ORIGINAL ARTICLE

Emotion regulation strategies and satisfaction with life: mediating roles of positive and negative mind-wandering

Magdalena Klonowska[A,B,D,F], Marek Kowalczyk [ID] [A,C,D,E,F]

Faculty of Psychology and Cognitive Science, Adam Mickiewicz University, Poznań, Poland

BACKGROUND

Habitual use of cognitive reappraisal and expressive suppression as emotion regulation strategies has been shown to relate differently to dispositional positive and negative affect and satisfaction with life. In this study, we aimed to establish the role of affectively different forms of mind-wandering – i.e., spontaneously initiated thinking about matters unrelated to the individual's current task and the immediate environment – in the associations between the employment of each of these strategies and life satisfaction. Our main theoretical idea was that affective consequences of employing cognitive reappraisal and expressive suppression influence positive and negative mind-wandering, which contribute to satisfaction with life.

PARTICIPANTS AND PROCEDURE

A convenient sample of 217 respondents (154 women) aged 19-88 (M = 44.97, SD = 17.16) filled out questionnaires assessing variables of interest: the Emotion Regulation Questionnaire, the Positive and Negative Affect Schedule–Trait, the Task-Unrelated Thoughts Questionnaire, and the Satisfaction with Life Scale.

RESULTS

In the estimated PLS-SEM structural model, there were significant indirect paths leading from emotion regulation strategies to satisfaction with life through 1) positive or negative affect and positive or negative mind-wandering as sequential mediators, 2) positive affect (over and above its associations with positive and negative mind-wandering), 3) positive and negative mind-wandering (due to their negative associations with suppression).

CONCLUSIONS

Positive and negative mind-wandering may mediate the relationships between the frequency with which individuals employ cognitive reappraisal and expressive suppression to regulate emotions and their global life satisfaction.

KEY WORDS

cognitive reappraisal; expressive suppression; affect; mind-wandering; satisfaction with life

BACKGROUND

Life satisfaction may depend on factors such as the balance of adverse and desirable events in the individual's life, relationships with others, professional fulfilment, economic status, health, etc. However, individuals can modulate the cognitive and affective responses to events or conditions in their lives and, thus, the impact of these circumstances on well-being. An important line of research on emotion regulation contrasts the consequences or correlates of two strategies people can use to control emotion: cognitive reappraisal (henceforth *reappraisal*) and expressive suppression (henceforth *suppression*; e.g., Gross & John, 2003). Reappraisal involves changing the way of thinking about a situation to change its emotional influence. Suppression is simply inhibiting ongoing emotion-expressive behavior. Gross and John (2003) devised the Emotion Regulation Questionnaire (ERQ), which measures the strength of individual tendencies to employ each of these strategies. They found that the propensity to use reappraisal was positively associated with trait positive affect, negatively associated with negative affect, and positively associated with life satisfaction. The reverse held for the tendency to use suppression as an emotion-regulation strategy: it was negatively associated with positive affect, positively associated with negative affect, and negatively associated with life satisfaction. Subsequent research using the ERQ confirmed the relationships between the two emotion regulation strategies and satisfaction with life (e.g., Haga et al., 2009; Kobylińska et al., 2022; Schutte et al., 2009; Toh & Yang, 2022) and, broadly, the relationships of these strategies with positive and negative affect, with mixed results relating to the association between the tendency to use suppression and increased negative affect (e.g., Balzarotti et al., 2010; Brockman et al., 2017; Cabello et al., 2013; Haga et al., 2009; Ioannidis & Siegling, 2015; Kobylińska et al., 2022; Schutte et al., 2009).

Experimental research in which the employment of reappraisal and suppression in response to emotion-evoking stimuli was manipulated supported the view that these strategies influence emotions differently (for an overview, see Gross, 2014). Reappraisal has been found to reduce negative emotions at behavioral, experiential, and neural levels and increase the experience of positive emotions. In contrast, suppression reduces just the expression of negative emotions but not their experiential aspect, increases activation of the sympathetic nervous system and brain regions involved in generating emotion, and reduces the experience of positive emotions.

One plausible interpretation of the correlations between emotion regulation strategies, dispositional affect, and satisfaction with life is that the frequency of usage of reappraisal and suppression translates into the individual's higher or lower typical positive and negative affect, and the intensity of both contributes to greater or lesser well-being and satisfaction with life. In this study, we consider additional variables that may play a role in these relationships: affectively different forms of spontaneous off-task mental activity or mind-wandering.

