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The relative impact of 15-minutes of meditation compared to a day of vacation in daily life: An exploratory analysis

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ABSTRACT

Meditation and vacation are often perceived as activities that promote well-being and relieve stress. While clearly distinct, the extent to which meditation and vacation indeed have similar effects in daily life is an open question. We examined this question with beginning meditators in an eight-week A-B-A-B experimental protocol (A = not meditating; B = meditating). Community citizens and psychology students filled out daily surveys of affect and mindfulness and reported when they meditated or took vacation. On meditation days, participants reported lower levels of negative affect and higher levels of wellbeing, positive affect, and the mindfulness facets of observing sensations, describing thoughts and emotions, and nonreacting to feelings. We found similar associations of vacation with observing and nonreacting, and larger effects for well-being, positive affect, and negative affect. These results indicate that beginning meditation and vacation may indeed have overlapping effects, providing multiple pathways to boosts in well-being and mindfulness.

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Introduction

Meditation and vacation are both commonly associated with stress relief. Advertisements for meditation programs and vacation destinations often explicitly promote their value in reducing stress. As indicative of the popular conflation of the two, images of meditators frequently depict them practicing in idyllic vacation-like landscapes, such as on a beach facing an ocean. Those unfamiliar with meditation may be forgiven for thinking the two are quite similar as vehicles for relaxation.

Indeed, data also support the stress-relieving value, broadly conceived, of both meditation and vacation. For example, a meta-analysis of the impact of vacation found a moderate reduction in exhaustion along with a small increase in life satisfaction (De Bloom et al., 2009). Individual studies have demonstrated a favourable ‘vacation effect’ on positive and negative affect (Gilbert & Abdullah, 2004; Strauss-Blasche, Ekmekcioglu, & Markt, 2000). Likewise, meta-analyses of the impact of meditation have shown small to moderate salutary effects on stress, quality of life, positive affect and negative affect (Eberth & Sedlmeier, 2012; Khoury, Sharma, Rush, & Fournier, 2015; Virgili, 2015).

Given their apparent similarities in effecting positive outcomes, surprisingly little research has examined the

relative effects of meditation and vacation. Epel et al. (2016) examined the differential impact of a 4-day meditation retreat for novice practitioners compared to a vacation held at the same retreat center. Their work aimed to disentangle the specific effects of contemplative practices from the non-specific effects of being in a retreat setting. Meditators practiced a form of mantra meditation four times per day, did yoga twice per day, and engaged in other wellness exercises (e.g. interactive self-reflection; attending lectures) daily. Participants randomly assigned to the vacation group received a daily lecture about health behaviours and were provided with an optional activity each morning. The researchers found that novice meditators exhibited a greater increase in mindfulness compared to the vacationers, which was maintained one-month later. Depressive symptoms and perceived stress decreased for both groups, with no significant differences between them. Both groups showed an increase in self-reported vitality, again with no differences between them at the end of the resort stay. In an initial short report on the same experiment, Gilbert et al. (2014) found that positive affect increased and negative affect decreased from the start to the end of the study in the meditation retreat group but not in the vacation group. Last, compared to the vacation group, the meditation

group reported decreased rumination and greater control over stressors.

No other study that we are aware of has directly compared the effects of meditation to vacation. Perhaps this is because the structural dissimilarities of meditation and vacation do not invite comparisons. For example, in contrast to a day of vacation, a day of meditation can be cognitively and emotionally arduous (cf. Lindahl, Fisher, Cooper, Rosen, & Britton, 2017). Indeed, mindfulness-based interventions encourage participants to be open to all experiences, including negative ones (Fennell & Segal, 2011). Nevertheless, for the novice or occasional meditator more interested in temporary stress relief than the sorts of effects that accrue with intensive practice (e.g. Lutz, Greischar, Rawlings, Ricard, & Davidson, 2004; MacLean et al., 2010), comparing the relative impact of meditation and vacation would be illuminating. In particular, it would be informative to discover the relative impact of short meditation sessions practiced in a daily life that is sometimes punctuated by short vacations.

We conducted an eight-week within-subjects study exploring the relative impact of meditation and vacation. During alternating two-week periods, participants were asked to either meditate for 15-minutes per day, or not to meditate at all. Across the whole study period, participants went on vacation as they normally would if they were not enrolled in a study. We examined the relative influence of meditation and vacation on affect and mindfulness, two variables shown to be differentially impacted in a retreat setting (Epel et al., 2016; Gilbert et al., 2014). We expected that both activities should have salutary effects on positive and negative affect, and explored which activities would exert greater effects. We further expected that meditation would produce higher levels of mindfulness relative to vacation.

