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Personality and Individual Differences

The role of mindfulness on the relationship between daily micro-events and daily gratitude: A within-person analysis

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A B S T R A C T

This study is based on the affective events theory and aimed to investigate the situational predictors for mindfulness-related differences in daily affect and gratitude. We tested a mediated moderation model in which daily micro-events (daily hassles and uplifts) were related to affect and gratitude at the within-person level. We also tested a cross-level interaction of mindfulness on the relationship between daily micro-events and gratitude and between daily micro-events and affect. A total of 101 participants participated in a 10-day diary study ($n = 1010$). Multilevel modeling showed that, at the person-level of analysis, daily micro-events were significantly related to daily affect, and in turn, to daily gratitude. At the within-level of analysis mindfulness moderated the link between daily micro-events and daily gratitude and between daily micro-events and daily affect, such that it become stronger for individuals who scored higher on mindfulness. These findings make relevant theoretical contributions to understanding the power of mindfulness for daily affective dynamics. These results also expand knowledge on within-person processes that explain daily affect and gratitude, in addition to more traditional between-person factors. In sum, the present research demonstrates that being mindful may improve, not only positive affect, but also gratitude.

1. Introduction

Daily micro-events are a constant in daily life. The affective events theory (AET; Weiss & Cropanzano, 1996) has explored these events suggesting they trigger affective reactions that influence subsequent attitudes, such as satisfaction (e.g., Junça-Silva et al., 2017). The AET also proposes that personality may influence these relationships. Indeed, dispositional mindfulness – the ability to seek out and produce novelty and to be flexible in thought and behavior (Pirson et al., 2018) - has been found to moderate the path from daily micro-events to affect and well-being (Junça-Silva et al., 2021). Moreover, mindfulness appears to be a condition that may improve or harm well-being (Hawkes & Neale, 2020) due to the individuals' ability to be attentive to context. Nevertheless, most studies have resorted to cross-sectional designs and did not explore the cross-level moderation of dispositional mindfulness in the AET framework. Moreover, there are no studies analyzing its impact on gratitude.

On its side, gratitude has been diversely defined as a positive

emotion, a pure cognitive appraisal process, a pro-social reaction, a moral motivation, a character strength, a behavior, and a disposition, among others (for a detailed discussion of the various definitions of gratitude see Gulliford et al., 2013). However, independently of the theoretical concept behind it, gratitude has been shown to benefit one's emotional and social wellbeing (Emmons & McCullough, 2003; McCullough et al., 2002).

Gratitude has also been related to the perception of having benefited from the actions of others (e.g., Voci et al., 2019) and may vary across the days. Thus, gratitude may be affected by daily micro-events and subsequent affective reactions. However, to our best knowledge, no study has explored gratitude as an outcome of the daily micro-events-affect-path, specifically in the higher education context. Like Krejtz et al. (2016) and Nezlek et al. (2017), the present study focused on the within-person relationships between daily micro-events, affect and gratitude. Examining gratitude as an inner state is consistent with the increased emphasis on within-person variability and with specific suggestions that gratitude per se has a state component (e.g., Nezlek et al.,

2018).

Relying on the AET we argue that daily micro-events will influence affect and this, in turn, will affect gratitude. Moreover, we expect that mindfulness (1) will moderate the direct relationship between daily micro-events and gratitude, and (2) the indirect effect of daily micro-events on gratitude via affect.

2. The Affective Events Theory (AET)

Diverse studies have emphasized that the context in which individuals spend most of their time is of crucial importance (e.g., Thibaut et al., 2018). For students, the educational context is clearly relevant because it is where they spend most of their time. The context is full of situational influences, such as micro-daily events, that shape the individuals' daily lives and several behaviors and attitudes, such as feeling grateful or satisfied (Du Plessis et al., 2020). Furthermore, "environments are seen as having an indirect influence on affective experience by making certain events, real or imagined, more or less likely" (Weiss and Cropanzano 1996, p. 12).