Mind-wandering is a pervasive component of people's mental life. According to various studies using the experience-sampling method in natural life situations, for 1/5 to even 1/2 of the waking hours, people think about something other than their current activities or happenings in their immediate environment (e.g., Kane et al., 2017; Killingsworth & Gilbert, 2010; Marcusson-Clavertz et al., 2016). A high incidence of mind-wandering is also suggested by laboratory studies, which show that even when performing demanding tasks, participants tend to slip into thinking about matters unrelated to what they are supposed to be doing. Thus, mind-wandering constitutes a considerable part of people's inner experience.

Both psychological and neuropsychological data suggest that while mind-wandering, individuals often think about their qualities, recent experiences, relationships with others, problems to solve, tasks to do, visions of the future, and plans (e.g., Andrews-Hanna et al., 2014). Thus, mind-wandering may represent a constant reflection on the events in one's life, the ongoing construal of an updated interpretation of the current state of affairs, predicting the future, and planning. Undoubtedly, individuals differ in the typical cognitive, affective, and conative content of these mentations.

Research into individual differences in mind-wandering and their nomological network suggests a need to distinguish affectively positive and negative forms of this activity (e.g., Gid & Kowalczyk, 2019; Huba et al., 1981; Kowalczyk, 2013; Torres-Irribarra et al., 2019). The inner world of thought of an individual may be filled to a greater or a lesser degree with positive apprehensions of the current situation, thoughts about satisfactory relationships, one's assets of various kinds, strengths, successes, pleasant memories, optimistic plans, expectations, or pleasant fantasies. On the other hand, the person may be more or less often preoccupied with his or her weaknesses and limitations, disappointments, reminiscences associated with feelings of anger, guilt, or shame, current problems, conflicts, worries, fears, etc. We will address these affectively different kinds of off-task thinking as positive and negative mind-wandering.

The separate dimensions of individual differences in positive and negative mind-wandering have been shown to differently associate with positive or negative affect (e.g., Blouin-Hudon & Zelen-

ski, 2016; Zhiyan & Singer, 1997) and other affect-related constructs, such as neuroticism (Kowalczyk, 2013), emotional reactivity, and perseveration (Gid & Kowalczyk, 2019; Kowalczyk, 2013). In particular, Blouin-Hudon and Zelenski (2016), using the three-factor Short Imaginal Process Inventory (Huba et al., 1981), found that a tendency for "positive-constructive daydreaming" correlated with positive affect and components of well-being (like satisfaction with life), whereas a tendency for "guilty-dysphoric daydreaming" correlated with them negatively.

Studies employing state-level indices of mind-wandering and affect confirm the relationships between these domains of psychological functioning, although causal interpretations of the correlations between them are not straightforward (e.g., Mason et al., 2013; see also Kowalczyk, 2021). However, several studies have provided evidence suggesting that affective states may facilitate mind-wandering or particular contents of mind-wandering (e.g., Plimpton et al., 2015; Poerio et al., 2013; Ruby et al., 2013; Seibert & Ellis, 1991; Smallwood et al., 2009; Smallwood & O'Connor, 2011; Stawarczyk et al., 2013).

Given the pervasiveness of mind-wandering, its affective determinants, and affect-involving and self-referential contents, it seems probable that mind-wandering 1) is influenced by how individuals regulate emotion and 2) influences how individuals assess their global satisfaction with life. To our knowledge, no studies have yet investigated how using reappraisal and suppression relates to the intensity, content, and affective tone of people's spontaneous thinking, and how this thinking affects satisfaction with life. The present study makes a preliminary step of such inquiry. We analyze correlations between questionnaire indices of the critical variables within a structural model that represents hypothetical causal paths leading from emotion regulation strategies to satisfaction with life. We hypothesized that the positive influence of the tendency to use reappraisal on positive affect and the negative impact of this tendency on negative affect translate into enhanced positive mind-wandering and decreased negative mind-wandering, which, in turn, lead to greater satisfaction with life. Analogously, we hypothesized that the tendency to use suppression leads to lesser satisfaction with life through decreased positive affect and possibly increased negative affect, resulting in decreased positive mind-wandering and increased negative mind-wandering. Thus, positive and negative mind-wandering were hypothesized to mediate or partially mediate the relationships between emotion-regulation strategies and satisfaction with life.

