# Research article

# The role of self-esteem contingencies in the distinction between obsessive and harmonious passion

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*Abstract*

*The Dualistic Model of Passion (Vallerand et al., 2003) shows that people can experience a harmonious or an obsessive passion toward an activity. Mageau and Vallerand (2007; Mageau et al., 2009) have argued that self-related processes, such as contingencies of self-worth, are central in the distinction between the two types of passion. Specifically, it was proposed that people with an obsessive passion rely more heavily on their passionate activity to derive self-esteem than people with a harmonious passion such that they should experience self-esteem fluctuations as a function of their performances in their passionate activity. This study tested this hypothesis. Using self-reports, results first showed that the more people have an obsessive passion the more they report experiencing self-esteem fluctuations that covary with their performances in their passionate activity. In contrast, people with a harmonious passion did not report experiencing more, or less, self-esteem fluctuations. Second, hierarchical linear modeling confirmed that, in a real-life setting, the more people report an obsessive passion toward a card game, the greater is the impact of performance on their state self-esteem. Taken together, these findings suggest that obsessive, but not harmonious, passion triggers contingencies between people's self-esteem and their passionate activity. Copyright © 2011 John Wiley & Sons, Ltd.*

Passionate people have the power to inspire others. Be they teachers, singers, or Olympic athletes, their dedication and accomplishments make them role models. Yet, looking more closely at their lives, it seems that having a passion can come at great costs. Some passionate people can only feel alive and worthy when they engage in their passionate activity. Indeed, many of our heroes live their lives in great turmoil as they suffer the emotional ups and downs that follow their successes and drawbacks.

The Dualistic Model of Passion (Vallerand et al., 2003) shows that people can experience two different types of passion toward their activity, a harmonious and an obsessive passion, which lead to different affective, cognitive, and behavioral outcomes. Self-related processes have generally been assumed to be central in the distinction between obsessive and harmonious passion (Mageau & Vallerand, 2007; Mageau et al., 2009; Vallerand et al., 2003). Specifically, Mageau and Vallerand have argued that people with an obsessive and a harmonious passion differ in the extent to which they rely on their passionate activity to derive their sense of self-worth. The Self-Esteem Contingencies Model (Crocker & Wolfe, 2001) provides support for this hypothesis in showing that people greatly vary in the extent to which they use various domains to derive a sense of self-worth and that

specific domains impact people's self-esteem to the extent that these domains are part of people's self-esteem contingencies. Yet, no research has specifically tested Mageau and Vallerand's hypothesis.

The goal of the present research was thus to verify if self-esteem contingencies differ between the two types of passion. Specifically, in line with Vallerand's et al. (2003) Dualistic Model of Passion, we expected that the more people experience an obsessive type of passion, the more they should derive their sense of self-worth from their passionate activity and, thus, the more reactive they should be to performance cues in their passionate activity. These effects were not expected to occur in the case of a harmonious passion.

## THE CONCEPT OF PASSION

Vallerand et al. (2003) propose a new conceptualization of passion, where passion is defined as a strong inclination toward an activity that one finds important, likes (or even loves), and to which one devotes time and energy. Empirical evidence offers support for this definition and shows that passion leads one to spend more time on the activity, value it more, and perceive it

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as a "passion" to a greater extent (Vallerand et al., 2003, Study 1). The dimension of value is especially important for the concept of passion because it separates passionate activities from other interesting but unimportant activities toward which people are intrinsically motivated. In fact, Vallerand et al. (2003) propose that activities are passionate when they acquire such importance that they become central features of people's identity (Schlenker, 1985). People with a passion for swimming or for writing do not merely swim or write. They are "swimmers" or "writers". Empirical evidence confirms that passionate people identify with their activity to a greater extent than non-passionate people (Mageau et al., 2009).

In line with Self-Determination Theory (Deci & Ryan, 1985, 2000), Vallerand et al. (2003) further propose that people can value their activity for autonomous (e.g., because of the inherent satisfaction it brings) or controlled (e.g., because it serves important compensatory functions such as replacing a limited interpersonal network) reasons, which results in two distinct types of passion: a harmonious or an obsessive passion. Self-Determination Theory (Deci & Ryan, 1985, 2000) posits that people are naturally inclined to assimilate and integrate external behavioral regulations in order to experience self-determination. However, in order for the internalization process to function optimally and yield autonomous regulations, people need to be in social environments that nurture innate needs for autonomy, competence, and relatedness. In line with this dialectical view, Vallerand et al. (2003) propose that depending on the context in which the internalization of behavioral regulations occurs, people will value their activity for more autonomous reasons or more controlled reasons, which in turn should generate a more harmonious or obsessive passion, respectively.

Harmonious passion refers to a motivational force that leads people to choose to engage in the activity and to personally endorse the importance of their activity engagement (Vallerand et al., 2003). People with a harmonious passion are autonomous in their regulations and they partake in their passionate activity as well as in other activities with an openness that is conducive to positive experiences (Hodgins & Knee, 2002). This type of passion is linked to many positive outcomes during and after activity engagement, such as higher levels of concentration, positive affect, and flow experiences (Mageau & Vallerand, 2007; Mageau, Vallerand, Rousseau, Ratelle & Provencher, 2005; Vallerand, 2010; Vallerand et al., 2003).

