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Passion and mindfulness: Accessing adaptive self-processes

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ABSTRACT

The goal of this research was to examine passion as a determinant of mindfulness. Three studies were conducted based on the premise that harmonious passion (HP) provides access to adaptive self-processes, such as mindfulness, whereas obsessive passion (OP) limits such access. In Study 1 ($n = 301$), results revealed that HP and OP positively and negatively predicted mindfulness, respectively. Study 2 ($n = 459$) aimed at replicating results from Study 1 and explored the mediating role of mindfulness in the passion–affect relationship. Results uncovered that HP and OP, respectively, predicted positively and negatively mindfulness that, in turn, positively predicted positive affect and negatively predicted negative affect. These results were replicated in Study 3 ($n = 176$) while incorporating a time lag in the design. Vitality was also included in the model and was positively predicted by mindfulness. Findings underscore the facilitative role of HP in accessing adaptive self-processes, such as mindfulness.

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KEYWORDS

Harmonious passion;
obsessive passion;
mindfulness; positive affect;
negative affect; vitality

Mindfulness represents an important concept in the field of positive psychology. It refers to a state of mind that is characterized by open and receptive awareness through focusing attention on the present moment and adopting an attitude of acceptance and non-judgment toward one's experience (Bishop et al., 2004; Brown & Ryan, 2003; Kabat-Zinn, 2003). Empirical evidence provides support for the benefits of mindfulness on one's experience of affect (Jislin-Goldberg, Tanay, & Bernstein, 2012; Nyklíček & Kuijpers, 2008; Orzech, Shapiro, Brown, & McKay, 2009), vitality (Allen & Kiburz, 2012; Brown & Ryan, 2003), and well-being (Baer, Lykins, & Peters, 2012; Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007; Coffey, Hartman, & Fredrickson, 2010; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Garland, Farb, Goldin, & Fredrickson, 2015), among others.

Although many people vary in their capacity for mindfulness, it is proposed that everyone has an innate capacity for mindfulness (Brown & Ryan, 2003; Goldstein, 2002; Kabat-Zinn, 2003). However, dispositional or personality variables may come to influence such capacity to be mindful. Based on the Dualistic Model of Passion (DMP; Vallerand, 2015; Vallerand et al., 2003), it is hypothesized that passion may be one of these variables. Indeed, regularly engaging in an activity that one is passionate about in a flexible, open, and non-defensive manner (Vallerand, 2015) should represent one way to facilitate mindfulness.

The dualistic model of passion

Passion is defined as a strong inclination toward an activity that individuals love, highly value, and in which they invest a significant amount of time regularly (Vallerand, 2015; Vallerand et al., 2003). Furthermore, when people develop a passion, the passionate activity becomes part of who they are and how they see themselves. This centrality of the activity in one's identity occurs because people are naturally inclined to internalize components of the environment into their identity that are meaningful to them (Deci, Eghrari, Patrick, & Leone, 1994). There are two forms of internalization processes, autonomous and controlled (Deci & Ryan, 1985; Sheldon, 2002; Vallerand, 1997). An autonomous form of internalization arises when a person freely accepts the activity as valuable for itself and without any contingencies attached to it. This internalization process originates from the integrated self, meaning that it is in harmony with one's sense of self (Hodgins & Knee, 2002; Ryan & Deci, 2000, 2003). On the other hand, a controlled form of internalization emanates from a forced involvement in an activity with contingencies attached to it, such as social acceptance and self-esteem. The activity presents discord with one's sense of self and conflict is thus present among the internalized elements. Following autonomous vs. controlled internalization of the activity in one's self, two types of passion can surface. Specifically, according

to the DMP (Vallerand, 2015), an autonomous internalization of the activity will lead to harmonious passion (HP), whereas a controlled internalization will result in obsessive passion (OP). Importantly, because it results from an autonomous internalization process, HP allows access to adaptive self-processes, such as mindfulness. Conversely, OP limits such access because this type of passion comes from a controlled internalization process.