The analyses we report in this article were performed on the data collected in a broader, multi-purpose research project. In another paper (Kowalczyk et al., 2023), we published analyses of these data driven by our other cognitive goals.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

Two hundred and eighteen respondents aged 19-88 (155 women) were recruited using convenience sampling. We approached potential participants aiming at a sample of individuals between early and late adulthood from different schooling, social, and occupational groups. One participant did not fill out the measure of life satisfaction and therefore was excluded from the analyses. Most participants (95.4%) had completed at least secondary education (64.2% were college graduates), and the others (4.6%) had completed post-primary vocational schools.

MEASURES

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) encompasses two scales that measure the strength of the respondent's propensity to use cognitive reappraisal and expressive suppression. The Reappraisal scale contains six statements (e.g., "When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about"). The Suppression scale contains four statements (e.g., "I control my emotions by not expressing them"). Respondents rate the statements from 1 (*strongly disagree*) to 7 (*strongly agree*). A Polish translation of the ERQ by Dorota Kobylińska was used, taken from Gross's Stanford Psychophysiology Laboratory site.

The Positive and Negative Affect Schedule–Trait (PANAS-T; Watson et al., 1988; Polish adaptation: Brzozowski, 2010) is an adjective checklist measuring the respondent's typical mood on two dimensions. The Positive Affect (PA) scale consists of 10 positive adjectives (e.g., *interested*, *excited*), and the Negative Affect (NA) scale encompasses 10 negative adjectives (e.g., *upset*, *scared*). Respondents indicate to what degree each adjective describes their usual mood, using a scale from 1 (*very slightly or not at all*) to 5 (*extremely*).

The Task-Unrelated Thoughts Questionnaire (TUTQ; Gid & Kowalczyk, 2019; Kowalczyk, 2013) consists of three 15-item scales that are intended to measure individual tendencies in mind-wandering. The Positive Preoccupation (P) scale refers to positive thoughts, pleasant daydreams, and plans for the future (e.g., "You think about something that makes you joyful"). The Negative Preoccupation (N) scale comprises items that relate to thoughts about matters associated with negative emotions: one's faults, failures, fears, etc. (e.g., "You think about possible consequences of your mistake or neglect"). The Unconcerned Mentation (U) scale (not used in the analyses reported in this paper) encompasses items related to emotionally neutral thoughts and episodes of "mind blanking".

On a scale from 0 (*never*) to 4 (*very often*), respondents indicate how frequently they have thoughts of a given category during everyday activities that demand focused attention.

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) comprises five statements that refer to a global satisfaction with life (e.g., "In most ways my life is close to my ideal"). Respondents express their agreement or disagreement with each statement using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). A Polish translation of the SWLS by Jankowski (2015) was used.

Internal consistency reliabilities of these scales (including the Polish adaptations of English-language questionnaires) have been reported to be good or very good, as they were also in this study (see the Results section).

PROCEDURE

The questionnaires were filled out by the respondents at their homes. Participants were given an envelope containing the informed consent form, copies of the instructions, and numbered questionnaires, which were supposed to be completed in the indicated order: first, the PANAS, then the TUTQ, the ERQ, and lastly, the SWLS. (There were also other scales to be filled, addressing variables beyond the scope of the analyses reported in this paper.) Participants were asked to complete the questionnaires at a convenient time, when they would not be distracted, and preferably without taking long breaks.

STATISTICAL ANALYSES

In the data analyses, we used partial least squares structural equation modelling (PLS-SEM; Hair et al., 2021, 2022). PLS-SEM is a nonparametric method and therefore can manage non-normal data. It can estimate complex models that include many constructs, indicators, and relationships between constructs, with no identification issues, even when the sample size is small. Moreover, PLS-SEM achieves greater statistical power than covariance-based structural equation modeling.

Variables representing responses to individual items within the scales were treated as indicators of the latent variables in the estimated model. The model encompassed direct paths: 1) from reappraisal and suppression to positive and negative affect, positive and negative mind-wandering, and satisfaction with life; 2) from positive and negative affect to positive and negative mind-wandering and satisfaction with life; 3) from positive and negative mind-wandering to satisfaction with life (see Figure 1). Thus, we could estimate eight two-mediator and eight one-mediator indirect paths from emotion regulation strategies to satisfaction with life while controlling for the direct effects of predictor variables on satisfaction with life. The significance of the paths' coefficients was assessed by constructing bootstrap-based confidence intervals. We conducted the analyses using the SEMinR package in R software (Ray et al., 2022).

RESULTS

MISSING DATA

There were just four missing responses to the questionnaires' items. We imputed these with the mean values of the respective indicators.

