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Obsessive passion: A dependency associated with injury-related risky behaviour in  
dancers

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### Abstract

Grounded in self-determination theory (Deci & Ryan, 2000; 1985), obsessive passion for an activity has been associated with increased risky behaviour (Rip et al., 2006) and rigid persistence (Vallerand et al., 2003), both symptomatic of dependence (DeCoverley Veale, 1987). However, it is unknown whether obsessive passion may predict the development of dependence, and furthermore, theoretically important relationships between basic need satisfaction, passion, exercise dependence, and subsequent risky behaviour have not been fully explored. A sample of 100 professional dancers ( $50_{fs}$ ;  $50_{ms}$ ;  $M_{age} = 20.88$ ;  $SD = 2.69$ ) completed self-ratings of risk-related behaviours (doctor visits; following treatment, and warming up), passion for dance, and dance dependence. Findings supported the maladaptive nature of obsessive passion in relation to risky behaviour and as predicted dance dependence mediated this relationship. Interestingly, need satisfaction was positively related to both obsessive passion and harmonious passion. Results are discussed in light of self-determination theory and dysfunctions of obsessive passion, suggesting that professional dancers are at risk of employing maladaptive behaviours if high in obsessive passion, which may be detectable via symptoms of dance dependence.

Keywords: Passion, Exercise Dependence, Self-determination, Dance, Injury.

## 1. Introduction

Of seemingly increasing prevalence in sport is the reference that athletes, coaches, managers and commentators make to passion – the passion that drives an individual to train, perform, persist in adversity and to pursue their dream. As with all activities, first motivation, then some level of ongoing satisfaction is necessary for continued engagement (Deci & Ryan, 2000), but it is still unclear how, and why, passion develops and to what extent this is beneficial in sport. Motivation has long been debated in psychology; however, it is only in the last decade that passion toward activities has been conceptually grounded in contemporary theories of behaviour and examined in depth (e.g., Vallerand, 2008, 2010). Therefore, a wealth of knowledge and understanding is still to be gained in order for us to fully appreciate the role of passion in life-defining activities such as sport.

Early philosophy of passion saw two themes emerging, those of an active, positive nature and that of a negative affliction, passive and beyond reason (c.f., Rony, 1990). Limited empirical work existed on passion in relation to anything else but love until recent developments by Vallerand and colleagues in the last decade. Vallerand, Blanchard, Mageau, et al. (2003) defined the concept of passion toward activities as “a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy” (p. 756). This definition was housed within a new dualistic approach to the construct of passion including two types: harmonious passion (HP) and obsessive passion (OP). Grounded within self-determination theory (SDT: Deci & Ryan, 2000), the internalisation of an activity to an individual’s identity forms the basis upon which these two passion types can be distinguished. For example, harmonious passion is characterised by a positive, autonomous choice to engage in an activity, whereas obsessive passion reflects a

negative, controlling pressure to engage (Vallerand et al., 2003). So, although on first consideration passion is most likely perceived as positive in nature, it seems there is argument that in particular circumstances the adaptive effects of a harmonious form of passion may be usurped by the consequences of obsessive passion (Vallerand, Rousseau, Grouzet, et al., 2006). However, little is currently known of the effects of obsessive passion and the circumstances that lead to its development (Vallerand, 2008). The current study addresses both these issues.

Passion has previously been associated with both positive and negative outcomes, with harmonious passion demonstrating a stronger link with adaptive and obsessive passion with maladaptive experiences (Vallerand et al., 2006). For example, harmonious passion has been related to flow, concentration, and positive emotions, where, obsessive passion is related to shame, negative cognition, and negative affect (Vallerand et al., 2003). However, Vallerand (2008) stresses that although obsessive passion might appear negative, it should be considered positive over amotivation if engagement in such an activity is desirable (e.g., health behaviours), but is likely to still be at the expense of wellbeing. Consequently, what seems to be important is to understand how obsessive passion might develop, in what way this is associated with dependence on an activity, and whether this in turn predicts maladaptive behaviours. Therefore, the current paper focuses on the negative role of obsessive passion.

