

**Cardiff School of Sport**  
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**CARDIFF METROPOLITAN UNIVERSITY**  
**Prifysgol Fetropolitan Caerdydd**

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**DEGREE OF BACHELOR OF SCIENCE (HONOURS)**

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**'Is The Relationship Between Passion and Athletic  
Burnout Explained By Levels Of Basic Psychological  
Need Satisfaction?'**

**(Dissertation submitted under the discipline of  
Psychology)**

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**'Is The Relationship Between Passion and Athletic  
Burnout Explained By Levels Of Basic Psychological  
Need Satisfaction?'**

# Cardiff Metropolitan University Prifysgol Fetropolitan Caerdydd

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## ABSTRACT

Athletic burnout symptoms of physical and mental exhaustion, sport devaluation and reduced sporting accomplishments are detrimental to athlete well-being (Cresswell & Eklund, 2005). In an attempt to prevent the occurrence of athletic burnout, understanding the antecedents of burnout is vital. The purpose of this study was to examine the relationship between passion (harmonious and obsessive; Vallerand *et. al.*, 2003) and athlete burnout, and whether these relationships are mediated by basic psychological needs. Research has identified that through the internalization process, passion may predict burnout (Tassell & Flett, 2007), and passion can also be regulated by the perception of needs satisfaction, and ultimately influence burnout (Vallerand *et. al.*, 2003, Deci & Ryan, 2000). Using the framework of the Dualistic Model of Passion (Vallerand *et. al.*, 2003), two types of passion have been proposed; harmonious and obsessive, both thought to lead to different cognitive and affective responses that may pose a risk of athlete burnout (Vallerand *et. al.*, 2003 study 2). The current study used a quantitative approach to examine one hundred and twenty competitive athletes ( $m = 21.95$ ,  $SD = 5.67$ ) from 21 different sports. Participants completed the Passion Scale (Vallerand *et. al.*, 2003), Basic Psychological Needs in Sport Scale (Ng *et. al.*, 2011), and the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). Results revealed that passion; harmonious (-.459) and obsessive (-.534) reduced sport devaluation and had no relationship with the exhaustion and accomplishment components of burnout. Psychological needs satisfaction did partially mediate the passion-burnout relationship, which resulted in a greater reduction in sport devaluation. Further, contrary to expectations, passion was identified to reduce burnout by lowering the perception of sport devaluation. Additionally, needs satisfaction reduced symptoms of burnout further. Due to the dynamic nature of athlete burnout (Cresswell & Eklund, 2006) future research would be recommended to explore the passion-burnout relationship with a longitudinal and qualitative approach to improve the validity of the research findings.

**CHAPTER ONE**  
**INTRODUCTION**

## 1.0 Introduction

*"The most important thing for me will be to keep his passion for the game, and keep the attitude of wanting to become a better player....It is not just the physical aspect but the mental pressure every time he plays... We will have to manage him well physically to make sure he doesn't face burnout."*

*(Arsène Wenger, on Jack Wilshire, 2013)*

The overhead quote, given by Arsène Wenger (BBC, 2006) illustrates that there is concern for the pressure that elite athletes experience with the demands of their sport. Individuals such as Jack Wilshire have achieved high levels of performance and success through years of engagement and deliberate practice in a highly structured environment (Starkes & Ericsson, 2003). Hill *et. al.* (2008) identified that many professional football clubs' recruit children like Wilshire as young as eight, in which they have to fiercely compete to remain in the club's academy at twelve, and for a professional contract at sixteen. With such competitive pressure, it is inevitable that young athletes may become disengaged, lose motivation and potentially experience burnout. Specifically, Gould (1993) identified that not only competitive stress, but also the coaching climate are reasons of why young athletes may become disengaged and lose all forms of motivation and desire towards participation. Thus, the pressure young athletes may face has emphasized a growing concern about athletic burnout (Cohn, 1990). In response to such concern, several sporting bodies have commissioned funded research into burnout and its effect on the behaviours of young athletes (e.g. the US Tennis Association and youth tennis players, Gould *et. al.*, 1996). Yet, the pressure of performing well over a competitive season has continued to increase, with the number of important games each year and higher financial prizes at stake (Starkes & Ericsson, 2003). In an attempt to gain a competitive advantage some athletes perceive that hard training can be seen as the only formula for success (Kentta & Hassman, 1998). Andre Agassi is a key example of how such a perception may have led to the development of athletic burnout. Agassi (2009) stated that despite the money, mass adoration and endless free tennis rackets, that since playing tennis from six years old, if he stopped giving 100% he was doomed to failure, and that is unacceptable. Agassi's stated devaluation for his sport is far from exclusive to tennis, for many athletes the