THE MEASUREMENT MODEL

We evaluated the measurement model using the criteria proposed by Hair et al. (2021, 2022). For all measures, the three internal consistency reliability indices we inspected, Cronbach's alpha, rho_C, and rho_A, were within the recommended range of values above 0.70 and below 0.95. The average variance extracted (AVE) was above the recommended minimal value of 0.5 for all but two constructs – positive mind-wandering and positive affect. Since the discrepancies with the recommended criterion were not very large and both scales had satisfactory reliability measures, we decided to retain all their items in the analyses rather than removing indicators with lower reliabilities to increase AVE values. All measures in the study had satisfactory discriminant validity as indicated by the heterotrait-monotrait (HTMT) ratio of correlations index, which was significantly lower for all pairs of constructs than the conservative criterion value of 0.85. The exact values of the statistics summarized in this paragraph can be found in Tables S1 and S2 in Supplementary materials.

THE STRUCTURAL MODEL

No collinearity problems were detected in the sets of predictors in our model (the VIF values were between 1.01 and 1.88). The model explained 32% of the variance in satisfaction with life ($R^2 = .32$; adjusted $R^2 = .30$). We estimated the out-of-sample predictive power of the model using the procedure $PLS_{predict}$ (Shmueli et al., 2019). For each of the satisfaction with life indicators, root-mean-square error (RMSE) values were lower than naïve linear regression model (LM) benchmark values, which led to the conclusion that the model has high predictive power (Shmueli et al., 2019).

Figure 1 illustrates the significant and non-significant direct paths in the model. Table S3 in Supple-

Figure 1

Structural model of the relationships between emotion regulation strategies (CR – cognitive reappraisal, ES – expressive suppression) and satisfaction with life (SWL), with positive affect (PA), negative affect (NA), positive mind-wandering (PMW), and negative mind-wandering (NMW) as mediators
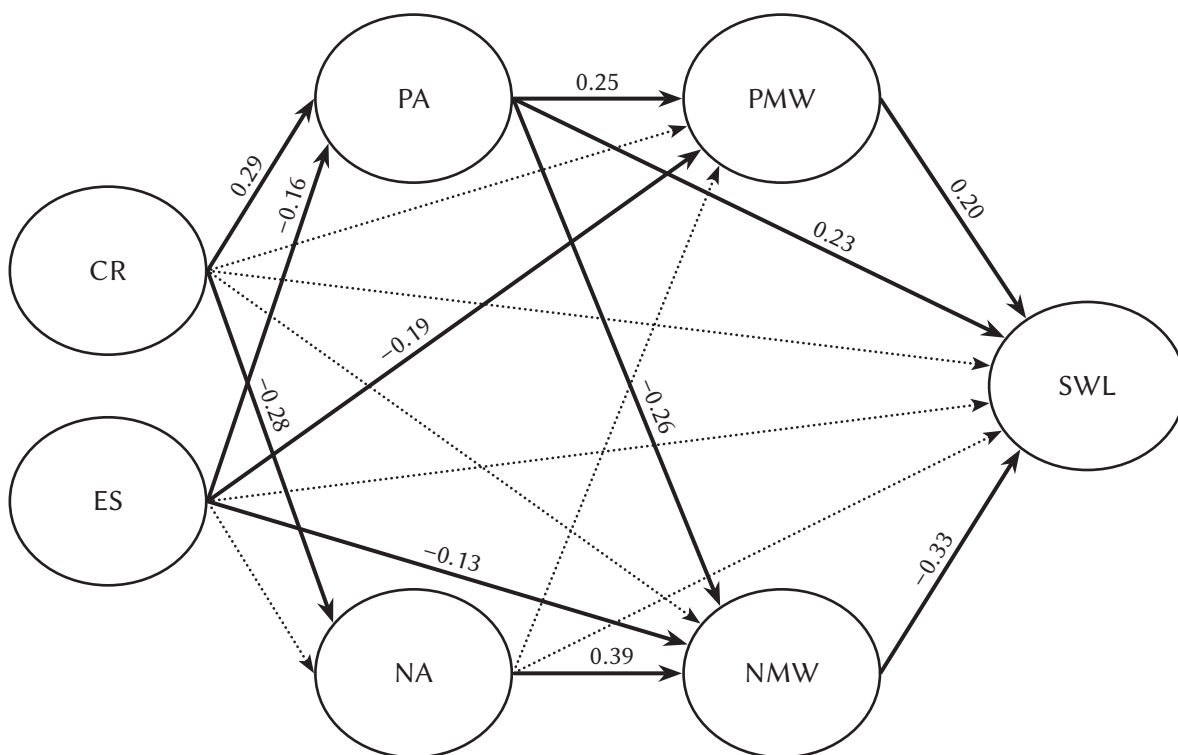
Note. Solid lines represent significant effects (*p* < .05), and dotted lines represent nonsignificant effects.

mentary materials contains regression coefficients for these paths and their bootstrap means, standard deviations, *t*-tests, and 95% confidence intervals.

