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RESEARCH PAPER

On Emotion Regulation Strategies and Well-Being: The Role of Passion

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Abstract

Emotion regulation entails using specific strategies to manage emotions, impacting on well-being. Research has uncovered important factors that may affect one's use of emotion regulation strategies. Because passionate individuals experience positive and negative emotions while engaging in the activity that they deeply care about (Vallerand in The psychology of passion: a dualistic model, Oxford University Press, New York, 2015), it was proposed that they should be more likely to make use of emotion regulation strategies. Using the Dualistic Model of Passion (Vallerand et al. in J Personal Soc Psychol 85:756–767, 2003. https://doi.org/10.1037/0022-3514.85.4.756), this research tested an integrated model of passion, emotion regulated strategies, and psychological well-being. Three online studies were conducted. Study 1 (n = 370) used a cross-sectional design in order to explore the relationships between passion, emotion regulation strategies, and well-being in the context of various leisure activities. Using the same design, Study 2 (n = 253) aimed at replicating the findings from Study 1 within the specific context of romantic relationships. Finally, the goal of Study 3 (n = 253) was to replicate the findings from Studies 1 and 2 while using a prospective design. Overall, results from path analyses uncovered that HP was positively associated with cognitive reappraisal whereas OP was positively related to expressive suppression. Cognitive reappraisal was the only strategy positively linked to well-being. Findings underscore the important role of HP in the use of cognitive reappraisal, facilitating well-being.

Keywords Passion · Emotion regulation · Well-being · Cognitive reappraisal · Expressive suppression

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1 Introduction

Over the past decade, an increasing amount of research has focused on emotion regulation. Research highlights the important role of emotion regulation strategies in well-being, with cognitive reappraisal being overall more adaptive than expressive suppression for one's well-being (Gross 2013, 2015; Gross and John 2003; John and Gross 2004). Importantly, research has investigated what influences individuals to use one particular regulatory strategy over another (e.g., Gross et al. 2011; Sheppes 2014; Suri et al. 2018). These studies identified key determinants such as the emotional intensity that is experienced, the cognitive complexity in generating a strategy, reappraisal affordances, as well as one's motivational and emotional goals.

This research sought to further investigate the determinants of emotion regulation strategies by looking at the role of passion. We propose that passionate individuals should be more likely to make use of emotion regulation strategies as they care deeply about the activity and its outcomes, do experience positive and negative emotions while engaging in the activity they are passionate about (Vallerand 2015). However, as much research has shown (e.g., Vallerand 2015; Vallerand and Houlfort 2019), not all passions are equal and one type of passion (harmonious passion, i.e. a flexible form of passionate engagement) has been found to be more conducive to positive psychological outcomes than another one (obsessive passion, i.e. a rigid form of passionate engagement). Thus, although passion should help determine the use of emotion regulation strategies, one would expect harmonious passion to make use of more adaptive strategies than obsessive passion. The main purpose of this research was to ascertain the role of passion in emotion regulation strategies, and, in turn, the role of such strategies in psychological well-being.

1.1 The Dualistic Model of Passion

The Dualistic Model of Passion (DMP) defines passion as a strong inclination toward an activity, a person or an object that people love, highly value, and in which they invest regularly significant amount of time and energy (Vallerand et al. 2003; Vallerand 2015; Vallerand and Houlfort 2019). In addition, when people find an activity that they are passionate about, this activity comes to define in part who they are and how they perceive themselves. The integration of the passionate activity into one's sense of identity takes place because individuals have a natural tendency to internalize significant components of their environment into their identity (Deci et al. 1994).

The DMP postulates that there are two types of passion, harmonious passion (HP) and obsessive passion (OP). Both types of passion entail loving and being highly committed to a meaningful self-defining activity. Thus, HP and OP have similar levels of intensity directed toward the activity. Where they differ is mainly in their quality of involvement. With HP, people engage in the activity freely and remain in control while being flexible. The passionate activity is in harmony with other important life domains or components of the self. This is because HP derives from an autonomous internalization process (Deci and Ryan 2000; Ryan and Deci 2000), which occurs when a person freely perceives the activity as valuable for itself and without any contingencies attached to it (Mageau et al. 2011; Vallerand 1997). This allows individuals to engage in the passionate activity with a secure sense of self and in a flexible, open, mindful and non-defensive manner (St-Louis et al. 2018), where little threat is experienced (Lavoie et al. 2020). Importantly, with such an

open activity engagement, HP is expected to lead to many positive outcomes (for e.g., positive emotions, vitality, eudaimonic well-being, etc.; Vallerand 2015).

Conversely, OP leads to a different quality of activity involvement. From this type of passion emanates an uncontrollable urge to partake in the activity and a rigid form of engagement over which people often lose control. The passionate activity becomes overwhelming and conflict occurs with other significant self-components and life aspects. OP stems from a controlled internalization process, which takes place when a person feels compelled to engage in the beloved activity and when contingencies such as self-esteem and social acceptance are attached to its engagement (Lafrenière et al. 2013; Mageau et al. 2011). In such a case, individuals engage in the passionate activity that they love in a defensive, closed, and rigid way (St-Louis et al. 2018) where threat is expected (Lavoie et al. 2020). Thus, although OP may lead at times to some positive outcomes (e.g., brief bouts of positive emotions and short-term performance gain), it is mainly conducive to negative consequences (for e.g., negative emotions, relationship conflicts, ill-being, etc.; see Vallerand 2015).

Strong support exists for the dualistic model of passion (for reviews, see Curran et al. 2015; Vallerand 2008, 2010, 2015; Vallerand and Houlfort 2019). Past research shows that HP leads to important psychological benefits. For example, HP has been found to positively predict indices of well-being such as life satisfaction and subjective vitality (e.g., Lafreniere et al. 2012; Lalande et al. 2017; Philippe et al. 2009; Rousseau and Vallerand 2008). HP also protects passionate individuals from negative outcomes. For instance, research has shown that HP leads to fewer self-neglect behaviors from humanitarian workers during missions (St-Louis et al. 2016) and to less burnout at work (e.g., Carbonneau et al. 2008; Fernet et al. 2014; Trépanier et al. 2014; Vallerand et al. 2010). Conversely, OP is conducive to less desirable outcomes. Past research reveals that OP is either unrelated (Vallerand et al. 2006, 2008) or negatively related (Lalande et al. 2017; Rousseau and Vallerand 2008) to measures of life satisfaction, and negatively predicts subjective vitality (Forest et al. 2011; Lalande et al. 2017). Of note is the fact that while much research has documented the passion-psychological well-being relationship, much less research has identified some of the mediating processes responsible for such effects. One promising perspective is that of emotion regulation strategies.

1.2 On the Role of Emotion Regulation Strategies in Well-Being

Emotion regulation refers to the process by which people influence which emotions they have, when they have them, and how they express and experience them (Gross 1998b, 2015). In order to enhance or decrease the magnitude of one's emotional experience, a person needs to implement emotion regulation strategies. Research on emotion regulation has focused on two main strategies, namely cognitive reappraisal and expressive suppression (Gross 1998a, 2015; Gross and John 2003; Webb et al. 2012). The use of such strategies, as defined by Gross, can be seen as both a broad orientation to use the two emotion strategies (see Gross 2015), as well as context-specific as pertains to a given activity (see Levenson et al. 2014 on emotion regulation in couples).

Cognitive reappraisal is a form of cognitive change that involves interpreting or re-evaluating a situation that engenders emotions in a way that changes its emotional impact (e.g., Lazarus and Alfert 1964; Speisman et al. 1964). For example, when a person feels angry, he or she might take a moment to rethink the situation that evoked these negative emotions in order to better understand what went wrong. This strategy may decrease his or her

feelings of anger. Expressive suppression on the other hand is a form of response modulation that involves inhibiting ongoing emotion-expressive behavior that follows emotion (Gross 1998a). For instance, when feeling angry, a person may suppress his or her feelings of anger by not expressing these negative emotions. This tactic most often backfires and increases one's experience of anger. Research on these two emotion regulation strategies has shown that cognitive reappraisal is typically associated with positive outcomes as it generally enhances and reduces both the experiential and behavioral components of positive and negative emotions, respectively (Gross 1998a, 2002; Gross and John 2003). Conversely, expressive suppression is effective in decreasing the behavioral expression of positive and negative emotions, but it is unhelpful in reducing the experiential aspect of both types of emotions.