Daily micro-events are the tiny things that occur frequently in daily life and influence individuals' attitudes and behaviors (Junça-Silva et al., 2021). These events are micro due to their tiny nature and are affective because they trigger affective reactions. These directly influence attitudes (Ohly & Schmitt, 2015).

There are two categories of daily micro-events: daily uplifts and hassles (Junça-Silva et al., 2017). Daily uplifts are the micro-experiences (e.g., finishing a task or accomplishing a goal) that trigger positive affect (e.g., pride) and raise satisfaction, leading, thereby to positive attitudes. On the opposite, daily hassles are the small things that somehow irritate people (e.g., having to deal with someone in a rotten mood; Junça-Silva et al., 2020) triggering negative emotions (e.g., sadness) (Newman & Nezlek, 2022). When individuals experience more daily uplifts than daily hassles, they have a positive ratio of daily micro-events which not only stimulate positive attitudes or behaviors but also buffer the detrimental effects of daily hassles (Rueff Lopes et al., 2017).

2.1. The relationship between daily micro-events, affect, and gratitude

Gratitude is a positive feeling related to the perception of having benefited from others' behaviors (Emmons & McCullough, 2003). As a state, it is defined as "a generalized tendency to recognize and respond with grateful emotion to the roles of other people's benevolence in the positive experiences and outcomes that one obtains" (McCullough et al. 2002, p. 112). Individuals high on gratitude typically perceive experiences as being positive more frequently and intensely. Therefore, gratitude may be elicited through a wide range of stimuli (McCullough et al., 2002).

Diverse studies have shown that gratitude is an other-oriented, heart-related consequence of daily experiences (e.g., Nezlek et al., 2018). For instance, longitudinal studies demonstrated that positive experiences predict increased levels of gratitude (e.g., McCullough & Tsang, 2004). Experimental studies also evidenced that thinking and writing about positive experiences enhanced positive affect and gratitude (Emmons & McCullough, 2003; Seligman et al., 2005). Stieger et al. (2021) showed in three studies that positive experiences were positively related to state-gratitude and that negative daily-experiences were negatively related. Thus, based on the AET assumptions we defined the following hypotheses.

Hypothesis 1. Daily micro-events will be positively related to daily gratitude.

Hypothesis 2. Daily affect will be positively related to daily gratitude.

Hypothesis 3. The relation between daily micro-events and daily gratitude will be mediated by daily affect.

2.2. The moderating role of mindfulness

The relationship between daily micro-events-affect-gratitude may not always occur in the same way because individuals' dispositions (e.g., mindfulness) influence how they react to such events (Chen et al., 2017). The AET states that dispositions play a key-role in the relationship between what happens (daily micro-events) and how individuals react (affect). One disposition that has been associated with individuals' reactions to the context is mindfulness (e.g., Junça-Silva et al., 2021).

Mindfulness refers to the awareness that arises from paying attention to the purpose, in the present moment, and without judgment about things as they are. It encompasses two components: (1) attention/awareness of what is being perceived in the present (self-regulation of attention); (2) experiential processing without judgment, being receptive and open (orientation for the experience; Bishop et al., 2004). Mindfulness predisposes individuals to be open-minded, develops their ability to construct different interpretations and categories of reality, solve problems, and at the same time promotes adaptability to change (Langer, 1989). It also allows a great awareness of daily events, enabling the ability to be focused on what is happening in the present, and accepting it, which minimizes inadequate affective reactions.

We rely on the AET framework to underpin the moderating effect of mindfulness. Accordingly, the AET suggests that individual differences (e.g., dispositional mindfulness) influence the affective states aroused by daily micro-events (Weiss & Cropanzano, 1996). Thus, dispositional mindfulness may shape how individuals react to events.