Method

Participants

We recruited participants from a pool of first-year psychology students at a university in the Netherlands as well as from the surrounding community. Participants were recruited for a larger study examining the impact of meditation on a relationship partner (May, Ostafin, & Snippe, *submitted*). Students received program credit for their participation; community members were entered into a lottery to earn 50 euros. All participants were proficient in English and had not previously had a regular meditation practice.

Fifty-three participants enrolled in the study. Four failed to complete the study either because they stopped completing the daily surveys (three) or because of

emotional distress unrelated to the study itself (one). Nine participants who finished the study meditated fewer than half of the assigned meditation days; they were therefore not included in our analyses. The average age of the 40 remaining participants was 23.7 ($SD = 6.2$). Seventy percent were female and 27 of the 40 participants were students.

Design and procedure

Participants served as their own control in an eight-week A-B-A-B experimental design with intensive longitudinal data. Each phase of the study (A_1 , B_1 , A_2 , B_2) was two-weeks in duration. Participants did not meditate during the A-phases and were instructed to meditate daily during the B-phases. Across all phases, participants received a daily survey in the evening assessing affect and mindfulness (see Measures).

To begin the first daily meditation period (B_1), the first author provided participants with mindfulness meditation training. Participants also received a 15-minute audio file to follow during the subsequent meditation days (the audio is available upon request). Participants began practice with a body scan, noticing bodily sensations from their feet to their head. Participants were then directed to feel and follow their breath. From then on, whenever they noticed that their minds had wandered from the breath, participants were instructed to gently return their attention to their breath. Mindfulness meditation practice, therefore, consisted of attempting to attend to the breath as it naturally occurred, and gently returning to the breath whenever the mind wandered. Participants were offered a refresher training at the start of the second two-week meditation period (B_2). Thirteen of the 40 participants elected to attend this follow-up training.

Measures

Participants completed daily surveys of their recent emotions and cognitions. As a general measure of immediate well-being, participants were asked, 'How are you doing right now?' on a visual analogue scale from 0 (*very bad*) – 100 (*very good*). Participants also answered questions assessing positive and negative affect in the previous 24 hours. Participants were asked how much they felt from 0 (*not at all*) – 100 (*extremely*) on several sets of emotions from the modified Differential Emotions Scale (Fredrickson, 2013; Fredrickson, Tugade, Waugh, & Larkin, 2003) that sampled the affect circumplex (Feldman Barrett & Russell, 1998). We averaged positive emotion responses to create a positive affect metric; a negative affect metric was constructed in

Table 1. Item descriptions and Cronbach's alpha values for each construct.

Construct	Items	Cronbach's alpha
Positive Affect	What is the most ... you felt? <ul style="list-style-type: none"> • Grateful, appreciative, or thankful • Interested, alert, or curious • Joyful, glad, or happy • Love, closeness, or trust • Serene, content, or peaceful 	.78
Negative Affect	What is the most ... you felt? <ul style="list-style-type: none"> • Angry, irritated, or annoyed • Contemptuous, scornful, or disdainful • Sad, downhearted, or unhappy • Stressed, nervous, or overwhelmed 	.74
Observing	<ul style="list-style-type: none"> • I paid attention to sensations, such as the wind in my hair or sun on my face • I paid attention to sounds such as clocks ticking, birds chirping, or cars passing 	.76
Describing	<ul style="list-style-type: none"> • It was hard for me to find the words to describe what I was thinking • I had trouble thinking of the right words to express how I felt about things 	.76
Nonjudging	<ul style="list-style-type: none"> • I made judgments about whether my thoughts were good or bad • I thought some of my emotions were bad or inappropriate and I shouldn't feel them 	.73
Nonreacting	<ul style="list-style-type: none"> • I perceived my feelings without having to react to them • I watched my feelings without getting lost in them 	.69
Acting with Awareness	<ul style="list-style-type: none"> • I was easily distracted • I did jobs automatically without being aware of what I was doing 	.41

the same way. Table 1 lists the positive and negative affect items and reports the reliability (computed using deviations from each person's mean) of those metrics. We assessed mindfulness by selecting statements from the Five Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Baer et al., 2008). Two items with high factor loadings in Baer et al. (2006) were drawn for each of the five facets: observing, describing, nonjudging of inner experience, nonreacting to inner experience, and acting with awareness. Participants reported on what was generally true for them from 0 (*not at all*) – 100 (*very much*) over the previous 24 hours. Table 1 lists the reliabilities and items for each facet. Acting with awareness had unacceptable reliability; we therefore did not analyse this facet of mindfulness.