Obsessive passion has been associated with negative emotions such as shame and anxiety and negative behaviours including: aggression (Donahue, Rip, & Vallerand, 2009); pathological engagement (Vallerand et al., 2003); conflict with significant others (Vallerand, Ntoumanis, Philippe, et al., 2008b), and reduced quality of relationships within the passionate activity (Philippe et al., 2010). It is also

predictive of negative cognitions such as perceived susceptibility to injury (Stephan, Deroche, Brewer, Caudroit, & Le Scanff, 2009). In more general terms, a negative or nonsignificant association has been seen between obsessive passion and subjective well-being (Vallerand, Salvy, Mageau, et al., 2007), suggesting that an obsessive investment in an activity is not associated with rewards in terms of psychological health.

In terms of performance, obsessive passion has been shown to have a similar pattern of positive relationships with mastery goals, deliberate practice, and objective performance as harmonious passion. However, a positive relationship with performance-avoidance goals was also evident, which negatively predicted performance (Vallerand, Mageau, Elliot et al., 2008a). Finally, in the pursuit of performance, obsessive passion has been related to risky behaviour in terms of training (e.g., cycling in poor/dangerous weather conditions: Vallerand et al., 2003) and injury (e.g., training whilst injured: Rip, Fortin, & Vallerand, 2006). These behaviours are of particular interest to practitioners and researchers; first, due to their associated health risks and second, due to their lack of association with harmonious passion. This identifies them as correlates of obsessive passion specifically, not merely predicted by an absence of harmonious passion. As a result of such findings, it has been argued that obsessive passion may increase athletes' risk of developing chronic injuries.

Despite growing evidence of negative outcomes associated with obsessive passion, exploration of its conceptual nature remains limited. A dominant characteristic of obsessive passion, rigid persistence, has previously been likened to those behaviours associated with addiction and dependence (Vallerand et al., 2003). For example, Vallerand (2008) purports how the rigid persistence of obsessive

passion and ego involvement (i.e., when self-esteem is contingent on involvement or the attainment of specific performance standards; Ryan, Koestner, & Deci, 1991) can result in a dependency on an activity and lead to frustration and rumination when withdrawn from this activity. These characteristics are typical of those used to identify the pathology of dependence (e.g., substance, exercise); however, the relationship between passion and dependence has to the authors' knowledge not yet been explored.

After a myriad of terms had been used to refer to exercise dependence, Hausenblas and Symons Downs (2002a) unified definitions of the construct as “a craving for leisure-time physical activity, resulting in uncontrollable excessive exercise behaviour, that manifests in physiological (e.g. tolerance/withdrawal) and/or psychological (e.g. anxiety, depression) symptoms.” (p. 90). Exercise dependence is considered multidimensional in nature (cognitive, behavioural, and physiological) and is classified using the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV; APA, 2000) criteria for substance dependence (Hausenblas & Symons Downs, 2002b). The DSM-IV criteria include: tolerance, withdrawal, intention effects, lack of control, time, reduction in other activities, and continuance, with the existence of three or more indicative of exercise dependence – “a multidimensional maladaptive pattern of exercise” (Hausenblas & Symons Downs, 2002b, p. 391).

It is clear from the above criteria that symptoms of dependence have substantial overlap with those emerging from the passion literature, and in particular obsessive passion; for example, continuance and withdrawal. Similar predictive effects have also been established, for example, exercise dependence has been associated with risky behaviour, disordered eating (Bamber, Cockerill, Rodgers, & Carroll, 2003) and exercising whilst injured (DeCoverley Veale, 1987). Based on this

research and the notion that obsessive passion leads to activity dependency (Vallerand, 2008) it was proposed that exercise dependence may explain the positive relationship between obsessive passion and risky behaviour (Rip et al., 2006), and in so doing, identify obsessive passion as a risk factor in the development of exercise dependence. We propose that obsessive passion represents an antecedent motivational state which may develop into a clinical dependence, and explore this model in the specific context of activity dependence and risky behaviour.

