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To cite this version:

Jean-Baptiste Pavani, Desirée Colombo. Appreciation and rumination, not problem solving and avoidance, mediate the effect of optimism on emotional wellbeing. Personality and Individual Differences, 2023, 205, pp.112094. 10.1016/j.paid.2023.112094 . hal-04467216

HAL Id: hal-04467216

https://hal.science/hal-04467216v1

Submitted on 20 Feb 2024

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Abstract

Research suggests that optimism is positively related to emotional wellbeing. However, little is known about the emotion regulation mechanisms that potentially explain (i.e., mediate) this relationship. The present study was designed to address this issue. To this end, it examined emotion regulation strategies (i.e., appreciation, rumination, problem solving, and avoidance) that are theoretically and/or empirically related to optimism as possible mediators of the optimism-emotional wellbeing relationship. In the first of two phases, we established a baseline measure of dispositional optimism among 218 French adults. In the second phase, an experience sampling method was used to assess emotional wellbeing and emotion regulation strategy use over a 1-month period. A multiple mediation analysis suggested that the optimism-emotional wellbeing relationship is significantly mediated by appreciation and rumination but not by problem solving and avoidance. More specifically, engaging more in appreciation mediated 41% of this relationship, while engaging less in rumination mediated 20% of it. The results are discussed in light of the current knowledge on optimism, wellbeing, and emotion regulation.

Keywords: optimism, wellbeing, happiness, emotion regulation strategy, multiple mediations

Appreciation and rumination, not problem solving and avoidance, mediate the effect of optimism on emotional wellbeing

1. Introduction

Individuals durably differ from one another in their tendency to display positive rather than negative expectancies about the future. These between-individual differences in optimism have received considerable attention from researchers and clinicians, as they are related to individual differences in important life domains. For instance, it appears that when individuals are more optimistic, their health and satisfaction with their social life are better (Scheier et al., 2021; Smith et al., 2013).

An especially important area of people's lives to which optimism contributes is emotional wellbeing (i.e., intense feelings of positive emotions and/or nonintense feelings of negative emotions). Around the world, higher levels of optimism are robustly accompanied by greater emotional wellbeing (Gallagher et al., 2013). Although the optimism-emotional wellbeing relationship has been extensively documented (Gallagher et al., 2013; Segerstrom et al., 2017), little is known about the psychological mechanisms that potentially explain (i.e., mediate) it. However, identifying these mediating mechanisms could produce a deeper understanding of this relationship by clarifying which correlates of optimism are responsible for its contribution to emotional wellbeing and which correlates are less relevant.

Emotion regulation mechanisms, which have already been shown to mediate the effect of certain personality dispositions on wellbeing-related indicators (Pavani & Colombo, 2022), could be of particular interest here. Emotion regulation covers the whole set of mechanisms involved in individuals' attempts to feel the emotions that they want to feel (Gross, 2015). These mechanisms mainly include emotion regulation strategies, namely, the cognitive or behavioral mechanisms that individuals can implement to modify the intensity of their emotions (e.g., problem solving, support seeking, avoidance; Gross, 2015; Pavani et al., 2017). Assuming that optimistic and pessimistic

individuals[1] tend to implement different emotion regulation strategies, we can hypothesize that the implementation of particular strategies mediates the optimism-emotional wellbeing relationship.

As has already been highlighted (Solberg Nes & Segerstrom, 2006), research on optimism was initially conducted from a theoretical self-regulation perspective (Carver et al., 1979; Scheier & Carver, 1985), where the core variable of interest is goal-directed efforts. As positive expectancies may lead to increased efforts to attain desired goals, whereas negative expectancies may lead to reduced efforts, optimism has frequently been examined as a possible determinant of goal-directed behaviors (Scheier & Carver, 1985). On this basis, it is not surprising to observe that the main result thus far of studies on optimism and emotion regulation is that optimism is positively related to the use of problem-solving strategies and negatively related to the use of avoidance strategies (see Solberg Nes and Segerstrom, 2006, for a meta-analysis). That is, when optimistic individuals attempt to increase their emotional wellbeing, they are more inclined than pessimistic individuals to try to concretely modify the situations responsible for their current emotions and less inclined to try not to think about these situations. Importantly, problem solving appears to be effective in improving emotional wellbeing, while avoidance appears to be counterproductive (see Aldao et al., 2010, for a meta-analysis). On this basis, we can hypothesize that greater use of problem solving and less use of avoidance represent two emotion regulation mechanisms that link optimism to emotional wellbeing.

