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Who's the Happiest and Why? The role of passion and self-regulation in psychological well-being

Robert J. Vallerand[1] · **Jean-Michel Robichaud**[2] · **Sonia Rahimi**[3] · **Jocelyn J. Bélanger**[4]

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Abstract

The present research sought to test the overarching hypothesis that the happiest people, that is, people with the highest level of psychological well-being, are those (1) who experience the highest levels of passion (and especially harmonious passion) in several enjoyable everyday life activities, and (2) who display higher levels of autonomous regulation for less enjoyable activities such as chores and duties. Results of two studies (Study 1, $N=260$; Study 2, $N=392$) provided support for this hypothesis. Furthermore, results from three additional studies (Study 3, $N=251$; Study 4, $N=526$; Study 5, $N=255$) showed that positive affect represents the key mediating processes between harmonious passion and autonomous regulation on the one hand and psychological well-being on the other. Conversely, negative affect mediated the negative relationship between obsessive passion and controlled regulation and well-being. Finally, Studies 4 and 5 also showed that the autonomous global orientation (Guay et al., 2003) is a major determinant of harmonious passion and autonomous regulation for engaging in chores and duties, whereas the controlled global orientation serves as a determinant of obsessive passion and controlled regulation. This research represents a significant advancement in integrating the perspectives of passion, self-regulation, and affect, contributing to our understanding of how individuals' engagement in life activities influences their psychological well-being.

Keywords Psychological well-being · Harmonious passion · Obsessive passion · Positive and negative affect · Self-regulation

Why are some people happier than others? Obviously, various explanations may be formulated from the biological to the sociological. Among these, one straightforward answer may simply be that some tend to take better advantage of what life has to offer by engaging to the fullest in both enjoyable and non-enjoyable activities. Take Jodie for instance. Her life is replete with richness and joy. Passionate about her studies at the university, she immerses herself in her coursework, finding joy in the depth of reading and exploration that her academic journey provides. Simultaneously, she maintains a loving relationship with her boyfriend, with whom she cherishes spending quality time on enjoyable pursuits. But that's not all: She is also an active member of the intramural basketball league and she makes sure to spend time with her special group of friends either in person or online. It seems that everywhere Jodie turns, there is something enjoyable and meaningful to do in her life. She even does her chores gladly and actively without being prodded by her roommate. As a consequence of such full engagement in life activities, Jodie is one of the happiest students on campus.

As is evident from the preceding example, Jodie is passionate about several things, including her studies, her boyfriend, her friends, and her favorite hobby (basketball). While she might not be enthusiastic about doing chores, she remains decidedly self-motivated to accomplish them. Based on Jodie's story, one might conclude that people who are highly passionate about several enjoyable activities and self-motivated to do chores are very happy. However, as more than 20 years of research has shown (Vallerand et

✉ Robert J. Vallerand
Vallerand.bob@gmail.com

[1] Laboratoire de Recherche sur le Comportement Social, Université du Québec à Montréal, Montreal, QC H3C 3P8, Canada

[2] Université de Moncton, Moncton, Canada

[3] Carleton University, Ottawa, Canada

[4] Carnegie Mellon University, Ar-Rayyan, Qatar

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al., 2003), not all passions are equal, as some (harmonious passion) lead to adaptive outcomes and others (obsessive passion) less so. Similarly, various forms of self-regulation do not yield identical psychological results (Ryan & Deci, 2017). Autonomous regulation, for instance, drives one to willingly participate in less pleasurable tasks (like chores) while still deriving certain advantageous psychological benefits. Conversely, controlled regulation is not as adaptive. Based on the above research, our perspective is that the happiest people are those like Jodie who are passionate (and especially harmoniously so) for a range of enjoyable and meaningful pursuits, coupled with an autonomous regulation that guides their engagement in less pleasurable activities such as chores. In our view, this approach should allow them to repeatedly experience positive emotions across their life and to reduce negative emotions, thereby contributing to enhanced psychological well-being through their optimal task involvement. Below, we address the role of passion and self-regulation in well-being.

The dualistic model of passion and psychological well-being

The Dualistic Model of Passion (DMP; Vallerand, 2010, 2015; Vallerand et al., 2003) defines passion as a strong inclination toward an activity that one loves, values, invests significant time and energy in, and that is part of identity (the passion criteria). Furthermore, the DMP posits the existence of two distinct types of passion, harmonious and obsessive, that differ in terms of how the passionate activity shapes and intertwines with an individual's identity, as well as how it impacts on cognitive processes, emotions, and behaviors.

With harmonious passion (HP), the activity that one loves and finds important is coherent with our identity (Bouizegarène et al., 2018) and other life activities. While important in the person's self-structure, the activity nevertheless remains under the person's control and is in harmony with other elements of the self and of the person's life. Consequently, HP inherently implies a strong desire to *freely* engage in the beloved activity while being mindful and open to experience (St-Louis et al., 2018). Such activity engagement takes place in the absence of conflict with other life activity goals and allows the person to engage openly and flexibly in the activity while fully focusing on it. In addition, because one's passion for a given activity allows the activity to be harmoniously intertwined with other life activities (e.g., Philippe et al., 2017) and be free from conflict, it becomes possible to engage in that activity without neglecting other life goals (e.g., Bélanger et al., 2013, 2019). Research supports this analysis. Indeed, HP has been linked to a number of positive outcomes during task engagement, such as flow, concentration, and positive affect (e.g., Vallerand et al., 2003; Vallerand et al., 2023). Additionally, HP yields significant benefits in other aspects of the person's life such as better friendships (Philippe et al., 2010), romantic relationships (Carbonneau & Vallerand 2016; Vallerand et al., 2008), improved health (St-Louis et al., 2016), and psychological well-being (Bonneville-Roussy et al., 2011; Vallerand, 2012; Vallerand et al., 2007, 2008).

In contrast, with obsessive passion (OP), individuals experience both external and internal pressures to engage in the beloved activity, often driven by concerns for social validation and contingencies of self-worth (Mageau et al., 2011). Therefore, engaging in the activity that one loves tends to be associated with self-structures that are more ego-invested (Lafrenière et al., 2013) and with lower levels of mindfulness (St-Louis et al., 2018). In addition, the beloved activity tends to be in conflict with other aspects of the person's identity (Bouizegarène et al., 2018) and life (e.g., Vallerand et al., 2003). Overall, this mindset leads to activity engagement that is significantly less absorbed in the activity itself, consequently yielding (1) less advantageous psychological outcomes during activity involvement, including lower positive emotions (Paquette et al., 2023) and heightened negative affect (e.g., Ratelle et al., 2004; Vallerand et al., 2003, Study 1), higher anxiety (Verner-Filion et al., 2014), and increased rumination (Carpentier et al., 2012), as well as (2) negative outcomes in other life domains such as hampered personal relationships (Vallerand et al., 2008), low psychological well-being (Philippe et al., 2009), and burnout (e.g., Vallerand et al., 2010).

The DMP (Vallerand, 2015) and other theoretical models on the determinants of human flourishing (Ryan & Deci, 2017) posit that individuals inherently possess a propensity to internalize multiple activities within their self-concept and identity (see Sedikides & Brewer, 2015). Accordingly, Schellenberg and Bailis (2015, 2021) have shown that people can develop a passion for more than one activity. These authors have found that 53–56% of the people have a passion for two activities in their life whereas only 31% have a passion for just one activity. Notably, the findings of Schellenberg and Bailis (2015, 2021) revealed an interesting trend: cultivating HP for two activities not only resulted in higher well-being compared to holding such passion for a single activity, but this increase in well-being was significantly incremental. Conversely, it is important to note that OP did not contribute to an enhanced sense of well-being.

Positive affect as mediator of the passion-well-being relationship

Recognizing the impact of passion on psychological well-being initiates an exploration into the mechanisms that mediate these effects. We propose that emotions represent such a process. In one important line of research, Fredrickson (2001), has proposed and found support for her Broaden-and-Build Theory that posits that positive emotions are adaptive because they broaden people's adaptive thought-action repertoires and self, leading to higher levels of psychological well-being (see Garland et al., 2010 on this issue). This perspective is consistent with other research that supports the adaptive role of positive affect in a variety of psychological outcomes, including well-being (e.g., Lyubomirsky et al. 2005; Sedikides et al., 2008).

Due to the influence of HP on positive emotions and the recognized impact of these emotions on psychological well-being, it naturally follows that a sequential relationship involving HP, positive emotions, and well-being may exist. Research conducted by Rousseau and Vallerand (2008) with individuals who had a passion for exercise lends support to this model. At Time 1, participants completed the Passion Scale pertaining to exercise, as well as a measure of psychological well-being (life satisfaction). At Time 2 (five weeks later), immediately following an exercise session, they completed situational measures of positive and negative affect experienced while exercising. Finally, at Time 3 (i.e., three weeks later), participants completed measures of psychological well-being again. Path analysis results revealed that HP at Time 1 positively predicted positive affect at Time 2, which led in turn to *increases* in psychological well-being from Time 1 to Time 3. On the other hand, OP was unrelated to positive affect, but positively predicted negative affect. OP also directly and negatively predicted decreases in psychological well-being, whereas negative affect was unrelated to psychological well-being. These fundamental findings have been replicated across multiple studies, consistently demonstrating that HP for a specific activity fosters more positive affective experiences in that activity then OP, which, in turn predicts increases in psychological well-being over time (e.g., Houlfort et al., 2014, 2015; Sverdlik et al., 2022; Vallerand et al., 2010). Conversely, OP positively predicts, and HP either negatively predicts or is unrelated to, negative affect. However, the role of negative affect in well-being is not as clear and deserves additional scrutiny.

Considering that individuals typically invest multiple hours each week over a span of years in their different passionate pursuits, the positive emotional states arising from such engagement, particularly when driven by HP, are likely to be recurrent and ongoing. Consequently, this repetitive positive experience can lead to a sustained sense of well-being over time (see Vallerand, 2012 for more on this issue). Indeed, in line with Fredrickson and colleagues (Fredrickson, 2000; Garland et al., 2010), repeated experiences of positive affective states are hypothesized to create a positive upward spiral where attentional broadening, positive reappraisal of events, and increased thought repertoire all feed in each other thereby promoting and maintaining high levels of psychological well-being. Therefore, we suggest that as people engage in a greater number of passionate activities in life, the positive impact observed in studies linking HP, positive emotions, and psychological well-being becomes stronger as it results in more opportunities for experiencing positive emotions in daily life. Conversely, due to the negative emotions it triggers, OP is unlikely to create a positive cycle for psychological well-being; instead, it might potentially lead to a negative cycle.

Self-regulation and well-being

While individuals can experience passion and meaningful psychological outcomes from their engagement in various activities, it is important to acknowledge that not all daily activities are likely to generate passion. Chores and duties such as cleaning up one's room, doing the dishes, and so on are representative of such activities. So, how can engagement in such activities be adaptive and conducive to well-being? One potential answer to this question lies in the motivation underlying engagement in non-enjoyable activities. According to Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000; Ryan & Connell, 1989), individuals engage in non-interesting activities out of different types of self-regulation that vary on their level of self-determination, with more self-determined forms of self-regulation leading to more adaptive outcomes. Six types of self-regulation have been proposed (Deci & Ryan, 1985; Ryan & Deci, 2017). From the lower to the higher end of the self-determination continuum, *amotivation* refers to behaviors that are emitted without a clear intention. *External regulation* refers to behavior regulated through external means such as rewards and constraints. With *introjected regulation*, the individual begins to internalize the reasons for his or her actions. However, such internalization is not self-determined because it is limited to past external contingencies and guilt. With *identified regulation* however, behaviors are emitted out of personal choice, thereby making this type of self-regulation self-determined. With this type of self-regulation, behavior (e.g., cleaning up one's room) will thus be performed freely and out of choice even if the activity is not pleasant in itself. *Integrated regulation* also entails engaging in activities out of choice. However, this choice transcends mere activity-level decisions; it becomes an integral aspect

of the individual's self-concept. Finally, *intrinsic motivation* occurs when individuals' engagement is motivated by pleasure or enjoyment. Typically, amotivation, external regulation and introjected regulation are considered a controlled (or non self-determined) form of motivation, whereas identified regulation, integrated regulation and intrinsic motivation are considered as autonomous (or self-determined) forms of regulation. However, because self-regulation typically entails engaging in non-interesting activities, intrinsic motivation for chores was not assessed in the present research.