numbers of young athletes who continue to over- train, experience maladaptation and eventually leave sport through burnout is still increasing (Kentta & Hassman, 1998). Such competitive drive is what Kentta & Hassman (1998) argue to be the antecedent of athlete burnout. For example, when highly-motivated athletes begin to show symptoms of overtraining and staleness, a terrible fear of failure (stated by Vic Marks, ex-england cricketer (Jefferies, 2009) is what drives persistence and the refusal to rest. Inevitably, Vic Mark's response of feeling underwhelmed when selected to go on tour for England cricket is suggested to be characteristic of an athlete suffering from burnout; emotional and physical exhaustion, devaluation and a reduced sense of accomplishment (Raedeke & Smith, 2001). With such negative emotional consequences deriving from sports participation, understanding the relationship between motivation and burnout is important (Cresswell & Eklund, 2005a, 2005b). Thus, it has become of interest to identify what dispositional factors have enabled competitive athletes to maintain a sustained level of intense practice over the years and what may buffer athletes from experiencing burnout? Additionally, what dispositional factors may alter an athlete's motivation and cause rigid persistence and compulsion for participation that may develop into athletic burnout?

The recent motivational theory of passion has become an interesting new phenomenon. Vallerand *et. al.* (2003) argues that passion provides both a successful engagement that facilitates positive emotions such as well-being, but could also promote an unhealthy persistent and rigid involvement, linked to athlete burnout. Underpinned by the internalization and integration processes of Deci & Ryan's (2000) Self-Determination Theory, Vallerand *et. al.* (2003) conceptualized the Dualistic model of Passion. Vallerand (2003) proposed that the concept of passion represents a type of motivational energy that could underlie the development of athletic burnout. Two types of passion have been identified: Harmonious and Obsessive passion (Vallerand *et. al.*, 2003). Harmonious passion refers to a passion that is in harmony with other aspects of the person's life, the individual participates with no other contingencies attached to the activity and will lead affective experiences (e.g. happiness) (Vallerand *et. al.*, 2003). In contrast, an obsessive passion has been identified to lead to a rigid persistence and maladaptive experiences (e.g. depression, life conflict) (Vallerand *et. al.*, 2003). The determinants and affective experiences associated with two types of passion (harmonious and obsessive) may link to the motivation- dispositional factors that predict athlete

burnout (Lonsdale *et. al.*, 2009). Additionally, needs satisfaction is a key factor that leads to the development of either a harmonious or obsessive passion (Tassell & Flett, 2007). However, the mediating role of psychological needs in the passion-burnout literature has not been examined. As a result, the present study applied self-determination theories, sub-theory of Basic Psychological Needs and Vallerand *et. al.*(2003) Dualistic Model of Passion. This will enable the researcher to explore possible connections between psychological needs, passion and burnout within competitive sport (athletes participating at a level higher than recreational). The importance of preventing the development of burnout within competitive athletes is essential in improving athlete well-being during sporting participation whilst increasing the opportunities for competitive athletes to fulfil their sporting potentials. The current study will enable coaches' and/ or practitioners to understand the nature of the motivational constructs that may predict burnout and whether passion is responsible for the magnitude or nature of sporting engagement that predicts athletic burnout.