We asked participants to report whether they meditated on a given day and which days they were on vacation. Vacation, here, was defined as extended time off, viz. longer than a weekend, from one's normal work or study obligations. Participants need not have travelled or engaged in any particular activities during their time off. Participants were not required to specify how they spent vacation periods, though some participants volunteered that they travelled to visit family members, while others travelled for different leisure purposes. Across the eight-week study, participants were neither meditating nor vacationing on 50.1% ($SD = 10.0$) of the days. Participants meditated, but were not on vacation, on 39.5% ($SD = 7.3$) of the days. Participants were on vacation, but did not meditate, on 7.0% ($SD = 8.1$) of the days in the study. Finally, participants both meditated and vacationed on 3.4% ($SD = 6.1$) of the days. Overall, there was more variance between participants in the reported

days on vacation ($SD = 11.5\%$), compared to the reported days meditating ($SD = 6.4\%$). This difference is likely a consequence of our design in which participants were instructed to meditate on particular days but were not instructed to go on vacation (they only reported vacation days).

Because many participants were students, and exams can be assumed to lead to changes in affect, we also asked student participants to report their exam periods. We included a dummy variable for exams in the analyses we outline next.

Data analysis

To analyse our intensive longitudinal data, we created multilevel models in SPSS with daily data at level 1 and individuals at level 2. We generated three dummy variable predictors: a 'meditation effect' variable (1 = a meditation day but not a vacation day, 0 = other), a 'vacation effect' variable (1 = a vacation day but not a meditation day; 0 = other), and a 'vacation plus meditation additive effect' variable (1 = a vacation and meditation day, 0 = other). These predictors and the intercept were modeled as random effects to capture individual differences. We also included a dichotomous dummy variable coding for exam days as a fixed effect covariate. Level 1 daily data were modeled with an autoregressive (lag-1) repeated covariance type. Variance components estimated the variance of each random effect.

In addition to analysing the meditation effect, vacation effect, and additive effect, we also conducted a post-hoc comparison of the meditation effect and vacation effect to assess whether there was a significant difference

between the two effects. We subsequently refer to this as a 'contrast effect'.

Finally, we computed the relative impact of meditation compared to vacation. We define the relative impact as the meditation effect divided by the vacation effect. We approximated the variance of this relative impact ratio following Seltman (2012) in Equation 1, where x corresponds to the meditation effect and y to the vacation effect:

$$VAR(x/y) \approx \left(\frac{E(x)}{E(y)}\right)^2 \left(\frac{Var(x)}{E(x)^2} + \frac{Var(y)}{E(y)^2} - 2\frac{Cov(x,y)}{E(x)E(y)}\right) \quad (1)$$

Square roots of variances produce standard deviations, which we report in the section below and include in Figure 1.

Results

On the immediate well-being question, 'How are you doing right now?' participants exhibited a significant meditation effect such that they reported higher well-being on days they meditated compared to days they neither meditated nor were on vacation, $b = 2.07$, $SE = 0.79$, $p = .01$, 95% CI [0.48, 3.67]. Participants also showed a significant vacation effect with higher reported well-being on vacation days relative to days they neither meditated nor were on vacation, $b = 6.26$, $SE = 1.53$, $p < .001$, 95% CI [3.24, 9.29]. This vacation effect was significantly larger than the meditation

effect, $SE = 1.55$, $p = .007$, 95% CI [1.15, 7.24]. There was not an observed additive effect of meditation on vacation, $p = .62$. Estimated means for all conditions are shown in Table 2. Comparatively, 15 minutes of meditation had .33 ($SD = .13$) of the impact of a day of vacation (see Figure 1).

Participants positive affect was significantly higher on days they meditated, $b = 4.34$, $SE = 0.86$, $p < .001$, 95% CI [2.59, 6.08]. Participants also exhibited a significant vacation effect, $b = 10.97$, $SE = 1.57$, $p < .001$, 95% CI [7.87, 14.07]. The vacation effect was significantly larger than the meditation effect, $SE = 1.58$, $p < .001$, 95% CI [3.51, 9.76]. We did not observe an additive effect of meditation on vacation, $p = .90$. The relative impact of 15 minutes of meditation was .40 ($SD = .08$) of the impact of a day of vacation.