Both types of passion have the same level of intensity. Where they differ is in their quality of activity involvement. With HP, people engage in the activity freely and they remain in control. The passionate activity occupies a significant place in their identity while still being in accord with other important self-elements and life domains. Importantly, the authentic integrating self (Deci & Ryan, 2000) is at play with HP. This process allows individuals to engage in the passionate activity with a secure sense of self-esteem and in a flexible, open, non-defensive (Hodgins & Knee, 2002), and mindful way (Brown & Ryan, 2003). Thus, this type of passion allows access to adaptive self-processes and leads to positive benefits. With OP, individuals feel an uncontrollable urge to partake in the activity in which they often lose control over. The passionate activity has an overwhelming place in their identity and conflict is present with other significant self-components and life aspects. Internally controlling and non-authentic self-processes are at play with this type of passion and thus, people engage in the passionate activity with a contingent sense of self-esteem and in a defensive, closed, and unmindful manner. Thus, this type of passion limits access to adaptive self-processes and, even if OP can sometimes lead to positive outcomes (e.g. performance and positive emotions), it is mainly conducive to negative consequences.

Support has been achieved for this dual perspective on passion (see Curran, Hill, Appleton, Vallerand, & Standage, 2015; Vallerand, 2008, 2010, 2015 for reviews). Specifically, HP carries many benefits, such as experiencing greater positive affect (Carbonneau, Vallerand, & Massicotte, 2010; Lafreniere, Vallerand, Donahue, & Lavigne, 2009; St-Louis & Vallerand, 2015; Stoeber, Harvey, Ward, & Childs, 2011; Vallerand et al., 2003; Study 1), vitality (Philippe, Vallerand, & Lavigne, 2009; Vallerand et al., 2006; Study 2), flow (Carpentier, Mageau, & Vallerand, 2012; Vallerand et al., 2003; Study 1), and well-being (Lafreniere, St-Louis, Vallerand, & Donahue, 2012; Rousseau & Vallerand, 2008; Vallerand, 2012).

Conversely, OP promotes less desirable outcomes. In fact, OP leads to greater negative affect (Rousseau & Vallerand, 2008; Stoeber et al., 2011; Vallerand et al., 2006; Study 2) and is either unrelated (Vallerand et al., 2007; Study 1; Vallerand et al., 2008; Study 1) or negatively related to measures of vitality and life satisfaction

(Stenseng & Phelps, 2013; Vallerand et al., 2007; Study 2). Finally, OP is positively associated with physical symptoms and PTSD (Carbonneau et al., 2010; St-Louis, Carbonneau, & Vallerand, 2016). Importantly, whereas most studies used a correlational design, such findings have been replicated using an experimental design where HP and OP have been experimentally induced (Bélanger, Lafrenière, Vallerand, & Kruglanski, 2013; Lafrenière, Vallerand, & Sedikides, 2013; Study 2). Thus, research offers support for the DMP and the causal role of HP and OP in facilitating well- and ill-being, respectively.

To summarize, the DMP (Vallerand, 2015) posits that HP derives from an autonomous form of internalization of the activity in one's identity, allowing full access to adaptive self-processes and thus, permitting a flexible, open, and mindful form of involvement. Engaging in the activity in such manner leads to positive outcomes. Conversely, OP originates from a controlled form of internalization that blocks full access to adaptive self-processes and thus, the engagement in the activity is rigid, closed, and unmindful. Such involvement is conducive to negative consequences.

The present research

Mindfulness is considered a healthy form of self-regulation. It is a cognitive state of awareness where attention is aligned on the here and now and one's experience is accepted without judgment (Bishop et al., 2004; Brown & Ryan, 2003; Feldman et al., 2007; Kabat-Zinn, 2003). So far, research has supported the many benefits of mindfulness (see Brown, Creswell, & Ryan, 2015 for a review). However, few studies have looked at the determinants of mindfulness (Feltman, Robinson, & Ode, 2009; Walsh, Balint, SJ, Fredericksen, & Madsen, 2009). The present research sought to investigate the role of HP and OP as a determinant of mindfulness. As stated by the DMP (Vallerand, 2010, 2015; Vallerand et al., 2003), HP derives from an autonomous internalization of the activity in one's identity, allowing full access to adaptive self-processes, such as mindfulness, that, in turn, should lead to positive outcomes. OP on the other hand, emanates from a controlled internalization, which blocks such access to adaptive self-processes and is conducive to negative outcomes. Thus, the present research addressed the above premise by focusing on three important objectives: (1) exploring the role of passion, and especially HP, as a determinant of mindfulness; (2) examining mindfulness as a mediator between passion and one specific outcome, namely affect; and (3) looking at mindfulness as a mediator of the passion and vitality relationship.