**CHAPTER TWO**  
**LITERATURE REVIEW**

## **2.0 Literature review**

This chapter will begin by critically appraising existing models and theories of athletic burnout that aim to conceptualize burnout; with a specific review of why Deci & Ryan's (2000) Self-Determination and Basic Psychological Needs Theory (BPNT) has been advocated as a promising theoretical lens to examine burnout (Lonsdale *et. al.*, 2009). The motivational concept of passion will be discussed with attention to how passion (harmonious and obsessive; Vallerand *et. al.*, 2003) may predict athletic burnout. Consistent with BPNT, basic needs will be explored to identify how it may mediate the relationship between the underpinning mechanisms of passion that may predict athletic burnout. This chapter will conclude with the purpose of the study based on the critique provided.

### **2.1 Defining Burnout**

Originally, the phenomenon of burnout was understood to be an on-going negative psychological and/or physical state, thought to only have occurred specifically within the human service and help professions (Paine, 1982; Smith, 1986). With the burnout syndrome critically causing debilitating problems to workers, a detrimental effect to clients, and proving costly to agencies the burnout phenomenon has received increasing theoretical and empirical attention (Jones, 1981; Shinn *et. al.*, 1984). Following an education study by Paine (1982), Smith (1986) identified that the stressors within occupational work may also be occurring within sport, possibly explaining why some elite athletes were dropping out of sports at the peak of their athletic career. As a result, Smith (1986) developed a sport specific burnout model, which has aimed to describe and explain the causes and symptoms of burnout. In order to consider the contextual differences between the sport and professional domains burnout must be conceptualized, the conceptualization of burnout used by Smith (1986) was physical and emotional exhaustion and devaluation of an activity (Freudenberger, 1980; Smith, 1986). However, to date a specific sport conceptualization has been developed, supported and widely applied (e.g. Creswell & Eklund, 2005), therefore the conceptualization used to define athletic burnout within this study is; 'an experiential syndrome characterized by emotional and physical exhaustion, reduced accomplishment, and sport devaluation' (Raedeke, p.397, 1997). Emotional and physical exhaustion is characterized as feelings of

fatigue and tiredness from training or competitions (Raedeke, 1997). Reduced accomplishment as a decrease in performance and levels of proficiency and lastly, sport devaluation refers to a loss of interest from one's sporting performance or sport (Fletcher *et. al.*, 2012; Raedeke, 1997). These individual dimensions have been shown to objectify what defines the athlete burnout experience in various studies (e.g. Lonsdale *et. al.*, 2009). With vast support, the current study's adoption of using Raedeke's (1997) athlete burnout conceptualization of; emotional and physical exhaustion, accomplishment, and devaluation is justified.

## **2.2 Theoretical models of Burnout**

Athletic burnout literature has considerably developed, with a variety of theoretical models and perspectives emerging to address the nature, causes and consequences of athletic burnout (Goodger *et. al.*, 2007). Although, it could be argued that the growing number of perspectives may limit the specificity, conceptualization and robustness of findings (Goodger *et. al.*, 2007) it must be stressed that most contemporary theories are not entirely original, as they share tenets from well-established models (e.g. Smith, 1986). Specifically, most stress-based burnout studies are guided by Smith's (1986) Cognitive-Affective model of Athletic Burnout (e.g. Vealey *et. al.*, 1992). Smith (1986) proposed that athletic burnout is caused by chronic stress, which has developed by a negative appraisal of perceived demands and perceived resources to cope. The development of chronic stress is what Smith (1986) argues to cause the emotional, physiological and behavioural symptoms depicted within the cognitive-affective stress model that manifest into athlete burnout (e.g. depression, fatigue) (See Appendix A).