However, optimism can also be considered from a different and complementary theoretical perspective. Defined as the tendency to display positive rather than negative expectancies about the future, we can surmise that optimism is rooted in individuals' motivation and aptitude to focus on pleasant stimuli (i.e., rewards and cues of rewards) rather than on unpleasant stimuli (i.e., punishments and threats; Kress & Aue, 2017; Singh et al., 2020). As such, optimism is presumably

[1] Between-individual differences in optimism are distributed along a continuum. Thus, the use of expressions such as *optimistic individuals* or *pessimistic individuals*, which suggests the existence of an optimism dichotomy, is simply for clarity's sake.

related mainly to the use of emotion regulation strategies that involve attending to pleasant or unpleasant stimuli. Appreciation and rumination are prototypical exemplars of such strategies. *Appreciation* consists of focusing on and savoring the positive aspects of life that one might otherwise overlook or rush through (Bryant & Veroff, 2006; Pavani et al., 2017). It is regarded as one of the most effective strategies for increasing emotional wellbeing (Colombo et al., 2020; Livingstone & Srivastava, 2012; Pavani et al., 2017) and has already been shown to be positively related to optimism (Bryant & Veroff, 2006). *Rumination* consists of passively and repetitively focusing on unpleasant events. It is one of the most counterproductive emotion regulation strategies in terms of emotional wellbeing (Aldao et al., 2010; Garnefski et al., 2001; Pavani et al., 2017) and has already been shown to be negatively related to optimism (Yu et al., 2015). This raises the question of whether engaging more in appreciation and less in rumination can more strongly mediate the optimism-emotional wellbeing relationship than using more problem solving and less avoidance.

The present study was designed to address this question. In this way, this study examined whether moving from a traditional self-regulatory perspective on optimism to a perspective that is more focused on the deployment of attention toward pleasant or unpleasant stimuli can better explain optimism's contribution to emotional wellbeing. In this study, dispositional optimism was assessed with the most frequently used optimism questionnaire (i.e., Life Orientation Test-Revised; LOT-R; Scheier et al., 1994). In contrast, dispositional emotional wellbeing and emotion regulation strategy use were assessed by using an experience sampling method, as this type of assessment of emotion-related variables seems less contaminated by cognitive biases than more traditional retrospective assessment tools (Scollon et al., 2009). We tested the following three hypotheses: (1) optimism is positively related to emotional wellbeing; (2) appreciation (H2a), rumination (H2b), problem solving (H2c) and avoidance (H2d) mediate the optimism-emotional wellbeing relationship; and (3) appreciation mediates this relationship more than problem solving (H3a) and

avoidance (H3B), while rumination mediates this relationship more than problem solving (H3c) and avoidance (H3d). These hypotheses are illustrated in Figure 1.

(Figure 1 about here)

2. Method

2.1. **Participants**

The participants were 218 French adults (89% female, 11% male) aged 19-64 years (*M* = 39.86, *SD* = 10.12). Their education level was generally high (i.e., 2% had no high school diploma, 14% had a high school diploma, 44% had completed 2 years of higher education, and 41% had completed more than 2 years of higher education). Because of its recognized efficiency, the recruitment method that we used was *convenience sampling* (Etikan et al., 2016). By presenting the study as a scientific inquiry on emotions in everyday life, we found volunteers to participate via our personal and professional networks and through advertisements posted on social media. Two main arguments were used to attempt to motivate possible volunteers (i.e., helping emotion science progress and improving self-knowledge). No compensation for participation was offered. A single exclusion criterion was applied (i.e., age below 18 years). The recruitment period took place from January to June 2021. It ended when the preestablished sample size was reached (see the power analysis below).

The sample size was determined with a power analysis, which was computed by using the mc-power-med application (Schoemann et al., 2017). For a mediation composed of (1) a moderate effect of the supposed predictor on the supposed mediator (i.e., *B* = 0.30) and (2) a moderate effect of the supposed mediator on the supposed outcome (i.e., *B* = 0.30), with a

significance level set at 0.01[2], a sample size of at least 212 individuals was required to achieve 95% power.

2.2. **Procedure**

The procedure was conducted in accordance with the 1964 Declaration of Helsinki and its later amendments. All participants provided their written informed consent. They were told that they could quit the study whenever they wanted without providing any justification.