The purpose of Study 1 was to focus on passion as a predictor of mindfulness. Although mindfulness is considered an inherent capacity of the human organism,

intrapersonal variations in this capability of mindfulness have been uncovered. Research shows that mindfulness is positively associated with autonomous regulation, self-esteem, as well as self-concordance regarding one's experience of affect (Brown & Ryan, 2003) but negatively related to introjection. In addition, Ryan and Brown (2003) argue that individuals who are less mindful tend to be under the influence of self-esteem and approval motives. In fact, when people are preoccupied with other concerns, such as performance or self-worth during task engagement, it detracts them from being in the present moment. Based on the above and the open and flexible quality of activity involvement of HP vs. the close and rigid form of engagement of OP (Vallerand, 2015), it was hypothesized that HP and OP would be positively and negatively related to mindfulness, respectively. Study 2 aimed at replicating results from Study 1 regarding the relationship between HP and OP, and mindfulness. In addition, Study 2 looked at positive and negative affect as outcomes. Past research on mindfulness and affect shows that mindfulness is associated with greater positive (Jislin-Goldberg et al., 2012; Nyklíček & Kuijpers, 2008; Orzech et al., 2009) and less negative affect (Goldin & Gross, 2010; Grossman, Niemann, Schmidt, & Walach, 2004). Thus, as in Study 1, it was proposed that HP would positively predict mindfulness that, in turn, would positively and negatively predict positive and negative affect, respectively. OP was expected to negatively predict mindfulness. Finally, the goal of Study 3 was to replicate the results of Studies 1 and 2 using a time lag between passion and outcomes, and with subjective vitality as an additional consequence. Past research reveals that both HP (see Curran et al., 2015; Vallerand, 2015 for reviews) and mindfulness (Allen & Kiburz, 2012; Brown & Ryan, 2003) are positively related to vitality, whereas OP is not. Thus, based on these findings it was hypothesized that HP and OP at Time 1 would, respectively, positively and negatively predict mindfulness at Time 2. Mindfulness, in turn, was expected to positively predict positive affect and vitality, while also negatively predicting negative affect at Time 2.

Study 1

The purpose of Study 1 was to investigate the role of passion in predicting mindfulness. In line with the DMP (Vallerand, 2015), it was hypothesized that HP and OP would be positively and negatively related to mindfulness, respectively.

Method

Participants and procedure

Participants were 301 North American students (126 men, 174 women and 1 unspecified) who were recruited

through the Amazon Mechanical Turk platform. Mean age of participants was 30.97 (SD = 11.10 years). They were asked to complete an online survey assessing passion for academics and mindfulness. Participants spent time on their studies on average 31.84 h per week (SD = 17.69 h) and had been doing their academic program for 4.15 years on average (SD = 5.16 years).

Instruments

Passion for academics

The Passion Scale (Marsh et al., 2013; Vallerand et al., 2003) was slightly adapted to academics. Marsh et al. (2013) have shown that the Passion Scale is invariant for gender, age, and types of activities. The Passion Scale is composed of two six-item subscales assessing HP (e.g. 'My academics are harmony with the other activities in my life'; $\alpha = .92$) and OP (e.g. 'I have almost an obsessive feeling for my academics'; $\alpha = .88$). Responses to all items were scored on a seven-point Likert scale, ranging from (1) 'Do not agree at all' to (7) 'Very strongly agree'. Past research has repeatedly supported the validity and reliability of the Passion Scale (Marsh et al., 2013; Vallerand, 2008, 2010, 2015) including as applied to academics (Bélanger et al., 2013).

Mindfulness

Mindfulness was measured using the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R; Feldman et al., 2007). Twelve items assessed four dimensions of mindfulness: attention, present focus, awareness, and acceptance/non-judgment. A sample item is 'I can accept things that I cannot change' ($\alpha = .87$). Responses were recorded on a four-point Likert scale ranging from (1) 'Rarely/Not at all' to (4) 'Almost always'.

Results

Preliminary analyses

Before proceeding with the main analyses, all variables were screened for possible statistical assumption violations, as well as for outliers and missing values (Meyers, Gamst, & Guarino, 2013). One case was deleted because missing values were present on most variables. Another case was deleted because it was identified as a univariate outlier (z score $> +/−2.5$). Mahalanobis distance revealed no multivariate outliers at the critical chi-square value at $p = .001$. Inspection of skewness indices for all variables uncovered that they were distributed normally (values ranged from $−.431$ to $.582$). Moreover, as shown by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Levene's Test for Equality of Variances showed that the mindfulness variable had equal levels of variability across HP, but not OP. Thus,

Table 1. Descriptive statistics and Pearson bivariate correlations – Study 1 ($n = 299$).