Of major importance for the present research, Gross and John (2003) have proposed that the two emotion regulation strategies may differentially affect psychological well-being. Specifically, cognitive reappraisal is expected to promote well-being because one of its main function is to diminish the perception of adversity early in the emotion process and thus its negative emotional impact. Thus, cognitive reappraisal should exert a protective function against ill-being. Furthermore, by facilitating a more positive outlook on events, it should also promote well-being (see Gross and John 2003, p. 359). Conversely, because it operates later in the emotion sequence, once the emotional response has taken place, expressive suppression is much less efficient in reducing the negative emotional experience and protecting against adversity and promoting wellness. As such, expressive suppression is hypothesized to be associated with greater ill-being and less psychological well-being than cognitive reappraisal.

Research on the relationship between emotion regulation strategies and well-being has provided support for the above analysis with respect to both hedonic (e.g., life satisfaction) and eudaimonic well-being (e.g., self-actualisation, self-growth, and meaning in life). Research on the relationship between emotion regulation strategies and well-being (both hedonic and eudaimonic) has revealed that, in general, cognitive reappraisal is more positively associated with well-being than expressive suppression (Aldao et al. 2010; Gross 2015; Gross and John 2003; John and Gross 2004; Webb et al. 2012). Specifically, findings underscore that individuals who use cognitive reappraisal tend to be more satisfied with their lives, be more optimistic, show higher levels of environmental mastery, autonomy, and personal growth, reveal greater self-acceptance, have more positive relationships, have a clearer sense of purpose in life and show fewer symptoms of depression. Conversely, people using expressive suppression tend to be less satisfied with their lives, less optimistic, have lower levels of environmental mastery, autonomy, and personal growth, and exhibit more depressive symptoms.

1.3 The Present Research

In light of the above review, the purpose of the present research was to propose and test and integrated model of passion, emotion regulation strategies, and psychological well-being. Specifically, it is proposed that passion sets in motion emotion regulation strategies that in turn, affect well-being. As seen previously, the type of passion at play is expected to differentially affect which emotion regulation strategies will be used. Specifically, with HP, individuals engage in the passionate activity with an open, mindful, and non-defensive perspective where little threat is experienced (Vallerand 2015). Such a positive and flexible perspective is likely to promote acting early in the emotion sequence leading to the

use of cognitive reappraisal. Past research has indeed shown that HP leads to the use of proactive strategies, goals, and cognitive appraisals such as task coping, challenge appraisals, and mastery goals (Lavoie et al. 2020; Schellenberg and Bailis 2016; Vallerand et al. 2006, 2008; Verner-Filion et al. 2014). Conversely, with OP people typically engage in the passionate activity in a rigid, defensive, and closed way where threat is expected (Lavoie et al. 2020). Such a perspective should foster some avoidance in dealing with adversity (Schellenberg and Bailis 2016; Verner-Filion et al. 2014) that should be conducive to using an emotion regulation strategy late in the emotion sequence, namely suppression. Past research reveals that OP fosters the use of avoidant strategies such as avoidance coping, performance avoidance goals, and threat appraisals. Furthermore, because the above research on passion and avoidant strategies show the protective function of HP, it is further posited that HP should be negatively related to expressive suppression. Similarly, in line with past research OP should be negatively or unrelated to cognitive reappraisal. Thus, although the present research is the first to assess the relationship between passion and the emotion regulation strategies of reappraisal and suppression, these predictions are solidly anchored in theory and relevant past research.

In turn, in line with past research in the field of emotion regulation strategies (see Gross 2013, 2015), the two strategies of reappraisal and suppression are expected to differentially relate to psychological well-being (Gross and John 2003). As mentioned previously, Gross' model posits that one of the main functions of reappraisal is to diminish the perception of adversity early in the emotion process and consequently to greatly diminish its negative emotional impact on ill-being. Furthermore, by facilitating a more positive outlook on events, it should also promote well-being (see Gross and John 2003, p. 359). Conversely, because it operates later in the emotion sequence, once emotion has taken place, expressive suppression is much less efficient in reducing the negative emotional experience and protecting against adversity and promoting wellness. Past research has supported this analysis. Specifically, research has shown that cognitive reappraisal positively predicts positive indices of well-being (e.g., life satisfaction, personal growth, meaning in life) but negatively predicts ill-being (e.g., depression), whereas the opposite trend is observed with suppression (e.g., Gross and John 2003).

The main goal of this research was to test the integrative model involving passion, emotion regulation strategies, and psychological well-being. We also assessed both the hedonic and eudaimonic perspectives of well-being as well as ill-being. In line with the above reasoning, it was hypothesized that (1) HP would be positively related to cognitive reappraisal and (2) negatively associated with expressive suppression. On the other hand, it was proposed that (3) OP would be positively associated with expressive suppression and (4) negatively related or unrelated to cognitive reappraisal. Moreover, it was hypothesized that (5) cognitive reappraisal would be positively related to both hedonic (i.e., satisfaction with life and happiness) and eudaimonic well-being (i.e., thriving, meaning in life, and subjective vitality), while (6) expressive suppression would be negatively linked to such well-being indices. Finally, it was suggested that (7) cognitive reappraisal would be negatively associated with negative indices of well-being, thus ill-being (i.e., depression), while (8) expressive suppression would be positively related to such indices (see Fig. 1 for a graphic representation of the hypotheses).

The goal of Study 1 was to test the first six hypotheses above in the context of passion for various leisure activities, using a cross-sectional design. Next, using once again a cross-sectional design, Study 2 aimed at replicating the findings of Study 1, while assessing both passion and emotion regulation strategies at the contextual level. Measuring both passion and emotion regulation strategies at the same contextual level, namely romantic

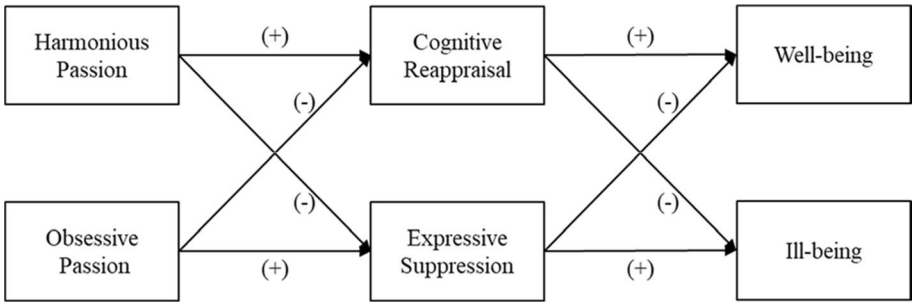

Fig. 1 Hypothesised integrative model involving passion, emotion regulation strategies, and well-being/ill-being

relationships, would allow us to test the role of passion in the use of emotion regulation strategies in a specific life context. Furthermore, for greater external validity, other positive indices of well-being were measured in Study 2. Finally, the purpose of Study 3 was to replicate the findings from Studies 1 and 2 while using a prospective design.

1.4 Study 1

Study 1 used a cross-sectional design and recruited individuals passionate for one of various activities to investigate the association between passion (i.e., HP and OP), two emotion regulation strategies (i.e., cognitive reappraisal and expressive suppression), and eudaimonic well-being (i.e., thriving). We hypothesized that HP would be positively related to cognitive reappraisal which, in turn, was expected to be positively associated with thriving. It was also proposed that HP would be negatively linked to expressive suppression. Conversely, it was suggested that OP would be positively linked to expressive suppression that, in turn, was hypothesized to be negatively related to thriving. Finally, it was proposed that OP would be either negatively related or unrelated to cognitive reappraisal.