A two-phase procedure identical to the most commonly used procedure to examine between-individual differences in emotional experiences (e.g., Koval et al., 2022; Pavani et al., 2017) was applied. In the first phase, the participants completed an online questionnaire battery that featured (1) a sociodemographic questionnaire, (2) a questionnaire that assessed dispositional optimism, and (3) a more original questionnaire that aimed at neutralizing the strong between-individual differences that manifest themselves in the labeling of emotional feelings, as has been performed in previous research (e.g., Le Vigouroux et al., 2017; Pavani et al., 2017)[3]. This questionnaire was derived from Nesselroade et al.'s (2007) remarks on how to tailor a construct to each individual while leading all individuals to assign the same core meaning to this construct. More specifically, for each emotion- and emotion regulation-related item that we wanted to assess in the second phase, participants were given three wording options[4] and were asked to select the one that they felt best represented the item.

The second phase consisted of a 32-day experience-sampling period. Twice a day (i.e., at noon and at 7 p.m.), the participants received a brief questionnaire (less than 5 minutes)

[2]The significance threshold was not set at 0.05 as usual. This choice was based on (1) the importance of minimizing type I errors and (2) the fact that our second hypothesis required four mediation effect comparisons to be tested. Moreover, in mediation analyses whose predictor is at the between-individual level (e.g., trait optimism), the higher risk for analyses to be underpowered is located at this between-individual level. For this reason, the power analysis was conducted at this level.

[3] For purposes unrelated to this research, the participants were also invited to complete a personality questionnaire to undergo a validation process. The data related to this personality questionnaire were not published.

[4] The wording options for each item in the experience-sampling questionnaire are contained in an open-access file available at https://osf.io/7e52 g/?view_only=d1fc1773455143659f52bbee1228e420.

compiled by using the wording options that they had selected in Phase 1. The participants could choose whether to receive a hyperlink to this questionnaire by SMS or by e-mail. The emotion- and emotion regulation strategy-related items in the questionnaire were rated on visual analog scales and yielded scores that ranged from 0 to 100. The response rate was satisfactory (i.e., 84%; 11,723 of the 13,952 brief questionnaires sent were received). The response rate differed between individuals (*min* = 53%; *max* = 100%). Optimism ($r = 0.04$, $p = 0.525$), gender ($t = 0.01$, $p = 0.990$), age ($r = 0.07$, $p = 0.295$) and education level ($r = -0.02$, $p = 0.728$) did not significantly predict these differences. Notably, possible fraudulent activity on online survey platforms was prevented by using a secured platform to which the first author's laboratory subscribes.

2.3. **Materials**

All materials are described in a file available at https://osf.io/7e52g/?view_only=d1fc1773455143659f52bbee1228e420.

Optimism was assessed in the initial questionnaire battery by using the validated French-language version (Trottier et al., 2008) of the LOT-R (Scheier et al., 1994). This questionnaire asks participants to rate the degree to which they agree with six statements about optimism on a 5-point Likert scale that ranges from 1 (*Strongly disagree*) to 5 (*Strongly agree*; $\alpha = 0.87$).

Emotional wellbeing was assessed during the experience sampling period. At each assessment point, the participants were invited to indicate the intensity with which they currently experienced each of the 10 types of valenced emotions identified in the 12-point circumplex model (Yik et al., 2011). This model identifies five types of positive emotions and five types of negative emotions (i.e., highly activated, activated, neither activated nor deactivated, deactivated, and highly deactivated positive and negative emotions). Previous studies have confirmed the validity of these items for assessing emotional wellbeing (e.g., Le Vigouroux et al., 2017; Pavani et al., 2019). On this basis, we computed a general indicator of

emotional wellbeing by considering negative emotions as reversed items (α = 0.87 at both the within- and between-individual levels).

Appreciation, rumination, problem solving and avoidance were also assessed during the experience sampling period. At each assessment, the participants were asked to rate the intensity with which they had engaged in each emotion regulation strategy since the previous assessment point[5]. Several previous studies have yielded information that supports the construct validity of the items that we used (e.g., Koval et al., 2022; Pavani et al., 2017).

2.4. **Data Analysis Strategy**

All analyses were computed by using R (R Core Team, 2022). The dataset on which our analyses were based and the R script that we used are contained in files available at https://osf.io/7e52g/?view_only=d1fc1773455143659f52bbee1228e420.