	<i>M</i>	<i>SD</i>	1	2	3
1. Harmonious passion	4.37	1.47	1		
2. Obsessive passion	2.76	1.47	.43***	1	
3. Mindfulness	2.80	.50	.33***	-.05	1

*** $p < .001$.**Table 2.** Multiple regression analyses for harmonious and obsessive passion predicting mindfulness – Study 1 ($n = 299$).

Variables	Mindfulness			
	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²
Harmonious passion	.15	.109	.44***	.16
Obsessive passion	-.28	.067	-.25***	

*** $p < .001$.

square root transformation was applied on OP variable to remedied for heteroscedasticity. Furthermore, independence of errors assumption was met (Durbin–Watson Test = 1.95) and last, variables revealed no multicollinearity ($VIF < 10$). Means, standard deviations, and correlations are presented in Table 1.

Multiple regression analyses

Multiple regression analyses were conducted in order to predict mindfulness from HP and OP. Results supported the hypotheses presented above with HP positively ($\beta = .44$, $p < .001$) and OP negatively ($\beta = -.25$, $p < .001$) predicting mindfulness, respectively. Results are presented in Table 2.

Study 2

The purpose of Study 2 was to replicate results from Study 1 and to examine the mediating role of mindfulness in the passion–affect relationship. In line with the reasoning presented previously and the results from Study 1, the following model was proposed: HP and OP were hypothesized to positively and negatively predict mindfulness, respectively. In turn, mindfulness was expected to positively and negatively predict positive and negative affect, respectively.

Method

Participants and procedure

Participants were 459 individuals living in North America who were passionate for music (163 men, 287 women, and 9 unspecified). Mean age of participants was 35.70 ($SD = 12.67$ years). They listened to music on average 22.25 h per week ($SD = 43.03$ h) and had been listening to music for 30.50 years on average ($SD = 13.03$ years). Participants were recruited through Amazon Mechanical Turk using the TurkPrime platform. They were asked to

complete an online survey on passion for music listening, mindfulness, and affective experiences.

Instruments

Passion for music

The same scale as in Study 1 was used to assess passion, but this time, it was slightly adapted to music listening. A sample item for HP ($\alpha = .88$) was: ‘Listening to music is in harmony with the other activities in my life’; and for OP ($\alpha = .90$): ‘I have almost an obsessive feeling for listening to music’.

Mindfulness

Mindfulness was assessed using the same scale as presented in Study 1 ($\alpha = .84$) and responses were recorded on a seven-point Likert scale ranging from (1) ‘Do not agree at all’ to (7) ‘Very strongly agree’.

Positive and negative affect

Participants’ affect was evaluated using the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). This scale is composed of two 10-items subscales measuring positive affect (e.g. ‘I feel excited’; $\alpha = .92$) and negative affect (e.g. ‘I feel upset’; $\alpha = .91$) in general. Scores were rated on a five-point Likert scale ranging from (1) ‘Never’ to (5) ‘Always’.

Results

Preliminary analyses

Missing values were found on most variables for six participants and thus, they were deleted from the database. Data screening for univariate outliers showed that nine values were above 2.5 standard deviations from the mean. Thus, nine other participants were removed. Mahalanobis distance values for all participants showed that none of them exceeded the critical chi-square value at $p = .001$. Inspection of skewness indices for all variables revealed that they were distributed normally (values ranged from $-.44$ to $.27$), with the exception of negative affect (1.81). Log transformation on the negative affect variable improved normality. Furthermore, as revealed by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Last, variables showed no heteroscedasticity (Levene’s Test was non-significant), independence of errors (Durbin–Watson Test = 1.87), and no multicollinearity ($VIF < 10$). Means, standard deviations, and correlations are presented in Table 3.

Structural equation modeling analyses

The hypothesized model was composed of two exogenous variables (i.e. HP and OP) and three endogenous variables

Table 3. Descriptive statistics and bivariate correlations – Study 2 ($n = 450$).

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Harmonious passion	5.16	1.19	1				
2. Obsessive passion	3.27	1.62	.47***	1			
3. Mindfulness	4.62	.99	.30***	.01	1		
4. Positive affect	2.97	.92	.37***	.27***	.50***	1	
5. Negative affect	1.40	.60	-.12**	.21***	-.28**	.14	1

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

(i.e. mindfulness, positive affect, and negative affect). First, paths from both HP and OP to mindfulness were specified. Paths from mindfulness to positive affect and negative affect were then specified. Finally, in line with past theoretical evidence, direct paths from HP and OP to positive and negative affect were specified.