Obsessive passion is characterized by internal pressures that make the person feel compelled to engage in the activity (Mageau et al., 2009; Vallerand et al., 2003, Study 1). Research shows that people with an obsessive passion perceive their activity as occupying a greater part of their identity than those with a harmonious passion (Vallerand et al., 2003, Study 1). They also tend to overvalue their activity, to be more preoccupied by it, to be less flexible in their activity engagement, and to experience more negative outcomes (e.g., negative affect, distraction) when they are prevented from engaging in their activity than people with a harmonious passion (Carpentier, Mageau, & Vallerand, 2011; Mageau & Vallerand, 2007; Ratelle, Mageau, Vallerand, & Provencher, 2011; Rip, Fortin, & Vallerand, 2006; Séguin-Lévesque,

Laliberté, Pelletier, Blanchard, & Vallerand, 2003; Vallerand, 2010; Vallerand et al., 2003; Vallerand et al., 2006).[1]

In an effort to understand the different phenomenological experiences associated with the two types of passion, Mageau and Vallerand (2007; Vallerand et al., 2003) have argued that obsessive and harmonious passion lead to different self-related processes. Specifically, Mageau and Vallerand suggested that people with an obsessive, but not a harmonious, passion have a greater propensity to rely on their passionate activity to derive feelings of self-worth. These contingencies, in turn, were assumed to explain why, for example, people with an obsessive passion tend to rigidly persist in their activity even when circumstances surrounding activity engagement would suggest otherwise (e.g., Vallerand et al., 2003). The present research draws on Crocker and Wolfe's (2001) Self-Esteem Contingencies Model to empirically test Mageau and Vallerand's hypothesis.

## THE SELF-ESTEEM CONTINGENCIES MODEL

Crocker and Wolfe (2001) propose that people seek to maintain, enhance, and protect their self-esteem by attempting to achieve success and avoid failure in domains that are relevant to them (Crocker, Luhtanen & Sommers, 2004). These domains, in which people's behaviors or performances are particularly relevant for their judgment of self-worth, are called *self-esteem contingencies*. The stability of people's self-esteem is thus proposed to be largely dependent on their specific self-esteem contingencies. To the extent that people's self-esteem is contingent on a relatively stable source (e.g., their virtue), they will enjoy a more stable self-esteem. On the contrary, when people's self-worth is tied to a rapidly changing and less controllable source (e.g., their athletic performance), their self-esteem will be as unstable as its root.

Results from this line of research show that self-esteem contingencies vary across people (Wolfe, Crocker, & Lun, 2000) and across social groups (Wolfe, Crocker, Coon, & Luhtanen, 2011). People with different self-esteem contingencies also react differently to similar events, perceive ambiguous events as relevant to their self-esteem contingencies and select activities that will facilitate the achievement and maintenance of a high level of state self-esteem (Crocker, Karpinski, Quinn, & Chase, 2003; Sommers & Crocker, 2000). More importantly, self-esteem contingencies predict self-esteem fluctuations in contingent-relevant contexts (Crocker, Karpinski, et al., 2003; Crocker, Sommers, & Luhtanen, 2002).

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[1]Research shows that passion can be distinguished from other motivational constructs such as intrinsic and extrinsic motivation. From a theoretical perspective (Vallerand, 2011), passionate activities differ from intrinsically motivated ones in that they are deeply valued by the individual and are internalized into the person's identity. This is not necessarily the case for intrinsically motivated activities. The concept of passion (both harmonious and obsessive) also differs from extrinsic forms of motivation because, contrary to extrinsic motivation (which means to engage in an activity to obtain something outside of the activity), passion implies a strong liking for the activity. Because passion entails both an identification to and a strong liking for an activity, it should have a more profound impact on people's lives than motivation or goals. Empirical evidence confirms that when motivation and passion are assessed toward a given activity, harmonious and obsessive passion, respectively, predict positive and negative affects above and beyond what is predicted by intrinsic and extrinsic motivation (Vallerand et al., 2003, Study 2).

For example, it has been found that the more students endorse school competency as one of their self-esteem contingencies, the more they experience increases of self-esteem on days when they receive an acceptance letter from a potential graduate school and the more they suffer from a decrease in self-esteem when they receive a rejection letter (Crocker et al., 2002). Similarly, over a 3-week period, state self-esteem has been shown to be more strongly influenced by good and bad grades for students whose self-esteem is more strongly tied to academic competence (Crocker, Karpinski, et al., 2003).

### THE PRESENT STUDY

Crocker and Wolfe's (2001) Self-Esteem Contingencies Model thus suggests that the more people rely on a particular source to derive self-esteem, the more reactive they should be to performance cues that are relevant to these self-esteem contingencies. If Mageau and Vallerand (2007; Mageau et al., 2009; Vallerand et al., 2003) are correct in suggesting that people with a more obsessive passion rely more heavily on their passionate activity to derive self-esteem, then people with a more obsessive passion should experience greater self-esteem fluctuations as a function of their performances in their passionate activity compared to people with a more harmonious passion.