After calculating traditional descriptive statistics, the data analysis strategy consisted of performing a multilevel multiple mediation analysis with the lavaan R package. Multilevel modeling was used because the analysis was performed on all data (i.e., 11,723 observations nested within 218 individuals). The hypothesized predictor was optimism, the hypothesized outcome was emotional wellbeing, and the hypothesized mediators were appreciation, rumination, problem solving, and avoidance. This analysis permitted us to not only determine the statistical significance of our 4 hypothesized mediation effects but also perform our 4 hypothesized mediation effect comparisons (i.e., appreciation vs. problem solving, appreciation vs. avoidance, rumination vs. problem solving, and rumination vs. avoidance).

3. Results

[5] Although the use of single items prevents the control of measurement errors, it reduces the burden that repeated measurements place on participants. For this reason, they are frequently used in experience sampling studies of emotion regulation (e.g., Koval et al., 2022). In the present study, to reduce the risk of these single items being contaminated by major measurement errors, we used items with proven criterion validity (e.g., Le Vigouroux et al., 2017; Pavani et al., 2017).

3.1. **Descriptive Statistics**

The descriptive statistics and intercorrelations between our variables of interest are displayed in Table 1. As expected, optimism was positively correlated with emotional wellbeing (r = 0.44, p < 0.001) and appreciation (r = 0.30, p < 0.001) and negatively correlated with rumination (r = -0.31, p < 0.001). In contrast, its correlations with problem solving (r = 0.06, p = 0.327) and avoidance (r = -0.09, p = 0.198) were nonsignificant.

(Table 1 about here)

3.2. **Multilevel Multiple Mediation Analysis**

The results of the multiple mediation analysis are presented in Table 2[6]. As expected (H1), we found a significant relationship between optimism and emotional wellbeing (B = 0.28, p < 0.001) such that when the participants were more optimistic, the emotional wellbeing that they experienced in daily life was greater. More important, as expected (H2a), part of this relationship (i.e., 41%) was significantly mediated by appreciation (B = 0.11, p < 0.001). Likewise (H2b), another part of this relationship (i.e., 20%) was significantly mediated by rumination (B = 0.05, p < 0.001). However, contrary to our expectations (H2c and H2d), neither problem solving (B = 0.00, p = 0.513) nor avoidance (B = 0.00, p = 0.455) significantly mediated the optimism-emotional wellbeing relationship. That is, if the optimistic participants tended to experience greater emotional wellbeing in their daily lives than their pessimistic counterparts, then this was partly because the optimistic participants engaged more in appreciation and less in rumination in everyday life than their pessimistic counterparts. In

[6] Detailed results of the five regression models required to compute the multiple mediation analysis are contained in a file available at https://osf.io/7e52g/?view_only=d1fc1773455143659f52bbee1228e420.

contrast, being more inclined to engage in problem solving or less inclined to engage in avoidance did not explain the optimism-emotional wellbeing relationship.

(Table 2 about here)

Interestingly, as expected (H3a and H3b), the mediation effect comparisons confirmed that the mediation effect of appreciation was stronger than the mediation effects of both problem solving ($\delta = 0.12$, $p < 0.001$) and avoidance ($\delta = 0.11$, $p < 0.001$). They also confirmed that, again as expected (H3c and H3d), the mediation effect of rumination was stronger than the mediation effects of both problem solving ($\delta = 0.06$, $p < 0.001$) and avoidance ($\delta = 0.05$, $p < 0.01$).

3.3. **Supplementary Analyses**

Although the most consensual theory of individual differences in emotional experiences states that negative emotions and positive emotions are the two ends of a single bipolar continuum (Yik et al., 2011), certain findings sometimes contradict this statement. Therefore, we computed the multiple mediation analysis performed in this study again by using negative emotions as the outcome variable in the first analysis and positive emotions as the outcome variable in the second analysis. The detailed results of both analyses are provided in a file available at https://osf.io/7e52g/?view_only=d1fc1773455143659f52bbee1228e420. Consistent with what we observed for the optimism-emotional wellbeing relationship, the optimism-negative emotions relationship was significantly mediated by appreciation ($B = -0.04$, $p < 0.01$, 18% of the total relationship mediated) and rumination ($B = -0.10$, $p < 0.001$, 42% of the total relationship mediated) but not problem solving and avoidance. In contrast, the optimism-positive emotions relationship was significantly mediated solely by appreciation ($B = 0.14$, $p < 0.001$, 57% of the total relationship

mediated). Accordingly, being more optimistic was related to reduced negative emotions because it was accompanied by more engagement in appreciation and less engagement in rumination, whereas being more optimistic was related to greater positive emotions solely because it was accompanied by more engagement in appreciation.