Research supports the validity of the self-determination continuum in a variety of contexts (e.g., Chatzisarantis et al., 2003; Howard et al., 2017; Li & Harmer, 1996) on two counts. First, research has supported the placement on these different types of regulation from amotivation to intrinsic motivation on the self-determination continuum (Howard et al., 2017; Li & Harmer, 1996). Second, research also reveals that consequences are increasingly positive as regulations move up on the self-determination continuum (see Vallerand, 1997, 2001, 2007). For instance, research reveals that individuals with autonomous forms of regulation tend to better attain their goals than with controlled regulation (Koestner & Losier, 2002; Koestner et al., 2008). Further, research also highlights that engaging in unappealing chores and duties out of autonomous regulation seems to contribute more to positive affect and well-being than controlled regulation (see Stanley et al., 2020; Vallerand & Ratelle, 2002).

Global orientations, passion, and self-regulation

Up until now, our proposition centers on the notion that the happiest individuals are those who cultivate HP for numerous enjoyable everyday activities while also possessing autonomous regulation for tasks that may not be inherently pleasant, such as tidying up or doing the dishes. An essential question arising from this proposition is, "What factors drive individuals to approach these diverse activities in such a manner?" A possible response lies in the concept of global motivational orientations. A global motivational orientation refers to a relatively enduring individual (personality) difference in people's tendency to engage in activities in an autonomous versus controlled regulation fashion (e.g., Guay et al., 2003; Vallerand, 1997). Thus, people with an autonomous global orientation generally engage in the things they do out of choice and volition. As such, they should be more likely to engage in enjoyable activities (such as hobbies and friendships) out of HP and to engage in non-interesting activities (such as chores and duties) out of choice and volition – that is, out of autonomous regulation. Conversely, people with a controlled global orientation generally engage in the things they do out of internal and external pressure. They then should be more likely to engage in enjoyable activities out of OP and to engage in non-interesting activities such as chores and duties out of controlled regulation.

Research provides support for the foregoing analysis. For instance, Vallerand et al. (2006, Study 1) showed that an autonomous global orientation predicted HP for a hobby, namely playing basketball, whereas a controlled global orientation predicted OP. These findings were replicated in a second study again with basketball players (Vallerand et al., 2006, Study 3). Other research examined the link between global orientations and outcomes in non-enjoyable activities such as losing weight and dealing with romantic conflict. Such research reveals that an autonomous global orientation leads to more positive outcomes such as performance, psychological well-being, and physical health than a controlled global orientation (see Deci & Ryan, 2015 for a review). Other research also reveals that an autonomous global orientation leads to an autonomous regulation toward less enjoyable activities such as maintaining a healthy diet (e.g., Pelletier & Dion, 2007).

The present research

There were three major goals to the present research. Our first major goal was to test the overarching hypothesis that the happiest people, that is people with the highest level of psychological well-being, relative to less happy people, are those who experience passion (and especially HP) in several enjoyable everyday life activities and who display higher levels of autonomous regulation for less enjoyable activities such as chores and duties. Our second goal was to ascertain whether positive and negative emotions play a mediating role between passion for several everyday life activities and self-regulation, on the one hand, and psychological well-being, on the other. We hypothesized that positive emotions would mediate the effects of HP and autonomous regulation on psychological well-being, whereas negative emotions mediate the effects of OP and controlled regulation on well-being. Finally, the third major goal of this research was to test if a global orientation predicts the types of passion displayed for enjoyable activities and those of self-regulation used for chores. We predicted that an autonomous global orientation would predict HP and an autonomous regulation for chores, whereas a controlled global orientation would predict OP and a controlled regulation for chores.

Adopting a model building approach, we conducted five studies between 2015 and 2017 to reach these goals. All studies were conducted by slightly different research groups, and as such, they slightly differed in their measurements of

psychological well-being. Using different measurements in turn may ensure that findings are not dependent on one well-being measure but rather generalize to this construct. In Study 1 (which took place in 2015), we focused on testing whether people with the highest levels of psychological well-being (the happiest people) experience higher levels of passion (based on the passion criteria; Vallerand et al., 2003; Vallerand, 2015) for a greater number of key everyday life activities (one's studies, hobby, friendships, and romantic relationship; see Vallerand, 1997) than people with lower levels of psychological well-being. In addition, we tested whether the passion of the happiest people for such activities was more harmonious (and potentially less obsessive) in nature. In Study 2 (which took place in 2015), we sought to replicate and extend the findings from Study 1 by showing that in addition to experiencing passion (and especially HP) for a greater number of activities, the happiest people also display higher levels of autonomous regulation (and potentially less controlled regulation), than the rest, for non-enjoyable activities such as chores (e.g., doing the dishes, cleaning up one's room). This was important to test in order to rule out the possibility that happier people may simply be passionate for anything and everything, including non-enjoyable activities.

In Study 3 (which took place in 2016), we examined the nature of the processes responsible for the link between passion and psychological well-being. In line with the DMP (Vallerand, 2015), the Broaden and Build theory (Fredrickson, 2000), and Self-Determination theory (Ryan & Deci, 2017), we conducted an online study to test whether HP for several life activities and autonomous regulation for chores/duties led to more positive (and less negative) emotions that, in turn, led to greater psychological well-being. At the same time, we tested whether OP for these same activities and controlled regulation for chores/duties led to negative affect that, in turn, undermined well-being. In Study 4 (which took place in 2017), we aimed to replicate the findings of Study 3 while adding global orientations as a personality determinant of passion for life activities and self-regulation for chores/duties. We hypothesized that an autonomous global orientation would positively predict HP for life activities and autonomous regulation for chores/duties, whereas a controlled global orientation would positively predict OP for life activities and controlled regulation for chores. Finally, in Study 5 (which took place in 2017), we aimed to strengthen the validity of our model by replicating Study 4 while using a more rigorous design that combined daily diary assessments of individuals' emotions and well-being as well as a longitudinal measurement of psychological well-being. Such a design allowed us to look at the role of passion and self-regulation in daily instances of affect and well-being and, in turn, the role of daily well-being in changes of general psychological well-being over time. We expected that the findings of Study 4 would be replicated, this time as pertains to changes in psychological well-being that took place over time.

Study 1

In Study 1, we examined whether people with the highest level of psychological well-being experienced passion (as assessed with the passion criteria; see Vallerand, 2015) for a higher number of activities in life than people with lower levels of well-being, and whether such passion is mostly harmonious (and potentially less obsessive) in nature. To do so, we followed the lead of past studies (Kyriazos et al., 2021) and adopted a conservative approach in which we split our sample in two groups: one ranging from the 76th to the 100th percentile on psychological well-being (the so called "happiest people") and the other ranging from the 1st to the 75th percentile (less happy people). We then examined differences between the two groups on the passion criteria, HP, and OP scores in four key life areas (one's studies, favorite hobby, romantic relationship, and friendships; Vallerand, 1997). We hypothesized that individuals in the highest psychological well-being group (i.e., the upper 25% of the sample on psychological well-being) would report being passionate for more activities, having higher levels of HP, and having equal or lower levels of OP for all four life activities than individuals with lower levels of well-being (i.e., the remaining 75% of the sample).

Method

All studies were conducted in line with APA recommendations. All studies thus obtained full approval from the University ethics committee (UQAM 2018 – 1538).

Participants and procedure

We recruited 409 American and Canadian young adults (*Mage* = 25.95 years) via Amazon Mechanical Turk. Participants were mostly full-time students (73.7%). When prompted, 58.44% identified as females, 39.85% identified as males and 1.71% did not indicate their gender. In total, 63.33% participants specified that they were in a relationship, whereas the remainder reported being single (36.19%) or did not answer adequately (0.48%). Given that one of the life activities of interest was romantic relationships, we excluded all participants who did not report being in a relationship from our main analyses, thereby resulting in a sample of 260 students. However, we did compare their patterns of response on the passion criteria with those of

participants in romantic relationships as secondary analyses to assess the generalizability of our results to single participants. Participants provided informed consent upon starting the questionnaire.

Measures

We organized our questionnaire in two parts. In the first part, participants reported on their passion towards their studies, favorite hobby, romantic relationship, and friendships. In the second part, participants completed scales related to their well-being and demographics. Participants completed all questions with a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*very strongly agree*).

Passion scale To measure participants' passion, we used the Passion Scale (Marsh et al., 2013; Vallerand et al., 2003). The Passion Scale has been repeatedly found to be valid and reliable across a broad range of activities and with samples from a variety of countries (e.g., Marsh et al., 2013; Vallerand, 2015; Vallerand & Rahimi, 2022). Conventionally this scale assesses passion towards a specific activity. In this study, we assessed passion for each of the following activities: "my studies", "my favorite hobby", "my relationship/partner", and "my friends". This 17-item scale measures harmonious passion (6 items, e.g., "My studies are in harmony with the other activities in my life"), obsessive passion (6 items, e.g., "I have difficulties controlling my urge to do my studies"), and passion criteria (5 items, e.g., "I love my studies"). The Cronbach alphas of the HP, OP, and passion criteria (PC) subscales towards each life area were as follows: studies, $\alpha = 0.88$, $\alpha = 0.83$, $\alpha = 0.89$; favorite hobby, $\alpha = 0.88$, $\alpha = 0.89$, $\alpha = 0.84$; romantic relationship, $\alpha = 0.93$, $\alpha = 0.88$, $\alpha = 0.87$; and friendships, $\alpha = 0.92$, $\alpha = 0.92$, $\alpha = 0.90$, respectively.

Psychological well-being To assess psychological well-being, we used an index of three validated scales, namely thriving, satisfaction with life, and meaning in life. We chose this approach to provide a broader assessment of well-being that would incorporate both the eudaimonic (thriving and meaning in life) and hedonic (life satisfaction) components of well-being (see Ryan & Deci, 2001 on this issue). We assessed thriving using the 10-item Brief Inventory of Thriving (Su et al., 2014; e.g., "What I do in life is valuable and worthwhile," $\alpha = 0.95$). We measured satisfaction with life with the 5-item Satisfaction with Life Scale (Diener et al., 1985; e.g., "I am satisfied with my life," $\alpha = 0.93$). Finally, we measured meaning in life using the 4-item Meaning in Life Scale (Steger et al., 2006; e.g., "My life has a clear sense of purpose," $\alpha = 0.80$). To create our measure of psychological well-being, we computed a composite score of well-being using the mean score of each scale ($\alpha = 0.96$).

Results

Statistical analyses

We conducted our analyses using the *SPSS* 28 software. We first examined the accuracy of the data and underlying assumptions of parametric testing (i.e., missing data, normality, multicollinearity). We then created a dummy code variable where participants with a psychological well-being score equal or higher to the 76th percentile were coded as 1 (upper 25%) and the remainder were coded as 0 (Lower 75%). This new well-being grouping variable served as the independent variable for all subsequent analyses in Study 1. In total, we conducted two one-way multivariate analyses of variance (MANOVAs) to determine if there were any differences between individuals scoring higher vs. lower on well-being on (1) the passion criteria in each life activity (4 dependent variables) and (2) HP and OP in each life activity (8 dependent variables). When the MANOVAs were significant, we conducted follow-up analyses with post-hoc ANOVAs.

Differences in passion criteria for each activity as a function of well-being

Box's test of Equality of Covariance Matrices was non-significant, meeting the assumption of homogeneity of covariance, Box's $M = 11.08$, $F(10, 53311.38) = 1.08$, $p = .375$. MANOVA revealed a significant difference at the multivariate level on passion criteria scores based on well-being groups, $F(4, 245) = 13.28$, $p < .001$, Wilk's $\Lambda = 0.82$; partial $\eta 2 = 0.18$. Using a Bonferroni corrected alpha ($p < .0125$), post hoc univariate F-tests showed that individuals with the highest level of well-being (upper 25%) reported being more passionate on all four activities than the individuals with lower levels of well-being (lower 75%; see Table 1).