By involving acceptability and an awareness of the present moment, mindfulness may help individuals to remain calm in adverse situations and to adjust their affective reactions and consequently, their attitudes (Donald et al., 2020). Therefore, we suggest that mindfulness may play a moderating role within the AET framework. First, mindfulness may influence how people perceive daily micro-events by helping them to focus on solutions rather than on problems, influencing an active search for answers. Plus, mindfulness may influence how individuals perceive the present moment by leading them to actively seek information that helps to deal with problems (Pirson et al., 2018). Therefore, mindful people may face daily hassles more easily due to their tendency to search for answers which, in turn, can lead to more adjusted affective reactions.

Second, mindful individuals may evoke distinctive responses and reactions from others, since it is easier to interact with mindful people (Pratscher et al., 2018). This view assumes that people tend to unconsciously evoke responses from others, which are consistent with their characteristics (Roberts et al., 2008). For example, some studies demonstrated that aggression typically evokes hostility from others (Dodge & Tomlin, 1987). Similarly, mindfulness may evoke more positive responses such as pro-social behaviors rather than negative reactions from others such as transgressions. Indeed, one important function of mindfulness is to reinforce and motivate positive attitudes, such as gratitude, by stimulating reciprocal behaviors in the future (McCullough et al., 2001). Mindful people tend to experience gratitude behaviors from others more often compared to people with lower levels of mindfulness (McCullough et al., 2002). Following this idea, we propose that mindfulness will moderate the association between daily micro-events and affect to predict gratitude and between daily micro-events and gratitude.

Hypothesis 4a. Mindfulness will moderate the positive relationship between micro-daily events and daily gratitude, such that the relationship will be stronger for higher levels of mindfulness.

Hypothesis 4b. Mindfulness will moderate the indirect effect of daily affect in the relationship between daily micro-events and daily gratitude, such that it will be stronger for higher levels of mindfulness (Fig. 1).
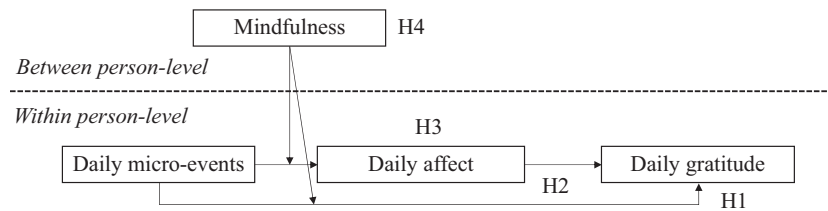
Fig. 1. The hypothesized mediated moderation model.

3. Method

3.1. Participants and procedure

One-hundred and one students from psychology graduation in higher education took part in the study. Overall, 89 % were female and the mean age was 19.82 years old (*SD* = 2.65). Most participants were single (90 %) and the others were married (10 %). All of them were workers.

We invited students to participate in a study and the ones that agreed to participate were clarified about the main goals and the data collection procedure. Moreover, we assured them that their participation was completely voluntary and anonymous and that their responses were confidential. Then, they signed an informed consent form.

We collected data through a general survey and daily questionnaires. The general survey was administered one week before the daily data collection. This aimed to assess demographic characteristics and mindfulness. Then, for the following two weeks (from Monday to Friday), participants answered a short daily-survey for 10 days. Each participant received a daily email, at the end of the day, at 6 pm with the hyperlink for the survey. Of the 120 students that agreed to participate, 101 provided valid responses across the ten-days (*n* = 1010; response rate: 84 %).

3.2. Measures

3.2.1. Daily micro-events

Daily micro-events were measured with the 18-item Scale for Daily Hassles and Uplifts at Work (Junça-Silva et al., 2020) which assesses the frequency of daily hassles (10 items, e.g., "Today, I had to deal with someone in a rotten mood"), and daily uplifts (eight items, e.g., "Today, I received positive feedback on my performance"). Participants used a 5-point scale (1 *never*; 5 *four times or more*). Multilevel reliability through the Alpha and the Omega index was good ($\alpha_{between}$ = 0.80, $\omega_{between}$ = 0.84; α_{within} = 0.70, ω_{within} = 0.72).