The first goal of the present research was thus to verify if people with a more obsessive passion experience these fluctuations to a greater extent than people with a harmonious passion using a self-report measure of self-esteem contingencies. Past research suggests that obsessive passion leads people to prioritize their passionate activity to the point of undervaluing and neglecting other life domains (Ratelle et al., 2011; Rip et al., 2006). As the activity acquires disproportionate space in people's life, its importance as a source of self-worth is likely to increase as a result of this type of passion. In line with these findings, it was expected that the more people have an obsessive passion, the more they should report experiencing self-esteem fluctuations that covary with their performances in their passionate activity. To assess people's conscious experience of self-esteem fluctuations, we adapted the Contingencies of Self-Worth Scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003) to the context of people's passionate activity. In contrast, people with a harmonious passion were hypothesized not to systematically depend on their activity to achieve and maintain self-esteem such that a non-significant relation was expected between harmonious passion and the self-esteem contingencies individual difference measure.

As a second objective, fluctuations of self-esteem in relation to passion were investigated in a real-life setting involving people's passionate activity. Magic$_{TheGathering}$ card players were invited to participate in tournaments, where their performance and state self-esteem were monitored. The moderating impact of obsessive and harmonious passion on the relation between performance and self-esteem was tested. It was expected that the more people reported an obsessive passion toward the game of Magic$_{TheGathering}$ at the beginning

of the tournament, the more their self-esteem would fluctuate in relation to their performance, with higher self-esteem following wins and lower self-esteem following losses. In other words, obsessive passion was expected to moderate the impact of performance on self-esteem in a way that, for people who have a more obsessive passion, a stronger positive relation between performance and self-esteem would be observed. In contrast, harmonious passion was not expected to moderate the impact of performance on self-esteem.

### METHOD

#### Participants

The sample was composed of 40 Magic$_{The\ Gathering}$ players whose age varied from 12 to 41 years old with a mean age of 20.4 ($SD = 6.6$). Participants were recruited in targeted stores in Montreal, Canada, where Magic$_{The\ Gathering}$ players meet and buy playing cards. They were mostly men (only one woman participated[2]) and the majority of them were students (53%). The others worked in varied occupations such as science, accounting, or teaching. Players had been playing for an average of 3 years and 9 months at the time of the study (range = 3 months to 7.5 years, $SD = 1.8$).

#### Procedure

Magic$_{The\ Gathering}$ is a card game based on Tolkien's (1937, 1954-1955) fantasy world. Players select their own playing deck from their collection of cards. These cards are either bought or exchanged among players. Each card represents a different spell such that each playing deck represents the extent of the player's power. The goal of the game is to use one's spells to reduce the opponent's life points to 0. A game can last between a few minutes and many hours; in tournaments a time limit of 30 minutes is set for each game.

Posters were put up advertising Magic$_{The\ Gathering}$ tournaments as a setting for a study about people's attitudes toward different activities. The prizes offered for the tournaments were the same as for routine tournaments (i.e., 200$ CAN) but no registration fees were required. Registered participants were contacted by phone and invited to one of two tournaments. They were told that they would be asked to complete questionnaires throughout the tournament. A total of 16 players participated in the first tournament and 24 in the second. No differences were found between participants from the two tournaments.

Each tournament started with a first questionnaire in which players completed measures of passion, self-esteem contingencies, and global and state self-esteem. Demographic variables such as age, gender, and playing experience were also included. All participants played at least five rounds with the top eight players of each tournament playing three additional rounds. Performance for each round was recorded

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[2]Analyses were conducted with and without the woman's scores and similar results were obtained. We thus kept these scores to maximize sample size.

and players completed measures of state self-esteem after each round.

The *Swiss player-pairing formula* was used for both tournaments. This procedure has the advantage of pairing each player with an opponent who demonstrated equal performance in the past rounds. One can thus feel confident that each round was similarly challenging for all participants and that players' success or failure in a previous round would have little effect on their performance expectations in the following round. On the other hand, this procedure also implies that scores on situational measures are not totally independent, which constitute a limit to the present data.[3]

## Dispositional Measures

### The Passion Scale (Vallerand et al., 2003)

The Passion Scale assesses the two types of passion proposed by Vallerand et al. (2003), namely harmonious and obsessive passion. Each type of passion is assessed with a 6-item scale. Participants were asked to think about Magic$_{The Gathering}$ and to indicate the extent to which they agreed with each statement using a 7-point Likert-type response scale. The response scale ranged from "Do not agree at all" (1) to "Very strongly agree" (7). Sample items for harmonious passion are "For me, Magic is a passion that I still manage to control," "Magic allows me to live a variety of experiences," and "Magic reflects the quality that I like about myself" ($\alpha = .68$). Example of items for obsessive passion are "I have a tough time controlling my need to play Magic," "I can't live without Magic," and "I have almost an obsessive feeling for Magic" ($\alpha = .90$). Previous research has supported the psychometric properties of the Passion Scale (Vallerand et al., 2003; see also Vallerand, 2010).

### Contingencies of Self-Worth Scale (Crocker, Luhtanen, et al., 2003)

This individual difference measure is designed to assess people's possible sources of self-esteem including academics, appearance, approval from others, competition, family support, God's love, and virtue. In the present research, we adapted one subscale by substituting one of the possible sources of self-esteem of the original scale with performance in Magic$_{The Gathering}$ to evaluate people's conscious experience of self-esteem fluctuations as a function of their performances in their passionate activity. This subscale was composed of the following four items ($\alpha = .84$): "My self-esteem gets a boost when things go well in Magic," "When I do poorly in Magic, my self-esteem suffers," "I feel better about myself when I know I'm doing well in Magic," and "My self-esteem is influenced by my performance in Magic." Participants indicated the extent to which they agreed with each item on a 7-point Likert-type response scale ranging from "Do not agree at all" (1) to "Very strongly agree" (7). Previous studies supported the reliability, the temporal stability, as well as the convergent and divergent validity of the contingency subscales (Crocker, Luhtanen, et al., 2003).