In our sample, reappraisal predicted positively positive affect and negatively negative affect, whereas suppression predicted negatively positive affect (it did not predict negative affect). In turn, positive affect predicted positively positive mind-wandering and negatively negative mind-wandering, and negative affect predicted positively negative mind-wandering (it did not predict positive mind-wandering). Reappraisal did not predict positive and negative mind-wandering directly, but suppression negatively predicted both. Positive and negative mind-wandering predicted satisfaction with life, the former positively and the latter negatively. Moreover, positive affect directly positively predicted satisfaction with life. Direct paths from emotion regulation strategies to satisfaction with life in the model were not significant. All indirect paths composed of significant direct paths proved significant (see Table 1). The total effect of reappraisal on satisfaction with life was reliable (estimate = 0.26, bootstrap *M* = 0.26, *SD* = 0.07, *t* = 3.87, 95% CI [0.14; 0.39]), whereas the total effect of suppression on satisfaction with life was not

(estimate = −0.01, bootstrap *M* = −0.01, *SD* = 0.08, *t* = −0.10, 95% CI [−0.17; 0.14]).

DISCUSSION

The estimates obtained in our model and interpreted relative to its assumptions concerning potential causal relationships between variables of interest suggest that a greater tendency to use reappraisal leads to higher positive affect and, consequently, higher positive mind-wandering and lower negative mind-wandering. Both of these effects on mind-wandering contribute to greater satisfaction with life. Positive affect also directly contributes to satisfaction with life, mediating the positive influence of reappraisal on life satisfaction over and above the impact on positive and negative mind-wandering. In agreement with these results, LeBlanc et al. (2021) reported analyses in which positive affect mediated the relationship between reappraisal and satisfaction with life. Furthermore, reappraisal positively affects satisfaction with life through negatively influencing negative affect, which is conducive to negative mind-wandering. In contrast to positive affect, negative affect does not

Table 1

Mediation effects in the relationships between emotion regulation strategies and satisfaction with life

Emotion regulation strategy	Mediators	Estimate	Boot *M*	Boot *SD*	*t*	2.5% CI	97.5% CI
CR	**PA → PMW**	**0.01**	**0.02**	**0.01**	**1.58**	**0.00**	**0.04**
CR	**PA → NMW**	**0.02**	**0.02**	**0.01**	**2.31**	**0.01**	**0.05**
CR	NA → PMW	−0.00	−0.00	0.01	−0.93	−0.02	0.00
CR	**NA → NMW**	**0.04**	**0.04**	**0.01**	**2.47**	**0.01**	**0.07**
CR	**PA**	**0.07**	**0.07**	**0.03**	**2.37**	**0.02**	**0.13**
CR	NA	0.02	0.03	0.02	1.10	−0.01	0.07
CR	PMW	0.02	0.02	0.02	1.22	−0.01	0.06
CR	NMW	−0.00	−0.00	0.02	−0.14	−0.05	0.04
ES	**PA → PMW**	**−0.01**	**−0.01**	**0.01**	**−1.19**	**−0.03**	**−0.00**
ES	**PA → NMW**	**−0.01**	**−0.01**	**0.01**	**−1.72**	**−0.03**	**−0.00**
ES	NA → PMW	−0.00	−0.00	0.00	−0.19	−0.01	0.00
ES	NA → NMW	0.00	0.00	0.01	0.27	−0.02	0.03
ES	**PA**	**−0.04**	**−0.04**	**0.02**	**−1.67**	**−0.09**	**−0.00**
ES	NA	0.00	0.00	0.01	0.23	−0.02	0.02
ES	**PMW**	**−0.04**	**−0.04**	**0.02**	**−1.79**	**−0.09**	**−0.00**
ES	**NMW**	**0.04**	**0.04**	**0.02**	**1.81**	**0.01**	**0.10**

Note. CR – cognitive reappraisal, ES – expressive suppression, PA – positive affect, NA – negative affect, PMW – positive mind-wandering, NMW – negative mind-wandering. Significant effects are in bold. The structural model is illustrated in Figure 1.

contribute to life satisfaction directly, independently of its impact on negative mind-wandering.