3.2.2. Daily affect

Daily affect was measured with the Multi-Affect Indicator (Warr et al., 2014). This scale includes 16 items to assess the frequency of daily positive and negative affect experienced at work on that day (e.g., "enthusiastic", "sad"). Participants answered on a 5-point scale (1–never; 5–always). Multilevel reliability tests indicated acceptable reliability for daily positive and negative emotions ($\alpha_{between}$ = 0.85; 0.87, $\omega_{between}$ = 0.85; 0.86; α_{within} = 0.80; 0.81, ω_{within} = 0.78; 0.77).

3.2.3. Daily gratitude

McCullough et al. (2002) developed the 6-item Gratitude Questionnaire (GQ) to assess individuals' gratitude. The participants indicated their responses on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5) "Today, I am grateful to a wide variety of people" ($\alpha_{between}$ = 0.69, $\omega_{between}$ = 0.71; α_{within} = 0.86, ω_{within} = 0.86).

3.2.4. Mindfulness

We used the Langer Mindfulness Scale (Pirson et al., 2018). It included 14 items that assessed novelty seeking (e.g., "I like to investigate things."), novelty producing, (e.g., "I make many novel contributions."), and engagement (e.g., "I am rarely aware of changes."). Participants answered on a five-point scale (1 = *totally disagree*; 5 = *totally agree*) (α = 0.88, ω = 0.87).

3.2.5. Control variables

The time of data collection (from Monday to Friday) was a daily-level control variable once it was found that it influences emotional reactions and work-related behaviors (Fisher, 2003).

3.3. Data analysis

To test our hypotheses, we created a ratio between daily uplifts and daily hassles. This ratio allowed to identify the proportionality of daily uplifts regarding daily hassles. When the ratio was higher than one, it means that daily uplifts occurred more frequently than daily hassles did. We also computed a ratio for affect (positive/negative).

This study used multi-level analysis with nested data to examine the underlying model. First, we calculated the analysis of variance components. Between-person variance represents the relative differences among participants' overall variable levels whereas within-person differences represent a participant's change in a particular variable from one day to the next. We found that there was significant variance in daily micro-events (ICC = 0.80), affect (ICC = 0.85), and gratitude (ICC = 0.85). This evidence that these variables have significant variation both at within and between-person levels. Thus, we proceeded with the multilevel analysis.

Hypotheses were tested through the macro–Multilevel Mediation (MLMed), in SPSS (Rockwood, 2017). This macro appears to deliver similar results, in the estimation of model parameters, to what other software alternatives do (e.g., M*plus*). Plus, this macro appears to be particularly useful for models that include level-2 moderators (Rockwood, 2017). MLMed tests both fixed and random effects. A fixed effect for the intercept specifies one intercept for all participants in the model, and a random effect allows participants' intercepts to vary. Fixed effects of slopes are simple relations between two variables that apply across people (e.g., daily micro-events are positively related to gratitude for everyone in the same way). Random effects of slopes, however, indicate whether there is significant variance in the slope of a given fixed effect from person to person. If there is a significant random effect, daily micro-events do not relate to gratitude in the same way for each person. We tested fixed effects for each predictor variable and random effects for each within-person predictor variable. We also allowed a random effect for the intercept. We standardized all variables before entering them into MLmed so that we could compare relative effect sizes. MLmed also provides output for the mediation model, with micro-daily events predicting the daily affect, and an output for the outcome model, with daily, affect predicting gratitude. Therefore, we included both these models in the results to examine how variables predicted each other across the model. The MLmed macro also calculates 95 % Monte Carlo confidence intervals, based on 10,000 samples, for indirect effects. These confidence intervals are significant when they do not include zero. Thus, the MLMed is a suitable macro to test our 1-1-1 (daily-level predictor–daily-level mediator–daily-level outcome) multilevel mediation model (H3), and our mediated moderation model (H4a and H4b). Based on Snijder and Bosker's (1999) recommendations for multilevel models, the model

fit was determined by observing the reduction in model deviance from data ($-2LL$) at each step, in comparison to a previous model.

4. Results

4.1. Descriptive statistics and correlations

Table 1 shows the descriptive statistics and correlations.