### Rosenberg's Self-Esteem Scale (Rosenberg, 1965)

The Rosenberg's Self-Esteem Scale assesses people's global perception of their self-worth and their general sense of self-acceptance. It comprises 10 items and participants indicate the extent to which they agree with each of them using a 7-point Likert-type response scale ranging from "Do not agree at all" (1) to "Very strongly agree" (7). This scale has high levels of validity and reliability (Harter, 1983; Wylie, 1979) and has been extensively used as a measure of global self-esteem. In the present research, the Rosenberg's Self-Esteem Scale showed satisfactory reliability ($\alpha = .74$).

### Actual Performance

In tournaments using the Swiss player-pairing formula, lost rounds are scored as zero point, tied rounds as one point and won rounds as three points. The player with most points wins the tournament. A measure of participants' global performance during the tournament was created by summing participants' score for each game.

## Situational Measures

### State Self-Esteem Scale

State self-esteem was measured using six self-related emotions. These emotions were taken from the work of McFarland and Ross (1982) and Leary, Tambor, Terdal, and Downs (1995). Participants indicated the extent to which they felt proud, worthless (recoded), valuable, insignificant (recoded), confident, and ashamed (recoded) at the present moment using a 5-point response scale ranging from "Not at all" (1) to "Extremely" (5). State self-esteem was assessed at the beginning of the tournament and after each round. The state self-esteem subscale showed satisfactory reliability at the beginning of the tournament ($\alpha = .62$) and likewise across the eight rounds with a mean alpha of .75. The state self-esteem scale was related to Rosenberg's measure of global self-esteem ($r = .44$, $p = .005$; Rosenberg, 1965).

### Actual Performance

For the situational measure of performance (i.e., game performance), participants' score at each game was dummy coded with a score of 0 attributed to lost ($n = 112$) and tied ($n = 6$) rounds and a score of 1 attributed to won rounds ($n = 112$).

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[3]Non-independence of scores usually reduces the error terms, thereby increasing type-I error probabilities. However, in this case, because each pair of dependent scores involves one winner and one loser, their scores should be more different than independent scores, thereby *increasing* variability and the error terms. In addition, because many rounds were played among the same group of participants and also because two independent tournaments took place, the impact of non-independence of scores on the error terms should be rather complex and should be viewed as noise. This limitation should be kept in mind when interpreting the results.

## Hierarchical Linear Modeling Analyses

The present study involved a hierarchically structured data set, where repeated situational measures (level 1) were nested under participants' dispositional measures (level 2). Hierarchical linear modeling (HLM) analyses with the restricted maximum likelihood method of estimation were used because these analyses have the advantage of examining variables from different levels of generality simultaneously and independently. These analyses thus allowed us to examine within-individual (situational) and between-individual (dispositional) sources of variance on state self-esteem.

As required by the software (HLM, version 6.06), missing values of level-2 variables ($n = 2$) were replaced by sample means. During HLM analyses, all level-2 variables were centered on the sample mean (Raudenbush & Bryk, 2002). Robust standard errors were used to calculate inference statistics.

## RESULTS

Descriptive statistics are presented first, followed by partial correlations between passion, self-esteem contingencies, and global self-esteem. We tested to see if, as predicted, obsessive but not harmonious passion was related to self-Magic$_{TheGathering}$ contingencies. Next, the moderating impact of obsessive and harmonious passion on the relation between performance and state self-esteem is examined in a real-life setting, controlling for global self-esteem.

### Descriptive Statistics

With the exception of obsessive passion, all variables measured at the beginning of the tournament were normally distributed, as indicated by skewness and kurtosis scores ranging from $-0.91$ to $0.36$. Scores on obsessive passion were transformed with the inverse ($1 - (1/\text{obsessive passion})$) to obtain a more normal distribution. After the transformation, obsessive passion was normally distributed with a skewness score of $-0.28$ and a kurtosis score of $-1.23$.

Descriptive statistics of state self-esteem were obtained by aggregating the data from the different rounds. The aggregated variable was normally distributed, with skewness and kurtosis scores of $-0.49$ and $-0.31$, respectively. Descriptive statistics for the dispositional measures, the situational measure (i.e., state self-esteem) at the beginning of the tournament and the

aggregated measure of state self-esteem (from round 1, not inclusively, to the end of the tournament) are presented in Table 1, together with their correlations.

## Partial Correlations between Passion, Self-Esteem Contingencies, and Self-Esteem

Partial correlations[4] were performed to assess the relations between the two types of passion, self-esteem contingencies, and global self-esteem. Results showed that, as expected, obsessive passion was related to self-Magic$_{TheGathering}$ contingencies ($pr = .50$, $p < .001$) when controlling for harmonious passion, whereas harmonious passion was not significantly related to this contingency ($pr = .07$, $p = .70$) when controlling for the other type of passion.[5] It thus seems that people with a more obsessive passion experience greater self-esteem fluctuations as a function of their performances in their passionate activity, whereas people with a more harmonious passion do not report experiencing more, or less, self-esteem fluctuations. In addition, obsessive passion was related to lower levels of global self-esteem ($pr = -.54$, $p < .001$), but harmonious passion was not ($pr = .13$, $p = .43$) when controlling for the other type of passion. Taken together, these results suggest that obsessive, but not harmonious, passion is specifically tied to self-esteem processes.

