promote physical health (Grossman et al. 2004). Enhanced emotion-regulation has been identified as a central mechanism linking health benefits and mindfulness. Because

emotion regulation is more directly related to psychological health than to physical health, it may be that mindfulness-based practices are best suited for reducing aging decrements in psychological health (Prakash et al. 2014). However, our analyses showing a moderating effect when examining no meditation versus high meditation subgroups suggest that it may be the frequency of meditation that is important to consider. Thus, frequent meditation practice may be necessary to assist in physical health as one becomes older. Another consideration is that mindful practices may have stronger effects on some physiological systems than others. Such differences are not captured by our general physical health measure. For example, it is well established that cardiorespiratory fitness declines with age, particularly after age 45 (Jackson et al. 2009). Recent research demonstrates that mindfulness-based training may improve adherence to vigorous physical activity, which is important to the maintenance of cardiorespiratory fitness (Martin et al. 2015).

In study 2, the salutary effects of mindfulness-based practice as assessed by meditation frequency were statistically significant, but effect sizes were small (<1% additional variance explained in the outcomes by the moderating effects). The small effect sizes observed may be due to the relatively low meditation frequency reported in the sample. Past research indicates meditation frequency is important for wellbeing, such that more frequent mindful practice is associated with higher wellbeing than is less frequent mindful practice (Schoormans and Nyklíček, 2011). Our meditation subgroup analyses are consistent with this notion, suggesting stronger effects occur with greater meditation frequency. In addition, data from study 2 was limited to investigating meditation frequency over the past year. It would be useful to also assess how long participants had been engaged in meditation practice as well as the average length of practice sessions.

The positive and significant correlation between age and trait mindfulness found in study 1 (see Table 1) provide further support of SEST. SEST suggests that at older ages, individuals become more present focused and less future-oriented (e.g., Carstensen et al. 1999). According to SEST, early in life, when time is seen as expansive, knowledge-related goals are dominant. As a person learns and ages over time, their expected length of life decreases, and eventually, the energy previously spent on long-term knowledge-accruing goals is refocused on more emotion-focused goals that result in immediate gratification. Our findings lend further credence to the notion consistent with SEST that present-moment focus can be an important resource across the lifespan (e.g., Carstensen et al. 1999). As noted by Kooij (2015), employees age successfully when they are able to maintain and regenerate resources that enable them to preserve health. Our results suggest mindfulness may serve as such a resource.

Limitations

Several limitations to the current research should be acknowledged. First, the current studies are based on cross-sectional designs. Because our predictor variable is age, concerns with regard to reverse causality are mitigated. A second limitation is that data from both studies were collected via self-report. This is a concern given self-reports of physical health may be influenced by a self-enhancement bias (Ng and Feldman 2013). Given our focus on moderator effects, this is less of a concern in that interactions, such as those reported and replicated across two studies in the current research, are unlikely to be due to common method bias (Evans 1985). Moreover, our interest was in subjective wellbeing, which is arguably best reported by the self. Nevertheless, future studies that incorporate objective indicators of wellbeing would lend further confidence and insight into the findings. For example, research based on physiological measures and/or brain imaging techniques could expand our knowledge concerning the mechanisms through which mindfulness fosters health and wellbeing in older adults.

Generalizability of our findings across different populations also remains to be tested. Both of our samples were drawn from the USA. Future research is needed that takes into account potential cultural differences. Moreover, research that is more contextualized such as that which incorporates the relevance of specific occupation (e.g., high stress occupations) or income status (e.g., low income workers) is needed to provide greater insight into for whom mindfulness may be most relevant. Other sample specifics further limit the generalizability of our results. For example, our study 1 sample was unbalanced with regard to gender. In addition, care should be taken when comparing results across our two studies given differences in demographics and career status. Finally, we note that psychological and physical health measures in study 2 were assessed with single items, which prevents an assessment of internal reliability.

Our research helps suggest further areas for future research. Research has consistently demonstrated that mindfulness can be increased through training. However, given the resistance of older workers to training (Ng and Feldman 2012), future studies that investigate the design and implementation of mindfulness training across the lifespan could provide important practical information. Furthermore, future research should seek to identify the length of time that is needed before mindful practices such as meditation produce positive health outcomes and whether or not the time needed differs as a function of age.