Participants reported significantly lower negative affect on days they meditated, $b = -3.18$, $SE = 1.07$, $p = .004$, 95% CI [-5.32, -1.05]. Participants' negative affect was also significantly lower during vacation, $b = -7.39$, $SE = 1.90$, $p < .001$, 95% CI [-11.13, -3.65]. The contrast effect between the meditation and vacation effects was significant, $SE = 1.91$, $p = .029$, 95% CI [-7.97, -.44]. There was also no observed additive effect of meditation on vacation, $p = .75$. In short, 15 minutes of meditation had .43 ($SD = .16$) of the impact of a day of vacation.

With respect to the mindfulness facet of observing, participants' scores were significantly higher on both meditation days, $b = 9.47$, $SE = 1.64$, $p < .001$, 95% CI [6.18, 12.77] and vacation days, $b = 11.24$, $SE = 2.63$, $p < .001$, 95% CI [6.03, 16.44]. There was not a significant

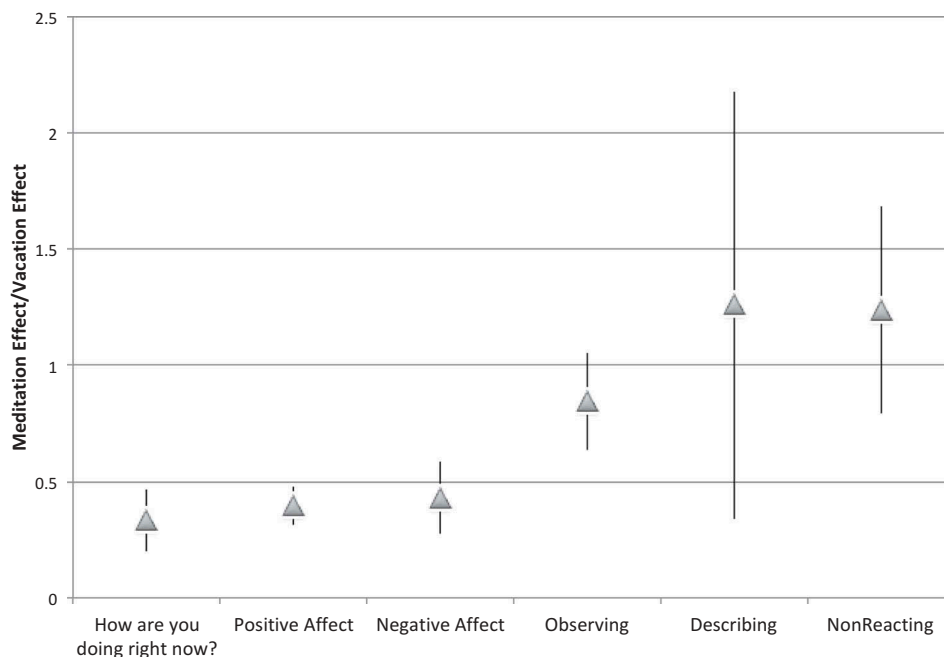


Figure 1. Effect of meditation relative to vacation (error bars represent standard deviations).

Table 2. Estimated means of study variables while (not) meditating and (not) vacationing.

Outcome Variable	Not Vacationing; Not Meditating M (SE) <i>n obs = 1016</i>	Not Vacationing; Meditating M (SE) <i>n obs = 797</i>	Vacationing; Not Meditating M (SE) <i>n obs = 142</i>	Vacationing; Meditating M (SE) <i>n obs = 67</i>
Positive Affect	59.5 (1.82)	63.9 (1.83) *	70.5 (2.24) *	70.2 (2.63) *
Negative Affect	29.7 (1.76)	26.5 (1.78) *	22.3 (2.36) *	23.2 (2.91) *
Observe	43.6 (2.96)	53.1 (2.98) *	54.9 (3.61) *	58.8 (4.25) *
Describe	76.3 (2.06)	79.3 (2.07) *	78.6 (2.53)	78.6 (2.99)
NonJudge	70.0 (2.85)	70.7 (2.87)	72.0 (3.31)	69.7 (3.74)
NonReact	48.2 (2.20)	54.9 (2.23) *	53.6 (2.79) *	56.6 (3.31)

Note: Bolded estimates with an asterisk indicate a significant difference ($p < 0.05$) compared to not vacationing and not meditating.

difference between the meditation and vacation effects, $p = .51$, nor was there an observed additive effect, $p = .30$. Fifteen minutes of meditation had $.84$ ($SD = .21$) of the impact of a day of vacation.