The first component of Smith's (1986) model presents situational demands as the first antecedent of stress. Situational demands refer to an athletes' perception of the available environmental and/or situational resources, the type of coping-appraisal will predict the type of stress- reaction. Examples of situational demands are highlighted on the lower portion of the model (See Appendix A). Sheldon & Watson (2011) support Smith's (1986) stress- situational demand relationship identifying how the demand of a controlling coaching style, reduced levels of positive appraisal and increased levels of stress. The second component of Smith's (1986) stress model is cognitive appraisal, which is viewed as the central and pivotal

role of the stress- burnout literature (Hanton *et. al.*, 2012). Cognitive appraisal is the continuous evaluative process of perceived demands, and the perceived available resources to cope with that demand (Smith, 1986). Therefore, Smith (1986) argues that stress is the emotional coping reaction to a demanding event, and is it the appraisal of this event that may foster either positive emotions such as; confidence and belief, or negative emotions such as; depression and hopelessness (Skinner & Brewer, 2004). A negative stress response is argued by Smith (1986) to prompt physiological responses, such as tension and anger. Supported by Lemyre (2010), an increased negative perception of stress has been identified to increase basal cortisol levels, linked to metabolic problems. Additionally, a reciprocal relationship between cognitive and physiological components has been argued (Smith, 1986). That is, although physiological responses are determined by the type of cognitive appraisal, physiological responses are also part of a feedback loop that affects the type of appraisal. Thereby, Smith's (1986) model represents how burnout may manifest through a cycle of physiological responses contributing to the process of cognitive appraisal and cognitive appraisal inducing physiological responses. The final phase of Smith's (1986) cognitive–affective stress model consists of behavioural responses. Based on Thibault & Kelly's (1959) social exchange theory, the behavioural responses to stress are an individual's natural coping strategy to minimise negative experiences, examples of behavioural responses include withdrawal and reduced performance (See Appendix A).

However, the four components of athletic burnout mentioned by Smith (1986) (situational demands and resources, cognitive appraisal, physiological responses and behavioural responses) have been argued to be directly affected and influenced by personal and motivational variables. Motivational and personality variables are seen to influence an athlete's appraisal of demands, which will affect the way an athlete responds psychologically and behaviourally. For example Gould (1996), who used Smith's (1986) burnout model, identified that youth tennis players who were perfectionists had poorer coping strategies. Supported by Smith (1986), Gould (1996) argued that a perfectionist trait influenced cognitive appraisal, and resulted in negative stress to the player, and develop burnout symptoms. Which may explain why Gould's (1996) practical implications were based solely around coping strategies and stress management, despite motivational and personality variables themselves identified to each yield a significant relationship with athletic burnout.

Overall, the application of Smith's (1986) model has been identified as a useful framework to examine plethora of factors that may contribute to athletic burnout (e.g. Vealey *et. al.*, 1992, Raedeke & Smith, 2004). However, the problem with conceptualizing and reducing burnout to just a stress-based framework, may limit the understanding of the different antecedents, correlates and consequences that may preclude athletic burnout (Pines & Keinen, 2005). Additionally, there is ample anecdotal evidence to suggest that not all athletes' who experience stress burnout (Raedeke, 1997). Consequently, athletic burnout theorems need to be considered far beyond a stress-based approach (Goodger *et. al*, 2007).

Given that researchers have suggested that frameworks to need to develop further beyond stress-based theorems, Raedeke (1997) proposed a commitment-burnout perspective. Raedeke (1997) proposed that different types of commitment may link to the burnout experience; (1) the athlete wants to train/ compete; (2) the athlete believes that he or she has to train/compete (entrapment); or (3) a combination of both reasons. Moreover, athletic burnout was argued by Raedeke (1997) to manifest when an athlete feels entrapped within their sport, caused through the perception of low autonomy and rigid persistence. For example competitive swimmers who felt they had to train/ compete exhibited higher scores of burnout in comparison to the swimmers whose commitment to swimming was based upon enjoyment. A key similarity with both Smith (1986) and Raedeke (1997) was the identification that an athlete's perception of autonomy is a key moderator of athletic burnout. Autonomy is associated with changes in the levels and quality of sport motivation (i.e., the reasons why one participates) which has been highlighted to be at the centre of the athlete burnout problem (Lemyre *et. al.*, 2007). Specifically, one key theory that considers the importance of the quality of motivation and in particular autonomy satisfaction is self-determination theory (SDT) (Deci & Ryan, 1985, 2000). In the quest to develop robust interventions of athletic burnout, SDT has been advocated as a promising theory to examine the potential antecedents of athletic burnout (Cresswell & Eklund, 2006; Lonsdale, 2009).