Differences in HP and OP for each activity as a function of well-being

Box's test of Equality of Covariance Matrices was non-significant, meeting the assumption of homogeneity of covariance, Box's $M = 37.21$, $F(36, 40709.28) = 0.98$, $p = .504$. MANOVA revealed a significant difference at the multivariate level on HP and OP between the two groups, $F(8, 241) = 9.99$, $p < .001$, Wilk's $\Lambda = 0.75$; partial $\eta 2 = 0.25$. Using a Bonferroni corrected alpha ($p < .00625$), post hoc univariate F-tests (see Table 2) showed that individuals with

Table 1 Passion criteria as a function of upper and lower levels of psychological well-being (study 1, $n = 260$)

Well-Being	Life Area	Mean	SD	ANOVA	η2
Upper 25%	Studies	5.52	1.21	$F(1, 248) = 23.45, p < .001$	0.09
Lower 75%		4.64	1.23		
Upper 25%	Favorite Hobby	5.94	1.01	$F(1, 248) = 19.20, p < .001$	0.07
Lower 75%		5.18	1.21		
Upper 25%	Romantic Relationship	6.26	1.00	$F(1, 248) = 27.77, p < .001$	0.10
Lower 75%		5.26	1.35		
Upper 25%	Friendships	4.80	1.46	$F(1, 248) = 18.27, p < .001$	0.07
Lower 75%		3.86	1.48		

Table 2 Univariate effects for upper 25% vs. lower 75% well-being and passion (study 1, $n = 260$)

Well-Being	Life Area	Passion	Mean	SD	ANOVA	η2
Upper 25%	Studies	HP	5.35	1.02	$F(1, 248) = 47.11, p < .001$	0.16
Lower 75%			4.26	1.08		
Upper 25%		OP	2.92	1.55	$F(1, 248) = 0.86, p = .355$	0.00
Lower 75%			2.74	1.26		
Upper 25%	Favorite Hobby	HP	5.67	1.20	$F(1, 248) = 25.526\ p < .001$	0.09
Lower 75%			4.76	1.23		
Upper 25%		OP	3.48	1.92	$F(1, 248) = 0.11, p = .744$	0.00
Lower 75%			3.41	1.48		
Upper 25%	Romantic Relationship	HP	6.22	0.89	$F(1, 248) = 45.46, p < .001$	0.16
Lower 75%			5.00	1.30		
Upper 25%		OP	3.73	1.82	$F(21, 248) = 2.70, p = .102$	0.01
Lower 75%			3.34	1.51		
Upper 25%	Friendships	HP	5.02	1.55	$F(1, 248) = 28{,}64\ p < .001$	0.10
Lower 75%			3.83	1.48		
Upper 25%		OP	2.29	1.63	$F(1, 248) = 0.30, p = .583$	0.00
Lower 75%			2.17	1.37		

the highest scores on well-being (Upper 25%) reported significantly more HP on all four activities than the individuals with lower well-being (Lower 75%). This was not the case with OP, where no significant differences were found between the high vs. low subjective well-being groups.

Differences in passion criteria for each life area as a function of relationship status

Box's test of Equality of Covariance Matrices was non-significant, meeting the assumption of homogeneity of covariance, Box's $M = 6.17$, $F(6, 591738.68) = 1.02$, $p = .41$. Using a Bonferroni corrected alpha ($p < .025$), MANOVA revealed no statistically significant difference on passion criteria scores based on relationship status, $F(6, 794) = 1.75$, $p = .107$, Wilk's $\Lambda = 0.97$; partial $\eta 2 = 0.01$.

Brief discussion

These findings highlight the importance of examining passion across a variety of key life areas to better understand its role in people's psychological well-being. As expected, individuals with the highest level of psychological well-being (Upper 25%) reported being passionate (with higher scores than the midpoint of 4 on the passion criteria) for all four major life activities (studies, hobby, romantic relationships, and friendships) and more so than individuals with lower levels of psychological well-being (remaining 75%). In addition, the happiest people displayed higher levels of HP on all four activities than individuals with lower levels of well-being (Lower 75%), while showing no significant differences on OP. Finally, we observed no difference on the passion criteria between single participants and those involved in a romantic relationship. As such, these findings suggest that being passionate for several major life activities contributes to overall well-being, especially if the type of passion that one has is harmonious in nature.

Study 2

In Study 2, our main purpose was to replicate and extend Study 1's findings by further examining the differences in passion for a variety of key life activities as a function of well-being. Thus, as was done in Study 1, we examined differences on the passion criteria and HP and OP in the same four life areas (one's studies, favorite hobby, romantic relationship, and friendships) for high (Upper 25% of the

sample) vs. lower (Lower 75%) psychological well-being groups. However, we made two additions. First, for generalization purposes, we also expanded our assessment of psychological well-being to include happiness. We expected to replicate the same results as those in Study 1 with respect to participants' passion criteria as well as HP and OP towards their studies, favorite hobby, relationship, and friendships. With respect to the second addition, we also assessed whether individuals with higher and lower levels of psychological well-being differed in the quality of their self-regulation (autonomous and controlled) for doing their duties (or chores). This was important to do because we wished to test the rationale that the happiest people are not passionate for anything or everything. Specifically, we wanted to test whether (1) the happiest people would only be passionate in areas where passion is possible (i.e., in enjoyable activities such as their studies, hobby, friendships, and romantic relationships), and (2) they would display an adaptive form of self-regulation (autonomous regulation) in areas where passion is not possible (e.g., chores such as doing the dishes and cleaning up the apartment). We hypothesized that individuals with higher psychological well-being would not be passionate for chores and duties (i.e., their passion criterion scores would be below 4 or the scale midpoint; Vallerand et al., 2003), but would display higher levels of autonomous regulation for doing their chores/duties than those with lower levels of psychological well-being. No difference on controlled regulation was expected.

Method

Participants and procedure

We recruited 516 American and Canadian students via Amazon Mechanical Turk. Participants consisted mostly of full-time students (61.2%), with 293 females, 208 males, and 15 participants who did not indicate their gender (*Mage* = 27.18 years). In total, 392 participants indicated that they were in a relationship, whereas the remainder did not. Following the same procedure as in Study 1, participants who were not in a relationship were excluded from our main analyses but were included in secondary analyses to examine whether relationship status predicted differences in passion criteria among all activities. Participants provided informed consent.

Measures

We used the same questionnaires used in Study 1 to measure students' passion towards their studies, favorite hobby, romantic relationship, and friendships. We also used three questionnaires to measure students' (1) passion criteria towards their duties (or chores), (2) self-regulation for doing duties (or chores), and (3) a happiness component of their psychological well-being. As was done in Study 1, participants answered all questions on a 7-point Likert scale.

Passion scale We once again used the Passion scale to assess students' passion for their studies, favorite hobby, romantic relationship, and friendships. Additionally, we used the passion criteria subscale to assess students' passion towards their chores/duties, which were described as activities such as doing the laundry, cleaning up the apartment or room, and grocery shopping. The Cronbach alphas of the HP, OP, and PC subscales towards each life area and chores were respectively as follows: studies, $\alpha = 0.88$, $\alpha = 0.86$, $\alpha = 0.88$; hobby, $\alpha = 0.87$, $\alpha = 0.86$, $\alpha = 0.83$; romantic relationship, $\alpha = 0.90$, $\alpha = 0.87$, $\alpha = 0.84$; friendships, $\alpha = 0.92$, $\alpha = 0.93$, $\alpha = 0.90$, and chores/duties, $\alpha = 0.86$.

Psychological well-being To assess psychological well-being, we followed the same procedure as in Study 1 and created a composite score comprised of the same scales used in Study 1 (thriving, $\alpha = 0.94$; satisfaction with life, $\alpha = 0.93$; and meaning in life $\alpha = 0.81$), as well as a 4-item happiness measure (Happiness Scale, Lyubomirsky & Lepper, 1999; e.g., "In general, I consider myself a very happy person," $\alpha = 0.87$). The reliability coefficient of the psychological well-being composite score was satisfactory ($\alpha = 0.96$).

Self-regulation for chores/duties To assess students' self-regulation for their chores/duties, we used a shortened and adapted version of the Leisure Motivation Scale (Pelletier et al., 1996). Participants were asked "Why do you generally do your duties? (such as doing the laundry, cleaning up the apartment and room, and doing grocery shopping)" This adapted 9-item version assesses 3 types of regulation, namely identified (3-items, $\alpha = 0.83$, "Because it's one of the ways that I have chosen to make improvements on a personal level"), introjected (3-items, $\alpha = 0.76$, "Because I absolutely must do these activities to be in a good mood"), and external regulation (3-items, $\alpha = 0.79$, "Because sometimes it allows me to be appreciated by others. "). To measure autonomous regulation, we averaged the items reflecting identified regulation. To create our controlled regulation index, we created

a composite score of the items reflecting introjected and external motivation (α = 0.83; Koestner et al., 2008).

Results

Statistical analyses

We once again conducted our analyses using the *SPSS* 28 software. Following the same procedure as in Study 1, we first examined the accuracy of the data and underlying assumptions of parametric testing (i.e., missing data, normality, multicollinearity) and then created our dummy coded psychological well-being variable (i.e., Upper 25% vs. Lower 75%). Afterwards, we conducted four MANOVAs, followed by post hoc ANOVAs if significant. For our main analyses, we ran three MANOVAs to examine whether individuals scoring higher vs. lower on well-being differed on (1) the passion criteria in each life activity as well as duties (5 DVs), (2) HP and OP in each life activities excluding duties (8 DVs), and (3) autonomous and controlled regulation for chores/duties (2 DVs). For our secondary analyses, we conducted a fourth MANOVA to test whether individuals who were in a relationship differed from those who were single on the passion criteria in each life activity, including duties (5 DVs).

Differences in passion in each life area as a function of psychological well-being

Box's test of Equality of Covariance Matrices revealed a statistically significant violation of the assumption of homogeneity of covariance, Box's $M = 28.92$, $F(15, 123558.85) = 1.89$, $p = .020$. Thus, the Pillai's Trace was used instead of Wilks' Lambda (Tabachnick & Fidell, 2007). MANOVA revealed significant main effects of passion criteria scores based on the well-being groups, $F(4, 373) = 150.58$, $p < .001$, Pillai's Trace = 0.62, partial $\eta 2 = 0.62$. Using a Bonferroni corrected alpha ($p < .01$), post hoc univariate *F*-tests (see Table 3) showed that individuals with the highest scores on the well-being measure (Upper 25%) reported significantly more passion on all four life activities, as well as on duties. However, of particular interest, only the passion scores for chores/duties were lower than 4 (the scale midpoint), implying that on average, participants of both well-being groups were not passionate for performing their chores/duties.

Differences in HP/OP as a function of psychological well-being

Box's test of Equality of Covariance Matrices revealed a statistically significant violation of the assumption of homogeneity of covariance, Box's $M = 91.76$, $F(36, 107028.63) = 2.47$, $p < .001$. Thus, the Pillai's Trace was used instead of Wilks' Lambda. MANOVA revealed significant differences at the multivariate level on OP and HP between the two groups, $F(8, 369) = 13.69$, $p < .001$, Pillai's Trace = 0.23, partial $\eta 2 = 0.23$. Using a Bonferroni corrected alpha ($p < .00625$), post hoc univariate *F*-tests (Table 3) showed that individuals with the highest scores of psychological well-being (Upper 25%) reported significantly more HP on all four activities than individuals with lower well-being (Lower 75%). This was not the case with OP, where no differences were found between the two groups.