Certain studies also suggest that although they are related, it might be important to distinguish between the *presence of optimism* and the *lack of pessimism* at the dispositional level (e.g., Scheier et al., 2021). Despite their strong correlation in our sample ($r = 0.67$, $p < 0.001$), we also computed the presence of optimism ($\alpha = 0.82$) and lack of pessimism ($\alpha = 0.75$), as the LOT-R enables their assessment (Scheier et al., 2021). We then computed the main multiple mediation analysis performed in this study again by using the presence of optimism above and beyond the lack of pessimism as the predictor in the first analysis and the lack of pessimism above and beyond the presence of optimism as the predictor in the second analysis[7]. Once again, the detailed results of both analyses are provided in a file available at https://osf.io/7e52g/?view_only=d1fc1773455143659f52bbee1228e420, but notably here, the optimism-emotional wellbeing relationship was significantly mediated solely by appreciation ($B = 0.10$, $p < 0.01$, 52% of the total relationship mediated), while the lack of pessimism-emotional wellbeing relationship was significantly mediated solely by rumination ($B = 0.07$, $p < 0.01$, 63% of the total relationship mediated). That is, being more optimistic was related to greater emotional wellbeing because it was accompanied by more engagement in appreciation, whereas being less pessimistic was related to stronger emotional wellbeing because it was accompanied by less engagement in rumination.

4. Discussion

4.1. **Interpretation of the Results**

[7] Examining one predictor above and beyond the other was made possible by including both of them simultaneously as predictors in the five regression models that were required to compute the multiple mediation analyses. No collinearity issue (i.e., a variance inflation ratio above 4) was identified.

Our main result was that appreciation and rumination partly mediated the optimism-emotional wellbeing relationship. Accordingly, savoring more positive events and ruminating less about negative events both helped to explain why optimistic participants tended to experience greater emotional wellbeing than pessimistic participants. This result is consistent with arguments that suggest that between-individual differences in optimism are closely related to differences in the motivation and aptitude to focus on pleasant rather than on unpleasant stimuli (Bryant & Veroff, 2006; Kress & Aue, 2017; Singh et al., 2020; Yu et al., 2015) and arguments that suggest that this focus promotes emotional wellbeing (Aldao et al., 2010; Colombo et al., 2020; Livingstone & Srivastava, 2012).

More surprisingly given previous research (e.g., Aldao et al., 2010; Solberg Nes & Segerstrom, 2006), neither problem solving nor avoidance mediated the optimism-emotional wellbeing relationship in this study. There are two tentative explanations for this unexpected result. First, the strength of the relationship between problem solving or avoidance and emotional wellbeing may have been reduced by the simultaneous consideration of appreciation and rumination. Problem solving and avoidance may be only negligibly related to emotional wellbeing above and beyond appreciation and rumination, as has already been suggested (Garnefski et al., 2001; Livingstone & Srivastava, 2012). Second, the strength of the relationship between optimism and problem solving or avoidance may have been reduced because some participants overlooked the negative events that they encountered. Being more optimistic may foster the use of problem solving and discourage the use of avoidance, but it may also reduce the subjective impression of encountering negative events and, thus, of having problems to solve or avoid.

4.2. **Implications and Limitations**

The present results may have both theoretical and practical implications. At the theoretical level, they are important to examine in light of the current perspective on optimism endorsed in

psychology research. Traditionally, optimism has mainly been understood by using a self-regulation perspective. This perspective emphasizes optimism's contribution to goal-directed efforts (e.g., Scheier & Carver, 1985). When applied to the issues of emotion regulation and emotional wellbeing, this perspective suggests that optimism fosters wellbeing through the frequent use of problem-solving strategies and the rare use of avoidance strategies (Solberg Nes & Segerstrom, 2006). Contradicting this idea, our results suggest that optimism fosters wellbeing mostly through emotion regulation strategies that involve the allocation of attention toward positive rather than toward negative stimuli.