The model had adequate fit to the data. Specifically, the chi-square value was non-significant, χ^2 ($df = 9, N = 450$) = 1.54, $p = .21$, and other fit indices were satisfactory: CFI = .999, TLI = .984, SRMR = .01, and RMSEA = .04 [.00; .14]. Standardized solutions of the final model are presented in Figure 1. HP ($\beta = .39, p < .001$) and OP ($\beta = -.17, p < .01$), respectively, predicted positively and negatively mindfulness, which, in turn, positively predicted positive affect ($\beta = .45, p < .001$) and negatively predicted negative affect ($\beta = -.25, p < .001$). In addition, direct relations between HP and positive affect ($\beta = .14, p < .01$) and negative affect ($\beta = -.18, p < .001$) remained significant, as well as those between OP and positive affect ($\beta = .20, p < .001$) and negative affect ($\beta = .30, p < .001$). Bias-corrected bootstrapped 95% confidence interval estimates indicated that mindfulness was a significant mediator of the relationships of HP ($\beta = .17$; 95% CI = .11 to .24, $p = .000$) and OP ($\beta = -.08$; 95% CI = $-.13$ to $-.03, p = .004$) with positive affect. Finally, mindfulness also significantly mediated the relationship of HP ($\beta = -.10$; 95% CI = $-.14$ to $-.06, p = .000$) and OP ($\beta = .04$; 95% CI = .01 to .07, $p = .004$) with negative affect. All indirect effects are presented in Table 4.

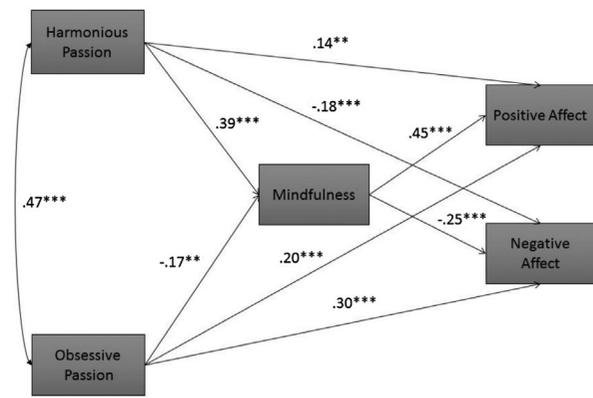


Figure 1. Results of the structural equation modeling analyses: Study 2. Standardized path coefficients are presented. * $p < .05$, ** $p < .01$, *** $p < .001, n = 450$.

Study 3

The purpose of Study 3 was to replicate results from Studies 1 and 2, using a design that incorporated a time interval between passion and outcomes. In Studies 1 and 2, passion and mindfulness were assessed at the same point in time, which made it difficult to determine if passion led to mindfulness or vice versa. Thus, this time interval from passion at Time 1 to mindfulness at Time 2 sought to address this issue. Moreover, subjective vitality was included as an additional outcome. Thus, in line with the DMP and the results from Studies 1 and 2 of this research, the following model was hypothesized. Specifically, it was proposed that HP and OP at Time 1 would, respectively, positively and negatively predict mindfulness at Time 2, which, in turn, would positively predict positive affect and vitality at Time 2 and would be negatively associated with negative affect at Time 2.

Method

Participants and procedure

Participants were recruited in the week prior to the 2014–2015 NFL Super Bowl, through a targeted advertisement for football fans on Amazon Mechanical Turk. A total of

Table 4. Standardized estimates of total, direct, and indirect effects with 95% bias-corrected bootstrap confidence intervals – Study 2 ($n = 450$).

	Total effect		Direct effect		Indirect effect	
	β	95% CI	β	95% CI	β	95% CI
Harmonious passion						
Positive affect	.31***	[.214, .414]	.14**	[.044, .235]	.17***	[.114, .235]
Negative affect	-.28***	[-.373, -.185]	-.18***	[-.282, -.086]	-.10***	[-.135, -.055]
Obsessive passion						
Positive affect	.12*	[.020, .225]	.20***	[.112, .285]	-.08**	[-.130, -.025]
Negative affect	.34***	[.251, .438]	.30***	[.209, .396]	.04**	[.014, .071]

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

Table 5. Descriptive statistics and bivariate correlations – Study 3 ($n = 176$).