Given the potential effects of obsessive passion, an additional aim of this study was to provide further investigation regarding the circumstances in which obsessive passion might develop and be fostered. The grounding of passion within self-determination theory has provided evidence supporting the relevance of needs-satisfying environments. SDT specifies that social-contextual environments that provide support for satisfaction of our innate psychological needs (autonomy, competence, and relatedness) promote the natural processes of internalisation, integration of the self and healthy psychological development. For example, previous work examining motivational climates within sport has shown positive effects of those that emphasise task-mastery (as opposed to ego-related goals) on need satisfaction and subsequent well-being (e.g., Quested & Duda, 2009). Conversely, social contexts which thwart basic need satisfaction are considered antagonistic to the internalisation and integration processes, resulting in controlled participation, and negative consequences for psychological wellbeing (Ryan & Deci, 2000).

Concerning passion, evidence provides some support that low need satisfaction is associated with more obsessive passion, and high need satisfaction with harmonious passion, in the context of video gaming (Przybylski, Weinstein, Ryan, & Rugby, 2009). This has important implications for how motivational climates and social

norms within different sporting contexts might influence injury reporting. For example, if it perceived that social contexts are controlling (e.g., injuries are used as a de-selection tool, athletes feel forced to continue training etc), obsessive passion and risk taking behaviour may be more likely. There is, however, emerging data supporting an alternative process regarding how need satisfaction might relate to the development of harmonious or obsessive passion. For example, Lalande, Vallerand and Lafrenière<sup>1</sup> suggest that need satisfaction provided within an activity context might contribute to the development of both harmonious and obsessive passion, with obsessive passion developing only when need satisfaction in other life domains is compromised. That is, obsessive passion becomes a compensatory form of activity engagement for needs deficits outside of the activity. Although this moderating effect has not been empirically demonstrated, this alternative hypothesis highlights the need to clarify associations between need satisfying environments and the types of passion.

In sum, the primary aim of the present paper was to extend previous research by testing the role of passion in subsequent exercise dependence and risky behaviour. Three specific research questions were explored. First, it was hypothesised that obsessive passion would be positively associated with risky behaviour and exercise dependence, whereas harmonious passion would not be associated with these outcomes. Second, exercise dependence would mediate the relationship between obsessive passion and risky behaviour. Third, satisfaction of SDT's needs would predict both harmonious passion and obsessive passion (positively and negatively, respectively).

To examine these relationships, professional dancers were purposively sampled for two main reasons. First, professional samples may present particular



vulnerability to the development of obsessive passion due to their financially-contingent participation. Theories of dependence make no differentiation between addiction to behaviours during leisure time and those within a work environment. Work addiction and passion have been explored in terms of sport coaches and mirror the characteristics of dependency and potential for risky behaviour (cf. Lumpkin & Anshel, 2012). Somewhat surprisingly therefore, this is to the authors' knowledge the first study to examine obsessive passion with professional athletes. Second, the dance context was of particular interest due to a growing body of evidence highlighting the potential influence of the motivational climate on dancers' affective outcomes. Specifically, high levels of a performance-oriented climate, anxiety, and neurotic perfectionism have been reported in dance-based samples (e.g., Carr & Wyon, 2003), whereas task-oriented climates are related to positive affect and competence (Quested & Duda, 2009). Although no research has directly compared social norms within dance to others sports, there is evidence that that dancers underreport injuries (Thomas & Tarr, 2009), with being under stress or pressure perceived as the most common cause of injury by dancers (Bowling, 1989). Combined with survey data that suggests only 32% of injured dancers stop and rest immediately, it seems reasonable to suggest that there may be components of the dance culture or climate that could increase susceptibility to the manifestation of risky behaviour.

## 2. Methods

### 2. 1. *Participants*

Participants were 100 professional dancers (50 males; 50 females) from Poland aged 18 to 25 years ( $M = 20.88$ ;  $SD = 2.69$ ). Experience at the professional

level ranged from 1 to 3 years ( $M = 1.86$ ;  $SD = 0.80$ ). Dancers were sampled from a professional dance company which recruits individuals from a range of training backgrounds. Although some dancers have a clear specialism, others train and/or perform using elements from multiple disciplines. Descriptive information suggested that those sampled represented four dance genres including: modern, jazz, hip-hop and ballet, with 13 reporting participation in all four disciplines. Although unlikely that an individual would be professional in all for domains separately, this does provide indication of the background and self-classification of the dancers. University ethical approval was obtained prior to data collection. All dancers volunteered to take part in the study and provided informed consent prior to participation.