It has been suggested that age-related decrements thought to be biologically determined are a function of the negative mindsets held about age (Hsu and Langer 2013). Relatedly, previous research has demonstrated mindfulness training to result in older adults feeling less old than a control group

and mindfulness training to result in older adults reporting improvements in positive affect (Alexander et al. 1989; Morone et al. 2008). Therefore, while our study focused on chronological age, other ways of assessing age such as how old workers feel (i.e., subjective age) may also be warranted.

Our research focused on outcomes associated with subjective wellbeing. Future research that examines other workplace outcomes associated with successful aging could also prove beneficial (Kanfer et al. 2013; Zacher 2015). For example, mindfulness may be able to contribute to motivation, career adaptability, and work-related skills. Research that incorporates changes in time perspective across the lifespan could also be of interest given known relationships between time perspective, mindfulness, and wellbeing (Olivera-Figueroa et al. 2016). The results of the current research provide the motivation to conduct additional studies that examine the benefits of mindfulness across the lifespan.

Compliance with Ethical Standards

Funding The authors did not receive funding to support this research.

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval Study 1—all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Study 2—this is based on archival data and thus no formal consent was required.

Informed Consent Study 1—all participants were provided informed consent. Study 2—this is based on archival data and thus no formal consent was required.

References

Alexander, C., Langer, E., Newman, R., Chandler, H., & Davies, J. (1989). Transcendental meditation, mindfulness, and longevity: an experimental study with the elderly. *Journal of Personality and Social Psychology, 57*, 950–964.

Allen, T. D., & Kiburz, K. M. (2012). Trait mindfulness and work-family balance among working parents: the mediating effects of vitality and sleep quality. *Journal of Vocational Behavior, 80*, 372–379. doi:10.1016/j.jvb.2011.09.002.

Allen, T. D., Eby, L. T., Conley, K. M., Williamson, R. L., Mancini, V. S., & Mitchell, M. E. (2015). What do we really know about the effects of mindfulness-based training in the workplace? *Industrial and Organizational Psychology, 8*, 652–661. doi:10.1017/iop.2015.95.

Andrews-Hanna, J. R., Snyder, A. Z., Vincent, J. L., Lustig, C., Head, D., Raichle, M. E., & Buckner, R. L. (2007). Disruption of large-scale brain systems in advanced aging. *Neuron, 56*, 924–935. doi:10.1016/j.neuron.2007.10.038.

Bastian, B., Kuppens, P., De Roover, K., & Diener, E. (2014). Is valuing positive emotion associated with life satisfaction? *Emotion, 14*, 639–645. doi:10.1037/a0036466.

Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: an overview. *Psychological Inquiry, 7*, 1–15. doi:10.1207/s15327965pli0701_1.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological wellbeing. *Journal of Personality and Social Psychology, 84*, 822–848. doi:10.1037/0022-3514.84.4.822.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237. doi:10.1080/10478400701598298.

Carstensen, L. L., Isaacowitz, D., & Charles, S. T. (1999). Taking time seriously: a theory of socioemotional selectivity. *American Psychologist, 54*, 165–181. doi:10.1037/0003-066X.54.3.165.

Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion, 27*, 103–123.

Creswell, J. D., Irwin, M. R., Burklund, L. J., Lieberman, M. D., Arevalo, J. M., Ma, J., et al. (2012). Mindfulness-based stress reduction training reduces loneliness and pro-inflammatory gene expression in older adults: a small randomized controlled trial. *Brain, Behavior, and Immunity, 26*, 1095–1101.

de Frias, C. (2013). *Memory compensation in older adults: the role of health, emotion regulation, and trait mindfulness* (pp. 678–685). Psychological Sciences and Social Sciences: The Journals of Gerontology Series B.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: self-determination in personality. *Journal of Research in Personality, 19*, 109–134.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. E. (1999). Subjective well-being: three decades of progress. *Psychological Bulletin, 125*, 276–302.