The tendency to use suppression reduces positive affect, and the indirect effects of suppression on satisfaction with life through positive affect are opposite to those of reappraisal. Thus, in the estimated model, a tendency to use suppression leads, through reduced positive affect, to lower positive mind-wandering and higher negative mind-wandering. Both of these effects on mind-wandering contribute to lesser satisfaction with life. The results did not confirm an association between suppression and negative affect, which was found in some previous studies (Brockman et al., 2017; Gross & John, 2003; Haga et al., 2009; Schutte et al., 2009), but was not observed in others (e.g., Balzarotti et al., 2010; Cabello et al., 2013; Ioannidis & Siegling, 2015; Kobylińska et al., 2022).

Unexpectedly, our analyses suggest that a tendency to use suppression may directly (over and above its impact on affect) lead to lower levels of both positive and negative mind-wandering, which translates – through conflicting causal paths – into, respectively, lower and higher satisfaction with life.

Overall, the results support the idea that positive and negative mind-wandering may play important roles in the relationships between emotion regulation strategies and satisfaction with life. First, both kinds of mind-wandering partially mediate the influence of reappraisal and suppression on life satisfaction through positive affect. Second, negative mind-wandering fully mediates the influence of reappraisal on life satisfaction through negative affect. Third, both positive and negative mind-wandering were found to be negatively related to suppression and to mediate the influence of suppression on life satisfaction.

In light of the results, positive affect appears to be a particularly important mediating variable in the relationships between emotion regulation strategies and satisfaction with life. It is reliably associated with both emotion regulation strategies, and it affects satisfaction with life both immediately and by affecting positive and negative mind-wandering. The role of negative affect appears to be more restricted, as negative affect depends only on reappraisal and not suppression, does not influence positive mind-wandering, and does not directly contribute to satisfaction with life but only by facilitating negative mind-wandering. We did not predict these asymmetries on theoretical grounds and do not offer ad hoc explanations for them here. In the first place, they need

to be confirmed in replication studies. For now, they indicate potential interesting topics for further investigation and theory development.

Another finding we did not predict was the negative associations of suppression with both forms of mind-wandering. This observation may tell us something new and important about expressive suppression or people who tend to use it, suggesting that a tendency to suppress external, public expressions of emotions may be accompanied by a propensity to suppress their internal, "private" expressions or associates in the form of emotionally loaded thoughts. If so, perhaps the proclivity for suppression as an individual difference variable should be given a broader interpretation than that in Gross's theory. Of potential relevance, Richards and Gross (2000) found that a tendency to use suppression but not reappraisal was negatively associated with remembering emotional natural life events. A less exciting interpretation of the negative relationship between suppression and self-reported positive and negative mind-wandering, however, is that people more prone to hide their emotions are simply less eager to admit experiencing frequently emotionally loaded thoughts when they fill out the questionnaire.

Unlike suppression, reappraisal was not directly associated with positive and negative mind-wandering when positive and negative affect were controlled. We find this null result interesting because some relationships between using reappraisal and mind-wandering could have been suspected on a priori grounds. After all, reappraisal is a strategy of controlling emotions by controlling thoughts. One might speculate that habitual use of such means of emotion regulation can prime some ways of thinking about life situations or simply prime positive contents, thus affecting spontaneous mental activity (i.e., mind-wandering). Another perspective on this issue could be that reappraisal is a cognitively demanding strategy, which requires an ability to control one's thoughts. This ability might be expected to negatively correlate with mind-wandering during attention-demanding tasks. However, as much as these lines of theorizing might have seemed plausible a priori, the predictions following from them were not borne out in this study.

In our final comment, we would like to highlight a fundamental limitation of the current investigation. This is a paper-and-pencil correlational study in which all measures were applied in close temporal proximity. Thus, the results cannot *prove* causal relations represented in the estimated model. More sophisticated research designs are needed to build a stronger case for causal scenarios leading from emotion regulation strategies to life satisfaction. One particularly valuable next step would be to analyze long-term consequences – in affect, mind-wandering, and satisfaction with life – of training or interventions directed at encouraging people to employ reappraisal instead of suppression to regulate their emotions. (An analogous program promoting suppression would be problematic due to ethical issues.) Our results strongly encourage further inquiry, suggesting that positive and negative mind-wandering contribute to the effects of emotion regulation strategies on satisfaction with life.