### **2.2.1 Self Determination Theory**

Self- Determination theory (SDT) proposes that individuals are naturally inclined to seek mastery of their social environment through the satisfaction of three innate

psychological needs (autonomy, competence and relatedness) (Deci & Ryan, 2000a). With a multi-dimensional perspective, SDT argues that an individual's motives and actions for engagement are very different (Deci & Ryan 2000a). Deci & Ryan (2000a) place the varying types of motivation upon a self-determination continuum (See Appendix B) from the degree of greatest self-determined motivation (intrinsic) to least self-determined motivation (extrinsic). Each predicting separable consequences for athlete well-being and behaviours (Deci & Ryan, 2000a).

Intrinsic motivation represents the highest degree of self-determination on Deci & Ryan's (2000a) Self-Determination continuum. Intrinsic motivation refers to an athlete pursuing sport for the enjoyment, interest and the unique challenges of learning (Mallett, 2005). In contrast, extrinsic motivation refers to an athlete's engagement in sport for external outcomes and the rewards that may result from their participation (Mageau & Vallerand, 2003). Extrinsic motivation is multi-dimensional, with the various types of extrinsic motivation organized on a motivational continuum reflecting differing degrees of; either self-determined (SDEM) or non-self-determined (Non-SDEM)(See Appendix B)(Deci & Ryan, 2000a). SDEM comprises of integrated and identified regulation (Deci & Ryan, 2000). Integrated regulation refers to values that are fully assimilated with one's self e.g. attendance at training to boost self-esteem (Deci & Ryan, 2000a). Although, integrated regulation may appear to share many qualities with intrinsic motivation, it is still extrinsic as the activity is motivated not for reasons that are inherently enjoyable or interesting (Deci & Ryan, 2000a). In contrast, identified regulation refers to participation for the perceived benefits derived from engagement e.g. training will enable a better personal health (Deci & Ryan, 2000a). On the other hand, Non-SDEM comprises of external and introjected regulation (Deci & Ryan, 2000a). Introjected regulation refers to participation in order to avoid negative emotions such as guilt or anxiety (Deci & Ryan, 2000a). In contrast, external regulation refers to behaviours that are performed to satisfy an external demand (e.g. coerced by others) and is the least self-determined form of motivation (Deci & Ryan, 2000a). The last form of motivation proposed by SDT is the state of amotivation, this refers to an individual that has no value for an activity and the state of lacking an intention to act (Deci & Ryan, 2000a). Specifically, SDT proposes that when motivation becomes increasingly extrinsic and non-self-determined or amotivated, an individual is at great risk to experience negative sport experiences (e.g. depression and mood disturbance) (Lemyre *et. al.*,

2007). Conversely, positive emotional outcomes (e.g. happiness) ensue from the optimum degree of intrinsic and self-determined motivation (Deci & Ryan, 2000b). Deci & Ryan (2000a) argue that the optimum degree of intrinsic and self-determination is influenced by the internalisation process. Internalisation is a process whereby an individual endorses external values, attitudes, and beliefs. When values are freely accepted by the individual, with no external contingencies intrinsic and self-determined motivation ensue. Deci & Ryan (2000) argue that intrinsic or self-determined types of motivation will result in the satisfaction of three fundamental basic psychological needs (Deci & Ryan, 2000a).