2 Method

2.1 Participants and Procedure

Participants were 370 individuals (201 men, 165 women and 4 unspecified) who regularly practiced one of a variety of activities, such as sports, arts, reading, and gaming. They were recruited through the Amazon Mechanical Turk, a reliable crowdsourcing platform for data collection (Buhrmester et al. 2011; Goodman et al. 2013; Paolacci et al. 2010). Control of the participants' ID ensured that they participated in only one study. They were first asked to agree to a consent form pre-approved by the ethics committee of the University of Quebec in Montreal and then to complete an online survey on their favourite activity, their emotion regulation strategies, and their well-being. Demographic questions were also completed at the end of the questionnaire. Participants reported spending on average 12.16 h per week (SD=12.83 h) on this activity and have been engaging in it for 20.63 years on average (SD=13.73 years). The mean age of participants was 37.72 years (SD=12.74 years).

2.2 Measures

2.2.1 Passion for Activities

The Passion Scale (Marsh et al. 2013; Vallerand et al. 2003) begins by asking participants to describe an activity that they love, find important, and in which they spend a significant amount of time. Participants are then asked to complete two six-item subscales assessing HP or OP. A sample item for HP is: "My favourite activity is in harmony with the other activities in my life"; and for OP: "I have almost an obsessive feeling for my favourite activity." Responses to all items were scored on a 7-point Likert scale, ranging from (1) "Do not agree at all" to (7) "Very strongly agree". Past research has repeatedly supported the validity and reliability of the Passion Scale (e.g., Marsh et al. 2013; Vallerand 2008, 2010, 2015). In the present study, the Cronbach alpha values for the HP and OP subscales were .87 and .86, respectively.

2.2.2 Emotion Regulation Strategies

Emotion regulation strategies were assessed using the Emotion Regulation Questionnaire (ERQ; Gross and John 2003). This 10-item scale is composed of two subscales measuring cognitive reappraisal (6 items) and expressive suppression (4 items). A sample item for cognitive reappraisal is: "When I want to feel less negative emotions (such as sadness or anger), I change what I am thinking about"; and for expressive suppression: "When I am feeling negative emotions, I make sure not to express them." Responses to all items were scored on a 7-point Likert scale, ranging from (1) "Do not agree at all" to (7) "Very strongly agree". Results from Gross and John (2003) offered support for validity and reliability of this scale. In the present study, the Cronbach alpha values for the cognitive reappraisal and expressive suppression subscales were .88 and .83, respectively.

2.2.3 Well-Being

Participants' well-being was measured using a positive eudaimonic well-being index: The Brief Inventory of Thriving (BIT; Su et al. 2014). Results from Su et al. (2014) supported the validity and reliability of this scale. This 10-item scale yields an indicator of participants' well-being (e.g., "What I do in life is valuable and worthwhile"; $\alpha = .94$). Responses to all items were scored on a 7-point Likert scale, ranging from (1) "Do not agree at all" to (7) "Very strongly agree".

3 Results and Discussion

3.1 Preliminary Analyses

All variables were screened for possible statistical assumption violations, as well as for outliers and missing values (Meyers et al. 2013). There were no missing values in the data set and no univariate outliers ($z\ score > \pm 3$). Mahalanobis distance revealed no multivariate outliers at the critical Chi square value at $p = .001$. Inspection of skewness indices for all variables showed that they were distributed normally (range from $-.58$ to .64). Moreover,

Table 1 Descriptive statistics and bivariate correlations—study 1 (N = 370)

	M	*SD*	1	2	3	4	5
1. Harmonious passion	5.19	1.18	1				
2. Obsessive passion	2.94	1.42	.21***	1			
3. Cognitive reappraisal	5.16	.91	.38***	− .03	1		
4. Expressive suppression	3.59	1.32	− .14**	.24***	− .03	1	
5. Thriving	5.19	1.20	.46***	− .02	.48***	− .22***	1

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

as shown by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Furthermore, independence of errors assumption was met (Durbin-Watson Test = 2.01) and variables revealed no multicollinearity (VIF < 10). Means, standard deviations, and correlations are presented in Table 1.

3.2 Main Analyses

Analyses were performed using Mplus version 8.4 (Muthén and Muthen 2017). The proposed model encompassed two exogenous variables (i.e., HP and OP) and three endogenous variables (i.e., cognitive reappraisal, expressive suppression, and thriving). All variables were transformed into *z scores* for further analyses. To test the hypothesized full mediation model, a path analysis was conducted using maximum likelihood estimation and paths were drawn according to the hypotheses presented above. Thus, paths from HP to cognitive reappraisal and from HP to expressive suppression were specified, followed by paths from OP to cognitive reappraisal and from OP to expressive suppression. Finally, paths were drawn from cognitive reappraisal and expressive suppression to thriving. Covariances between the two exogenous variables, as well as the covariances between the error terms of the emotion regulation strategies were estimated. Model fit was estimated based on the following indices: Comparative Fit Index, Tucker-Lewis Index (TLI), Standardized Root Mean Square Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA; for a discussion cutoff scores on fit indices see Hu and Bentler 1999; Marsh et al. 2005). Values equal or greater than .90 and .95 for the CFI and TLI respectively indicate an adequate and excellent model fit. Values equal or smaller than .08 and .10 for the SRMR and values equal or smaller than .08 and .05 for the RMSEA respectively indicate an adequate and excellent fit to the data. Fit indices for the three studies are presented in Table 2. Results suggested that this model had a poor fit to the data (see Table 2, Study 1, Full mediation). However, because research on the relationship between passion, psychological processes, and well-being has shown direct positive links between HP and positive indices of well-being (e.g., St-Louis et al. 2018; Verner-Filion et al. 2017), the proposed model was thus re-specified by adding such direct positive link between HP and thriving. This second partial mediation model had an excellent fit to the data (see Table 2, Study 1, Partial mediation [HP]).[1] In

[1] Because past research on emotion regulation strategies reveals age and gender differences among emotion regulation strategies (see Nolen-Hoeksema and Aldao 2011), the model for Study 1 was also tested while controlling for age and gender. Results show excellent fit to the data: χ^2 ($df = 3$, $N = 370$) = 1.06, *ns*, CFI = 1.00, TLI = 1.00, SRMR = .01, and RMSEA = .00 [.00; .06]. Standardized solutions showed significant relationship between both age and gender and expressive suppression. Specifically, age was negatively related to expressive suppression ($\beta = -.14$, $p < .01$). Gender was positively linked to expressive suppression ($\beta = .29$, $p < .001$). These findings show that the relationship between passion, emotion regulation strategies and well-being is the same irrespective of age and gender. However, in this study, older individuals

addition, the equal fit hypothesis was tested between these two models using a Chi square difference test (Kline 2016) and by comparing fit indices. A significant difference for the Chi square test indicates that the more complex model (i.e., more parameters) should be retained. Similarly, nested models differing by more than .01 on the CFI and TLI, and more than .015 on RMSEA and SRMR are not considered equal, indicating that the best fitting model should be prioritized (Chen 2007; Marsh et al. 2005). Results presented in Table 2 show that the Chi square difference test was significant and changes in fit indices all rejected the equal fit hypothesis, indicating that the more complex and better fitting partial mediation model should be retained.[2]

The standardized solutions of the final model are presented in Table 3 (for clarity concerns, covariances are omitted). HP was positively related to cognitive reappraisal ($\beta = .41$, $p < .01$), but negatively associated with expressive suppression ($\beta = -.21$, $p < .01$). Conversely, OP was positively linked to expressive suppression ($\beta = .29$, $p < .01$), but negatively related to cognitive reappraisal ($\beta = -.11$, $p < .05$). Cognitive reappraisal was positively linked to thriving ($\beta = .36$, $p < .01$), whereas expressive suppression was negatively associated with this positive well-being index ($\beta = -.17$, $p < .01$). The direct path from HP to thriving remained significant ($\beta = .30$, $p < .01$).