Evans, M. G. (1985). A Monte Carlo study of the effects of correlated method variance in moderated multiple regression analysis. *Organizational Behavior and Human Decision Processes, 36*, 305–323. doi:10.1016/0749-5978(85)90002-0.

Gallegos, A., Hoerger, M., Talbot, N., Moynihan, J., & Duberstein, P. (2013). Emotional benefits of mindfulness-based stress reduction in older adults: the moderating roles of age and depressive symptom severity. *Aging & Mental Health, 17*, 823–829. doi:10.1080/13607863.2013.799118.

Garland, E. L., Geschwind, N., Peeters, F., & Wichers, M. (2015). Mindfulness training promotes upward spirals of positive affect and cognition: multilevel and autoregressive latent trajectory modeling analyses. *Frontiers in Psychology, 6*. doi:10.3389/fpsyg.2015.00015.

Geiger, P. J., Boggero, I. A., Brake, C. A., Caldera, C. A., Combs, H. L., Peters, J. R., & Baer, R. A. (2016). Mindfulness-based interventions for older adults: a review of the effects on physical and emotional well-being. *Mindfulness, 7*, 296–307. doi:10.1007/s12671-015-0444-1.

Glomb, T. M., Duffy, M. K., Bono, J. E., & Yang, T. (2011). Mindfulness at work. In J. Martocchio, H. Liao, & A. Joshi (Eds.), *Research in personnel and human resource management* (pp. 115–157). UK: Emerald Group Publishing Limited.

Good, D. J., Lyddy, C. J., Glomb, T. M., Bono, J. E., Brown, K. W., Duffy, M. K., et al. (2016). Contemplating mindfulness at work: an integrative review. *Journal of Management, 42*, 114–142. doi:10.1177/0149206315617003.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: a meta-analysis. *Journal of Psychosomatic Research, 57*, 35–43. doi:10.1016/S0022-3999(03)00573-7.

Hsu, L. M., & Langer, E. L. (2013). Mindfulness and cultivating well-being in older adults. In I. Boniwell, S. A. David, & A. C. Ayers

(Eds.), *Oxford handbook of happiness* (pp. 1026–1036). Oxford: Oxford University Press.

Ihle, A., Borella, E., Rahnfeld, M., Muller, S. R., Enge, S., Hacker, W., Wegge, J., Oris, M., & Kliegel, M. (2015). The role of cognitive resources for subjective work ability and health in nursing. *European Journal of Ageing, 12*, 131–140.

Jackson, A. S., Sui, X., Hebert, J. R., Church, T. S., & Blair, S. N. (2009). Role of lifestyle and aging on longitudinal change in cardiorespiratory fitness. *Archives Internal Medicine, 169*, 1781–1787. doi:10.1001/archinternmed.2009.312.

Kabat-Zinn, J. (1990). *Full catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness*. New York, NY: Dell Publishing.

Kanfer, R., Beier, M. E., & Ackerman, P. L. (2013). Goals and motivation related to work in later adulthood: an organizing framework. *European Journal of Work and Organizational Psychology, 22*, 253–264. doi:10.1080/1359432X.2012.734298.

Kooji, D. (2015). Successful aging at work: the active role of employees. *Work, Aging, and Retirement, 1*, 309–319. doi:10.1093/workar/wav018.

Martin, E. C., Galloway-Williams, N., Cox, M. G., & Winett, R. A. (2015). Pilot testing of a mindfulness- and acceptance-based intervention for increasing cardiorespiratory fitness in sedentary adults: a feasibility study. *Journal of Contextual Behavioral Science, 4*, 237–245.

Morone, N., Lynch, C., Greco, C., Tindle, H., & Weiner, D. (2008). "I felt like a new person." the effects of mindfulness meditation on older adults with chronic pain: qualitative narrative analysis of diary entries. *The Journal of Pain, 9*, 841–848. doi:10.1016/j.jpain.2008.04.003.

Ng, T. W., & Feldman, D. C. (2012). Evaluating six common stereotypes about older workers with meta-analytical data. *Personnel Psychology, 65*, 821–858. doi:10.1111/peps.12003.