## The Moderating Effect of Passion in a Real-Life Setting

HLM analyses were conducted to examine the relations among the two types of passion, game performance, and state self-esteem, while controlling for global self-esteem. In the present study, HLM analyses were conducted using a model-building procedure, where predictors of interest are added in turn. In this procedure, a first model, the unconditional model, is specified, where the dependent variable, but no predictor, is modeled. The unconditional model provides the grand mean ($\gamma_{00}$), which represents the mean of each participant's mean on the dependent variable (self-esteem) over the level-1 units (i.e., for the whole tournament). Adding level-1 predictors to an unconditional model creates a conditional model where the within-person variability is predicted by level-1 variables (i.e., game performance). A regression equation is estimated for each level-2 unit (i.e., for each participant), with an intercept ($\beta_0$) and a slope ($\beta_1$) for each regression equation. Finally, adding level-2 predictors creates a second conditional model where the between-persons variability of means and slopes is also investigated. When investigating variability of means, one predicts *between-persons* differences on the dependent variable (i.e., self-esteem) using level-2 variables (i.e., obsessive passion). When investigating variability of slopes, one predicts *between-persons* differences in *within-person* effects (i.e., effects of game performance on self-esteem for each person) using level-2 variables (i.e., obsessive passion). When predicting variability of slopes, level-2 predictors are thus best conceptualized as moderators of the effect of the

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[4]Partial correlations were used to control the common variance typically found between the two types of passion (e.g., Philippe, Vallerand, Houlfort, Lavigne, Donahue, 2010; Vallerand et al., 2003). Relations between each type of passion and the dependent variable may then be investigated independently from the effect of the other type of passion. The two types of passion are expected to correlate positively because as types of passion they share common elements. Indeed, both types of passion refer to a unique relationship with an activity that a person has internalized in his or her identity. In addition, whether more obsessively or harmoniously passionate, people equally report liking their activity, finding it important, and devoting time to it (for a similar analytical strategy, see Carbonneau, Vallerand, & Massicotte, in press; Mageau et al., 2005; Philippe, Vallerand, Andrianarisoa, & Brunel, 2009; Philippe, Vallerand, Richer, Vallières, & Bergeron, 2009; Rousseau & Vallerand, 2008). The correlation between harmonious and obsessive passion observed in the present study, i.e., $r = .47$, is similar to the one found in previous research (e.g., Philippe et al., 2010; Vallerand et al., 2003).

[5]Reliability-corrected partial correlations (Cohen & Cohen, 1983) yield similar results. Indeed, when we correct for each variable's reliability and control for the other type of passion, obsessive passion seems more strongly related to self-Magic$_{TheGathering}$ contingencies ($pr = .55$) than harmonious passion ($pr = .04$).

Table 1.  Descriptive statistics and correlations

| Variables | Correlations (reliability-corrected correlations) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Dispositional measures (Level-2) | | | | | | | |
| 1. Obsessive passion | — | .47** (.60) | .56** (.64) | −.55** (−.67) | −.02 (−.02) | −.16 (−.21) | −.11 (−.13) |
| 2. Harmonious passion | | — | .31* (.41) | −.16 (−.23) | .08 (.10) | .08 (.12) | .23 (.32) |
| 3. Self-esteem contingency: Magic | | | — | −.43** (−.55) | −.08 (−.09) | −.12 (−.17) | −.26 (−.33) |
| 4. Global self-esteem | | | | — | .12 (.14) | .44** (.65) | .38* (.51) |
| 5. Global performance | | | | | — | −.02 (−.03) | .38* (.44) |
| Situational measure at the beginning of tournament (Level-2) | | | | | | | |
| 6. State self-esteem | | | | | | — | .46** (.67) |
| Aggregated situational measure (Level-1) | | | | | | | |
| 7. State self-esteem | | | | | | | — |
| N | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Mean | 2.20 | 4.36 | 2.77 | 5.96 | 8.55 | 4.11 | 3.85 |
| SD | 1.26 | 1.09 | 1.36 | 0.69 | 5.13 | 0.47 | 0.55 |

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

level-1 predictor on the dependent variable. Variability of means and slopes can be independent. Table 2 shows the results from the different models.

### Model 1: Unconditional Mean Model

A first model was tested to estimate the variance in state self-esteem scores, before the inclusion of any predictor variables. This basic model expressed the state self-esteem of each individual "$j$," after each game "$i$," as a sum of the average state self-esteem of all the players ($\gamma_{00}$), the inter-individual variations between each player's average state self-esteem ($\varepsilon_{ij}$), and the intra-individual variations in state self-esteem between each playing rounds ($\zeta_{0j}$). The equation of this model is:

$$\text{State Self-Esteem}_{ij} = \gamma_{00} + [\varepsilon_{ij} + \zeta_{0j}] \tag{1}$$

The grand mean of state self-esteem was 3.86 ($\gamma_{00}$). The variance component of this model (see Table 3) can also be used to determine the intra-class correlation, which revealed that 53% of the variability was between participants, whereas 47% of the variance laid between playing rounds (Raudenbush and Bryk, 2002).