Indirect effects were investigated to further test the mediating role of emotion regulation between passion and well-being. Consequently, bootstrapped confidence interval estimates of the indirect effect were calculated to confirm the significance of mediations. Bootstrapping is a statistical method that randomly constructs a number of resamples of the original sample in order to estimate parameters (Preacher and Hayes 2008). In the present study, the bias-corrected 95% confidence intervals of the indirect effects were obtained with 5000 bootstrap resamples. Using bootstrap methods to estimate indirect effects is especially recommended in small to moderate samples (Shrout and Bolger 2002). It should be noted that the indirect effect is significant at $p < 0.05$ if the 95% confidence intervals do not include the value of zero. Results indicated that the relationship between HP and thriving was significantly, but partially, mediated by cognitive reappraisal (β = .15; 95% CI .09–.20, $p < .01$) and expressive suppression (β = .04; 95% CI .01–.06, $p < .01$). Finally, results also showed

Footnote 1 (continued)
tended to make less use of expressive suppression than younger people. Men tended to make more use of expressive suppression than women.

[2] In Studies 1 and 2, alternative partial mediation models involving OP were tested. For Study 1, a direct path from OP to thriving was added. Thus, the relation between OP and thriving was partially mediated by the two emotion regulation strategies, while the relation between HP and thriving was fully mediated by the same two strategies. For Study 2, direct paths from OP to satisfaction with life, happiness and meaning in life were added. Thus, the relations between OP and these three well-being outcomes were partially mediated by the two emotion regulation strategies, while the relations between HP and the same well-being outcomes were fully mediated by the emotion regulation strategies. Results show in each study that the alternative model did not yield adequate fit: Study 1, χ^2 ($df = 1$, $N = 370$) = 40.66, $p < .01$, CFI = .85, TLI = .00, SRMR = .05, and RMSEA = .33 [.25; .42]; Study 2: χ^2 ($df = 3$, $N = 253$) = 38.49, $p < 0.01$, CFI = .94, TLI = .63, SRMR = .07, and RMSEA = .22 [.16; .28]. Note that these alternative models cannot be compared to the model we retained in Study 1 (see Table 1, Study 1, Partial mediation [HP]) and Study 2 (see Table 1, Study 2, Partial mediation [HP]) using Chi square difference tests and fit indices comparisons, as they are not nested models (i.e., precluding equal fit hypothesis testing). However, we did compare models in each study based on two predictive fit indices, the Akaike Information Criteria (AIC) and the Bayesian Information Criteria (BIC). If predictive indices do not represent a formal test of model comparison, they indicate which model is more likely to be replicated. For each indices, a lower value indicates that the model is to be preferred (Kline 2016). In both studies, the retained model presented a lower AIC (retained vs. alternative model, Study 1: 4767.58 vs. 4807.53; Study 2: 4365.19 vs. 4403.38) and BIC (retained vs. alternative model, Study 1: 4841.93 vs. 4881.89; Study 2: 4478.26 vs. 4516.44).

Table 2 Fit indices for the models and model comparisons

Model	χ^2 (*df*)	CFI	TLI	RMSEA	90% CI	SRMR	$\Delta\chi^2$ (*df*)	ΔCFI	ΔTLI	ΔRMSEA	ΔSRMR
Study one (N = 370)											
Full mediation	41.75 (2)*	.85	.30	.23	.17; .30	.06	–	–	–	–	–
Partial mediation [HP]	0.71 (1)	1.00	1.00	.00	.00; .13	.01	41.04 (1)*	+.15	+.70	−.232	−.05
Study two (*N* = 253)											
Full mediation	42.76 (6)*	.94	.81	.16	.11; .20	.09	–				
Partial mediation [HP]	0.31 (3)	1.00	1.00	.00	.00; .00	.00	42.45 (3)*	+.06	+.19	−.16	−.09
Study three (*N* = 253)											
Full mediation	102.92 (18)*	.94	.88	.14	.11; .16	.10	–	–	–	–	–
Re-specified full mediation	40.18 (16)*	.98	.96	.08	.05; .11	.03	–	–	–	–	–
Partial mediation [HP]	37.41 (13)*	.98	.95	.09	.06; .12	.03	2.77 (3)	.00	−.01	+.01	.00
Partial mediation [OP]	33.06 (13)*	.98	.96	.08	.05; .11	.03	7.12 (3)	.00	.00	.00	.00
Partial mediation [HP & OP]	29.24 (10)*	.99	.95	.09	.05; .13	.03	10.94 (6)	+.01	−.01	+.01	.00

χ^2 = Chi square test of exact fit; *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI confidence interval for the RMSEA; Δ = change in fit relative to the preceding model; in Study 3, partial mediation models were compared to the Re-specified full mediation model

*$p < .05$

Table 3 Results of the structural equation modeling analyses: study 1

	Cognitive reappraisal	Expressive suppression	Thriving
	β	β	β
Independent Variables			
Harmonious passion	.41***	−.21***	.30***
Obsessive passion	−.11*	.29***	
Mediators			
Cognitive reappraisal			.36***
Expressive Suppression			−.17***
R^2	.16	.10	.35

β, standardized coefficient, $N=370$

*$p \leq .05$; **$p \leq .01$; ***$p \leq .01$

that the relationship between OP and thriving was significantly, but partially, mediated by cognitive reappraisal (β = −.04; 95% CI −.08 to −.01, $p < .05$) and expressive suppression (β = −.05; 95% CI −.08 to −.02, $p < .01$).

In sum, the present findings provided support for the proposed model. Globally, HP was positively related cognitive reappraisal but negatively associated with expressive suppression. Conversely, OP was positively related to expressive suppression but negatively related to cognitive reappraisal. Finally, as expected, cognitive reappraisal was positively, and expressive suppression negatively, associated with well-being.

3.3 Study 2

The purpose of Study 2 was to replicate findings from Study 1, but this time within the specific context of romantic relationships and while incorporating other positive indices of well-being. In Study 1, passion was assessed toward one of several activities whereas emotional regulation was assessed in general (at the trait level). One of the purposes of Study 2 was to assess both passion and emotional regulation within the purview of the same activity, namely the sphere of romantic relationships. This context was selected because both passion and emotion regulation strategies have implications for couples. Indeed, passion represents an important part of close relationships and past research has shown that individuals can have a HP or an OP for their partner (Carbonneau et al. 2016; Ratelle et al. 2013). In addition, emotions are often solicited in romantic relationships and research shows that couples with a HP tend to use better conflict resolution strategies than couples with an OP. Emotion regulation has also been studied in the context of dyadic love and results reveals that the use of cognitive reappraisal has a positive impact on relationship quality (Finkel et al. 2013; Levenson et al. 2014; Richards et al. 2003). Thus, rather than measuring emotional regulation strategies at a general level (Study 1), both passion and emotional regulation strategies were assessed at the same contextual (or activity) level (Vallerand 1997), namely romantic relationships.

Another goal of Study 2 was to test the hypothesized model with different positive indices of both hedonic (i.e., satisfaction with life and happiness) and eudaimonic well-being (i.e., meaning in life) than the one used in Study 1 (i.e., thriving) in order to provide a further test of the model's external validity. Thus, it was hypothesized that HP for one's

romantic partner would be positively related to cognitive reappraisal within the relationship which, in turn, would be positively related to satisfaction with life, happiness, and meaning in life. It was further suggested that HP for one's romantic partner would be negatively linked to expressive suppression. Finally, it was proposed that OP would be positively related to expressive suppression and negatively related or unrelated to cognitive reappraisal. Expressive suppression would be negatively associated with all three positive well-being indices.

4 Method

4.1 Participants and Procedure

Participants were 266 individuals (100 men, 164 women, and 2 unspecified) with a mean age of 35.32 years old ($SD = 21.01$ years). As in Study 1, they were recruited through the Amazon Mechanical Turk platform. Participants were asked to agree to a consent form pre-approved by the ethics committee of the Université du Québec à Montréal and then to complete an online survey about their romantic passion, their emotion regulation strategies in the relationship, and their well-being. Demographic questions were also completed at the end of the questionnaire. Questions regarding the relationship status of participants showed that 3.4% were dating, 33.8% were in a relationship, 10.2% were in a common-law relationship, 8.3% were engaged, and 44.4% were married. Because we were looking for participants who were involved in a romantic relationship, participants who reported that they were simply dating (8 participants) were deleted from further analyses.