References

Andrews-Hanna, J. R., Smallwood, J., & Spreng, R. N. (2014). The default network and self-generated thought: Component processes, dynamic control, and clinical relevance. *Annals of the New York Academy of Sciences, 1316*, 29–52. https://doi.org/10.1111/nyas.12360

Balzarotti, S., John, O. P., & Gross, J. J. (2010). An Italian adaptation of the Emotion Regulation Questionnaire. *European Journal of Psychological Assessment, 26*, 61–67. https://doi.org/10.1027/1015-5759/a000009

Blouin-Hudon, E. C., & Zelenski, J. M. (2016). The daydreamer: Exploring the personality underpinnings of daydreaming styles and their implications for well-being. *Consciousness and Cognition, 44*, 114–129. https://doi.org/10.1016/j.concog.2016.07.007

Brockman, R., Ciarrochi, J., Parker, P., & Kashdan, T. (2017). Emotion regulation strategies in daily life: Mindfulness, cognitive reappraisal and emotion suppression. *Cognitive Behaviour Therapy, 46*, 91–113. https://doi.org/10.1080/16506073.2016.1218926

Brzozowski, P. (2010). *Skala Uczuć Pozytywnych i Negatywnych SUPIN. Polska adaptacja skali PANAS Davida Watsona i Lee Anny Clark. Podręcznik* [The Scale of Positive and Negative Feelings. The Polish adaptation of the PANAS by David Watson and Lee Ann Clark. The Manual]. Pracownia Testów Psychologicznych PTP.

Cabello, R., Salguero, J. M., Fernández-Berrocal, P., & Gross, J. J. (2013). A Spanish adaptation of the Emotion Regulation Questionnaire. *European*

Journal of Psychological Assessment, 29, 234–240. https://doi.org/10.1027/1015-5759/a000150

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71–75. https://psycnet.apa.org/doi/10.1207/s15327752jpa4901_13

Gid, M., & Kowalczyk, M. (2019). Mind wandering, activity, and current concerns among adults varying in age. A study using the Task-Unrelated Thoughts Questionnaire. *Przegląd Psychologiczny, 62*, 495–509.

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 3–20). The Guilford Press.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Haga, S. M., Kraft, P., & Corby, E. K. (2009). Emotion regulation: Antecedents and well-being outcomes of cognitive reappraisal and expressive suppression in cross-cultural samples. *Journal of Happiness Studies, 10*, 271–291. https://doi.org/10.1007/s10902-007-9080-3

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R.* Springer.

Huba, G. J., Aneshensel, C. S., & Singer, J. L. (1981). Development of scales for three second-order factors of inner experience. *Multivariate Behavioral Research, 16*, 181–206. https://doi.org/10.1207/s15327906mbr1602_4

Ioannidis, C. A., & Siegling, A. B. (2015). Criterion and incremental validity of the emotion regulation questionnaire. *Frontiers in Psychology, 6*, 247. https://doi.org/10.3389/fpsyg.2015.00247

Jankowski, K. S. (2015). Is the shift in chronotype associated with an alteration in well-being? *Biological Rhythm Research, 46*, 237–248. https://doi.org/10.1080/09291016.2014.985000

Kane, M. J., Gross, G. M., Chun, C. A., Smeekens, B. A., Meier, M. E., Silvia, P. J., & Kwapil, T. R. (2017). For whom the mind wanders, and when, varies across laboratory and daily-life settings. *Psychological Science, 28*, 1271–1289. https://doi.org/10.1177/0956797617706086

Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science, 330*, 932. https://doi.org/10.1126/science.1192439

Kobylińska, D., Zajenkowski, M., Lewczuk, K., Jankowski, K. S., & Marchlewska, M. (2022). The mediational role of emotion regulation in the relationship between personality and subjective well-being. *Current Psychology, 41*, 4098–4111. https://doi.org/10.1007/s12144-020-00861-7

Kowalczyk, M. (2013). Kwestionariusz "Myśli oderwane od zadania". Doniesienie wstępne [Off-Task Thoughts Questionnaire. Preliminary communication]. *Polskie Forum Psychologiczne, 18*, 173–196.