4.2. Hypothesis testing

As we mentioned before, to test our hypotheses, we considered the hierarchical structure of the data, in which daily data was nested within individuals. We centered our variables because as suggested by Bliese et al. (2018), centering variables is essential to test cross-level interactions.

First, we tested model 0, by entering time as a correlate of daily micro-events. Then, we ran model 1, both with and without it, and we found a similar pattern of results (see Table 2). Then we tested the mediation model (models 3 and 4) and then models 5 and 6 (mediated moderation model).

Regarding the first hypothesis, the results showed that daily micro-events were positively related to daily gratitude (Estimate = 0.41, $p < .001$), lending support to the H1.

Hypothesis 2 stated that daily affect would be related to daily gratitude. Hypothesis 2 was supported, as we found a positive association between daily affect and daily gratitude (Estimate = 0.23, $p < .01$).

Hypothesis 3 expected that micro-daily events would positively influence daily gratitude through daily affect. The results showed a significant indirect effect of daily affect, both at between and within-person levels (Estimate$_{between}$ = 0.39, $p < .05$, 95 % CI [0.09, 0.76]; Estimate$_{within}$ = 0.18, $p < .001$, 95 % CI [0.14, 0.23]). Thus, H3 was supported.

Hypotheses 4a and 4b aimed to test the mediated moderation model. First, H4a predicted that mindfulness would moderate the path between daily micro-events and daily gratitude. The results evidenced a significant interaction between mindfulness and micro-daily events (Estimate$_{within}$ = −0.18, $p < .01$, CI95% [−0.25, −0.10]) lending support for H4a. As we can see from Fig. 2, when the ratio of daily micro-events increases, daily gratitude is significantly higher for those who scored higher on mindfulness. Thus, H4a was supported (Table 3).

Second, H4b expected that the indirect effect of daily micro-events on daily gratitude through daily affect would be moderated by mindfulness. The index of moderated mediation was 0.04, with 95 % CI (0.01, 0.06). Fig. 3 shows that when the ratio of daily micro-events increases, daily affect significantly increases for those who scored higher on mindfulness. Thus, H4b was also supported, lending evidence for the mediated moderation model (Table 4).

5. Discussion

Based on the AET, we used the diary research method to examine

Table 1
Means, standard deviations, and between-and within-person level correlations.

Variables	*M*	*SD*	1	2	3	4
1. Micro-daily events	1.84	0.72*	–	0.48***	0.26***	−0.23**
2. Daily affect	2.56	1.18	0.43***	–	0.38***	−0.22***
3. Gratitude	5.71	0.94	0.29**	0.52***	–	−0.12***
4. Mindfulness	2.67	0.94	−0.37**	−0.13**	−0.14**	–

Note. Correlations below the diagonal are between-person levels. Correlations above the diagonal are within-person level. $N_{(observations)} = 1010$; $n_{(participants)} = 101$.
*** $p < .001$.
** $p < .01$.
* $p < .05$.

Table 2
Parameter estimates for 1-1-1 multilevel mediation model.

	Model 1 Mediator (daily affect)	Model 1 Dependent (daily gratitude)	Model 2 Mediator (daily affect)	Model 2 Dependent (daily gratitude)
Within-level (L1) effects				
Mean intercept	0.76*	4.23***	0.42	4.47***
Micro-daily events	0.75***	0.07	0.74***	0.07
Daily affect	–	0.24***	–	0.25***
Time	–	–	0.03**	−0.01
Between person effects				
Micro-daily events	0.87***	0.33	0.89***	0.22
Daily affect	–	0.32*	–	0.44**
Time	–	–	0.09*	−0.12*
Variance of random components				
Random intercept	0.13	0.34***	0.11*	0.31**
Residual variance	1.05***	0.63***	1.04***	0.63***
Direct effect, between-level	0.33 CI 95 % [−0.12, 0.77]		0.22 CI 95 % [−0.24, 0.67]	
Direct effect, within-level	0.07 CI 95 % [−0.01, 0.15]		0.07 CI 95 % [−0.02, 0.15]	
Indirect effect, between-level	0.28* CI 95 % [0.01, 0.61]		0.39* CI 95 % [0.09, 0.76]	
Indirect effect, within-level	0.18*** CI 95 % [0.14, 0.23]		0.18*** CI 95 % [0.14, 0.23]	
AIC	5159.13		5165.13	
BIC	5181.35		5187.34	
−2LL	5151.13		5157.13	
Sample size	L1 = 1011; L2 = 101			