4.2 Measures

4.2.1 Romantic Passion

The Romantic Passion Scale (Ratelle et al. 2013) is composed of two six-item subscales assessing HP and OP towards one's partner and shows good validity and reliability. A sample item for HP is: "My relationship with my romantic partner is in harmony with the other activities in my life"; and for OP: "I have almost an obsessive feeling for my romantic partner." Responses to all items were scored on a 7-point Likert scale, ranging from (1) "Do not agree at all" to (7) "Very strongly agree". In the present study, the Cronbach alpha values for the HP and OP subscales were respectively .92 and .74.

4.2.2 Emotion Regulation Strategies

Emotion regulation strategies were assessed using the same scale as in Study 1, the Emotion Regulation Questionnaire (ERQ; Gross and John 2003), but it was adapted to the context of romantic relationship. A sample item for cognitive reappraisal is: "In my romantic

Table 4 Descriptive statistics and bivariate correlations—study 2 (N = 253)

	M	*SD*	1	2	3	4	5	6	7
1. Harmonious passion	5.37	1.21	1						
2. Obsessive passion	3.21	1.25	.20***	1					
3. Cognitive reappraisal	4.62	1.39	.22***	.02	1				
4. Expressive suppression	2.71	1.36	− .24***	.27***	.25***	1			
5. Satisfaction with life	4.66	1.57	.43***	.10	.29***	− .01	1		
6. Happiness	4.98	1.55	.33***	.04	.36***	− .05	.75***	1	
7. Meaning in life	4.74	1.72	.36***	.05	.30***	− .03	.76***	.76***	1

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

relationship, when I want to feel less negative emotion (such as sadness or anger), I change what I am thinking about"; and for expressive suppression: "In my romantic relationship, when I am feeling negative emotions, I make sure not to express them." In this study, the Cronbach alpha values for the cognitive reappraisal and expressive suppression subscales were respectively .92 and .86.

4.2.3 Well-Being

To assess positive indices of hedonic and eudaimonic well-being, three measures were used in this Study 2[3]: 3 items from the Satisfaction with Life scale (e.g., "I am satisfied with my life.", α = .89; Diener et al. 1985), 3 items from the Happiness scale (e.g., "I am generally happy.", α = .95; Lyubomirsky and Lepper 1999), and 3 items from the Meaning in Life Questionnaire (e.g., "My life has a clear sense of purpose.", α = .96; Steger et al. 2006). Responses to all items were scored on a 7-point Likert scale, ranging from (1) "Strongly Disagree" to (7) "Strongly Agree". Past literature has shown strong support for the validity and reliability of these scales (Diener et al. 1985; Lyubomirsky and Lepper 1999; Steger et al. 2006).

5 Results and Discussion

5.1 Preliminary Analyses

All variables were screened for possible statistical assumption violations, as well as for outliers and missing values (Meyers et al. 2013). There were no missing values in the data set. Three cases were deleted because they were identified as univariate outliers ($z\ score > \pm 3$). Mahalanobis distance revealed two multivariate outliers at the critical Chi square value at $p = .001$, which were deleted from further analyses. Inspection of skewness indices for all variables showed that they were distributed normally (range from − .58 to .64). Moreover, as shown by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Furthermore, independence of errors assumption was met (Durbin-Watson Test = 2.15) and last, variables revealed no multicollinearity (VIF < 10). Means, standard deviations, and correlations are presented in Table 4.

[3] Confirmatory factor analyses were conducted, and results showed support for this 3-factor measurement model: χ^2 ($df = 22$, $N = 253$) = 24.62, *ns*, CFI = 1.00, TLI = 1.00, SRMR = .01, and RMSEA = .02 [.00; .06].

Table 5 Results of the structural equation modeling analyses: study 2

	Cognitive reappraisal	Expressive suppression	Satisfaction with life	Happiness	Meaning in Life
	β	β	β	β	β
Independent variables					
Harmonious passion	.23***	− .30***	.40***	.24***	.31***
Obsessive passion	− .03	.33***			
Mediators					
Cognitive reappraisal			.19**	.32***	.23***
Expressive suppression			.04	− .08	− .01
R^2	.05	.16	.22	.20	.18

β, standardized coefficient, N=253

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

5.2 Main Analyses

Analyses were performed Mplus version 8.4 (Muthén and Muthen 2017). The proposed model was composed of two exogenous variables (i.e., HP and OP) and five endogenous variables (i.e., cognitive reappraisal, expressive suppression, satisfaction with life, happiness, and meaning in life). All variables were transformed into *z scores* for further analyses. To test the hypothesized full mediation model, maximum likelihood estimation was used and paths from HP to cognitive reappraisal and from HP to expressive suppression were specified, followed by paths from OP to cognitive reappraisal and from OP to expressive suppression. In addition, paths were drawn from cognitive reappraisal and expressive suppression to satisfaction with life, happiness, and meaning in life. Covariances between the two exogenous variables, as well as the covariances between the error terms of the emotion regulation strategies were estimated. The same acceptable threshold levels for model fit as in Study 1 were used. Results suggested that this model had a poor fit to the data (see Table 2, Study 2, Full mediation). Thus, as in Study 1, the model was re-specified by adding direct paths from HP to indices of well-being. This partial mediation model had an excellent fit to the data (see Table 2, Study 2, Partial mediation [HP]).[4] As in Study 1, models were compared. The Chi square difference test was statistically significant and changes in fit indices were all over the recommended difference thresholds, rejecting once again the equal fit hypothesis and indicating that the more complex and better fitting partial mediation model should be retained.[2]

The standardized solutions of the final model are presented in Table 5 (for clarity concerns, covariances are omitted). HP was positively related to cognitive reappraisal ($\beta = .23$, $p < .01$), but negatively associated with expressive suppression ($\beta = -.30$, $p < .01$). OP was positively related to expressive suppression ($\beta = .33$, $p < .01$) and

[4] As in Study 1, the model for Study 2 was also tested controlling for age and gender. In addition, the model was tested controlling for relationship status and duration. Results also showed that the model had a satisfactory fit to the data: χ^2 (df = 15, N = 253) = 26.412, $p < .05$, CFI = .98, TLI = .95, SRMR = .04, and RMSEA = .06 [.02; .09]. Standardized solutions showed that gender positively predicted expressive suppression ($\beta = .162$, $p < .01$). These findings show that the relationships among passion, emotion regulation strategies and well-being were the same irrespective of age, gender, relationship duration and status. However, in this study, men tended to make more use of expressive suppression than women.

unrelated to cognitive reappraisal ($\beta = -.03$, *ns*). Cognitive reappraisal was positively linked to satisfaction with life ($\beta = .19$, $p < .01$), happiness ($\beta = .32$, $p < .01$), and meaning in life ($\beta = .23$, $p < .01$). Furthermore, direct effects from HP to well-being outcomes were also positive and significant: satisfaction with life ($\beta = .40$, $p < .01$), happiness ($\beta = .24$, $p < .01$), and meaning in life ($\beta = .31$, $p < .01$). Finally, expressive suppression was unrelated to all three positive indices of well-being: satisfaction with life ($\beta = .04$, *ns*), happiness ($\beta = -.08$, *ns*), meaning in life ($\beta = -.01$, ns).

Indirect effects were investigated to further test the mediating role of emotion regulation between romantic passion and the three indicators of well-being (satisfaction with life, happiness, and meaning in life). Bias-corrected bootstrapped 95% confidence interval estimates indicated that cognitive reappraisal was a significant partial mediator of the relationship between HP and satisfaction with life ($\beta = .04$; 95% CI .01 to .09, $p < .05$), between HP and meaning in life ($\beta = .05$; 95% CI .02 to .11, $p < .05$), and between HP and happiness ($\beta = .07$; 95% CI .03 to .14, $p < .01$).

In sum, the present findings provided support for the basic proposed model in the context of romantic relationships. Specifically, HP in the romantic sphere was positively associated with cognitive reappraisal but negatively associated with expressive suppression, whereas OP was positively related to expressive suppression but unrelated to cognitive reappraisal. In turn, cognitive reappraisal was the only strategy that was positively linked to all indices of well-being.