### Model 2: Within-Person Main Effects Model

Game performance (GamePerf) was entered as a within-person predictor of state self-esteem. The equation of the within-person level model, in which the first part represents fixed effects of game performance and the second part represents random effects, is as follows:

$$\begin{aligned}\text{State Self-Esteem}_{ij} = &[\gamma_{00} + \gamma_{10}\,\text{GamePerf}_{ij}] \\ &+ [\varepsilon_{ij} + \zeta_{0j} + \zeta_{1j}\,\text{GamePerf}_{ij}]\end{aligned} \tag{2}$$

Game performance was dummy coded, where won matches were coded as "1" and lost or tied matches were indicated by "0." As a reminder, the intercept is the score on the dependent variable when the level-1 predictor's score is 0. The intercept ($\beta_0$) thus represented people's mean of state self-esteem after lost or tied matches. Results from model 2 showed that the grand mean of state self-esteem after lost or tied matches was 3.64 ($\gamma_{00}$). People generally experienced higher levels of state self-esteem after won matches than after lost or tied matches, with a grand slope of 0.50 ($\gamma_{10} = 0.50$, $p < .001$). One would thus expect a difference of 0.50 on the 5-point Likert-type response scale of state self-esteem between won and lost (or tied) matches. The effect of game performance accounted for 45.03% of the within-person variability of state self-esteem

Table 2.  Fixed effects of the multilevel models predicting state self-esteem from game performance (Level 1), global self-esteem (Level 2), and passion (Level 2)

| | Parameters | Model 1 | Model 2 | Model 3 |
|---|---|---|---|---|
| Grand mean | | | | |
| Initial status | $\gamma_{00}$ (SE) | 3.86*** (.09) | 3.64*** (.10) | 3.64*** (.09) |
| Predicting means | | | | |
| Obsessive passion (Obs) | $\gamma_{01}$ (SE) | — | — | −.46 (.36) |
| Harmonious passion (Harm) | $\gamma_{02}$ (SE) | — | — | .17 (.10) |
| Global self-esteem (GlobSE) | $\gamma_{03}$ (SE) | — | — | .20 (.12) |
| Grand slope | | | | |
| Game performance (GamePerf) | $\gamma_{10}$ (SE) | — | .50*** (.09) | .50*** (.08) |
| Predicting slopes | | | | |
| GamePerf X Obs | $\gamma_{11}$ (SE) | — | — | .84* (.37) |
| GamePerf X Harm | $\gamma_{12}$ (SE) | — | — | −.08 (.08) |
| GamePerf X GlobSE | $\gamma_{13}$ (SE) | — | — | .22 (.12) |

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

Table 3. Variance components of the multilevel models predicting state self-esteem from game performance (Level 1), global self-esteem (Level 2), and passion (Level 2)

| | | Parameters | Model 1 | Model 2 | Model 3 |
|---|---|---|---|---|---|
| Variance components | | | | | |
| Level-1 | Within-person residual variability | $\sigma^2$ | .23 | .13 | .12 |
| Level-2 | Residual variability of means | $\sigma^2_{00}$ | .26 | .32 | .29 |
| | Residual variability of slopes | $\sigma^2_{01}$ | — | .19 | .18 |
| Deviance | | | 393.93 | 314.94 | 311.78 |

(see Table 3). Predictions of the variability of means and slopes from level-2 variables are presented in turn.

### Model 3: Multilevel Model Predicting State Self-Esteem

In order to test the moderating impact of obsessive and harmonious passion on the relation between game perform-ance and state self-esteem, the two types of passion (*Obs* and *Harm*) were entered as level-2 predictors of means and slopes. Global self-esteem (*GlobSE*) was also included as an additional predictor of means and slopes because past research has shown that people with low self-esteem tend to be more reactive to failure feedback (Park, Crocker, & Kiefer, 2007). As mentioned, global self-esteem is also negatively related to obsessive passion. To the extent that losing a game of Magic$_{\text{TheGathering}}$ can be interpreted as failure feedback, it was possible that people with low self-esteem, who are also more likely to be the ones who are more obsessive toward their activity (see Table 1), may be more reactive to success or failure in terms of their state self-esteem. It was also possible that people with low self-esteem would be, on the contrary, less reactive to performances in their passionate activity because they may be highly focused on other sources of self-esteem such as interpersonal acceptance (Baccus, Baldwin, & Packer, 2004; Dandeneau & Baldwin, 2004; Leary et al., 1995). Given the potential confounding effect of global self-esteem, it was important to include this variable in the equation. In contrast, global performance was not included in the equation because global performance was not related to either harmonious or obsessive passion in the present sample (see Table 1). The equation of this multilevel model, in which the first part represents the impact of the predictors on the means, the second part their impact on the slopes and the last part represents random effects, is as follows:

$$
\begin{aligned}
\text{State Self-Esteem}_{ij} \\
= [\gamma_{00} + \gamma_{01}\,\text{Obs} + \gamma_{02}\,\text{Harm} + \gamma_{03}\,\text{GlobSE}] \\
+ [\gamma_{10}\,\text{GamePerf}_{ij} + \gamma_{11}\,\text{GamePerf}_{ij} \times \text{Obs} + \\
\gamma_{12}\,\text{GamePerf}_{ij} \times \text{Harm} + \gamma_{13}\,\text{GamePerf}_{ij} \times \text{GlobSE}] \\
+ [\varepsilon_{ij} + \zeta_{0j} + \zeta_{1j}\,\text{GamePerf}_{ij}]
\end{aligned}
$$