At the practical level, our results can inform the research on wellbeing-enhancing interventions. Within positive psychology research, several interventions have recently been designed to promote wellbeing through the enhancement of optimism, and unanswered questions remain about (1) which ingredients must compose these interventions and (2) which individuals may benefit from them (Lyubomirsky et al., 2013). Our results suggest that encouraging appreciation and discouraging rumination should be the core ingredients of these interventions. Following the *compensation of weaknesses* principle (e.g., Pavani et al., 2019), they also suggest that such interventions should be mainly administered to individuals whose level of appreciation is initially low and/or whose level of rumination is initially high.

These ideas should, however, be viewed with caution, as the present study had two main limitations. First, our sample was predominantly composed of young, highly educated female participants. Although there are no theoretical or empirical arguments to suggest that sociodemographic variables influenced our results, it would be worthwhile to conduct further research among more balanced samples in terms of gender, age, and education level. Second, although several arguments support the validity of the assessment tools that we used, common method biases were not specifically checked in the present study. The questionnaire used to assess optimism contains filler items and reversed items to counter acquiescence biases. The questionnaire that we used to assess emotional wellbeing also contains reversed items. In

contrast, such method biases cannot be countered with the single items that we used to assess emotion regulation strategies. Furthermore, no assessment tool of social desirability was included in the study. In future research, quantifying common method biases may serve to determine the robustness of our findings.

4.3. **Conclusion**

To conclude, the results of the present study confirm that when individuals are more optimistic, they tend to experience greater emotional wellbeing. The results also suggest that part of this relationship is mediated by the disposition to use certain emotion regulation strategies. More specifically, engaging more in appreciation and less in rumination appears to partly explain why optimistic individuals tend to display greater emotional wellbeing than pessimistic individuals. In contrast, this tendency was not explained either by a greater use of problem solving or by a reduced use of avoidance.

5. References

Bryant, F. B., & Veroff, J. (2006). *Savoring: A new model of positive experience*. Erlbaum.

Carver, C. S., Blaney, P. H., & Scheier, M. F. (1979). Reassertion and giving up: The interactive role of self-directed attention and outcome expectancy. *Journal of Personality and Social Psychology*, *37*(10), 1859–1870. https://doi.org/10.1037/0022-3514.37.10.1859

Colombo, D., Pavani, J. B., Fernández-Álvarez, J., Garcia-Palacios, A., & Botella, C. (2021). Savoring the present: The reciprocal influence between positive emotions and positive emotion regulation in everyday life. *PLOS ONE*, *16*(5), e0251561. https://doi.org/10.1371/journal.pone.0251561

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, *5*, 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences*, *30*(8), 1311–1327. 10.1016/S0191-8869(00)00113-6

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, *26*(1), 1-26. https://doi.org/10.1080/1047840X.2014.940781

Koval, P., Kalokerinos, E. K., Greenaway, K. H., Medland, H., Kuppens, P., Nezlek, J. B., Hinton, J. D. X., & Gross, J. J. (2022). Emotion regulation in everyday life: Mapping global self-reports to daily processes. *Emotion*. https://doi.org/10.1037/emo0001097.supp (Supplemental)

Kress, L., & Aue, T. (2017). The link between optimism bias and attention bias: A neurocognitive perspective. *Neuroscience and Biobehavioral Reviews*, *80*, 688–702. https://doi.org/10.1016/j.neubiorev.2017.07.016

Le Vigouroux, S., Pavani, J.-B., Dauvier, B., Kop, J.-L., & Congard, A. (2017). Reactive or proactive? Age differences in the use of affective regulation strategies. *Psychology and Aging*, *32*(7), 621 627. https://doi.org/10.1037/pag0000197

Livingstone, K. M., & Srivastava, S. (2012). Up-regulating positive emotions in everyday life: Strategies, individual differences, and associations with positive emotion and well-being. *Journal of Research in Personality*, *46*(5), 504-516. https://doi.org/10.1016/j.jrp.2012.05.009

Lyubomirsky, S., & Layous, K. (2013). How do simple positive activities increase well-being? *Current Directions in Psychological Science*, *22*(1), 57–62. https://doi.org/10.1177/0963721412469809

Nesselroade, J. R., Gerstorf, D., Hardy, S. A., & Ram. N. (2007). Idiographic filters for psychological constructs. *Measurement: Interdisciplinary Research and Perspectives*, *5*(4), 217-235. https://doi.org/10.1080/15366360701741807