5.3 Study 3

Study 3 had three main goals. First, it sought to replicate findings from Studies 1 and 2, using a three-month prospective design. Second, Study 3 investigated further the impact of passion and emotion regulation strategies on well-being by using a positive hedonic well-being measure used in Study 2 (i.e., satisfaction with life) and also by measuring a new measure of eudaimonic well-being (i.e., subjective vitality). Furthermore, a measure of ill-being measure (i.e., depression) was included as an additional outcome. This allowed us to further test the generalizability of the hypothesized model. Third, both indices of well-and ill-being were entered in the model at Time 1, allowing to test the model while controlling for initial levels of well-being. Thus, in line with research on the DMP (Vallerand 2015), the hypotheses presented above in the Present Research section, and the findings from Studies 1 and 2, it was proposed that, while controlling for all indices of well-being at Time 1, HP at Time 1 would be positively related to cognitive reappraisal at Time 2 which, in turn, would be positively linked to satisfaction with life and subjective vitality, and negatively associated with depression (all at Time 2). It was also suggested that HP at Time 1 would be negatively associated with expressive suppression at Time 2. Conversely, OP at Time 1 was expected to be positively related to expressive suppression at Time 2 which, in turn, would be negatively related or unrelated to satisfaction with life and subjective vitality, and would be positively associated with depression (all at Time 2), again while controlling for all

indices of well-being at Time 1. Finally, it was proposed that OP at Time 1 would be negatively related or unrelated to cognitive reappraisal at Time 2.

6 Method

6.1 Participants and Procedure

A total of 515 individuals completed an initial online survey through the Amazon Mechanical Turk. First, participants were asked to agree to a consent form pre-approved by the ethics committee of the Université du Québec à Montréal and then they were asked to answer questions on their favorite activity, as well as on their well-being. Demographic questions were also completed at the end of the questionnaire. Three months later, they were invited to complete a second online questionnaire on their emotion regulation strategies and positive and negative indices of well-being. Of the initial sample, 281 people (101 men, 177 women and 3 unspecified) completed the follow-up survey.[5] Mean age of participants was 39.94 years (SD = 12.44 years). Participants reported various kinds of favorite activities, such as sports, arts, reading, and gaming. Moreover, they spent time doing their favorite activity on average 12.74 h per week (SD = 13.87 h) and have been engaging in their activity for 19.74 years on average (SD = 14.17 years).

7 Measures

7.1 Time 1

7.1.1 Passion for Activities

As in Study 1, the Passion Scale (Vallerand et al. 2003; Marsh et al. 2013) was used. Cronbach alpha values for the HP and OP subscales were respectively .83 and .86.

7.1.2 Well-Being Indices

Two well-documented measures were used in this study to assess indices of hedonic and eudaimonic well-being: The Satisfaction with Life Scale (e.g., "I am satisfied with my life"; Diener et al. 1985) and the Subjective Vitality scale (e.g., "I feel alive and vital"; Ryan and Frederick 1997). For the Satisfaction with Life scale, responses to all five items were scored on a 7-point Likert scale, ranging from (1) "Do Not Agree At All" to (7) "Very Strongly Agree". The Cronbach alpha value was of .94. For the Subjective Vitality scale, responses to all six items were scored on a 7-point Likert scale, ranging from (1) "Absolutely Untrue" to (7) "Absolutely True". The Cronbach alpha value was of .94. Furthermore, the depression subscale from the General Health Questionnaire (GHQ; Goldberg and Hillier 1979; Goldberg and Williams 1988) was assessed as a measure of ill-being. The GHQ is a well-known valid and reliable instrument for measuring minor psychological

[5] A MANOVA was conducted to investigate if significant differences existed between respondent who completed the questionnaire at both Times from those who did not (Study 3). No significant multivariate effect was found on all variables at Time 1: Wilks' Lambda = .98, F (5, 515) = 1.85, p = .10, η^2 = .02.

distress. This 3-item subscale assesses presence of depressive symptoms (e.g., "I think of myself as a worthless person"; α = .93). Responses to all items were scored on a 5-point Likert scale, ranging from (1) "Strongly Disagree" to (5) "Strongly Agree".

7.2 Time 2

7.2.1 Emotion Regulation Strategies

As in Study 1, the Emotion Regulation Questionnaire (ERQ; Gross and John 2003) was used to measure emotion regulation strategies in general. In this study, the Cronbach alpha values for the cognitive reappraisal and expressive suppression subscales were respectively .92 and .86.

7.2.2 Well-Being Indices

The same positive and negative well-being indices at Time 1 were assessed at Time 2. The Cronbach alpha value for satisfaction with life was of .94, for subjective vitality it was of .93, and .91 for depression.[6]

8 Results and Discussion

8.1 Preliminary Analyses

All variables were screened for possible statistical assumption violations, as well as for outliers and missing values (Meyers et al. 2013). Five cases were removed because they did not complete the whole survey and thus, they had missing data on almost all variables. In addition, one case was removed because it was identified as a univariate outlier ($z\ score > \pm 3.0$) and a multivariate outlier. Mahalanobis distance revealed 22 other multivariate outliers at the critical Chi square value at $p = .001$, which were also removed from further analyses. The final model was tested on 253 participants. Inspection of skewness indices for all variables showed that they were distributed normally except for depression at Time 1 and at Time 2. Log transformation was applied on both variables to improve normality. Final tests for skewness indices indicate that variables were distributed normally (ranging from −.64 to .76). Moreover, as shown by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Furthermore, independence of errors assumption was met (Durbin-Watson Test = 1.97) and last, variables revealed no multicollinearity (VIF < 10). Means, standard deviations, and correlations are presented in Table 6.

[6] Confirmatory factor analyses were conducted in order to see if the above dimensionalities for positive and negative well-being indices fit the sample from this research. Results revealed adequate fit indices for this 3-factor measurement model: χ^2 ($df = 73$, $N = 253$) = 139.13, $p < .01$, CFI = .98, TLI = .97, SRMR = .03, and RMSEA = .06 [.05; .08]. However, results also uncovered that Item #3 from the Subjective Vitality subscale ("*Sometimes I feel so alive that I just want to burst*") also loaded negatively on the depression subscale (.46). Thus, this item was removed from further analyses (α = .94). Bostic, Rubio, and Hood (2000) have also recommended not to include this item. Confirmatory factor analyses were conducted again without Item #3 and results revealed adequate fit indices for this 3-factor measurement model: χ^2 ($df = 64$, $N = 253$) = 114.63, $p < .01$, CFI = .99, TLI = .98, SRMR = .03, and RMSEA = .06 [.04; .07].

Table 6 Descriptive statistics and bivariate correlations—study 3 (N = 253)

	M	*SD*	1	2	3	4	5	6	7	8	9	10
Time 1												
1. Harmonious passion	5.30	1.03	1									
2. Obsessive passion	2.86	1.45	.11	1								
3. Satisfaction with life	4.24	1.70	.26***	.09	1							
4. Subjective vitality	4.72	1.32	.34**	.07	.71***	1						
5. Depression	1.74	1.03	−.22***	.15*	−.54***	−.68***	1					
Time 2												
6. Cognitive reappraisal	4.68	1.34	.34***	.03	.31***	.46***	−.31***	1				
7. Expressive suppression	3.33	1.58	−.13*	.19***	−.24***	−.24***	.24***	.04	1			
8. Satisfaction with life	4.33	1.78	.28***	.08	.90***	.67***	−.52***	.34***	−.21***	1		
9. Subjective vitality	4.75	1.36	.30***	.10	.70***	.88***	−.64***	.49***	−.22***	.73***	1	
10. Depression	1.69	.98	−.28***	.08	−.63***	−.75***	.76***	−.43***	.27***	−.66***	−.76***	1