Differences in autonomous/controlled regulation for chores as a function of well-being

Box's test of Equality of Covariance Matrices revealed a statistically significant violation of the assumption of homogeneity of covariance, Box's $M = 17.55$, $F(3, 491\,241.52) = 5.80$, $p < .001$. We thus used Pillai's Trace instead of Wilks' Lambda. MANOVA revealed a significant difference at the multivariate level between the two well-being groups in autonomous/controlled regulation for chores, $F(2, 375) = 6.62$, $p = .002$, Pillai's Trace = 0.03, partial $\eta 2 = 0.03$. Using a Bonferroni corrected alpha level ($p < .025$), post hoc univariate *F*-tests (see Table 4) showed that individuals with the highest level of psychological well-being (Upper

Table 3 Univariate effects for upper 25% v. lower 75% well-being on passion criteria (study 2)

Well-Being	Life Area	Mean	SD	ANOVA	η2
Upper 25%	Studies	5.30	1.34	$F(1, 377) = 24.27$, $p < .001$	0.06
Lower 75%		4.55	1.26		
Upper 25%	Favorite Hobby	5.91	1.04	$F(1, 377) = 35.20$, $p < .001$	0.09
Lower 75%		5.12	1.14		
Upper 25%	Romantic Relationship	6.30	0.84	$F(1, 377) = 43.21$, $p < .001$	0.1
Lower 75%		5.45	1.15		
Upper 25%	Friendships	4.79	1.54	$F(1, 377) = 57.39$, $p < .001$	0.07
Lower 75%		3.90	1.47		
Upper 25%	Duties	3.69	1.52	$F(1, 377) = 11.60$ $p = .014$	0.02
Lower 75%		3.29	1.33		

Table 4 Univariate effects for upper 25% v. lower 75% well-being and passion as well as motivation (study 2, $n = 392$)

Well-Being	Life Area	Passion/Self-Regulation	Mean	SD	ANOVA	η2
Upper 25%	Studies	HP	5.00	1.32	$F(1, 376) = 34.84, p < .001$	0.09
Lower 75%			4.17	1.13		
Upper 25%		OP	2.60	1.44	$F(1, 376) = 0.38, p = .381$	0.00
Lower 75%			2.70	1.32		
Upper 25%	Favorite hobby	HP	5.65	1.11	$F(1, 376) = 44.81, p < .001$	0.11
Lower 75%			4.69	1.23		
Upper 25%		OP	3.64	1.71	$F(1, 376) = 0.36, p = .548$	0.00
Lower 75%			3.53	1.46		
Upper 25%	Romantic Relationship	HP	6.13	0.80	$F(1, 376) = 75.94\ p < .001$	0.17
Lower 75%			4.99	1.18		
Upper 25%		OP	4.01	1.66	$F(1, 376) = 1.93, p = .166$	0.01
Lower 75%			3.76	1.51		
Upper 25%	Friendships	HP	4.87	1.37	$F(1, 376) = 25.65, p < .001$	0.06
Lower 75%			3.98	1.49		
Upper 25%		OP	2.46	1.65	$F(1, 376) = 0.05, p = .826$	0.00
Lower 75%			2.50	1.51		
Upper 25%	Chores/Duties	Autonomous Regulation	3.85	1.75	$F(1, 376) = 11.22, p <= 0.001$	0.03
Lower 75%			3.22	1.52		
Upper 25%		Controlled Regulation	3.49	1.55	$F(1, 376) = 1.87, p = .172$	0.01
Lower 75%			3.27	1.31		

25%) reported significantly more autonomous regulation for doing chores/duties, than individuals with lower levels of well-being (Lower 75%). There were no significant differences for controlled regulation.

Differences in passion criteria for each life area as a function of relationship status

Box's test of Equality of Covariance Matrices was non-significant, meeting the assumption of homogeneity of covariance, Box's $M = 7.18$, $F(10, 240125.14) = 0.71$ $p = .717$. MANOVA revealed a statistically significant difference at the multivariate level on passion criteria scores based on relationship status, $F(8, 996) = 3.45$, $p = .001$, Wilk's $\Lambda = 0.95$, partial $\eta 2 = 0.03$. Using a Bonferroni corrected alpha ($p < .025$), post hoc univariate F-tests revealed only one difference. Specifically, individuals in a relationship ($M = 3.40$) had significantly more passion for doing their duties than those who were single ($M = 2.88$), $F(2, 501) = 7.37$, $p = .001$.

Brief discussion

Study 2 uncovered three major findings. First, in line with our hypotheses, individuals with the highest levels of well-being (Upper 25%) reported more passion in general (passion criteria) and more HP on all four life activities than individuals with lower levels of well-being scores (Lower 75%). Further, no significant differences were obtained with OP in the various life areas. These findings replicated those of Study 1 and suggest that being passionate in four major life areas contributes to overall well-being, especially if the type of passion one has is harmonious in nature. A second finding of interest is that the happiest people (upper 25% in well-being) were not passionate for engaging in duties and chores (i.e., they averaged passion scores of 3.69 on a 7-point scale). Thus, they were not passionate for anything or everything. They were passionate only in activities with enjoyable properties. Third, the happiest people displayed higher levels of autonomous regulation for performing chores than those individuals lower in psychological well-being, while no difference were found on controlled regulation. Finally, we observed limited differences on the passion criteria between single participants and those involved in a romantic relationship. Overall, these findings suggest that higher levels of well-being are achieved by being harmoniously passionate in areas where passion is possible (one's studies, hobbies, friendships and romantic relationships) and by being autonomous in one's regulation with respect to non-enjoyable activities that one needs to perform (chores/duties).

Study 3

The results of the first two studies revealed that individuals with the highest levels of psychological well-being displayed higher levels of passion, and especially HP, for all four life domains assessed (Studies 1 and 2) as well as higher autonomous regulation for performing their chores/duties than those with lower levels of well-being (Study 2). The goal of Study 3 was to identify the nature of the

psychological processes responsible for such effects. In line with the DMP (Vallerand, 2015) and the Broaden-and-Build theory (Fredrickson, 2000) and past research, we hypothesized that affect would mediate the role of passion (Rousseau & Vallerand, 2008) and self-regulation (Gillet et al., 2013) in psychological well-being. In order to test this hypothesis, we asked participants to complete an online computerized task presented as "A slice of life" (see Vallerand et al., 2023, Study 5). This task replicates a typical day in the life of students. During the task, students are asked to engage in an academic activity while also having the opportunity to engage in other activities dealing with other life domains such as hobbies, relationships, and chores. Thus, these tasks reflect real-life activities that people engage in in their life while controlling for the fact that all participants engage in the very same activities. After engaging in these various tasks online, participants completed scales assessing situational (or state) positive and negative affect and psychological well-being (which we modeled as a continuous variable hereafter). These measures were assessed at that point in time, thereby minimizing recall biases that may take place over time. We then tested a model wherein HP for life activities included in the "A slice of life" task (i.e., studies, friendships, and hobbies) and autonomous regulation for chores/duties lead to positive affect after completing the "A slice of life" task, whereas OP and controlled regulation lead to negative affect. In turn, positive and negative affect were expected to respectively facilitate and undermine psychological well-being as experienced after task engagement.

Method

Participants and procedure

We recruited 251 Americans students via Amazon Mechanical Turk (*Mage* = 29.87 years; 43.8% females). Participants were all full-time students (Highest level of education completed: High school or less 8%; some College 35.4%; University degree and above 56.6%).

Participants first completed a survey measuring their passion for academic activities, hobbies, and friendships as well as their self-regulation for engaging in various chores/duties such as cleaning up one's apartment and doing the dishes. Then participants engaged in a computerized task presented as a "Slice of life" (see Vallerand et al., 2023, Study 5). Participants were told the following. "Over the next several minutes, you will participate in activities that reflect a typical day in your life as a student. Similarly to your studies, you will be asked to solve 10 academic matrices (which were part of a well-known educational task, namely the Raven matrices; Raven, 1962), presented on the left-hand side of the screen. Furthermore, you will have the opportunity to engage in various side activities such as hobbies like exercising (i.e., clicking on a sprint button as many times as possible for a timed period of 10 seconds) and reading jokes and riddles (participants could read up to 10 jokes). Moreover, you'll be able to send an email to a friend(s) and complete a chore such as cleaning your apartment (i.e., participants were instructed to drag a vacuum cleaner- the computer mouse– to collect dust particles). These options will be displayed on the right side of the screen. You can do this task in any way you want. There is no time limit so that you can do the activities the way you want. You must complete all 10 academic matrices to end the task". All participants completed the 10 academic matrices and, on average, completed 1.56 side activities (*SD* = 2.95) thereby indicating that participants did engage in the other "life" activities. After completing the computerized task, participants completed scales assessing "state" positive and negative affect and psychological well-being.

Measures

Participants completed a questionnaire measuring students' (1) passion towards their studies, favorite hobby, and friendships, (2) self-regulation for doing chores and duties, (3) state positive and negative emotions, and (4) state psychological well-being. All responses were scored on a 7-point Likert scale.

Passion We used the same Passion Scale (Marsh et al., 2013) as in Studies 1 and 2 to assess students' passion for their studies, favorite hobby, and friendships (HP, OP: studies, $\alpha = 0.88$, $\alpha = 0.92$; favorite hobby, $\alpha = 0.87$, $\alpha = 0.91$; friendships, $\alpha = 0.93$, $\alpha = 0.95$).

Self-regulation for duties We used the same 9 items to assess the autonomous self-regulation score (Identified regulation; $\alpha = 0.76$) and the controlled self-regulation score (introjected and external regulation; $\alpha = 0.79$).

Positive and negative affect We asked participants to indicate the extent to which they had experienced positive and negative affect while engaging in the academic puzzles and the other tasks (exercise, jokes, email to friends, and cleaning task), using a shortened version of the PANAS scale (Watson et al., 1988). This validated scale assesses positive (5-items, inspired, alert, excited, enthusiastic, determined;

α = 0.84) and negative affect (5-items, afraid, upset, nervous, scared, distressed; α = 0.96).

Psychological well-being After completing the computerized task, participants reported on their state psychological well-being with three items from the Subjective Vitality Scale (Ryan & Frederick, 1997; e.g., "I currently have energy and spirit"; α = 0.86). This measure was deemed more appropriate to assess state psychological well-being, compared to the other, more dispositional, measures of psychological well-being used in the other studies. To create a continuous measure of psychological well-being, we averaged the score of these three items.

Results

Statistical analyses

We conducted our primary analyses using the *Mplus 8* software (Muthén, & Muthén, 2017). We established paths to evaluate a mediational model. In this model, both HP and autonomous regulation were anticipated to have a positive association with positive affect (and a negative association with negative affect). On the other hand, both OP and controlled regulation were expected to have a positive association with negative affect (and a negative association with positive affect). In turn, we expected that positive and negative affect would have positive and negative associations with well-being, respectively. The correlation matrix appears in Table 5.

Path analysis

Examining model fit for the hypothesized full mediation model revealed an acceptable fit (CFI = 0.95, TLI = 0.91, RMSEA = 0.10, SRMR = 0.06). In line with our hypotheses, results of the model (see Fig. 1) showed that HP ($\beta = 0.38$, $p < .001$), OP ($\beta = 0.29$, $p < .001$), and autonomous regulation ($\beta = 0.17$, $p = .005$) all predicted positive emotions, whereas both OP ($\beta = 0.56$, $p < .001$) and controlled regulation ($\beta = 0.21$, $p < .001$) positively predicted negative emotions. HP ($\beta = 0.04$, $p = .537$) and autonomous regulation (β=-0.02, $p = .281$) did not predict negative emotions, while controlled regulation ($\beta = 0.06$, $p = .403$) did not predict positive emotions. Moreover, well-being was positively predicted by positive emotions ($\beta = 0.66$, $p < .001$), but not by negative emotions ($\beta = -0.05$, $p = .299$).

Examining indirect effects showed that positive emotions mediated the relationship between HP and well-being ($\beta = 0.25$, CI = [0.15, 0.35]), OP and well-being ($\beta = 0.19$, CI = [0.10, 0.28]), as well as autonomous regulation and well-being ($\beta = 0.11$, CI = [0.03, 0.19]). We did not observe any other significant indirect effects, all ps ≥ 0.317.

Brief discussion

The findings of Study 3 provided support for the main hypotheses. Specifically, HP for major life activities and autonomous regulation for chores/duties positively predicted positive affect, whereas controlled regulation positively predicted negative affect. In line with past research (e.g., Paquette et al., 2023; St-Louis & Vallerand, 2015), OP positively predicted both positive and negative affect. Also in line with the literature, the link between HP and positive affect was much stronger than that involving OP. In turn, positive affect facilitated psychological well-being, whereas negative affect was not significantly related to well-being. Finally, as expected, positive affect was found to represent a key psychological process significantly mediating the relation between psychological well-being and both HP and autonomous regulation, as well as OP. Such was not the case for negative affect as it did not significantly mediate the relation between OP and controlled regulation, on the one hand and well-being, on the other. Of importance, is the fact that the model tested in study 3 was supported at the situational (or state) level, in the moment as it took place. To the extent that this model can be replicated at the contextual level (or in general), then additional support would be garnered for the model. This was one of the goals of Study 4.