## 2.2. Measures

*Passion for Dance:* Passion was measured using an adapted version of Vallerand et al.'s (2003) Passion Scale. Items were modified so that 'dance' replaced references to 'this activity'. Vallerand et al.'s original passion scale was used in preference to Rip et al.'s Passion for Dance Scale as despite its intended domain specificity, the latter has no published psychometric or structural validity data to support it, in contrast to the widely used original measure with evidenced factorial and predictive validity, and reliability (e.g., Vallerand et al., 2003). The modified passion scale contained 14 items loading onto two subscales; harmonious (e.g., "dance is in harmony with the other activities in my life") and obsessive (e.g., "I have a tough time controlling my need to dance") passion. Items were scored on a 7-point scale ranging from 1 (not at all) to 7 (very strongly agree).

*2.2.1 Needs satisfaction:* Need satisfaction was measured by adapting the widely used Basic Need Satisfaction at Work scale (e.g., Ilardi, B. C., Leone, D.,

Kasser, R., & Ryan, R. M., 1993; Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001) to a dance context. The scale loads onto three subscales: autonomy (e.g., “I am free to express my ideas and opinions at dance”), competence (e.g., “Most days I feel a sense of accomplishment from dancing”), and relatedness (e.g., “I consider the people I dance with to be friends”). Items were scored on a 7-point scale from 1 (not at all true) to 7 (very true). This scale has demonstrated both structural validity and reliability in work-based samples (e.g., Baard, Deci, & Ryan, 2004).

*2.2.2. Dance dependence:* A modified version of Hausenblas and Down’s (2002a) Exercise Dependence Scale (EDS) was used to measure dependency on dance. This consists of 30 items which load onto seven subscales, each measuring specific dependence criteria (e.g., withdrawal effects: “I feel anxious if I cannot dance”; lack of control: “I am unable to reduce how often I dance”; decline in other activities: “my dance interference with family responsibilities” etc.). Symons Downs, Hausenblas and Nigg’s (2004) study demonstrated reliability and validity of the EDS, with a reduced number of items based on a factor structure of separate subscales. Given that in the present study hypotheses pertained to dance dependence as a whole rather than differentiated effects for specific symptoms, a combined mean score of all original items was used as an overall measure of dance dependence. Items were scored on a 6-point Likert scale ranging from 1 (never) to 6 (always).

*2.2.3. Risky behaviour:* Three single-items recorded the extent to which dancers engaged in injury-related risky behaviours. The items were developed from Rip et al.’s (2006) measure of dance related risk behaviours. The items related to doctor’s visits (“how often do you go to the doctor when you are injured”), following treatment (“how often do you follow treatment when you are injured”), and

prematurely finishing a treatment regime (“how often do you quit treatment before it is finished”). Items were scored on a 6-point Likert scale from 1 (never) to 6 (always).

### 2.3. Procedure

After informed consent was obtained, participants completed the questionnaire pack either prior to or following a training session. Dancers who spoke English ( $n = 53$ ) completed the validated English-language versions of the measures under the supervision of a bilingual researcher. Non-English speakers ( $n = 47$ ) completed the questionnaires in Polish. These versions of the questionnaires were first translated from English to Polish by a first-language Polish research assistant, followed by back translation into English by an independent translator. The back-translated versions were compared with the originals by the senior investigator to check their consistency.

### 2.4. Data Analyses

Bivariate correlations were examined for significant associations between variables of interest; where these were present tests of mediation were conducted. The significance of, and confidence intervals for, the indirect effect were calculated, with significant mediation occurring if the confidence interval did not contain zero (e.g., Fritz & MacKinnon, 2007). In addition a resampling, or bootstrapping strategy was employed, as there is a growing body of literature advocating the use of bootstrapping techniques for assessing indirect effects (Preacher, Rucker, & Hayes, 2007). For clarity, the causal steps advocated by Baron and Kenny (1986) are also presented, as well as normal theory estimates and tests of the specific indirect effect (Sobel tests).