Pavani, J.-B., Berna, G., Andreotti, E., Guiller, T., Antoine, P., Dauvier, B., & Congard, A. (2019). Between-individual differences in baseline wellbeing and emotion regulation strategy use moderate the effect of a self-help cognitive-behavioral intervention for typical adults. *Applied Psychology: Health and Well-Being*. https://doi.org/10.1111/aphw.12189

Pavani, J.-B., & Colombo, D. (2022). Trait Hedonism and the Distribution of Savoring and Positive Emotion States in Everyday Life. *Psychological Reports*. https://doi.org/10.1177/00332941221135470

Pavani, J.-B., Le Vigouroux, S., Kop, J.-L., Congard, A., & Dauvier, B. (2017). A network approach to affect regulation dynamics and personality trait-induced variations: Extraversion and neuroticism moderate reciprocal influences between affect and affect regulation strategies. *European Journal of Personality*, *31*, 329–346. https://doi.org/10.1002/per.2109

R Core Team (2020). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, *4*(3), 219–247. https://doi.org/10.1037/0278-6133.4.3.219

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, *67*(6), 1063–1078. https://doi.org/10.1037/0022-3514.67.6.1063

Scheier, M. F., Swanson, J. D., Barlow, M. A., Greenhouse, J. B., Wrosch, C., & Tindle, H. A. (2021). Optimism versus pessimism as predictors of physical health: A comprehensive reanalysis of dispositional optimism research. *American Psychologist*, *76*(3), 529–548. https://doi.org/10.1037/amp0000666.supp (Supplemental)

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*, 379-386.

Scollon, C. N., Howard, A. H., Caldwell, A. E., & Ito, S. (2009). The role of ideal affect in the experience and memory of emotions. *Journal of Happiness Studies*, *10*(3), 257–269. https://doi.org/10.1007/s10902-007-9079-9

Segerstrom, S. C., Carver, C. S., & Scheier, M. F. (2017). Optimism. In M. Eid & M. D. Robinson (Eds.), *The happy mind: Cognitive contributions to well-being* (pp. 195–212). Springer.

Singh, L., Schüpbach, L., Moser, D. A., Wiest, R., Hermans, E. J., & Aue, T. (2020). The effect of optimistic expectancies on attention bias: Neural and behavioral correlates. *Scientific Reports*, *10*(1), 1-13. https://doi.org/10.1038/s41598-020-61440-1

Smith, T. W., Ruiz, J. M., Cundiff, J. M., Baron, K. G., & Nealey-Moore, J. B. (2013). Optimism and pessimism in social context: An interpersonal perspective on resilience and risk. *Journal of Research in Personality*, *47*(5), 553–562. https://doi.org/10.1016/j.jrp.2013.04.006

Solberg Nes, L., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review*, *10*(3), 235–251. https://doi.org/10.1207/s15327957pspr1003_3

Trottier, C., Mageau, G., Trudel, P., & Halliwell, W. R. (2008). Validation de la version canadienne-française du Life Orientation Test-Revised [Validation of the Canadian-French version of Life Orientation Test-Revised]. *Canadian Journal of Behavioural Science / Revue Canadienne des Sciences du Comportement*, *40*(4), 238–243. https://doi.org/10.1037/a001324

Yik, M., Russell, J. A., & Steiger, J. H. (2011). A 12-point circumplex structure of core affect. *Emotion*, *11*(4), 705–731. https://doi.org/10.1037/a0023980

Yu, X., Chen, J., Liu, J., Yu, X., & Zhao, K. (2015). Dispositional optimism as a mediator of the effect of rumination on anxiety. *Social Behavior and Personality*, *43*(8), 1233–1242. https://doi.org/10.2224/sbp.2015.43.8.1233

Table 1

Descriptive Statistics and Intercorrelations for the Variables of Interest

Variable	*M*	*SD*	Sk	ICC	1	2	3	4	5	6
1. Opt	3.37	0.86	-0.58							
2. EWB	65.08	10.26	-0.13	0.39	0.44		0.43	-0.30	0.15	0.18
3. App	55.6	19.72	-0.36	0.43	0.30	0.63		-0.13	0.16	0.19
4. Rum	21.73	15.58	1.57	0.40	-0.31	-0.45	-0.15		-0.01	-0.08
5. PS	39.24	19.96	0.23	0.40	0.06	0.21	0.58	0.19		0.17
6. Avo	36.13	20.45	0.44	0.44	-0.09	0.04	0.36	0.25	0.52	