Table 5 Means, standard deviations, and correlations involving all variables from study 3 ($N = 251$)

	M	SD	2	3	4	5	6	7
Harmonious passion (1)	5.07	0.99	0.38***	0.50***	0.25***	0.51***	0.40***	0.30***
Obsessive passion (2)	3.54	1.63		0.45***	0.68***	0.30***	0.08	0.60***
Positive emotions (3)	4.74	1.36			0.37***	0.63***	0.39***	0.41***
Negative emotions (4)	2.35	1.85				0.18**	0.07	0.58***
Well-Being (Vitality) (5)	5.10	1.40					0.41***	0.18***
Autonomous Regulation (6)	5.60	0.96						0.24***
Controlled Regulation (7)	4.40	1.28						

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

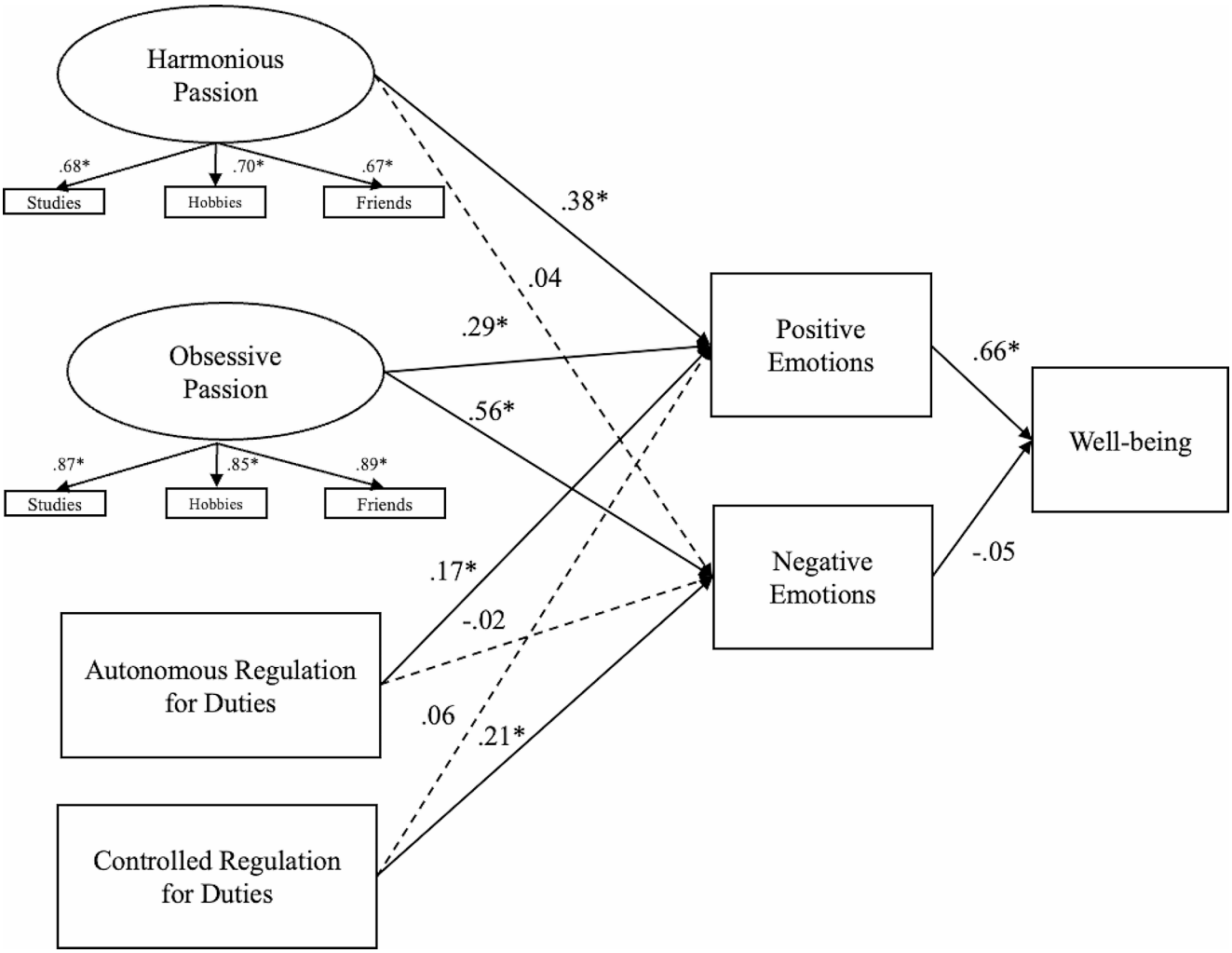

Fig. 1 Path diagram for the full mediation model (study 3). *Note*. * $p < .05$. Standardized betas are shown. All variables on the same path level are correlated. All life domains are correlated with one another. Relations depicted by a full line are significant at $p < .05$. Relations depicted by a dashed line are not significant at $p > .05$

Study 4

There were two purposes to Study 4. The first was to replicate and test the validity of Study 3's model (which was obtained in the context of experimental tasks at the situational level), this time using people's activities in their life in general. We hypothesized that we would replicate the results of Study 3. Specifically, we hypothesized that HP for various life activities and autonomous regulation for chores/duties would lead to positive affect, whereas OP and controlled regulation would lead to negative affect. In turn, positive and negative affect were expected to respectively facilitate and undermine psychological well-being. The second purpose of Study 4 was to test the role of global orientations as a personality factor leading individuals to display either HP or OP for several major life activities as well as autonomous or controlled forms of self-regulation for chores/duties. As discussed in the Introduction section, research has shown that individuals' global orientations (i.e., individuals' personality orientation to generally engage in activities in autonomous or controlled fashions; Guay et al., 2003) contribute to both passion (e.g., Vallerand et al., 2006, Studies 1 and 3) and self-regulation (e.g., Gillet et al., 2013; Pelletier & Dion, 2007). In Study 4, we integrated these two lines of research and tested within the same model whether global orientations predicted both passion and self-regulation for different types of life activities. In line with past research (e.g., Gillet et al., 2013; Vallerand et al., 2006), we hypothesized that an autonomous global orientation would positively predict HP for several enjoyable life activities and autonomous regulation toward chores/duties, whereas a controlled global orientation would positively predict OP and controlled regulation towards chores/duties.

Method

Participants and procedure

We recruited 526 American and Canadian students via Amazon Mechanical Turk (*Mage* = 27.21 years; 59% females). Most participants were full-time students (62%) who were in a relationship (74%). Given our usage of Full Information Maximum Likelihood (FIML) to handle missing data, we included all participants in the study regardless of their relationship status. Upon starting this study, participants provided informed consent and then completed the various measures described below.

Measures

Passion We used the same Passion Scale (Marsh et al., 2013; Vallerand et al., 2003) to assess students' passion for their studies, favorite hobby, romantic relationship, and friendships (HP, OP: studies, α = 0.87, α = 0.88; favorite hobby, α = 0.89, α = 0.87; romantic relationship, α = 0.91, α = 0.87; and friendships, α = 0.93, α = 0.94, respectively).

Self-regulation for chores/duties We used the same 9 items to assess students' self-regulation towards doing their duties. To create the autonomous regulation score, we averaged participants' score on the identified regulation subscale (α = 0.55). To create the controlled regulation score, we averaged participants' score on the introjected and external regulation (α = 0.80).

Positive and negative affect We used the same positive and negative affect scale (Watson et al., 1988) used in Study 3 to assess affect "while doing their activities in life in general (i.e., their studies, hobbies, romantic relationship, friendships, and chores/duties)". This scale assesses positive affect (5-items, e.g., "…feel interested," α = 0.87) and negative affect (5-items, e.g., "…feel nervous," α = 0.85).

Well-being We measured participants' well-being using the same scales as those in Studies 1 and 2 (Thriving, α = 0.95; Meaning in Life, α = 0.94, and Happiness, α = 0.94; overall α = 0.96). However, we used a shorter 3-item version of the Happiness Scale. To create a continuous measure of psychological well-being, we averaged participants' scores on each scale.

Global orientations To assess global orientations, we asked participants to complete the Global Motivational Scale (Guay et al., 2003). This 18-item validated scale assesses individuals' global tendency to "do things" for intrinsic (3 items; e.g., "because I like making interesting discoveries"; α = 0.76), integrated (3 items; e.g., "in order to help myself become the person I aim to be"; α = 0.85), identified (3 items; e.g., "because I choose them as means to attain my objectives."; α = 0.81), introjected (3 items; e.g., "because otherwise I would feel guilty for not doing them."; α = 0.84), and external regulation (3 items; e.g., "in order to attain prestige"; α = 0.76), and amotivation (3 items; e.g., "even though I do not have a good reason for doing them"; α = 0.85). To create an autonomous global orientation score, we averaged participants' score on the intrinsic, integrated and identified motivation subscales (α = 0.91). To create a controlled global orientation score, we averaged participants' scores on the introjected and external regulation and amotivation subscales (α = 0.87).

Results

Plan of analyses

We conducted our main analyses using the *Mplus 8* software (Muthén, & Muthén, 2017). Paths were drawn to test a full mediational model, where global orientations predicted passion for all four activities and regulation for chores/duties, which in turn predicted emotions, which in turn predicted well-being. We used the same goodness-of-fit indices as in Study 3 to determine acceptable fit. Table 6 presents the correlations among all study variables.

Path analysis

Examining model fit for the hypothesized full mediation model revealed an acceptable fit (CFI = 0.96, TLI = 0.95, RMSEA = 0.05, SRMR = 0.06). In support of our hypotheses (see Fig. 2), results showed that the autonomous global orientation was strongly and positively related to HP ($\beta = 0.82$, $p < .001$) and moderately positively related to an autonomous regulation towards chores/duties ($\beta = 0.38$, $p < .001$), whereas the controlled global orientation was strongly positively related to OP ($\beta = 0.70$, $p < .001$) and moderately positively related to controlled regulation towards chores/duties ($\beta = 0.37$, $p < .001$). In turn, HP positively predicted positive emotions ($\beta = 0.87$, $p < .001$) while negatively predicting

Table 6 Means, standard deviations, and correlations involving all variables from study 4 ($N = 526$)

	M	SD	2	3	4	5	6	7	8	9
Autonomous global orientation (1)	4.83	1.18	0.34***	0.63***	0.13**	0.43***	0.25***	0.70***	−0.12***	0.60***
Controlled global orientation (2)	3.68	1.26		0.16***	0.58***	0.24***	0.43***	0.20**	0.45***	0.12***
Harmonious passion (3)	4.75	0.97			0.28***	0.44***	0.21***	0.67***	−0.16***	0.61***
Obsessive passion (4)	3.31	1.20				0.16***	0.26***	0.19***	0.47***	0.18***
Autonomous regulation (5)	4.39	1.25					0.76***	0.36***	0.08	0.38***
Controlled regulation (6)	4.12	1.31						0.15*	0.27***	0.09***
Positive emotions (7)	4.56	1.31							−0.21***	0.72***
Negative emotions (8)	2.78	1.35								−0.24***
Well-being (9)	4.63	1.44								