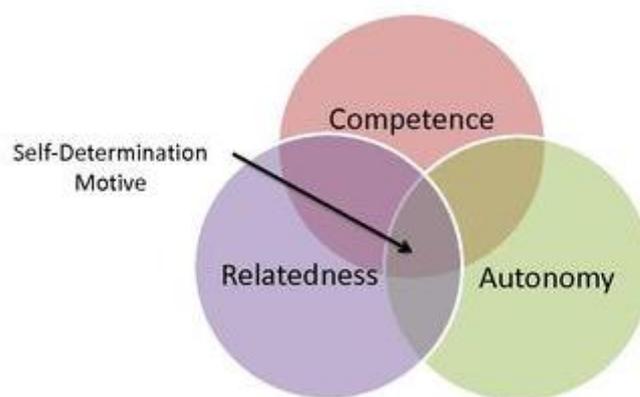


Figure1. Identifies the interaction of Psychological needs on Self-Determined Motivation (Deci & Ryan, 2000).

### 2.2.2 Basic Needs Theory

Deci & Ryan's (2000a) SDT sub-theory of Basic Psychological Needs Theory (BPNT) argues that the sporting environment will predict the way individuals engage with optimal functioning and well-being, by one's perceived satisfaction of autonomy, competence and relatedness (Cresswell & Eklund, 2005). Similarly, maladaptive behaviours that are suggested to preclude athletic burnout are argued to be caused through the chronic frustration of autonomy, competence and relatedness (Cresswell & Eklund, 2006). Firstly, autonomy refers to the experience of choice, interest and actions in accordance with one's self-endorsed values (Reinboth *et. al.*, 2004). Competence refers to the perception that one can effectively bring about desired effects and outcomes (Deci & Ryan, 2000b). Finally, relatedness refers to the feelings that one is securely connected to and understood by others (Reinboth *et. al.*,

2004). The fulfilment of these three needs have been argued to result in the outcome of intrinsically motivated behaviours, that are associated with positive emotional outcomes (e.g. Goose & Winter, 2012) and a negative association with athletic burnout (Cresswell & Eklund, 2005). In contrast, Gould (1996) stated that when these needs are undermined motivational patterns may change from intrinsic, to less self-determined, which is identified to be positively associated with athletic burnout (Cresswell & Cresswell, 2005). Therefore, according to SDT sub-theory, Cognitive Evaluation Theory (Deci & Ryan, 2000b) a detrimental impact on an individual's needs satisfaction will impact an individual's intrinsic motivation that has been identified to predict athlete burnout (Cresswell & Eklund, 2005). The latter research illuminates the relevance of a BPNT to identify what factors may enhance needs satisfaction and prevent burnout, and what factors may undermine needs satisfaction that predicts burnout (Reinboth & Duda, 2006).

Specifically, BPNT has been used to identify how the type of internalization and integration of values that take place, are influenced by psychological needs satisfaction and potentially predict or mediate burnout (Deci & Ryan, 2000b). Internalization is an active, natural process in which individuals attempt to transform or accept beliefs and values to be congruent with one's own (Deci & Ryan, 2000b). When the internalization process functions optimally, an athlete will experience greater perceived ownership of their behaviour and feel less conflict about behaving in accordance with the activity's values (Deci & Ryan, 2000b). Deci & Ryan (2000a) state that environmental conditions can influence the satisfaction of one's psychological needs, which affects an individual's ability to actively transform values and regulations into their own, and facilitate intrinsic or self-determined motivation. Specifically, external pressures in one's social environment have been identified to undermine psychological needs, as a result control and forestall, rather than facilitate the internalization process (Deci & Ryan, 2000b). To the extent that the environment undermines needs satisfaction, will determine the degree to which the internalization process is controlled and result in non-self-determined motivation, and potentially burnout (Deci & Ryan, 2000b). To this point, it has interested researchers to identify what dispositional factors within an athlete's environment may alter one's perception of psychological need satisfaction and mediate the relationship with athletic burnout (Goodger *et. al.*, 2009). One dispositional factor underpinned by the internalization

process, and has several constructs that relate and interact with the psychological needs-burnout relationship, is passion (Vallerand *et al.*, 2003)