## 3. Results

### 3.1. Scale Reliability

Internal consistencies (Cronbach's alphas) of each scale were as follows: .57 for harmonious passion; .90 for obsessive passion; .68 for autonomy; .59 for competence; .73 for relatedness, and .93 for dance dependence. These indicated appropriate internal consistency for the measures of obsessive passion, relatedness, and dance dependence. The alpha coefficients for autonomy and competence were slightly low but in line with previous reports (e.g., Edmunds et al., 2006); however, harmonious passion demonstrated a concerning level of reliability. Factor analysis indicated two low loading items (10 and 6); removal of these marginally improved model fit and reliability ( $\alpha = .66$ ) however given the lack of substantial improvement the full item set validated in previous studies was retained. Readers should therefore exert caution concerning HP relevant findings. Means and standard deviations for all variables are provided in table 1.

\*\*\*\*Insert Table 1 here\*\*\*\*

### 3.2. Hypothesis One

Obsessive passion was positively correlated with dance dependence ( $r = .72$ ,  $p < .001$ ) and two of the three risky behaviours, following treatment ( $r = -.41$ ,  $p < .001$ ) and doctor visit ( $r = -.28$ ,  $p < .05$ ). Harmonious passion also revealed a positive correlation with dance dependence ( $r = .42$ ,  $p < .001$ ), although not as strong as that of obsessive passion, however was uncorrelated with all risky behaviours as predicted.

### 3.3. Hypothesis Two

Mediation was tested for the two risky behaviours predicted by OP: following treatment and doctor visit. Quitting treatment was not related to any predictor or mediating variables.

*3.3.1. Following Treatment:* Inspection of the bootstrapped bias corrected confidence intervals revealed a significant indirect effect of obsessive passion on following treatment through exercise dependence ( $p < .001$ ). The regression model accounted for 20% of the variance in following treatment;  $R^2 = .20$ ,  $F_{(2,68)} = 8.42$ ,  $p < .001$ . In Stage 1, obsessive passion (IV) accounted for a significant amount of variance in dance dependence (mediator;  $R^2 = .52$ ,  $p < .001$ ), and following treatment ( $R^2 = .17$ ,  $p < .001$ ) in Stage 2. In Stage 3, dance dependence accounted for a significant amount of variance in following treatment ( $R^2 = .18$ ,  $p < .001$ ). Finally, after controlling for the mediator, obsessive passion no longer predicted a significant variance in the dependent variable ( $\Delta R^2 = .02$ ,  $p > .05$ ) providing support for full mediation.

*3.3.2 Doctor Visits:* Inspection of the bootstrapped bias corrected confidence intervals revealed a significant indirect effect of obsessive passion on doctor visits through exercise dependence ( $p < .05$ ). The regression model accounted for 8.4% of the variance in doctor visits;  $R^2 = .08$ ,  $F_{(2,68)} = 3.15$ ,  $p < .05$ . Stage 1 remained as above, and obsessive passion predicted significant variance in the dependent variable ( $R^2 = .08$ ,  $p < .05$ ) in Stage 2. In Stage 3, dance dependence accounted for a significant amount of variance in doctor visit ( $R^2 = .07$ ,  $p < .05$ ). Finally, after controlling for the mediator, obsessive passion no longer predicted a significant variance in the dependent variable ( $\Delta R^2 = .02$ ,  $p > .05$ ) providing support for full mediation.

\*\*\*\*Insert Figure 1 about here\*\*\*\*

### *3.4. Hypothesis Three*

Multiple regressions revealed that the three needs significantly predicted both harmonious ( $R^2 = .15$ ,  $p = .001$ ) and obsessive ( $R^2 = .12$ ,  $p = .006$ ) passion; though

none of the three independently predicted either harmonious (autonomy:  $\beta = .071$ ,  $p = .566$ ; competence:  $\beta = .153$ ,  $p = .225$ ; relatedness:  $\beta = .225$ ,  $p = .066$ ) or obsessive (autonomy:  $\beta = .245$ ,  $p = .054$ ; competence:  $\beta = .071$ ,  $p = .580$ ; relatedness:  $\beta = .082$ ,  $p = .512$ ) passion. It was noted that the beta coefficients approached significance for autonomy predicting obsessive passion, and for relatedness predicting harmonious passion.