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

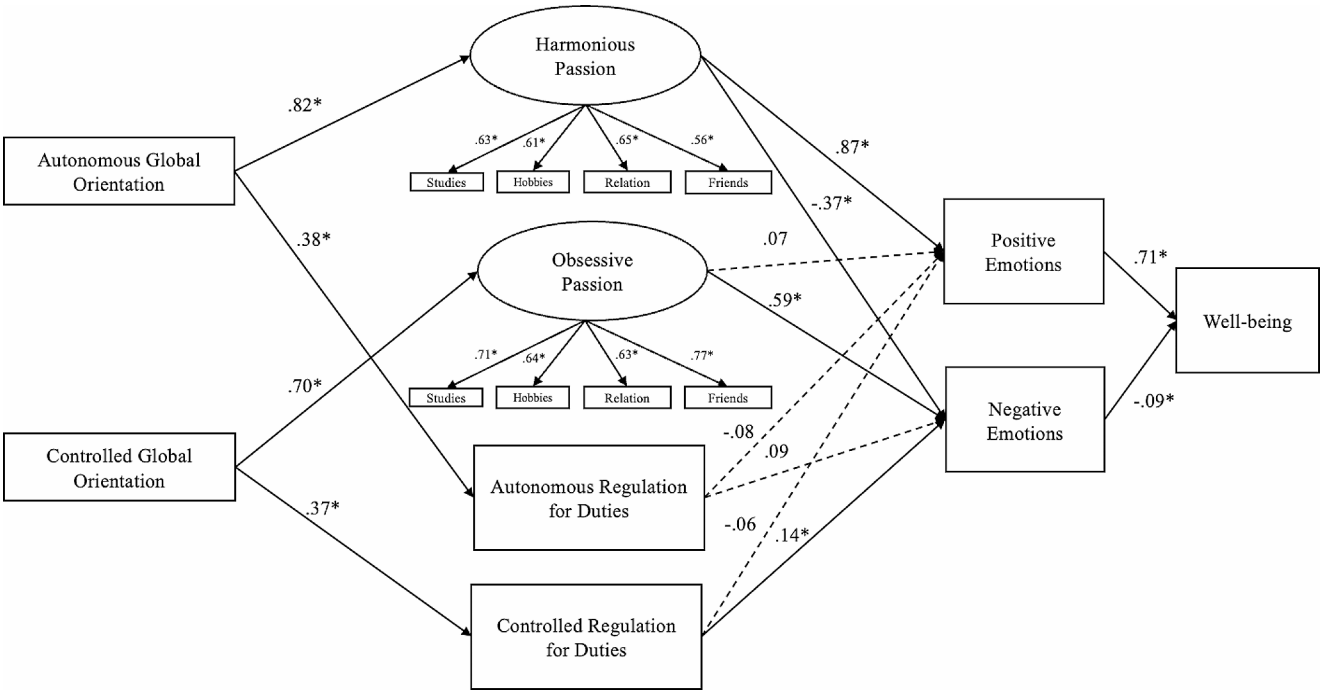

Fig. 2 Path diagram for the full mediation model (study 4). *Note*. * $p < .05$. Standardized betas are shown. All variables on the same path level are correlated. All life domains are correlated with one another. Relations depicted by a full line are significant at $p < .05$. Relations depicted by a dashed line are not significant at $p > .05$

negative emotions (β=-0.37, $p < .001$), whereas OP positively predicted negative affect ($\beta = 0.59$, $p < .001$) but did not predict positive affect ($\beta = 0.07$, $p = .072$). Controlled regulation for chores positively predicted negative affect ($\beta = 0.14$, $p = .001$) but did not predict positive emotions (β=-0.06, $p = .171$), whereas an autonomous regulation did not predict negative affect ($\beta = 0.09$, $p = .093$), nor positive affect ($\beta = -0.08$, $p = .128$). Finally, positive emotions were strongly and positively associated with well-being ($\beta = 0.71$, $p < .001$) whereas negative emotions were weakly and negatively associated with well-being ($\beta = -0.09$, $p = .004$).

Testing indirect effects revealed that the autonomous global orientation significantly and positively predicted well-being via HP and positive affect ($\beta = 0.49$ [0.42, 0.55]) and HP and negative affect ($\beta = 0.03$ [0.01, 0.05]). Indirect effects also revealed that the controlled global orientation significantly and negatively predicted well-being via OP and negative affect (β=-0.03 [-0.05, −0.01]), though this effect was rather small in size. We found no other indirect pathway from global orientations to well-being, all ps ≥ 0.059. Examining indirect effects that were not significant at the global orientation level, this time at the lower level of passion and self-regulation levels revealed one additional significant pathway. Specifically, OP negatively predicted well-being via negative emotions (β=-0.048 [-0.081, −0.014]). No other indirect effects were significant (all ps ≥ 0.077).

Brief discussion

Findings from Study 4 largely replicated the results from Study 3. Regarding the role of passion in affect, HP was once again positively associated with positive affect and OP with negative affect (but not with positive affect this time). In addition, HP was negatively related to negative affect. In turn, positive and negative affect were positively and negatively associated, respectively, with psychological well-being (although the strength of the relation between negative affect and psychological well-being was weak). It should be noted that the relationships between passion and affect were stronger than those involving self-regulation, thereby suggesting that passion plays a stronger role in individuals' emotional experience and the ensuing well-being than self-regulation for chores and duties. As expected, controlled regulation for chores was positively related to negative affect. However, contrary to our expectations, autonomous regulation was unrelated to positive (and negative) affect. This last result involving autonomous regulation and affect, suggests that self-determined forms of self-regulation (i.e., autonomous regulation) towards non-enjoyable activities such as chores and duties, may not always promote emotional flourishing. It would appear that the nature of the task (in this case an unenjoyable activity) in and of itself may play a role in the affective experience. These findings obtained with real-life activities differed from those of Study 3 (which used experimental online tasks) as well as from past research (e.g., Gillet et al., 2013; Vallerand, 1997; Vallerand & Ratelle, 2002) and as such deserve additional scrutiny.

Of additional importance, the findings of Study 4 extended those of Study 3 by underscoring the role of global orientations as a determinant of passion for enjoyable activities and self-regulation for chores and duties. Specifically, an autonomous global orientation led one to display HP toward enjoyable major life activities and an autonomous regulation toward chores/duties. Conversely, a controlled global orientation predicted OP toward several enjoyable life activities and a controlled regulation toward chores/duties. Thus, as supported by the observed indirect effects, an autonomous global orientation may contribute to positive affect and higher levels of psychological well-being by predisposing individuals to experience HP toward a variety of meaningful life tasks. This is not the case for a controlled global orientation that rather seems to foster OP, negative affect, and low levels of well-being.

Study 5

There were two purposes to Study 5. First, we sought to replicate the model of Study 4 integrating global orientations, HP, OP, and self-regulation, positive and negative affect, and psychological well-being. As in Study 4, we hypothesized that an autonomous global orientation would positively predict HP for major life activities and an autonomous regulation towards chores, whereas a controlled global regulation would positively predict OP and controlled regulation towards duties. In turn, we hypothesized that HP for various life activities and an autonomous regulation for chores/duties would mostly lead to positive affect, whereas OP and controlled regulation would mostly lead to negative affect. Finally, we expected that positive and negative affect would respectively facilitate and undermine psychological well-being.

The second purpose of Study 5 was to assess the nature of the changes that take place in psychological well-being over time. This was done in two ways. First, in line with past research on the positive, spiraling, effect of positive affect on psychological well-being (Fredrickson & Joiner, 2002, 2018), we sought to determine if daily affect would influence daily psychological well-being. Using a 7-day diary study design, we predicted that experiencing positive affect on a daily basis would facilitate psychological well-being each day, whereas negative affect would undermine it. Second, we also tested whether individuals' daily experiences of psychological well-being would predict changes in general well-being that takes place over a 6-month period, adjusting for baseline levels of well-being. Overall, we hypothesized that daily diary ratings of well-being would be positively associated with changes in psychological well-being 6 months later.

Method

Participants and procedure

In this study, we recruited 255 American and Canadian students via Amazon Mechanical Turk ($Mage = 28.02$ years; 45.06% female). When prompted, more than two thirds of participants (69.02%) reported being in a romantic relationship (M years = 5.36). Given our usage of FIML to handle missing data, we included all participants in the study regardless of their relationship status.

Upon beginning this three-phase study, participants provided informed consent. During phase 1 (T1), we asked participants to complete baseline measures of (1) global orientations, (2) passion towards their studies, favorite hobby, romantic relationship, and friendships, (3) self-regulation towards their chores/duties, and (4) well-being in their life

in general, using the same measures as in Study 4. During phase 2 (T2), which occurred for the next 7 days following baseline measurements, participants reported on their daily engagement in the four life activities as well as chores. In addition, they also indicated the extent to which their engagement in these activities and chores affected their emotions and well-being on that day. Specifically, at the end of each day, participants first indicated whether they had (1) engaged in something related to their studies, favorite hobby, romantic relationship, and their friendships, and whether they had (2) done their chores on that day. Afterwards, they indicated the extent to which the activities they had done on that day had allowed them to experience (3) positive and negative affect, as well as (4) psychological well-being (i.e., meaning in life, happiness, and thriving). Finally, in phase 3 (T3), which occurred 6 months after completing phase 1, participants rated their well-being in their life in general again using the same scale as in phase 1 (T1). All responses were scored on a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*very strongly agree*).

Examining attrition first revealed that 61.2% of participants who completed T1 missed at least one later time point. A further look showed that 18.0% of participants did not complete any of the daily diaries (T2), that 51.0% of participants did not complete the last time point (T3), and that 18.0% of participants did not complete both time points (T2 and T3). Examining baseline (T1) differences between participants who completed all time points and those who missed at least one time point on our seven variables of interest with a Bonferroni corrected alpha ($p < .007$) revealed no significant difference, all $ps \geq 0.03$.

Measures

Global orientations At baseline (T1), we asked participants to complete the same Global Motivation Scale used in Study 4 (Guay et al., 2003). Adequate internal consistency levels were achieved on each subscale: intrinsic ($\alpha = 0.69$), integrated ($\alpha = 0.84$), identified ($\alpha = 0.74$), introjected ($\alpha = 0.79$), external regulation ($\alpha = 0.75$) and amotivation ($\alpha = 0.84$), thereby yielding scores reflecting global autonomous (intrinsic, integrated and identified; $\alpha = 0.89$) and controlled (introjected, external and amotivation; $\alpha = 0.87$) regulation.

Passion At baseline (T1), participants filled out the same Passion Scale (Marsh et al., 2013; Vallerand et al., 2003) that was used in all prior studies to assess students' HP and OP for their studies, favorite hobby, romantic relationship, and friendships (HP and OP subscales: studies, $\alpha = 0.90$, $\alpha = 0.88$; favorite hobby, $\alpha = 0.89$, $\alpha = 0.86$; romantic relationship, $\alpha = 0.90$, $\alpha = 0.89$; and friendships, $\alpha = 0.92$, $\alpha = 0.94$, respectively).

Self-regulation for chores/duties At baseline (T1), participants filled the same 9 items as in Studies 2 to 4 to assess self-regulation for doing their duties. Specifically, participants reported on their identified regulation ($\alpha = 0.50$) and introjected and external regulation ($\alpha = 0.72$), reflecting autonomous (identified) and controlled (introjected and external) regulation toward their duties.

Positive and negative affect During the daily diaries (T2), participants reported on their positive and negative emotions each day for 7 days by filling out a shortened version of the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). Positive and negative emotions were assessed by asking participants to rate the extent to which they felt "interested", "nervous", and "angry" *on that day*. Given the strong correlation between the two negative affect items (all *rs* ≥ *0.69, all ps* < *0.001)*, we combined them to create mean scores of daily negative affect.

Well-being During the daily diaries (T2), participants filled out each day two items from two well-being scales used in our other studies, namely Meaning in Life ("Today, my life had a clear sense of purpose") and Happiness ("Today, I was generally happy"). Given the strong correlation between the two items on each day (all $rs \geq 0.75$, all $ps < 0.001$), we combined them to create composite continuous scores of *daily* psychological well-being. Finally, to assess *general* well-being at baseline (T1) and 6 months later (T3), participants filled out the same scales that were used in Study 4 (T1 and T3: Thriving, $\alpha = 0.95$, $\alpha = 0.94$; Meaning in Life, $\alpha = 0.93$, $\alpha = 0.91$, and Happiness, $\alpha = 0.92$, $\alpha = 0.93$, respectively). We once again created composite continuous scores of well-being at T1 and T3 by averaging participants' score on each scale (overall reliability at T1 and T3: $\alpha = 0.97$, $\alpha = 0.96$).

Results

Descriptive statistics

We first conducted descriptive statistics on SPSS 28 to obtain descriptive statistics regarding participants' engagement in the five assessed activities during the day (i.e., studies, favorite hobby, romantic relationship, friendships, and chores/duties). Results first revealed that each day, 91.26–99.40% of participants reported having engaged in at

least one of the five assessed activities/duties during the day (*Mean* = 95.33%). Further, 89.80% of participants reported having engaged in at least one of the five assessed activities/duties *each of the 7 days* they filled out the daily diaries. Table 7 reports the correlations among the modelled variables.