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

8.2 Main Analyses

Analyses were performed Mplus version 8.4 (Muthén and Muthen 2017). The proposed model encompassed five exogenous variables (i.e., HP, OP, satisfaction with life, subjective vitality, and depression) and five endogenous variables (i.e., cognitive reappraisal, expressive suppression, satisfaction with life, subjective vitality, and depression). All variables were transformed into *z scores* for further analyses. The hypothesized full mediation model was tested using the maximum likelihood estimation and paths were drawn according to the hypotheses presented above in the Introduction of Study 3. Thus, paths from passion to emotion regulation strategies were first specified. Specifically, paths from HP at Time 1 to cognitive reappraisal and to expressive suppression (both at Time 2) were added. Then, paths from OP at Time 1 to cognitive reappraisal and to expressive suppression (both at Time 2) were drawn. Second, paths from emotion regulation strategies to well- and ill-being were specified. Specifically, paths were drawn from cognitive reappraisal and expressive suppression to satisfaction with life, subjective vitality, and depression (all at Time 2). Finally, direct paths from well- and ill-being indices (satisfaction with life, subjective vitality, and depression) at Time 1 to their equivalent at Time 2. Covariances between the five exogenous variables at Time 1, as well as the covariances between the error terms of the emotion regulations strategies at Time 2 were estimated. Acceptable threshold levels for model fit were the same as those used in the previous studies. The results showed that this initial model did not yield acceptable fit to the data (see Table 2, Study 3, Full mediation). Based on the theory of the top-down effects of well-being (Diener 2009; Feist et al. 1995) and the positive effects of well-being on psychological processes (Fredrickson 2001), as well as modification indices (see Kline 2016 on re-specification of path models based on theoretical and statistical considerations), a second model was tested including direct paths between well-being indices at Time 1 and emotion regulation strategies at Time 2. Specifically, the two following paths were added: One from satisfaction with life at Time 1 to expressive suppression at Time 2 and one from subjective vitality at Time 1 to cognitive reappraisal at Time 2. The results showed that this modified model had an acceptable to an excellent fit the data (see Table 2, Study 3, Re-specified full mediation).[7] This model was then compared to three alternative partial mediation models. In the first alternative model, direct paths were added from HP to the three well-being outcomes (see Table 1, Study 3, Partial mediation [HP]). In the second alternative model, direct paths were added from OP to the three well-being outcomes (see Table 2, Study 3, Partial mediation [OP]). In the last alternative model, direct paths were added from both HP and OP to the three well-being outcomes (see Table 2, Study 3, Partial mediation [HP & OP]). Results show that the first and last alternative models each presented a score on the RMSEA higher than the recommended cutoff point. Further, none of these alternative models were statistically different than the simpler re-specified full mediation, based on the Chi square difference test. Finally, differences in fit indices did not exceed the recommended thresholds (Note that the minute differences in CFI and TLI are not adequately portrayed in Table 2 due to the rounding of these scores). Therefore, the equal fit hypothesis was supported in favor of the most parsimonious re-specified full mediation model.

[7] As in Studies 1 and 2, the model for Study 3 was tested controlling for age and gender. Results showed that the model had a satisfactory fit to the data: χ^2 ($df = 22$, $N = 253$) = 46.40, $p < .01$; CFI = .98, TLI = .96, SRMR = .03, and RMSEA = .07 [.04; .09]. Standardized solutions showed that gender positively predicted expressive suppression ($\beta = .39$, $p < .01$). These findings show that the relationship between passion, emotion regulation strategies and well-being remain the same irrespective of age and gender. However, in this study, men tended to make more use of expressive suppression than women.

Table 7 Results of the structural equation modeling analyses: study 3

	Cognitive reappraisal (T2)	Expressive suppression (T2)	Satisfaction with life (T2)	Subjective vitality (T2)	Depression (T2)
	B	β	β	β	β
Independent variables					
Harmonious passion (T1)	.20***	−.09			
Obsessive passion (T1)	−.02	.22***			
Satisfaction with Life (T1)		−.23***	.87***		
Subjective Vitality (T1)	.40***			.80***	
Depression (T1)					.82***
Mediators					
Cognitive reappraisal (T2)			.09**	.14***	−.12***
Expressive suppression (T2)			−.01	−.05	.10***
R^2	.25	.11	.81	.78	.78

β, standardized coefficient, N=253

*$p \leq .05$; **$p \leq .01$; ***$p \leq .01$

The standardized solutions are presented in Table 7 (for clarity concerns, covariances are omitted). Results showed that HP at Time 1 was positively related to cognitive reappraisal at Time 2 ($\beta = .20$, $p < .01$). In addition, even though the beta weight was non-significant, HP at Time 1 was negatively related to expressive suppression at Time 2 ($\beta = -.09$, *ns*). Conversely, OP at Time 1 was positively associated with expressive suppression at Time 2 ($\beta = .22$, $p < .01$) and unrelated to cognitive reappraisal at Time 2 ($\beta = -.02$, *ns*). Cognitive reappraisal was positively linked to satisfaction with life ($\beta = .09$, $p < .01$), subjective vitality ($\beta = .14$, $p < .01$), and was negatively related to depression ($\beta = -.12$, $p < .01$), all at Time 2. Expressive suppression was unrelated to satisfaction with life ($\beta = -.01$, *ns*) and to subjective vitality ($\beta = -.05$, *ns*), and was positively associated with depression ($\beta = .10$, $p < .01$), all at Time 2. Satisfaction with life (β = .87, $p < .01$), subjective vitality (β = .80, $p < .001$) and depression variables at Time 1 (β = .82, $p < .01$) were positively related to their equivalent at Time 2. In addition, satisfaction with life at Time 1 was negatively linked with expressive suppression at Time 2 (β = −.23, $p < .01$) and subjective vitality at Time 1 was positively related to cognitive reappraisal at Time 2 (β = .40, $p < .01$).

Indirect effects were explored to further test the mediating role of emotion regulation in the relationship between passion and well-being. Bias-corrected bootstrapped 95% confidence interval estimates indicated that cognitive reappraisal significantly mediated the relationship between HP and satisfaction with life (β = .02; 95% CI .01 to .04, $p < .05$), subjective vitality (β = .03; 95% CI .01 to .06, $p < .05$), as well as depression (β = −.02; 95% CI −.05 to −.01, $p < .01$). Finally, expressive suppression significantly mediated the relationship between OP and depression (β = .02; 95% CI .01 to .05, $p < .05$).

In sum, the findings of Study 3 provided additional support for the role of passion in emotion regulation strategies, and that of the latter in well-being. Globally, results indicated that emotion regulation strategies mediated the relationship between passion and well- and ill-being even after controlling for the initial levels of these latter variables. HP was positively related to cognitive reappraisal three months later, which was positively associated with life satisfaction and subjective vitality, and negatively related to depression (all three months later while controlling for positive and negative indices of well-being at Time 1). On the other

hand, OP was positively associated with expressive suppression three months later which, in turn, was positively associated with depression (also three months later). Finally, the present findings also suggest that indices of well-being may be positively linked to reappraisal.

8.3 General Discussion

The goal of this research was to propose and test an integrated model of passion, emotion regulated strategies, and psychological well-being. This model posited that HP would be positively related to cognitive reappraisal and negatively related to expressive suppression. Conversely, it was hypothesized that OP would positively be associated with expressive suppression and negatively related or unrelated to cognitive reappraisal. In turn, it was proposed that cognitive reappraisal would be positively associated with indices of both hedonic and eudaimonic well-being and negatively associated with ill-being (i.e., depression), while expressive suppression would be negatively related to well-being indices and positively associated with ill-being. Overall, the main model was replicated consistently across all three studies conducted in different contexts (i.e., passion was for one of various activities in Studies 1 and 3 and for one's romantic relationship in Study 2) while using both cross-sectional and prospective designs. Although there were some subtle differences in some studies regarding cross paths between passion and strategies (i.e., the negative relationships between HP and expressive suppression and OP and cognitive reappraisal), findings revealed that HP was consistently and positively associated with reappraisal whereas OP was consistently and positively related to suppression. Finally, reappraisal was consistently and positively related to well-being (and negatively related to ill-being) while the opposite pattern was obtained with suppression. These findings have important implications for the field of emotion regulation and for the DMP.