#### 4. Discussion

The aim of the present paper was to examine the role of passion in the exhibition of dance dependence and risky behaviours. Three specific hypotheses were tested; findings supported hypothesis one with positive relationships between obsessive passion, dance dependence, and two of the three risky behaviours. No relationship between harmonious passion and risky behaviour was found as predicted although contrary to expectations harmonious passion was positively related to dance dependence, but to a lesser degree than obsessive passion. Importantly, in support of hypothesis two, it was demonstrated for the first time how dance dependence may be conceptually linked to obsessive passion and risky behaviour, with dependence fully mediating the previously established relationship. Hypothesis three was partially supported with overall needs satisfaction positively predicting both types of passion, rather than negatively predicting obsessive passion as expected.

The emergent associations support the theorized role of obsessive passion as a predictor of risky behaviour, confirming Rip et al.'s (2006) findings, and that harmonious passion does not result in maladaptive behaviour (Vallerand et al., 2006). The present study highlights that even in a professional sample, in which one's livelihood is dependent upon maintaining and protecting a standard of health and physical capability, obsessive passion for sport increases the risk of dancers

engaging in counterproductive behaviours when injured. Of note, prematurely quitting a treatment regime was not predicted by obsessive passion. This may however be a self-evident bias given that those who attain medical advice and commence a programme of treatment may have lower levels of obsessive passion to begin with.

Importantly, obsessive passion strongly predicted dance dependence, suggesting that controlled regulations for engagement in an activity may predicate the emergence of a pathological dependence. Despite the conceptual similarities between obsessive passion and dependence, it is important to recognise that exercise dependence represents a clinical level of symptomology with greater detrimental consequence for the individual than the motivational state of obsessive passion. Therefore, on the basis of current findings, we argue that obsessive passion is most appropriately viewed as an affective and attitudinal (motivational) antecedent of dependence, the deleterious effects of which are evident from its positive relationships with risky behaviours. Furthermore, a key finding is that dependence fully mediated the relationship between obsessive passion and risky behaviours; this suggests that it is the dependence fostered by the motivational state of obsessive passion that influences behaviour.

The findings discussed thus far concern the first focus of the paper, to establish whether obsessive passion predicts dance dependence and risky behaviour; the second focus concerned the antecedents of passion. To date, little is yet known except that autonomous versus controlled personality types have been shown to predict harmonious versus obsessive passion respectively (c.f., Vallerand 2008). The present study supports Vallerand's hypotheses that an environmental factor, viz. provided needs satisfaction, is also related to greater passion; however, unexpectedly



both harmonious and obsessive passion were positively predicted. This may be linked to shared variance between the two types of passion (e.g., affective experience of participation). Alternatively, this finding does support those of Lalande, Vallerand and Lafrenière, in that satisfaction inside an activity positively predicts both harmonious and obsessive passion, perhaps suggesting that future work should consider the influence of need thwarting in other contexts on the differentiated development of passion. With a coefficient approaching significance, it appears that relatedness is particularly important for fostering harmonious passion and findings also suggestive that high autonomy might be linked to obsessive passion. Although initially this seems contratheoretical, it is possible that high autonomy may be indicative of individuals with greater control over their participation and therefore more susceptible to develop dependent symptoms or behaviours. Given the unanticipated nature of these early findings, replication in other contexts is clearly required.

A number of limitations should be considered when interpreting the present findings. The reliability of the harmonious passion subscale was less than ideal and single item measures, as utilised for risky behaviour, can be problematic in terms of evidencing reliability. The use of these scales is, however, consistent with previous work in this area (e.g., Rip et al., 2006), and has been advocated for ease of comprehension when examining health-related outcomes (e.g., Bowling, 2005). In the present study outcomes are behavioural rather than conceptual, making them more suitable to single-item reporting. From a measurement perspective, differentiating between sub-components of passion common to both obsessive and harmonious passion (e.g., enjoyment of the activity) versus those that are unique to one type of passion (e.g., compulsion to partake) might add clarity, with moderate

significant correlation in the present study suggesting that they are not orthogonal constructs. A further limitation is that self-report of injury-related behaviour can be problematic. Use of medical record-based injury data would be highly beneficial but was not feasible within the constraints of the present work. Future studies, in particular those interested in chronic injury development, might consider adopting the detailed classification system proposed by Bronner, Ojofeitimi, and Mayers (2006) as an accurate way of modelling injury type (e.g., physical, medical, time-loss), severity, and location, as well as considering co-morbid symptom reporting (e.g., infections, colds etc) as important indicators of dancer well-being.