Note. Maximum likelihood estimation with robust standard errors (MLR) was used in estimation. L1 = level 1, L2 = Level 2 analysis. Model 1 without covariates, Model 2 with covariates.
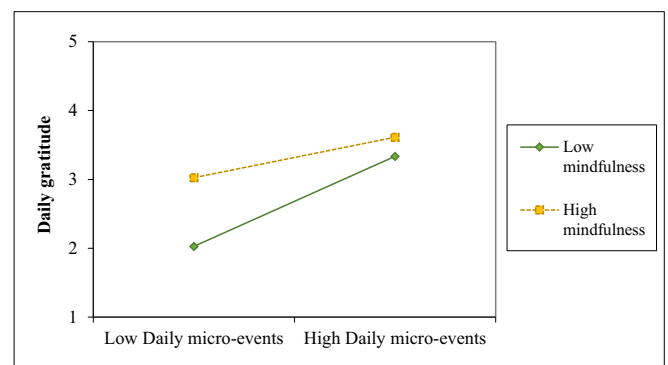*** $p < .001$.
** $p < .01$.
* $p < .05$.

Fig. 2. Cross-level interaction between mindfulness and daily micro-events predicting daily gratitude.

how and *when* daily micro-events influence gratitude. Hence, we explored *how* daily micro-events affect individuals' gratitude while also considering the effect of daily affect. Moreover, this study explores *when* this occurs, by testing the moderating effect of mindfulness on the

Table 3
Parameter estimates for multilevel mediated moderation model.

	Model 3 Mediator (daily affect)	Model 3 Dependent (daily gratitude)	Model 4 Mediator (daily affect)	Model 4 Dependent (daily gratitude)
Within-level (L1) effects				
Mean intercept	0.76*	3.53***	0.43	3.74***
Micro-daily events	0.76***	0.47***	0.74***	0.47***
Daily affect	–	0.24***	–	0.25***
Mindfulness * micro-daily events	–	−0.18***	–	−0.18***
Time	–	–	0.03**	−0.01
Between person effects				
Micro-daily events	0.87***	0.84	0.89***	0.74
Daily affect	–	0.31*	–	0.43*
Mindfulness	–	0.31	–	0.32
Mindfulness * micro-daily events	–	−0.22	–	−0.23
Time			0.10*	−0.12*
Variance of random components				
Random intercept	0.13*	0.32***	0.11	0.29**
Residual variance	1.04***	0.61***	1.04***	0.61***
Direct effect, between-level	0.84 CI 95 % [−0.04, 1.71]		0.74 CI 95 % [−0.14, 1.61]	
Direct effect, within-level	0.47*** CI 95 % [0.26, 0.67]		0.47*** CI 95 % [0.26, 0.68]	
Indirect effect, between-level	0.27 CI 95 % [−0.00, 0.60]		0.38* CI 95 % [0.08, 0.74]	
Indirect effect, within-level	0.18*** CI 95 % [0.14, 0.23]		0.18 CI 95 % [0.14, 0.23]	
AIC	5101.96		5107.66	
BIC	5124.14		5129.83	
−2LL	5093.96		5099.66	
Sample size	L1 = 1010; L2 = 101			

Note. Maximum likelihood estimation with robust standard errors (MLR) was used in estimation. L1 = level 1, L2 = Level 2 analysis. Model 3 without covariates, Model 4 with covariates.