Kowalczyk, M. (2021). *Starzenie się w błądzeniu myślami* [Aging in mind-wandering]. WPiK Open Access/Wydawnictwo Rys. https://doi.org/10.48226/978-83-66666-93-1

Kowalczyk, M., Klonowska, M., & Mikietyńska, A. (2023). Separating the general and content-specific components of self-reported propensity for mind-wandering. *Journal of Individual Differences, 44*, 271–278. https://doi.org/10.1027/1614-0001/a000402

LeBlanc, S., Uzun, B., & Aydemir, A. (2021). Structural relationship among mindfulness, reappraisal and life satisfaction: The mediating role of positive affect. *Current Psychology, 40*, 4406–4415. https://doi.org/10.1007/s12144-019-00383-x

Marcusson-Clavertz, D., Cardeña, E., & Terhune, D. B. (2016). Daydreaming style moderates the relation between working memory and mind-wandering: Integrating two hypotheses. *Journal of Experimental Psychology: Learning, Memory and Cognition, 42*, 451–464. https://doi.org/10.1037/xlm0000180

Mason, M. F., Brown, K., Mar, R. A., & Smallwood, J. (2013). Driver of discontent or escape vehicle: the affective consequences of mind-wandering. *Frontiers in Psychology, 4*, 477. https://doi.org/10.3389/fpsyg.2013.00477

Plimpton, B., Patel, P., & Kvavilashvili, L. (2015). Role of triggers and dysphoria in mind-wandering about past, present and future: a laboratory study. *Consciousness and Cognition, 33*, 261–276. https://doi.org/10.1016/j.concog.2015.01.014

Poerio, G. L., Totterdell, P., & Miles, E. (2013). Mind-wandering and negative mood: Does one thing really lead to another? *Consciousness and Cognition, 22*, 1412–1421. https://doi.org/10.1016/j.concog.2013.09.012

Ray, S., Danks, N. P., & Calero Valdez, A. (2022). *SEMinR: Building and estimating structural equation models, v. 2.3.2* [computer software]. Retrieved from https://cran.r-project.org/package=seminr

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology, 79*, 410–424. https://doi.org/10.1037/0022-3514.79.3.410

Ruby, F. J. M., Smallwood, J., Engen, H., & Singer, T. (2013). How self-generated thought shapes mood – the relation between mind-wandering and mood depends on the socio-temporal content of thoughts. *PLoS One, 8*, e77554. https://doi.org/10.1371/journal.pone.0077554

Schutte, N. S., Manes, R. R., & Malouff, J. M. (2009). Antecedent-focused emotion regulation, response

modulation and well-being. *Current Psychology, 28*, 21–31. https://doi.org/10.1007/s12144-009-9044-3

Seibert, P. S., & Ellis, H. C. (1991). Irrelevant thoughts, emotional mood states, and cognitive task performance. *Memory & Cognition, 19*, 507–513. https://doi.org/10.3758/BF03199574

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing, 53*, 2322–2347. https://doi.org/10.1108/EJM-02-2019-0189

Smallwood, J., & O'Connor, R. C. (2011). Imprisoned by the past: Unhappy moods lead to a retrospective bias to mind wandering. *Cognition & Emotion, 25*, 1481–1490. https://doi.org/10.1080/02699931.2010.545263

Smallwood, J., Fitzgerald, A., Miles, L. K., & Phillips, L. H. (2009). Shifting moods, wandering minds: Negative moods lead the mind to wander. *Emotion, 9*, 271–276. https://doi.org/10.1037/a0014855

Stawarczyk, D., Majerus, S., & D'Argembeau, A. (2013). Concern-induced negative affect is associated with the occurrence and content of mind-wandering. *Consciousness and Cognition, 22*, 442–448. https://doi.org/10.1016/j.concog.2013.01.012

Toh, W. X., & Yang, H. (2022). Executive function moderates the effect of reappraisal on life satisfaction: a latent variable analysis. *Emotion, 22*, 554–571. https://doi.org/10.1037/emo0000907

Torres-Irribarra, D., Ibaceta, M. & Preiss, D. D. (2019). Positive and negative mind wandering: an assessment of their relationship with mindfulness and metacognition in university students. *Studies in Psychology, 40*, 664–701. https://doi.org/10.1080/02109395.2019.1679457

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070. https://doi.org/10.1037//0022-3514.54.6.1063

Zhiyan, T., & Singer, J. L. (1997). Daydreaming styles, emotionality and the Big Five personality dimensions. *Imagination, Cognition and Personality, 16*, 399–414. https://doi.org/10.2190/ATEH-96EV-EXYX-2ADB