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Harmonious passion	4.31	1.17	1					
2. Obsessive passion	2.82	1.37	.43**	1				
3. Mindfulness	2.94	.53	.24**	-.09	1			
4. Vitality	4.29	1.76	.24**	.07	.37**	1		
5. Positive affect	3.62	2.38	.18*	.13*	.25**	.86**	1	
6. Negative affect	2.95	1.98	-.05	.06	-.26**	-.76**	-.79**	1

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

606 fans completed our initial questionnaire. Of these participants, 406 completed our follow-up questionnaire right after the Super Bowl. Preliminary analyses revealed that more than half of participants in this sample were not actual football fans. Thus, for the final sample, only participants with a score higher than the mid-point on the passion criterion subscale were kept. Our final sample comprised 179 passionate fans (125 males, 53 females, and 1 did not indicate his or her gender)¹. The mean age of the sample was 32.80 ($SD = 10.67$ years).

Instruments

Time 1

Passion for football. The Passion Scale was again used in Study 3 (Marsh et al., 2013). In this study, participants were asked to complete the scale with regards to the team they supported during the 2014–2015 NFL Super Bowl ($\alpha = .87$ for HP; $\alpha = .90$ for OP).

Time 2

Mindfulness. The same Mindfulness scale used in Studies 1 and 2 was measured in Study 3 and scores was recorded on a four-point Likert scale. Cronbach α value for this study was .86.

Subjective vitality. A six-item version of the Subjective Vitality Questionnaire (Ryan & Frederick, 1997) was used to assess participants' subjective vitality following the game (e.g. 'Following the game, I felt alive and vital'; $\alpha = .93$).

Positive and negative affect. Participants' affect after the Super Bowl was assessed using two six-item subscales from Feldman Barrett and Russell (1998), measuring positive (e.g. 'Following the game, I felt excited'; $\alpha = .99$) and negative affect (e.g. 'Following the game, I felt upset'; $\alpha = .97$).

Results

Preliminary analyses

Data screening revealed no missing values. Three univariate outliers with scores above ± 2.5 standard deviations from the mean were identified and removed from our final

sample ($n = 176$). No multivariate outliers were found, as the Mahalanobis distance values for all participants revealed that none exceeded the critical chi-square value at $p = .001$. Skewness indices revealed that all variables were distributed normally (values ranged from $-.268$ to $.529$). As shown by bivariate scatterplots and residuals plots, all variables were related to each other in a linear manner. Levene's Test for Equality of Variances showed that the dependent variables had equal levels of variability across all independent variables. Finally, the independence of errors assumption was met (Durbin–Watson Test = .63) and variables revealed no multicollinearity ($VIF < 10$). Means, standard deviations, and correlations are presented in Table 5.

Structural equation modeling analyses

The model tested was composed of two exogenous variables (i.e. HP and OP) and four endogenous variables (i.e. mindfulness, subjective vitality, positive affect, and negative affect). To test the hypothesized model, a path analysis was conducted and paths were drawn according to the hypotheses presented above. First, paths from both HP and OP to mindfulness were specified. Second, paths from mindfulness to subjective vitality, positive affect, and negative affect were specified. Finally, in line with past empirical evidence, direct paths from HP and vitality, HP and positive affect, as well as OP and negative affect were specified.

The model had a satisfactory fit to the data. The chi-square value was non-significant, χ^2 ($df = 3$, $N = 176$) = 4.13, $p = .245$ and other fit indices were adequate: CFI = .998, TLI = .989, SRMR = .02, and RMSEA = .05 [.00; .14]. The standardized solutions of the final model are presented in Figure 2. HP ($\beta = .37$, $p < .001$) and OP ($\beta = -.24$, $p < .01$) at Time 1, respectively, positively and negatively predicted mindfulness at Time 2 which, in turn, positively predicted vitality ($\beta = .31$, $p < .001$) and positive affect ($\beta = .21$, $p < .01$), but negatively predicted negative affect ($\beta = -.20$, $p < .01$). Moreover, direct relations between HP and subjective vitality ($\beta = .12$, $p < .05$), as well as OP and negative affect ($\beta = .12$, $p < .01$) remained significant. The relation between HP and positive affect remained marginally significant ($\beta = .08$, $p = .059$). Bias-corrected