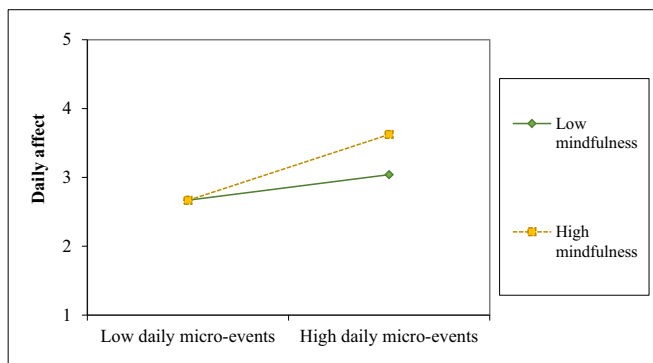*** $p < .001$.
** $p < .01$.
* $p < .05$.

Fig. 3. Cross-level interaction between mindfulness and daily micro-events predicting daily affect.

Table 4
Parameter estimates for multilevel mediated moderation model.

	Model 5 Mediator (daily affect)	Model 5 Dependent (daily gratitude)	Model 6 Mediator (daily affect)	Model 6 Dependent (daily gratitude)
Within-level (L1) effects				
Mean intercept	0.51	4.23***	0.18	4.47***
Micro-daily events	0.37***	0.07	0.33*	0.07
Daily affect	–	0.24***	–	0.25***
Mindfulness * micro-daily events	0.14***	–	0.15**	–
Time	–	–	0.04**	−0.01
Between person effects				
Micro-daily events	1.22***	0.33	0.1.24**	0.21
Daily affect	–	0.32*	–	0.44*
Mindfulness	0.15	–	0.15	–
Mindfulness * micro-daily events	−0.16	–	−0.16	–
Time			0.09*	−0.12*
Variance of random components				
Random intercept	0.13*	0.34***	0.10	0.31**
Residual variance	1.04***	0.63***	1.02***	0.63***
Direct effect, between-level	0.33 CI 95 % [−0.13, 0.78]		0.21 CI 95 % [−0.24, 0.67]	
Direct effect, within-level	0.07 CI 95 % [−0.02, 0.15]		0.07 CI 95 % [−0.02, 0.15]	
Index of moderated mediation, between-level	−0.05 CI 95 % [−0.22, 0.06]		−0.07 CI 95 % [−0.26, 0.08]	
Index of moderated mediation, within-level	0.03** CI 95 % [0.01, 0.06]		0.04** CI 95 % [0.01, 0.06]	
AIC	5101.19		5105.95	
BIC	5123.38		5128.12	
−2LL	5093.19		5097.95	
Sample size	L1 = 1010; L2 = 101			

Note. Maximum likelihood estimation with robust standard errors (MLR) was used in estimation. L1 = level 1, L2 = Level 2 analysis. Model 5 without covariates, Model 6 with covariates.

*** $p < .001$.
** $p < .01$.
* $p < .05$.

relationship between daily micro-events, daily affect, and daily gratitude and between daily micro-events and daily gratitude.

5.1. Theoretical implications

The AET, through which we built our hypothesis, states that daily micro-events trigger affective (e.g., sadness) and behavioral (e.g., performance) or attitudinal responses (e.g., gratitude). This study extends previous findings of this model, as it shows the mediated relationship among daily micro-events, affect, and gratitude, at the daily level. Moreover, so far as we know, this is the first study to test the AET in the higher education context. Despite the existing cross-sectional studies demonstrating the direct paths between daily micro-events and affect (e. g., Junça-Silva et al., 2021), and between this one and gratitude (e.g.,

Nezlek et al., 2019), daily studies testing this mediation, were to date largely unverified. Our findings evidence an indirect relationship between daily micro-events and gratitude via affect, in the educational setting. That is, when students face more daily uplifts than daily hassles, they tend to experience more positive affect leading them to be more grateful. This conclusion is important because (1) gratitude appears to be situational dependent and (2) may be more than just a disposition – that is a characteristic relatively stable across time (Wood et al., 2010). Most studies have explored gratitude as a disposition, however recently Nezlek et al. (2019) proposed that gratitude may also include an important state component. The present results complement and extend the conceptualization of Nezlek et al. (2019) by demonstrating that daily micro-events enhance gratitude directly and indirectly, via affect, at the daily-level.