On the describing mindfulness facet, participants exhibited a significant meditation effect, $b = 2.98$, $SE = 0.97$, $p = .003$, 95% CI [1.03, 4.93]. They did not, however, show evidence for a vacation effect, $b = 2.37$, $SE = 1.76$, $p = .18$, 95% CI [-1.11, 5.84]. Despite these differences in significance in comparison to days with no meditation or vacation, there was not a significant difference between the meditation effect and vacation effect, $p = .73$. The larger variability for the vacation effect explains this apparent discrepancy. We found no evidence for an additive effect of meditation on vacation, $p = .98$. Relatively, 15 minutes of meditation had larger impact (1.26, $SD = .92$) than a day of vacation.

Participants did not exhibit a significant meditation effect on nonjudging, $b = 0.64$, $SE = 1.00$, $p = .523$, 95% CI [-1.37, 2.65]. Vacation was also not associated with different nonjudging scores, $b = 2.00$, $SE = 1.96$, $p = .31$, 95% CI [-1.86, 5.86], nor was there an observed additive effect of meditation on vacation, $p = .43$. Because there were no significant effects on nonjudging, we did not compute the relative impact metric.

Last, meditation was associated with significantly higher levels of nonreacting, $b = 6.74$, $SE = 1.02$, $p < .001$, 95% CI [4.68, 8.79]. Vacation was also associated with higher levels of nonreacting, $b = 5.43$, $SE = 1.99$, $p = .007$, 95% CI [1.52, 9.35]. There was no observed difference between the meditation and vacation effects, $p = .52$, nor was there an evidence for a additive effect, $p = .32$. For nonreacting, 15 minutes of meditation had 1.24 ($SD = .45$) of the impact of a day of vacation.

Discussion

In this study, we examined the relative impact of 15 minutes of meditation compared to a day of vacation over eight weeks of daily life. On days participants meditated, they reported lower levels of negative affect as well as higher levels of well-being, positive affect, and the mindfulness

facets of observing, describing, and nonreacting. We found similar associations of a day on vacation with all of the same outcomes except describing. Neither meditation nor vacation was associated with the mindfulness facet of nonjudging. Comparisons between the sizes of the vacation effect and meditation effect led to a number of interesting results. First, the vacation effect was significantly larger than the meditation effect for momentary well-being, positive affect, and negative affect. Second, we did not find a significant difference between meditation and vacation on the mindfulness facets.

These results are consistent with previous research showing similarities between meditation and vacation in their effects on depression and vitality (Epel et al., 2016; Gilbert et al., 2014). It appears that meditation and vacation may both positively impact stress and wellbeing. In contrast to the findings that meditation leads to greater mindfulness relative to vacation (Epel et al., 2016), our results showed similar positive associations between mindfulness and both meditation and vacation. There are several possible reasons for the discrepant findings, including that in Epel et al. (2016) the meditation condition was more extensive both in amount of practice and in the variety of intervention elements beyond meditation (i.e. yoga, other wellbeing exercises). Further, participants in Epel et al. (2016) were not blind to condition assignment and may thus have demonstrated experimental demand bias.

Our design allowed us to examine the relative impact of meditation to vacation on outcome variables. This impact ranged from 33% to 126%. Regarding the variables of global well-being, positive affect, and negative affect, a day of vacation showed greater effects than a 15-minute meditation session. Regarding the mindfulness variables, the impact ratios were mixed, with the vacation effect showing larger associations with the observing facet and the meditation effect showing larger association with the describing and nonreacting facets. Overall, these findings can be interpreted in two ways. One interpretation is that it is better to be on holiday than to meditate, as the vacation effect was stronger in absolute terms. A second interpretation is that meditation is the better

option, as the associations of meditation with the outcome variables were outsized given that participants practiced for just 15-minutes.

It should be noted, however, that these effects are likely short-lived. The benefits of vacation fade away within weeks (De Bloom et al., 2009). Likewise, ceasing short-term mindfulness meditation practice shortly leads to declines in acquired gains (May, Weyker, Spengel, Finkler, & Hendrix, 2014). The relative durability of the effects of meditation and vacation is an empirical question for future research. These relative effects may also depend on the type of meditation practiced (see Fredrickson et al., 2017; May et al., 2014) and the kind of vacation taken (the paucity of research on the effect of different vacation features is discussed in De Bloom et al., 2009).