$$(3)$$

As presented in Table 2, results first showed that neither global self-esteem ($\gamma_{03} = 0.20$, $p = .11$) nor harmonious ($\gamma_{02} = 0.17$, $p = .08$) and obsessive passion ($\gamma_{01} = -0.46$, $p = .21$) could predict mean levels of state self-esteem after lost or tied matches. However, results showed that obsessive passion moderated the relation between game performance

and state self-esteem ($\gamma_{11} = 0.84$, $p = .03$). The interaction between obsessive passion and game performance indicated that the more people reported an obsessive passion toward their activity, the greater was the positive impact of a win on state self-esteem. People with an obsessive passion thus seem to react to success or failure with more pronounced fluctuations of self-esteem. Specifically, with each increase of one point above the mean on obsessive passion, one would expect an increase of 0.84 in the difference of state self-esteem between won and lost (or tied) matches compared to the original difference ($\gamma_{10} = 0.50$). However, harmonious passion did not moderate the relation between performance and state self-esteem ($\gamma_{12} = -0.08$, $p = .32$). These results suggest that people with a harmonious passion are not more, or less, reactive to their game performance in terms of their state self-esteem than people in general. In order to illustrate the moderating role of obsessive passion on the relation between game performance and state self-esteem, Figure 1 compares participants who scored high with those scoring low on the obsessive passion scale (one standard deviation above or below the average).

Contrary to predictions, global self-esteem did not moderate the relation between actual performance and state self-esteem ($\gamma_{13} = 0.22$, $p = .08$). However, it is important to note that global self-esteem had a suppression effect on the moderating impact of obsessive passion on the relation between performance and state self-esteem, such that the moderating effect of obsessive passion is weaker when global self-esteem is not controlled. This suppression effect will be discussed in the limit section. Altogether, these level-2 effects accounted for 6.08% of the variability of slopes (see Table 3).

### DISCUSSION

The purpose of the present study was to empirically test Mageau and Vallerand's (2007; Vallerand et al., 2003) proposition that people with a more obsessive passion tend to base their self-esteem on their passionate activity to a greater extent than people without such a passion, making them more reactive to performance cues in their passionate activity. Results first showed that the more people experience an obsessive passion toward their activity the more they report experiencing self-esteem fluctuations that covary with their performances in their passionate activity. In contrast, when controlling for obsessive passion, harmonious passion was not related to a self-report measure of self-Magic$_{\text{TheGathering}}$ contingencies. These findings suggest that, for people with
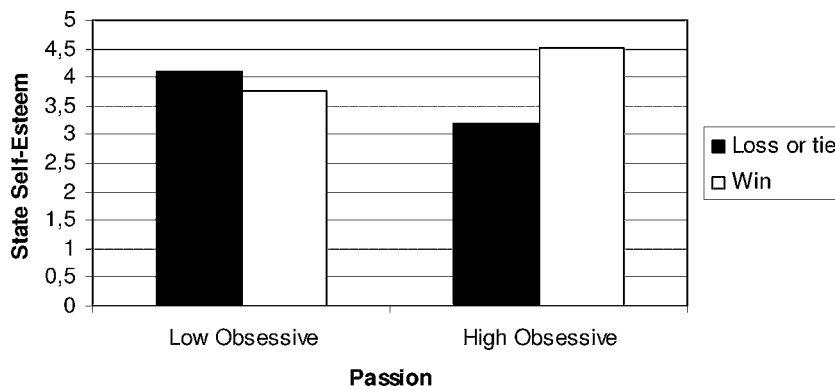
Figure 1.    The moderating effect of obsessive passion on the relation between game performance and state self-esteem

an obsessive passion, the passionate activity seems to serve self-esteem maintenance functions to a greater extent than for people with a harmonious passion.

Second, results showed that, in a real-life card tournament, people with a more obsessive passion actually experience state self-esteem fluctuations that covary more closely with their performances in their passionate activity compared to people without such a passion. People with an obsessive passion thus seem to be more affected by wins and losses (or ties) than are people without such a passion. In contrast, people with a more harmonious passion do not react more, or less, strongly to their performances in terms of their state self-esteem than people without such a passion. These results confirm that people with an obsessive passion seem to be more reactive to performance cues in their passionate activity than people with a harmonious passion.

Overall, the present findings support Mageau and Valler- and's (2007; Mageau et al., 2009; Vallerand et al., 2003) hypothesis in suggesting that the two types of passion may trigger different self-related processes. Obsessive passion seems to lead people to be more reactive to performance cues in their passionate activity, suggesting that people with a more obsessive passion might rely more strongly on their activity to derive self-esteem. In contrast, harmonious passion does not seem to systematically trigger such self-related processes. These results deepen our understanding of the detrimental impact of obsessive passion by suggesting the pivotal role of self-esteem contingencies in the phenomenological experience associated with this type of passion.