Path analysis

Using the *Mplus* 8 software, we then conducted a path analysis with multilevel structural equation modeling (so that score dependencies of participants' daily diaries could be controlled for; Muthén et al., 2017). In line with Study 4, we examined a full mediation model in which (1) baseline global orientations predicted (2) baseline ratings of HP and OP in the 4 life activities as well as baseline ratings of self-regulation towards chores/duties, which in turn predicted (3) daily reports of positive and negative affect across the 7 days, which in turn predicted (4) daily report of well-being across the 7 days, which in turn predicted (5) reports of well-being 6 months later (while adjusting for scores of well-being at baseline). We found acceptable fit for the full mediation model (CFI = 0.95, TLI = 0.93, RMSEA = 0.02, SRMR = 0.07). As can be seen in Fig. 3, results of this path analysis supported the proposed model. Specifically, the autonomous global orientation was strongly and positively related to HP ($\beta = 0.61$, $p < .001$) and moderately positively related to autonomous regulation towards chores/duties ($\beta = 0.44$, $p < .001$), whereas the controlled global orientation was strongly positively related to OP ($\beta = 0.71$, $p < .001$) and to controlled regulation towards chores/duties ($\beta = 0.49$, $p < .001$). In turn, HP positively predicted daily positive emotions ($\beta = 0.17$, $p = .039$) while negatively predicting daily negative emotions (β=-0.27, $p = .002$), whereas OP positively predicted negative affect ($\beta = 0.46$, $p < .001$) and (weakly) positive affect ($\beta = 0.09$, $p = .040$). Controlled regulation did not significantly predict negative affect ($\beta = 0.05$, $p = .428$) but negatively predicted positive emotions ($\beta = -0.11$, $p = .008$), whereas autonomous regulation positively predicted positive ($\beta = 0.14$, $p = .006$) but did not predict negative affect ($\beta = 0.12$, $p = .063$). In addition, daily positive emotions were positively associated with daily well-being ($\beta = 0.54$, $p < .001$) whereas negative emotions were negatively associated with well-being (β=-0.08, $p = .009$). Finally, daily well-being positively predicted changes in general well-being that took place over the 6-month period ($\beta = 0.26$, $p < .001$).

Testing indirect effects yielded three significant pathways from global orientations to well-being at T3 (all others ps ≥ 0.052). First, the autonomous global orientation positively predicted well-being at T3 via autonomous regulation, daily positive affect, and daily well-being ($\beta = 0.009$

Table 7 Means, standard deviations, and correlations involving all variables from study 5 ($N = 255$)

	M	SD	2	3	4	5	6	7	8	9	10	11
T1 Autonomous global orientation (1)	4.75	1.03	0.35***	0.63***	0.13*	0.56***	0.19**	0.51***	−0.21*	0.57***	0.61***	0.69***
T1 Controlled global orientation (2)	3.77	1.20		0.18**	0.64***	0.41***	0.53***	0.16	0.33***	0.16	0.12	0.24***
T1 Harmonious passion (3)	4.71	0.97			0.31***	0.43***	0.10	0.56***	−0.21*	0.60***	0.62***	0.57***
T1 Obsessive passion (4)	3.39	1.35				0.24***	0.35***	0.08	0.43***	0.09	0.15	0.12
T1 Autonomous regulation (5)	4.46	1.23					0.42***	0.53***	0.10	0.52***	0.44***	0.45***
T1 Controlled regulation (6)	4.09	1.16						−0.13	0.21*	−0.09	−0.07	0.01
T2 (daily) positive emotions (7)	4.84	1.18							−0.25**	0.88***	0.70***	0.71***
T2 (daily) negative emotions (8)	2.02	1.19								−0.25**	−0.12	−0.20*
T2 (daily) well-being (9)	4.91	1.23									0.79 ***	0.81***
T3 well-being (10)	4.85	1.35										0.76***
T1 well-being (11)	4.79	1.33										

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

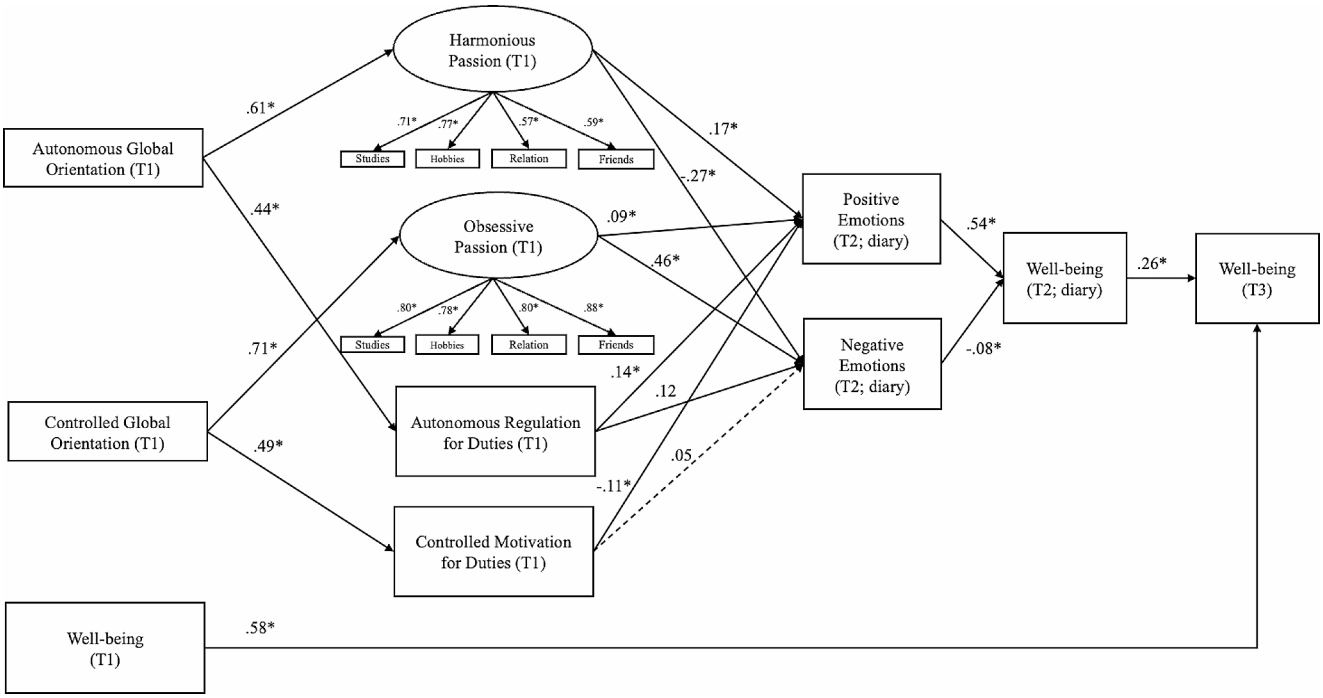

Fig. 3 Path diagram for the full mediation model (study 5). *Note*. * $p < .05$. Standardized betas are shown. All variables on the same path level are correlated. All life domains are correlated with one another. Well-being (T1) is related to all variables. All relations depicted by a full line are significant at $p < .05$. All relations depicted by a pointed line are not significant at $p > .05$

[0.001, 0.017]). Second and third, the controlled global orientation negatively predicted well-being at T3 via OP, daily negative affect, and daily well-being (β=-0.007 [-0.001, −0.012]) and via controlled regulation, positive affect, and daily well-being (β =-0.007 [-0.001, −0.012]). Examining indirect effects that were not significant at the global orientation level, at the lower level of passion and regulation levels revealed no other significant indirect pathways (all other ps ≥ 0.062).

Brief discussion

Findings from Study 5 provided support for the Global Orientations-Passion and Self-Regulation-Affect-Well-being model. In line with the results of Study 4, having an autonomous global orientation led one to display HP toward enjoyable life activities and an autonomous regulation toward chores/duties. Conversely, having a controlled global orientation positively predicted OP toward enjoyable life activities and controlled regulation toward chores/duties. Furthermore, HP and autonomous self-regulation were found to positively predict daily positive affect whereas OP positively predicted negative affect (it was non-significant for controlled regulation). These findings are in line with previous research that used diary study design to look at the role of HP in daily positive affect (Guérin et al., 2013; Mageau & Vallerand, 2007). Of additional interest, daily positive affect, in turn, predicted daily psychological well-being, whereas daily negative affect was negatively related to it.

Of particular importance is the fact that Study 5 extended the findings of Study 4 in three ways. First, results from the diary design suggest that HP for several enjoyable life activities predict individuals' *daily* experiences of positive and negative affect (negatively in this case) in relation to these activities. Conversely, OP only *negatively* predicted daily positive affect. Second, we also found that experiencing positive and negative daily affect due to activity engagement was respectively positively and negatively associated with *daily* instances of well-being. This finding is in line with the Broaden and Build Theory (Fredrickson, 2000), which proposes the existence of a positive spiralling process of positive emotions in psychological well-being where repeated experiences of positive affect is conducive to further increases of psychological well-being over time (Fredrickson & Joiner, 2002, 2018). The results involving daily negative affect and well-being suggest that a negative spiralling process may also exist. Finally, also in line with the spiralling process, the results of Study 5 suggest that daily instances of psychological well-being play an important role in predicting changes in general psychological well-being over a 6-month period. In line with the two indirect pathways from global orientations to well-being via passion and affect, these findings underscore the role that passion (and to

a lesser extent self-regulation) plays in everyday emotions and changes in psychological well-being.

General discussion

There were three major goals to this research. These were pursued across a series of five studies that combined correlational, diary, and prospective designs. The first goal was to test the overarching hypothesis that the happiest people (those with the highest level of psychological well-being) are those who experience passion (and especially HP) in several enjoyable everyday life activities (one's studies, romantic relationship, personal friendships, and main hobby) and display higher levels of autonomous regulation for less enjoyable activities that one needs to do such as chores and duties. Results of Studies 1 and 2 fully supported this hypothesis.

The second goal of this research was to test the role of affect as the psychological processes mediating the impact of passion and self-regulation on psychological well-being. Results of Studies 3 to 5 provided support for this hypothesis, particularly for passion. HP across all four major life activities positively predicted positive affect and generally (in Studies 4 and 5) protected against negative affect that, in turn, respectively led to positive and negative relationships with well-being. While autonomous regulation did indeed positively contribute to positive affect in Studies 3 and 5, its influence on positive affect was not significant in Study 4. Furthermore, the role of autonomous regulation in affect was limited relative to that of HP. We return to these issues later.

Finally, a third major goal of this research was to test the role of global orientations in predicting passion for several enjoyable activities as well as self-regulation for non-enjoyable activities such as chores. Results of Studies 4 and 5 fully supported the hypotheses and revealed that an autonomous global orientation allowed people to display HP for several enjoyable activities as well as an autonomous regulation for non-enjoyable activities. In addition, a controlled global orientation predicted OP and controlled regulation for chores and duties. Finally, Study 5 replicated the overall model of Study 4 while combining a diary and prospective design. One additional novel key finding from Study 5 was that daily positive and negative affect respectively contributed to and undermined daily psychological well-being that, in turn, led to changes in general psychological well-being that took place over a 6-month period. Overall, these findings lead to a number of implications discussed below.

The happiest people are more passionate than less happy people

A first implication from the present research is that the happiest people (those in the upper 25% in psychological well-being) are more passionate for several enjoyable activities in their life than those who display lower levels of well-being (the other 75%). Using the passion criteria of loving the activity, finding it important, spending regular time and energy on it, feeling that the activity is part of one's identity, and perceiving the activity as a "passion" (Vallerand, 2015; Vallerand et al., 2003), the happiest people were indeed passionate (each time scoring above the midpoint of 4 on the average criteria) and significantly more so than the other 75% of our samples on *all four* types of life activities (i.e., one's studies, favorite hobby, and romantic relationship, and personal friendships) in both Studies 1 and 2. When considering the breadth of the four activities involved and their significance for one's life (see Vallerand, 1997), these findings suggest that the happiest people are passionate basically for most activities in life that contain enjoyable properties.

An additional crucial point is that, while being more passionate than individuals who are less happy, the happiest people exhibit passion in a distinct manner. The results of Studies 1 and 2 systematically showed that the happiest people displayed HP at a high level for *all* life activities they were passionate about and more so than less happy people. At the same time, they did not differ from less happy people on OP. These findings were found on all four major life activities and in both Studies 1 and 2. These results suggest that merely engaging in enjoyable activities is not enough to foster well-being. Rather, individuals need to engage in such activities out of HP (rather than OP) to experience psychological well-being. These findings are in accord with past research on the role of HP and OP in psychological well-being (e.g., Philippe et al., 2009; Vallerand, 2012) and especially for more than one activity (Schellenberg & Bailis, 2015, 2021).