Future studies would also benefit from examining a broader spectrum of risk-related behaviours; examining solely medical behaviours, whilst clearly important for physical health, does not fully scope both performance related (move selection, difficulty, decision –making) and lifestyle related (substance abuse) risk behaviours that could be important determinants of wellbeing. A logical next step would be to utilise longitudinal designs to predict and model risk-related outcomes (e.g., injury, performance decrements) over time in relation to changes in passion and dependence (e.g., in a similar fashion to Schwebel & Plumert, 2003).

A number of applied implications can be drawn from the current findings even at this early stage of theoretical development and understanding. Importantly, it has been established that obsessive passion predicts dance dependence and risky behaviour and that dependence mediates the OP – risky behaviour relationship. Consequently, identifying obsessive passion early is vital in terms of preventing maladaptive outcomes. It also highlights that interventions recommended for preventing or treating exercise dependence may prove beneficial if obsessive passion appears to have been fostered, in terms of reducing the likelihood of unhealthy

subsequent behaviour. Finally, if perceptions of autonomy to some extent reflect an individuals' control/choice over their participation, this may allow greater opportunity to engage in maladaptive behaviours if an individual is dependent. Regulation or monitoring of athletes' behaviour and decision making in a manner which does not impinge on their autonomy is a key challenge for coaches and managers, and may also be important in supporting the potential adaptive relationship between relatedness and harmonious passion.

In sum, this study represents the first examination of the mediating role of exercise dependence in the relationship between obsessive passion and risky behaviours. Broadly speaking, theoretical support for Vallerand's work and the tenets of SDT was provided in terms of the outcomes of obsessive and harmonious passion. The evidence regarding the role of basic need satisfaction in passion development was equivocal but worthy of future investigation. It is evident that even for professional athletes, obsessive motives and styles of regulation can develop with clearly detrimental consequences. Ultimately, the key result was in evidencing that exercise dependence fully mediates the OP – risky behaviour relationship, highlighting the necessity of considering passion and dependence concurrently. It appears that passion, often advocated by coaches and athletes alike, is an adaptive form of motivational regulation only in so far as it is not obsessive in nature. Recognising obsessive passion could be vital in terms of identifying signs and symptoms of dependence and facilitate preventative interventions rather than reactive treatments. It is highly recommended that further investigation is pursued in understanding the determinants of obsessive passion and how dependence can be avoided.

### Acknowledgements

The authors would like to thank Olga Leszczynska for her involvement with the research study and time and efforts in terms of data collection which was conducted at Aberystwyth University under the supervision of the authors.

<sup>1</sup> Lalande, Vallerand and Lafrenière (under review). *On the Determinants of Harmonious and Obsessive Passions: The Role of Need Satisfaction Inside and Outside the Activity*. Manuscript available from the first author on request

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Table 1.

*Means, standard deviations and zero-order correlations for all test variables (N = 100; n = 71 for three risky behaviours 4, 5, and 6).*

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1. Harmonious Passion	5.26 (0.77)	-							
2. Obsessive Passion	4.49 (1.38)	.60**	-						
3. Dance Dependence	3.64 (0.90)	.42**	.72**	-					
4. Doctor Visit	3.28 (1.51)	-.03	-.28*	-.26*	-				
5. Follow Treatment	3.90 (1.46)	-.17	-.41**	-.43**	.51**	-			
6. Quit Treatment	3.86 (1.70)	.00	-.07	-.18	-.03	.12	-		
7. Autonomy	4.59 (0.86)	.29**	.33**	.12	-.22	-.12	-.10	-	
8. Competence	5.04 (0.80)	.33**	.26**	.15	.09	.15	-.19	.589**	-
9. Relatedness	5.03 (0.83)	.36**	.26**	.18	-.09	-.08	-.01	.557**	.579**

*Note.* \*  $p < .05$ . \*\*  $p < .01$ .

### Figure Captions

*Figure 1.* Summary of results for regression analyses testing dance dependence as a mediator of the relationship between obsessive passion and risky behavior (a) following treatment and (b) doctor visit. Italic numbers refer to the stages of analyses.