8.4 Passion as a Motivational Determinant of Emotion Regulation

Emotion regulation involves implementing specific regulatory strategies in order to manage one's emotional experience. Some strategies are more or less adaptive regarding their impact on well-being (e.g., Aldao et al. 2010; John and Gross 2004; Webb et al. 2012). Importantly, past research has shown new interest in psychological processes that may influence the use of a particular strategy over another. So far, important determinants of emotion regulation choice have been uncovered, i.e. emotional intensity, cognitive complexity of emotion regulation strategies, and motivational and emotional goals (see Sheppes 2014 for a review). Findings from the present research adds to this literature by revealing that passion seems to play an important role in strategy selection for regulating emotions. Importantly, results showed that one's type of passion, harmonious or obsessive, relates differently to emotion regulation strategies. In fact, it appears that HP is positively associated with more proactive emotion regulation strategies such as cognitive reappraisal. However, such is not the case for OP as it was positively linked to a much less reactive form of emotional regulation, namely expressive suppression. These findings are in line with research on the role of HP and OP and how they positively relate respectively to task versus avoidant coping, mastery versus performance avoidance goals, and challenge versus threat appraisals (see Vallerand 2015).

Of additional interest is the fact that not only HP seems to be positively related to reappraisal, but it also appears to be negatively associated with suppression as well. This finding was obtained in both Studies 1 and 2. The prediction of HP to reappraisal was also replicated in Study 3 but not the crossover effect of HP to suppression (although the relationship was in

the right direction, i.e. negative). Future longitudinal research using a much longer time lag is necessary to further look into the protective role of HP in expressive suppression. Similarly, the negative relationship between OP and cognitive reappraisal was significant only in Study 1. Thus, the negative crossover effect of OP on reappraisal may not replicate across situations and time. Thus, future research is necessary to further explore such effects. Additional research should also explore differences in implicit versus explicit emotion regulation goals, as a function of one's type of passion. For example, it is possible that individuals with an OP would want to experience some negative emotions (such as anger during a relationship conflict) in order to boost their energy to make a point and be more productive (and "win" the fight with others) by choosing to use suppression over reappraisal strategies. People with a HP on the other hand may seek to decrease their experience of negative emotions by choosing to use reappraisal in order to diminish the intensity and potential negative effects of negative emotions and thus preserve the relationship with other people. Future research is needed to test these hypotheses using priming procedures (see Bélanger et al. 2013 to this effect).

Another main implication of this research is that the current findings provide support for one of the major principles of the DMP, namely that passion influences self-regulatory processes (Vallerand et al. 2003; Vallerand 2015). Specifically, the DMP proposes that HP allows access to adaptive self-regulatory processes, whereas OP limits such access (Schellenberg et al. 2013; St-Louis et al. 2018; Vallerand 2015; Verner-Filion et al. 2014). The present research was the first to investigate the relationship between passion and emotion regulation as a self-regulatory process and it supports this assumption. Findings uncovered that HP was positively related across the three studies to cognitive reappraisal that has been found the most helpful type of emotion regulation strategy (see Gross 2013, 2015). Furthermore, there was a tendency for HP to be negatively associated with suppression (Studies 1 and 2) that has been found to be less adaptive (Gross 2013, 2015). Conversely, OP was positively associated with suppression in all three studies and was even negatively related to reappraisal (in Study 1). Future research is needed in order to better understand the underlying psychological mechanisms that allow HP to be positively associated with such adaptive self-regulatory processes. One possibility is that mindfulness would mediate such relationship. Indeed, past research has shown that HP is positively, but OP is negatively, related to mindfulness (St-Louis et al. 2018). Future research on the mediating functions of mindfulness in the passion-emotional regulation strategies relationship would therefore appear fruitful.

8.5 On the Role of Emotion Regulation in Well-Being

Gross' model posits that emotional regulation affects psychological well- and ill-being (Gross 2015; Gross and John 2003). Specifically, because it comes in early in the emotion process and is more proactive, cognitive reappraisal is expected to have a positive impact on how one reacts to adversity and consequently on people's well-being. Conversely, because it comes in late in the emotion process and is more reactive, expressive suppression is hypothesized to be less effective in dealing with adversity and to mostly engender ill-being (Aldao et al. 2010; Gross and John 2003; John and Gross 2004; Nezlek and Kuppens 2008). Findings from the present research support this literature by revealing that cognitive reappraisal was positively associated with positive indices of both hedonic and eudaimonic well-being (in all three studies). Also, findings from Study 1 showed that expressive suppression was negatively related to such indices. Although this last result was not replicated in Study 2, results from Study 3 showed that, expressive suppression was

positively related to an ill-being index (i.e., depression). Future research is needed on the possible detrimental effects of expressive suppression on well- versus ill-being. Furthermore, the results of Study 3 also suggested that well-being may predict over time emotion regulation strategies. Future research should look into the potential reciprocal relationships between well-being and emotion regulation strategies using full longitudinal designs, in which all variables are assessed at two points in time.

Finally, past passion research has shown the existence of relationships between passion and well- and ill-being (see Vallerand 2015 for a review). However, the present research is the first to test and show that emotion regulation strategies represent as a psychological process that mediates the different impact of the two types of passion on well- and ill-being. Indeed, results from the present research showed that HP was positively associated with strategies (reappraisal) that help individuals to regulate their emotional experience in a way that is positively linked to well-being (and negatively to ill-being in Study 3). Conversely, OP was positively related to strategies (suppression) that are positively correlated with ill-being (and negatively to well-being). Importantly, these findings were uncovered even while controlling for the initial levels of well- and ill-being (Study 3). In addition, the present research found that significant direct relationships between HP and well-being were obtained in Studies 1 and 2. In line with past research that show that positive emotions can mediate the effects of HP on well-being (Rousseau and Vallerand 2008; Vallerand 2015), future research should ascertain whether emotion regulation strategies contribute to these emotions. Such research could help determine whether these two mediators (positive emotions and emotion regulation strategies) may be intertwined. Other important self-regulatory processes such as resilience (Tugade and Fredrickson 2004) and self-compassion (Neff 2011) could also be investigated in future research in order to further understand the interplay among passion, emotion and self-regulatory strategies, and well-being.

8.6 Limitations

Some limitations of this research need to be addressed. First, correlational designs were used in all three studies and, even though a prospective design with a 3-month interval was used in Study 3, data from Studies 1 and 2 were cross-sectional in nature. Thus, no causal inferences can be drawn from the present findings. The use of longitudinal (see Carbonneau et al. 2008; Lavigne et al. 2014) and especially experimental designs where HP and OP are experimentally induced (e.g., Bélanger et al. 2013; Lafrenière et al. 2013) in future research is thus highly recommended. For example, past research has shown that the experimental induction of HP and OP leads to the same effects as those of the Passion Scale (see Bélanger et al. 2013; Lafrenière et al. 2013, Study 2). A second important limitation pertains to the instruments used in this research. Participants completed only self-report measures and thus, results should be interpreted carefully. For instance, although research reveals that the Passion Scale is free from social desirability concerns (Rousseau et al. 2002), social desirability and shared method variance may influence the results. Thus, future research should make use of objective measures such as observer ratings of emotion regulation strategies. A third limitation regarding the present research pertains to the fact that some subtle methodological differences took place across studies. For instance, different measures of well-being were used, and ill-being was measured only in the last study. Additionally, Studies 1 and 3 focused on passion for a given activity (typically a leisure activity) whereas in Study 2, romantic passion was investigated for all participants. Although these methodological differences provide some support for the generalization of

the findings across settings and measures, at the same time the subtle differences in results across studies may be due to these methodological distinctions. Thus, the present findings need to be interpreted with caution. A final limitation deals with the use of Amazon Mechanical Turk for data collection in all three studies. Even though this platform is now widely used for research in psychology, Amazon Mechanical Turk users may display differences from the general population. For instance, research has shown that they tend to be younger, more educated, less religious, and are more likely to be unemployed (Goodman et al. 2013). However, it should be noted that past research has shown that the data obtained with such sources are at least as reliable as those obtained with other online or even offline (laboratory) methods (Buhrmester et al. 2011; Paolacci et al. 2010). Nevertheless, future research should replicate the present findings using different samples in order to increase the model external validity.

In sum, the present research suggests that passion plays an important role in the relationship between emotion regulation strategies and well-being and that the type of passion matters. It is HP that is positively associated with cognitive reappraisal, and OP that positively expressive suppression, that in turn relate positively and negatively, respectively to well-being. Future research is needed to replicate the present findings with more stringent experimental and longitudinal designs and more diverse well-being outcomes and participants.

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