Note. M: mean; SD: standard deviation; Sk: skewness; ICC: intraclass correlation (i.e., the proportion of the variance explained by stable between-individual differences rather than within-individual differences); Opt: optimism; App: appreciation; Rum: rumination; PS: problem solving; Avo: avoidance. The correlations below the diagonal were computed at the between-individual level (N = 218), while the correlations above the diagonal were computed at the within-individual level (N = 11 723). With a threshold set at $p < 0.05$, the correlations below the diagonal were statistically significant when they exceeded the absolute value of 0.14, while the correlations above the diagonal were statistically significant when they exceeded the absolute value of 0.02.

Table 2

Results of the Mediation Analysis

Effect	*B*	*SE*	*p*
Total	0.278	0.039	< 0.001
Direct	0.110	0.032	< 0.001
Indirect via App	0.113	0.027	< 0.001
Indirect via Rum	0.054	0.015	< 0.001
Indirect via PS	-0.002	0.004	0.513
Indirect via Avo	0.003	0.004	0.455

Note. SE: standard error; App: appreciation; Rum: rumination; PS: problem solving; Avo: avoidance.

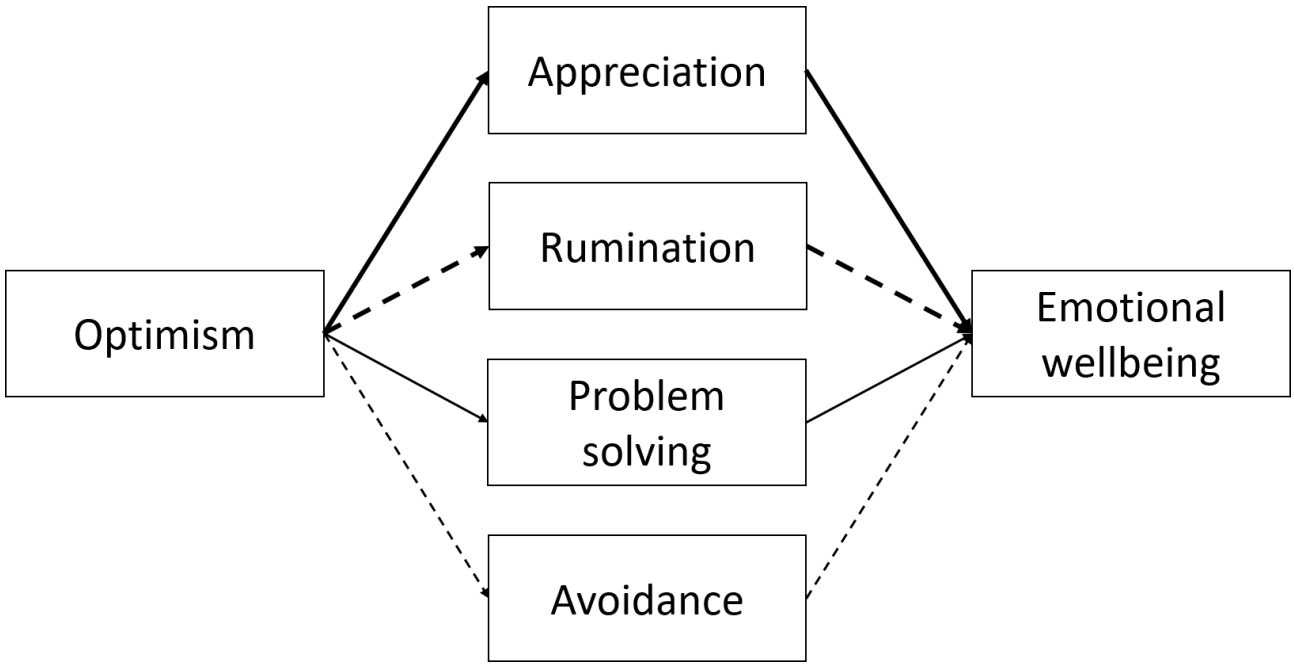

Figure 1

Graphical representation of the present study's hypotheses.

Note. The continuous lines (e.g., the line from optimism to appreciation) represent positive relationships. The dashed lines (e.g., the line from optimism to rumination) represent negative relationships. The wider lines represent the mediation effects that are supposed to be stronger than the other mediation effects.