In addition to contributing to the passion literature, the present findings contribute to self-esteem research. First, they offer additional evidence that, in a real-life situation, performance influences state self-esteem, although this relation varies across people. This finding is in line with past research showing a link between competence-related events and the experience of self-esteem (Crocker, Karpinski, et al., 2003; Crocker et al., 2002). Importantly, the present results underscore the importance of self-esteem contingencies in the prediction of self-esteem fluctuations. Whereas most self-esteem research has been invested in predicting high versus low general self-esteem, Crocker and Wolfe's (2001) work on self-esteem contingencies shows that people vary in the extent to which they derive self-esteem from various domains and that their self-esteem is as stable as its root. In the context of the present research, results show that people with a more

obsessive passion, who are hypothesized to base their self-esteem on their passionate activity to a greater extent than people without such a passion, experience greater self-esteem fluctuations as a function of their performances in their passionate activity. These results offer support for Crocker and Wolfe's (2001) conceptualization of self-esteem. Finally, the negative correlation between obsessive passion and global self-esteem indicates that people with a more obsessive passion experience lower levels of global self-esteem. Additional work should be conducted to better understand the nature and direction of this relation.

From a practical perspective, the present findings show that not all passionate people experience fluctuations of self-esteem as a result of their successes and drawbacks in their activity. By identifying self-esteem contingencies as a potential difference between the two types of passion, this research should encourage people to strive for a more harmonious passion, either by making people wary of potential contingencies between their sense of worth and their activity or by helping them be more mindful of the negative impact of such contingencies, with the ultimate goal of limiting these negative consequences. Given that only harmonious passion is positively related to positive outcomes during and after activity engagement (Mageau & Vallerand, 2007; Mageau et al., 2005; Vallerand, 2010; Vallerand et al., 2003) in addition to being associated with a more stable self-esteem, the present research stresses the importance of nurturing this type of passion and preventing the onset of a more obsessive one.

Although this study should contribute to helping people derive more positive experiences from their passionate activity, a number of methodological limitations must be mentioned. First, it is important to underscore that the harmonious and obsessive passion subscales do not have similar reliability. The difference in the reliability of the two subscales raises the possibility that harmonious passion is less predictive of state self-esteem than obsessive passion simply because of its relatively lower reliability. However, in past research and despite similar lower reliability, harmonious passion has been consistently found to be a better predictor of positive outcomes (e.g., life satisfaction; Vallerand et al., 2003) than obsessive passion. These findings suggest that differences in the predictive power of the two subscales are more likely to reflect differences in the nature of the studied outcomes than differences in reliability. In addition, given that reliability-corrected partial correlations (Cohen & Cohen, 1983) were

similar to uncorrected coefficients, it seems unlikely that the present findings are due to differences in subscales' reliability.

Second, it is important to note that error terms associated with the effects of obsessive passion were large compared to the ones associated with global self-esteem. Although a large error term has made it more difficult for the moderating effect of obsessive passion to reach statistical significance, it may explain why obsessive passion was not related to participants' mean level of state self-esteem after loss or tied rounds. In addition, large error terms suggest that effects pertaining to obsessive passion vary across participants. Future research is thus needed to determine the circumstances in which obsessive passion yields the most important effects.

Third, the moderating impact of obsessive passion on the relation between performance and self-esteem is weaker when we do not control for the effect of global self-esteem, which indicates that global self-esteem has a suppression effect on the moderating effect of obsessive passion. As mentioned, global self-esteem was included in the statistical model because past research shows that people with low self-esteem are more reactive to failure feedback (Park et al., 2007). They are also more sensitive and focused on cues pertaining to interpersonal acceptance (Baccus et al., 2004; Dandeneau & Baldwin, 2004; Leary et al., 1995). It is possible that, for people with low self-esteem, performances in one's passionate activity is less relevant for achieving self-esteem because their self-esteem is already contingent on other sources of self-esteem. Compared to obsessive passion, global self-esteem would then have an opposite effect on people's self-esteem fluctuations in this particular context.[6] Because global self-esteem and obsessive passion are negatively related, differences due to global self-esteem would mask the effects of obsessive passion creating the suppression effect observed in the present study. Controlling for global self-esteem thus isolates the context-specific variance of state self-esteem, which allows one to examine the moderating effect of obsessive passion on the relation between performance and self-esteem above and beyond differences due to global self-esteem. Although the suppression effect of global self-esteem should be further investigated, these results suggest that obsessive passion triggers self-esteem contingencies that are specific to the passionate activity.

Fourth, the present study employed a correlational design, which makes causality inferences impossible. Finally, the homogeneity of the present sample limits the generalizability of the results. Indeed, participants were mostly men and they were all Magic_TheGathering players. Future research should replicate these findings with different passionate activities and using different populations.

Despite these limitations, results obtained from both self-report measures and real-life setting assessments suggest that self-esteem contingencies play an important role in the distinction between the two types of passion. While people with a harmonious passion do not seem to systematically base their self-esteem on their performance in their passionate activity, people with an obsessive passion do experience greater fluctuations of self-esteem as a function of their successes and failures in their passionate activity. Given that the stability of self-esteem has been shown to predict well-being above and beyond general level of self-esteem (Kernis, Cornell, Sun, Berry, & Harlow, 1993; Kernis, Grannemann, & Barclay, 1989), people with a more obsessive passion might also be more vulnerable in terms of their psychological well-being. Further investigation is needed to uncover the ramifications of the present findings in terms of people's psychological functioning.

## ACKNOWLEDGEMENTS

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[6]Although the moderating effect of global self-esteem on the relation between performance and state self-esteem was not significant in the present data set, its direction is consistant with this hypothesis ($\gamma_{13} = 0.22$, $p = .08$). The more people have low self-esteem, the less they seem to experience self-esteem fluctuations as a function of their passionate activity.

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