Our exploratory study had multiple notable limitations. First, it did not include between-subject control groups. A virtue of our intensive longitudinal design was that subjects served as their own controls, enabling direct within-subject comparisons of the effects of meditation and vacation. However, we did not control for expectancy effects where participants may be biased to report more salutary effects for meditation and vacation regardless of their actual impact. Including an active control group which, for example, regularly listens to short health improvement lectures, may help to control for expectancy effects. Recent overviews have highlighted the importance of active controls in meditation research (Davidson & Kaszniak, 2015; Van Dam et al., 2018).

A second limitation is rooted in the differences between meditation as a manipulated variable and vacation as a measured variable. As a result, participants were on vacation substantially fewer days than they either meditated or were not on vacation. Moreover, there was greater variation in the number of vacation days than in the number of meditation days. Future research might enrol participants surrounding a period wherein they plan to take a substantial vacation. This would facilitate more robust estimates of the relative impacts of meditation and vacation.

Future research should also track and categorize how participants spend their time on vacation. Not all vacations are alike. We defined vacations broadly as extended time off from normal obligations. This, however, could encompass both leisure as home-based activities and vacation as activities away from home (Dolnicar, Yanamandram, & Cliff, 2012). Leisure and vacation are not often distinguished in the literature, but should be according to Dolnicar et al. (2012). There are also substantial differences in how one might engage with their leisure time. Stebbins (2012, 2018) delineates multiple types of leisure activities, from casual to project-based to serious. On one end, casual leisure prioritizes hedonic (pleasure-

maximization and displeasure-minimization) goals. On the other end, serious leisure prioritizes more eudaimonic, or meaning-based, goals and may involve overcoming adversity during goal pursuit. The serious leisure perspective (Stebbins, 2012) may provide an interesting framework for comparing meditation and leisure. Short-term meditation practice, often engaged in with hopes of stress relief, may have important parallels with types of casual leisure. On the other hand, longer term meditation practice may be more comparable to serious leisure. With both extensive meditation and extended projects, there is a higher likelihood of intermediary setbacks, or negative experiences, to be endured in service of a larger goal (Lindahl et al., 2017; Stebbins, 2012).

We also recommend extending an investigation of the relative impact of meditation to vacation in ways that facilitate disentangling acute from cumulative effects. In the current study, participants meditated for 15-minutes per day over the course of two different two-week periods. We were unable to determine how much of reported meditation effects could be attributed to a particular day's meditation period or reflected the accumulation of effects from preceding meditation days. The same indeterminacy holds for evaluating the effects of vacation. One solution would be to separate meditation from vacation periods, and include sufficient time points in both periods so that linear trends can be modelled for meditation and vacation. Alternatively, the sampling rate could be increased to multiple times per day, including before and after a meditation session or a particular leisure activity, to capture variable dynamics.

Finally, future research should examine to what extent the present results generalize to other populations. The relative valuation of meditation and leisure may plausibly vary across age groups, socioeconomic statuses, and nationalities. The latter may be particularly interesting since the impact of leisure may be expected to differ between countries with differing amounts of paid vacation time. European countries generally have a higher number of minimum mandatory paid vacation days than countries on other continents, particularly the Americas (Ghosheh, 2013). This could alter the value attached to vacation days. Richards (1999) argues that different governmental regulations and welfare regimes have led to a higher sense of entitlement to vacation as a social right in Europe as well as greater disparities in the distribution of leisure time (and income) in the United States and Japan. As a result, consumption patterns differ. Richards (1999) documents a dissociation between time-intensive tourism consumption in Europe and more money-intensive consumption patterns in the United States and Japan.

The current research suggests that 15-minutes of meditation has overlapping effects with a day of vacation.

Light-hearted proscriptive advice based on this comparison may then be: If you are pressed for time, sit on a meditation cushion; if you have more time, sit on a beach chair. However, we should be clear that these results only demonstrate similarities for beginning meditators. They do not speak to the unique, cumulative effects of long-term meditation practice (e.g. Lutz et al., 2004; MacLean et al., 2010), the benefits of which may outweigh those of vacation. Nevertheless, it is heartening to know that there are multiple pathways to short-term boosts in well-being, positive emotions, and mindfulness.

Disclosure statement

No potential conflict of interest was reported by the authors.

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