Ng, T. W. J., & Feldman, D. C. (2013). Employee age and health. *Journal of Vocational Behavior, 83*, 336–345. doi:10.1016/j.jvb.2013.06.004.

Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research, 33*, 705–732.

Olivera-Figueroa, L. A., Asthana, S., Odisho, N., Ortiz Velez, A. L., Cuebas, K., & Lopez Cordova, N. M. (2016). Emerging cross-cultural research: the role of time perspective on well-being, life satisfaction and mindfulness. In A. M. Columbus (Ed.), *Advances in psychology research* (Vol. 113). New York, NY: Nova Science Publishers.

Park, D. C., Polk, T. A., Hebrank, A. C., & Jenkins, L. J. (2010). Age differences in default mode activity on easy and difficult spatial judgment tasks. *Frontiers in Human Neuroscience, 3*, 1–12. doi:10.3389/neuro.09.075.2009.

Persson, J., Lustig, C., Nelson, J. K., & Reuter-Lorenz, P. A. (2007). Age differences in deactivation: a link to cognitive control? *Journal of Cognitive Neuroscience, 19*, 1021–1032. doi:10.1162/jocn.2007.19.6.1021.

Prakash, R., De Leon, A., Klatt, M., Malarkey, W., & Patterson, B. (2013). Mindfulness disposition and default-mode network connectivity in older adults. *Social and Cognitive Affective Neuroscience, 8*, 112–117. doi:10.1093/scan/nss115.

Prakash, R., De Leon, A., Patterson, B., Schirda, B., & Janssen, A. (2014). Mindfulness and the aging brain: a proposed paradigm shift. *Frontiers in Aging Neuroscience*, 6. doi:10.3389/fnagi.2014.00120.

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437–448.

Prenda, K. M., & Lachman, M. E. (2001). Planning for the future: a life management strategy for increasing control and life satisfaction in adulthood. *Psychology and Aging, 16*, 206–216. doi:10.1037//0882-7974.16.2.206.

Reb, J., Narayanan, J., & Chaturvedi, S. (2014). Leading mindfully: two studies of the influence of supervisor trait mindfulness on employee well-being and performance. *Mindfulness, 5*, 36–45. doi:10.1007/s12671-012-0144-z.

Ryan, R. M., & Frederick, C. M. (1997). On energy, personality and health: subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*, 529–565.

Ryff, C., Almeida, D., Ayanian, J., Carr, D., Cleary, P., & Coe, C. (2006). *Midlife development in the United States (MIDUS II) 2004–2006*. University of Wisconsin, Survey Center: Madison, WI.

Scheibe, S., & Carstensen, L. (2010). Emotional aging: recent findings and future trends. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 65*, 135–144. doi:10.1093/geronb/gbp132.

Schoormans, D., & Nyklíček, I. (2011). Mindfulness and psychologic well-being: are they related to type of meditation technique practiced? *The Journal of Alternative and Complementary Medicine, 17*, 629–634. doi:10.1089/acm.2010.0332.

Splevins, K., Smith, A., & Simpson, J. (2009). Do improvements in emotional distress correlate with becoming more mindful? A study of older adults. *Aging & Mental Health, 13*, 328–335. doi:10.1080/13607860802459807.

Stephan, Y., Demulier, V., & Terracciano, A. (2012). Personality, self-rated health, and subjective age in a life-span sample: the moderating role of chronological age. *Psychology and Aging, 27*, 875–880. doi:10.1037/a0028301.

Stroebe, W., & Strack, F. (2014). The alleged crisis and the illusion of exact replication. *Perspectives on Psychological Science, 9*, 59–71.

Truxillo, D. M., Cadiz, D. M., & Hammer, L. B. (2015). Supporting the aging workforce: a review and recommendations for workplace intervention research. *Annual Review of Organizational Psychology and Organizational Behavior, 2*, 351–381. doi:10.1146/annurev-orgpsych-032414-111435.

Zacher, H. (2015). Successful aging at work. *Work, Aging and Retirement, 1*, 4–25. doi:10.1093/workar/wav018.