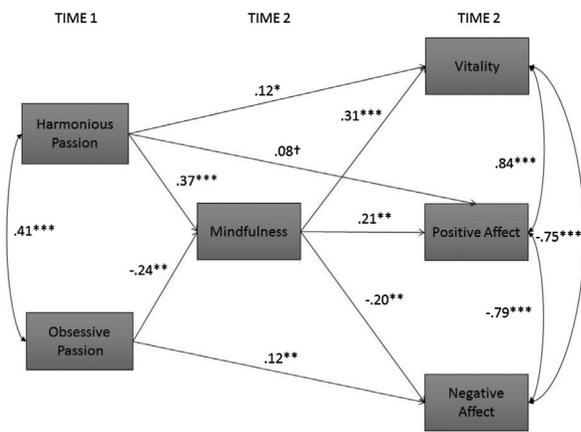


Figure 2. Results of the structural equation modeling analyses: Study 3. Standardized path coefficients are presented. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$, $n = 176$.

bootstrapped 95% confidence interval estimates indicated that mindfulness was a significant mediator of the relationship between HP and subjective vitality ($\beta = .11$; 95% CI = .04–.19, $p = .002$), as well as of the relationship between OP and subjective vitality ($\beta = -.08$; 95% CI = $-.13$ to $-.02$, $p = .010$). Mindfulness also significantly mediated the relation of HP ($\beta = .08$; 95% CI = .02 to .14, $p = .014$) and OP ($\beta = -.05$; 95% CI = $-.10$ to $-.01$, $p = .026$) with positive affect. Finally, mindfulness significantly mediated the relation of HP ($\beta = -.08$; 95% CI = $-.14$ to $-.01$, $p = .017$) and OP ($\beta = .05$; 95% CI = .00 to .09, $p = .034$) with negative affect. All indirect effects are presented in Table 6.

Discussion

The present research focused on the role of passion in mindfulness and its impact on one's affective experiences and subjective vitality. It was hypothesized that HP would be positively related to mindfulness, whereas OP would be negatively associated with such trait. In addition, it was proposed that mindfulness would be positively related to positive affect and subjective vitality, but negatively linked to negative affect. Findings from three studies supported

the above hypotheses. Specifically, Study 1 uncovered that HP and OP positively and negatively predicted mindfulness, respectively. Study 2 replicated these results and showed that mindfulness was positively and negatively associated with positive and negative affect, respectively. Finally, Study 3 used a time lag design to replicate findings from Studies 1 and 2 and additionally looked at subjective vitality as an outcome. Results revealed that HP and OP at Time 1 positively and negatively predicted mindfulness at Time 2, respectively, which in turn positively predicted positive affect and subjective vitality at Time 2, and was negatively related to negative affect, also at Time 2. These findings lead to important implications for the field of positive psychology.

Passion as a determinant of mindfulness

The growing literature on mindfulness has mainly focused on its outcomes (see Brown et al., 2015; Grossman et al., 2004 for reviews), while few studies have looked at its determinants (Feltman et al., 2009; Walsh et al., 2009). Findings from the present research revealed that passion is an important determinant of mindfulness, as it appears to allow access to one's innate mindful capacity. However, this access depends on one's type of passion. Indeed, this research uncovered in three studies that HP was conducive to mindfulness, but that OP blocked such ability. What the present findings suggest is that engaging in an activity with a passion that is harmonious in nature represents one way to provide access to a mindful state. Future research on the role of HP in helping individuals develop mindfulness over time would appear interesting.

In addition, the present findings provide support for one of the important tenets of the DMP (Vallerand, 2015; Vallerand et al., 2003). Specifically, the DMP posits that HP allows access to adaptive self-processes, such as mindfulness, whereas OP limits such entrance. This research was the first to empirically test this assumption and findings from three studies supported the hypotheses. Indeed, the present results uncovered that HP facilitates, while OP

Table 6. Standardized estimates of total, direct, and indirect effects with 95% Bias-corrected bootstrap confidence intervals – Study 3 ($n = 176$).

Harmonious passion	Total effect		Direct effect		Indirect effect	
	β	95% CI	β	95% CI	β	95% CI
Vitality	.23***	[.121, .342]	.12*	[.024, .210]	.11**	[.043, .186]
Positive affect	.16**	[.058, .261]	.08	[-.002, .165]	.08*	[.016, .141]
Negative affect	-.08*	[-.136, -.013]	–	–	-.08*	[-.136, -.013]
Obsessive passion						
Vitality	-.08**	[-.131, -.018]	–	–	-.08**	[-.131, -.018]
Positive affect	-.05*	[-.096, -.006]	–	–	-.05*	[-.096, -.006]
Negative affect	.17**	[.072, .263]	.12**	[.032, .205]	.05*	[.004, .093]

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

blocks, one's mindful capacity. Thus, it appears that HP, with its autonomous form of internalization of the activity into identity and flexible engagement, allows one to access self-processes that are adaptive. Conversely, OP prevents this connection because of its controlled form of internalization and its rigid engagement.