Our second theoretical contribution is the moderating role of mindfulness. Our findings show that mindfulness may provide an overarching, umbrella-like context that influences how people emotionally react to daily micro-events. This result is in line with the idea that mindfulness is an awareness of the present moment and includes higher receptivity and acceptance of what is happening around (Pirson et al., 2018). The results show that mindful people not only tend to experience more positive affect after daily uplifts but are also more grateful when daily uplifts exceed daily hassles. By being more focused on what happens, and accepting reality as it is, individuals experience a sense of coherence with the self which might be translated into positive affective states and gratitude. As a result, daily micro-events and mindfulness may be key-factors to improve positive affect and gratefulness among students.

5.2. Limitations and future directions

We believe the present study contributes to our understanding of the impact of micro-daily events on gratitude, but no study is without limitations. First, we used self-reported measures, which might account for common method variance (Podsakoff, 2017; Podsakoff et al., 2012). However, we followed some procedures that minimize it, such as the confirmatory factor analysis. Future studies could use other sources of information (e.g., colleagues, teachers) regarding daily gratitude.

These results open the way for future studies. First, multisource gratitude measures should be studied within the model (e.g., from colleagues, teachers). Second, should be interesting to test the model with health moderators, for instance, overall health or daily symptoms. To do this, future studies could use objective measures of health, (e.g., heart rate or blood pressure). Third, future studies would explore different gratitude nuances, for instance, emotion-gratitude and action-gratitude as there is evidence that each form of gratitude leads to diverse outcomes (Gulliford et al., 2013).

5.3. Practical contributions

This research allows us to propose that situational characteristics (daily micro-events) affect and attitudes (gratitude) are important variables for higher education settings. This study also emphasizes that this mediated relationship is stronger when mindfulness is higher. Thus, the relevance of these factors has important implications for applied purposes, such as student personal development.

Given the importance associated with daily affect, teachers can benefit from acknowledging its relevance for gratitude throughout the day. Thus, promoting conditions for students to experience more frequent daily uplifts and positive affect, for example, creating specific times for class breaks, creating specific ways to regularly give feedback to them, and also creating a time and space for them to share it. For instance, it should be interesting to create a "gratitude day" in which students would have to think and share three things why they should be grateful.

In addition, teachers may also consider these results for training

practices, in this case mindfulness. Stimulating mindfulness may lead to adaptive behaviors to deal with daily life events, that result in higher positive affect and gratitude. In addition, it should be interesting, from a practical point of view, to promote a coaching program focused on personal development regarding mindfulness and gratitude among students, in which the student would have the role of coach and *coachee*. Plus, a reward for these should also be thought of as a strategic manner to improve mindfulness and gratitude.

6. Conclusion

Overall, this study evidences the mediational path between daily micro-events, affect, and daily gratitude, both at the daily and person-level. In addition, it sheds light on the power that mindfulness plays in this path once it evidences the interaction between mindfulness and daily micro-events in the mediating path and between mindfulness and gratitude. Specifically, individuals who experience more daily uplifts, feel better and are more grateful. Thus, we highlight that a positive context creates positiveness by demonstrating a positive loop that starts with daily micro-events and ends, at the end of the day, with gratitude.

Compliance of ethical standard statement

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.

Informed consent

Informed consent was obtained from all individual participants involved in the study.

Data availability

The data is available only upon reasonable request to the authors.

CRediT authorship contribution statement

Ana Junça-Silva was responsible for conceptualization, validation and writing the manuscript.

Leticia Mosteo was responsible for conceptualization, methodology, data collection and visualization.

Rita Rueff Lopes was responsible for conceptualization, validation and resources.

Declaration of competing interest

The authors declare that they have no conflicts of interest.

Data availability

Data will be made available on request.

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