Although the happiest people were passionate across a wide range of life activities, the results of Study 2 also showed that they were not passionate for all types of activities. Indeed, the happiest people were not found to be passionate for non-enjoyable activities such as chores and duties (scoring below the midpoint of 4 on the passion criteria). Because such activities tend to be devoid of inherent interesting properties, passion may not be possible and indeed was not observed on average for these activities. However, in such case the best psychological option for one's psychological well-being may be to engage in these activities out of choice and autonomy, or out of autonomous regulation (Koestner & Losier, 2002). That is exactly what the findings of Study 2 revealed: The happiest people engaged in chores

out of autonomous regulation and more so than less happy individuals. Of additional interest, the happiest people didn't differ from less happy people on controlled regulation. This pattern of findings is very telling in that it suggests that the happiest people do not simply engage in chores for any kind of reasons. Rather, they engage in non-interesting activities out of choice and autonomy (Ryan & Deci, 2017). Overall, the present findings do indeed support our perspective that the happiest people are those who display passion, and especially HP, for life activities that hold enjoyable properties, while engaging in non-enjoyable activities, that one still needs to perform, out of autonomous regulation. As such, they display a very flexible motivational process wherein the task is taken into consideration. Of note, these findings were obtained while comparing the upper 25% on psychological well-being with the lower 75% of the sample rather than with the lower 25%. Thus, the present test is highly conservative and thereby further underscores the major contribution of passion and self-regulation in psychological well-being.

Positive affect does contribute to psychological well-being

A second major implication of the present research is that positive affect contributes to psychological well-being, whereas negative affect tends to undermine it. Studies 3 to 5 focused on this issue and were highly consistent. Positive affect systematically and positively predicted psychological well-being in all three studies whereas negative affect either negatively predicted well-being or was non-significantly and negatively related to it. Moreover, the link between positive affect and well-being was systematically stronger than that involving negative affect. Of interest, these relationships were obtained using different designs. Study 4, for instance, looked at the affect-well-being relationship in general, whereas Study 3 assessed its effect as it unfolded in real time in an online study at the situational (or state) level. Finally, using a diary study, Study 5 showed that daily experiences of positive affect increased daily psychological well-being which, in turn, led to increases of general well-being over a 6-month period. Overall, these findings provide support for the Broaden and Build theory (Fredrickson, 2000), which posits that positive emotions allow individuals to experience high levels of psychological well-being. Furthermore, the affect-well-being relationship that took place at the daily level provides additional support for the spiraling effect of positive affect in psychological well-being proposed by Fredrickson and Joiner (2002, 2018; Garland et al., 2010).

A note on the role of negative affect in psychological well-being is in order. First, although in the expected negative direction, the relation between negative affect and well-being across studies tended to be modest at best (with ßs ranging between −0.05 and −0.09). Although this relation was significant in two of the three studies (and are thus in line with the general literature on the negative relationship between negative affect and well-being), it should be underscored that this negative relation may be stronger, notably when strong negative events take place (Fredrickson, 2013). A second point of interest deals with the direction of the relation between negative affect and wellbeing. One may wonder if such relationship is always negative. Indeed, research by Houle and Philippe (2020) reveals that negative events that are internalized with personal acceptance do not negatively affect wellbeing. In fact, research reveals that depending on the context, negative affect may even have positive effects on wellbeing (Coifman et al., 2016). Because HP has been found to be conducive to adaptive emotional regulation (St-Louis et al., 2021), one may expect that HP would foster such adaptive integration of negative affect, thereby leading negative affect to positively contribute to psychological well-being in the long run. Future research on this issue would appear important.

Another major implication of the present research is that the *quality* of one's engagement in various life activities seems to determine the type of affect that one experiences, which, in turn, determines one's level of psychological well-being. This research thus integrates three key theoretical perspectives (Fredrickson, 2000; Ryan & Deci, 2017; Vallerand, 2015). The findings of Studies 3 to 5 were once again consistent on this matter. With respect to passion, HP for four major life activities (one's studies, hobbies, romantic relationship, and friendships) consistently and positively predicted positive affect in all three correlational studies and negatively predicted negative affect in two of them (Studies 4 and 5). Conversely, OP positively predicted negative affect in all three studies but also positively predicted positive affect in two of the tree studies (Studies 3 and 5). It should be noted that these OP-positive affect relationships were always weaker than those involving HP. Furthermore, the positive effects of OP on well-being, through positive affect, were thwarted by the strong relationships that OP had with negative affect (which in turn had a negative relationship with well-being). Thus, the overall net effect of OP on psychological well-being was minimal and much less positive than that of HP. These findings are in accord with the DMP (Vallerand, 2010, 2015; Vallerand et al., 2003) and past research on passion and well-being (Curran et al., 2015; Philippe et al., 2009; Vallerand, 2015). Thus, merely engaging in enjoyable and meaningful activities is not enough to derive positive affect that is crucial for psychological well-being. To do so, one's engagement needs to be *predominantly* harmoniously passionate.

Self-regulation of non-enjoyable activities (Ryan & Deci, 2017) such as chores and duties also contributed to affect, though to a much lesser extent than passion. We hypothesized that autonomous regulation would positively predict positive affect, whereas controlled regulation would positively predict negative affect. The findings generally supported the hypotheses. Specifically, autonomous regulation positively predicted *positive* affect in Studies 3 and 5 but not in Study 4, whereas controlled regulation positively predicted *negative* affect in Studies 3 and 4 but not in Study 5 ($\beta = 0.05$). These findings are generally in line with past research (e.g., Gillet et al., 2013). In line with Self-Determination theory (Ryan & Deci, 2017) they underscore the fact that engaging in non-enjoyable activities can positively contribute to affect (and consequently to well-being) if engaged in out of autonomy and not out of internal or external pressure.

It is not entirely clear why autonomous regulation's contribution to affect was much less important than that of passion. At least three possibilities exist. First, the internal consistencies of the identified regulation subscale for chores were relatively low in two of the three studies. Thus, the strength of the autonomous regulation - positive affect relationship may have been undervalued. Second, only identified regulation was assessed in the present research. Integrated regulation was not. Such a methodological strategy may have undermined the relationship between autonomous regulation for chores and positive affect. Finally, third, it simply makes sense that engaging in fun and meaningful activities out of passion should generate much more positive affect than self-regulation for much less enjoyable activities such as doing one's chores. Future research is necessary to further assess the relative contribution of passion and self-regulation in predicting affective experiences while engaging in pleasant and unpleasant activities.

Global orientations determine one's quality of task engagement

The present results revealed that the happiest individuals displayed HP for all enjoyable life domains assessed in this research (one's studies, hobbies, romantic relationship, and friendships) as well as an autonomous regulation for performing chores and duties. Thus, one important question is "What leads individuals to display such powerful and adaptive engagement style across these different activities?". The findings of Studies 4 and 5 suggest that an autonomous global orientation is responsible for such effects. Specifically, individuals with an autonomous global orientation displayed HP for all enjoyable life activities coupled with an autonomous regulation for performing chores. Conversely, individuals with a controlled global orientation had an OP for enjoyable life activities and a controlled regulation for performing chores. Thus, in accord with the indirect effects observed in Studies 4 and 5, global orientations seem to play a meaningful role in determining the type of activity engagement style that one displays, and in the end in the affect and psychological well-being experienced. These findings are in line with past research that has shown that an autonomous global orientation leads to HP and a controlled global orientation to OP (e.g., Vallerand et al., 2006, Studies 1 and 3), whereas an autonomous global orientation leads to an autonomous regulation and a controlled global orientation to controlled regulation for chores (e.g., Gillet et al., 2013; Pelletier & Dion, 2007). The findings were completely consistent across Studies 4 and 5.

The present research is the first to integrate within the confines of the same study the relationship between global orientations on the one hand and passion and autonomous/controlled regulation on the other. Integrating together these two lines of research on passion and self-regulation leads to at least two important contributions. First, it provides a better depiction of real-life situations that people experience daily. In the present research, we looked at passion not simply for one activity, but for several major activities to be found in one's life. Thus, we looked at passion in key life areas such as one's studies, in leisure (or hobbies), in friendships, and romantic relationships (Vallerand, 1997). In addition, because life does not limit itself to engaging in pleasant activities we also looked at self-regulation for unpleasant activities such as chores and duties one needs to do. Life provides us with opportunities to engage in all these different types of activities on a daily basis. How we engage in these various activities determines the outcomes that we derive from such engagement. Thus, individuals with an autonomous global orientation will maximize their well-being returns by engaging in such activities out of HP when enjoyment is at play and with an autonomous self-regulation when enjoyment is not possible (in chores). Conversely, individuals with a controlled global orientation will engage in enjoyable activities out of OP and in non-interesting activities out of controlled regulation. Thus, personality, motivational and affective processes, and well-being all seem intricately woven into people's lives.

A second contribution is that the present findings underscore the role that both enjoyable and non-enjoyable activities may play in well-being. Such contribution depends on the quality of task engagement. Passionate activities positively predict well-being if engaged mainly in out of HP. But so can chores and duties, though to a lesser extent, if engaged in out of an autonomous regulation. In contrast, engaging in the same activities out of OP and controlled self-regulation does not contribute to well-being as much as HP and autonomous regulation and may even undermine it.

Thus, distinguishing enjoyable from unenjoyable activities and assessing their underlying motivational processes and link to affect would appear important. We thus suggest that future research focuses on the determinants and outcomes of both enjoyable and non-enjoyable activities for a more comprehensive understanding of affective experiences, well-being, and optimal functioning.

Contributions to the literature

We have outlined above how the findings of the present research relate to the literature. In this section, we would like to underscore some specific contributions that this paper makes to the literature. A first contribution is to bring together diverse determinants of psychological well-being that had been studied in isolation previously. Much research has shown that emotions, passion, self-regulation, and personality all positively contribute to psychological well-being. However, this is the first research to show that all these determinants may *independently* contribute to wellbeing when statistically controlling for the other constructs. Relatedly, a second contribution of this research is that we propose that such variables play different roles in contributing to well-being. Some are proximal and other distal determinants of well-being. These different roles are encapsulated in an integrated model of psychological well-being. This model posits that personality orientations predict passion and self-regulation that, in turn, lead to positive and/or negative emotions, depending on the type of passion and self-regulation at play. Finally, positive emotions foster, and negative emotions undermine, psychological well-being. This model was strongly supported by the data in three studies supporting its validity.

A third contribution of this research is that the proposed model is a *process* model that seeks to explain how psychological well-being takes place in real life. The model posits that the quality of task engagement is a major determinant of emotions that in turn leads to psychological well-being. Task engagement fueled mostly by HP for most major life activities for students (school, relationships, and leisure) and autonomous self-regulation for chores both lead to positive emotions that facilitate wellbeing. Further, people's global orientations determine in part which type of passion and self-regulation will be implemented when engaging in these activities. This process model was strongly supported in an online study at the situational level (Study 3), a study at the contextual level (Study 4), and the diary study (Study 5) that followed people over 7 days. Study 5 in particular showed that the model holds up to the test in situations where people engage in their day-to-day activities (Study 5). Passion for major activities predicts how people feel when engaging in these activities at various times of the day and emotions in turn lead to well-being. People who engage in life activities predominantly out of HP or autonomous self-regulation experience positive emotions that allow them to reap increases of well-being over time. This process model, we believe, will be very useful in paving the way to novel and integrative research on this issue as it is encompassing and closely aligned with how people go about not only living their life but also thriving while doing it.

Limitations

The present research has some limitations. First, this research relied mostly on self-report data. Thus, future research using other types of measures such as informant reports and objective measures is encouraged. Second, although different types of designs were used, including diary and longitudinal designs, an experimental design was not used in the present research. Thus, in line with previous experimental work of Bélanger et al. (2013); Gillet et al. (2013), future research should test the causal effects of respectively passion and self-regulation on affect, and in turn, on psychological well-being. A third limit is that participants in several of our studies came from the MTurk platform. Thus, although using MTurk participants has been found to yield valid results (e.g., Coppock, 2019; Litman & Robinson, 2020), the use of nonpaid participants from a variety of sources is encouraged in future research. Finally, the participants in our research were all from North America. Although passion research has been shown to apply to a variety of cultures and countries such as Russia, China, Egypt, and Japan (see Vallerand & Rahimi, 2022), future research is necessary to show the applicability of the present model to other cultures.

In sum, to the question posed at the beginning of this article, this research responds that the happiest people are those who display passion, and especially HP, for enjoyable activities as well as autonomous regulation for those less enjoyable activities because it allows them to experience positive affect while engaging in these activities. The present research paves the way for exciting new research on the integrative role of passion and self-regulation in affect, psychological well-being, and optimal functioning.

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Declarations

Competing interests None of the authors have competing interests with this research.

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