An interesting avenue for future research would be to explore the role of HP in providing access to other important adaptive self-processes that are typically studied in positive psychology, such as resilience. Resilience refers to one's ability to bounce back from stress or negative events (Carver, 1998; Smith, Tooley, Christopher, & Kay, 2010; Tugade & Fredrickson, 2004). Research has shown that one's ability to be resilient leads to greater positive affect and to less negative affect (Fredrickson, Tugade, Waugh, & Larkin, 2003; Tugade, Fredrickson, & Feldman Barrett, 2004; Xing & Sun, 2013). It is thus possible that engaging in a meaningful activity out of HP would trigger resilience during the activity and its positive impact, and thus, it would help people bounce back from failures or other forms of stress that might occur within the passionate activity (e.g. performing poorly at a musical concert). Indeed, past research on passion has shown that HP facilitates the use of adaptive coping strategies (Schellenberg, Gaudreau, & Crocker, 2013; Verner-Filion et al., 2014). Thus, research on the relationship between passion and other important self-processes constructs in positive psychology that are adaptive would appear promising.

On the role of mindfulness in outcomes

An important feature of Studies 2 and 3 was to show that mindfulness leads to positive affect and subjective vitality, and prevents the experience of negative affect. These results bring support for the positive effects of mindfulness on one's experience of affect and other adaptive outcomes. Indeed, past research on mindfulness has shown that mindfulness enhances positive affect and decreases negative affect (Goldin & Gross, 2010; Grossman et al., 2004; Nyklíček & Kuijpers, 2008; Orzech et al., 2009). Of importance, mindfulness was found in the present research to mediate the effects of passion on affect. Future research should further examine the linkage between passion, mindfulness, and other outcomes. For example, mindfulness training shows many health benefits, including greater quality of life, empathy, self-compassion, and lower stress, chronic pain, depression and anxiety symptoms, etc. (see Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Eberth & Sedlmeier, 2012; Grossman et al., 2004 for reviews). Thus, an interesting avenue of research would be to explore if engaging in an activity out of HP provides a benefit on these outcomes because of the mindful state that HP induces.

Limitations

Three important limitations of the present research need to be addressed. First, correlational designs were used in all three studies and thus, no causality can be inferred from the present findings. Future research should test the passion–mindfulness relationship with experimental designs, by inducing harmonious and obsessive passions as was done in past experimental research (see Bélanger et al., 2013; Lafrenière et al., 2013; Study 2). Second, participants completed only self-report measures. Future research should also include objective measures, such as physiological instruments (e.g. vagal tone; Kok et al., 2013) to assess positive and negative affect and vitality. Finally, this research focused on passion as a determinant of mindfulness, but did not take into account the possible bidirectional effect of this relationship. Thus, future research should examine the potential recursive relationship between passion and mindfulness that can take place over time within the purview of the passionate activity.

In sum, this research is the first to document the role of passion as a determinant of mindfulness and the benefits that the latter may have on well-being. Not all passions are equal, however, and only HP, and not OP, was found to lead to mindfulness and its benefits. Future research is needed to more fully assess the relationship between passion and mindfulness. Indeed, HP may represent one of the keys to developing a mindful state of mind.

Note

1. A MANOVA was conducted to confirm if significant differences existed between our final sample of passionate fans and the non-passionate fans removed from the analysis on all variables observed in Study 3. A significant multivariate effect was found, Wilks' $\lambda = 0.50$, $F(6, 388) = 3571.07$, $p < .001$, $\eta^2 = 0.50$, followed by significant univariate effects for HP, $F(1, 393) = 370.83$, $p < .001$, $\eta^2 = 0.44$, OP, $F(1, 393) = 20.876$, $p < .001$, $\eta^2 = 0.33$, mindfulness, $F(1, 393) = 2.34$, $p < .001$, $\eta^2 = 0.02$, subjective vitality, $F(1, 393) = 24.36$, $p < .001$, $\eta^2 = 0.06$, positive affect, $F(1, 393) = 14.96$, $p < .001$, $\eta^2 = 0.04$, and negative affect, $F(1, 393) = 12.72$, $p < .001$, $\eta^2 = 0.03$.

Disclosure statement

No potential conflict of interest was reported by the authors.

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