### **2.3 Passion**

Passion is defined as 'a strong inclination towards an activity that one loves, they find important and in which they invest time and energy' (Vallerand *et al.*, p.756, 2003). Being passionate for one's sport leads individuals to dedicate themselves fully, persist and to eventually reach excellence (Vallerand *et al.*, 2007). However, Vallerand *et al.* (2003) identified that passion can also lead to the persistent engagement in an activity, despite the negative consequences associated with doing so. In line with this proposition, the recent Dualistic Model of Passion has become an interesting new hypothesis used to explore athletic burnout (Gustaffsson *et al.*, 2012).

Conceptualized by Vallerand *et al.* (2003), the Dualistic model of Passion, proposed two different types of passion: harmonious and obsessive. The two types of passion are shaped and differentiated by the types of internalization presented within SDT (autonomous or controlled) (Vallerand, *et al.* 2003; Deci & Ryan, 2000). Firstly, a harmonious passion is a passion that refers to a strong desire or motivational force that willingly encourages engagement (Vallerand *et al.*, 2003). A harmonious passion is derived from an autonomous internalisation of values and beliefs (Vallerand *et al.*, 2003). The athlete personally sees the sport as significant, freely accepts that the activity is important, but can control engagement of participation when necessary (Vallerand *et al.*, 2003). An autonomous internalization of values that translate into a harmonious passion are identified to instigate athlete well-being and positive emotions, such as flow (Vallerand *et al.*, 2003; Deci & Ryan, 2000b). Conversely, an obsessive passion refers to a strong motivational force that resides in an uncontrollable engagement (Vallerand *et al.*, 2003, study 2). Derived from the controlled internalisation of values, the athlete is subjected to an extrinsic pressure, which results in the activity being engaged in order to obtain perceived contingencies, such as popularity or self-esteem (Vallerand *et al.*, 2003). According to SDT, a controlled internalization is a derivative of low levels of psychological needs satisfaction. Thus, BPNT suggests an obsessive passionate athlete will display higher levels of non- self-determined forms of motivation and experience

negative emotional consequences, such as life conflict due to their levels of need satisfaction (Vallerand *et. al.*, 2010). Additionally, the degree to which an obsessive passion undermines need satisfaction may explain the potential relationship between passion and athlete burnout. However, it is important to note that the Dualistic Model of Passion and Deci & Ryan (2000a) Self-Determination Theory represent separable constructs (Vallerand *et. al.*, 2003). The difference between extrinsic motivation and passion is that an individual with passion has a strong liking and valuation of the activity (Vallerand *et. al.*, 2003). Secondly, Vallerand (2003, study 2) identified how passion, intrinsic and extrinsic motivation were independent of each other having measuring their effect on the changes in positive/negative affect, and obsessive passion was linked to the highest measurement of negative affect. Developing research has demonstrated obsessive passion may also be an antecedent to other cognitive-behavioural outcomes besides affect (Vallerand, *et. al.*, 2008). An obsessive passion has identified to be characteristic of a rigid form of behavioural persistence that may contribute to the burnout components of exhaustion and a reduced performance (Vallerand *et. al.*, 2008). For example, Vallerand *et. al.* (2003b), study on cyclists identified how during the winter, in dangerous conditions, obsessive passionate cyclists continued training despite likelihood of injury. Similarly, Rip *et. al.*, (2006) identified how an obsessive passion resulted in a greater time spent suffering from chronic injuries and a reluctance in taking time off to promote healing, despite a reduction in dance performance. Athletes who feel such entrapment and perceive that they must maintain their sport involvement have been reported to have a significantly higher relationship with burnout (Creswell & Eklund, 2006). Similarly, Rip *et. al.* (2006) were in support of SDT (Deci & Ryan, 2000b) when identifying that the dance environment acted as a contextual factor that undermined needs satisfaction. Intriguingly, those dancers who perceived lower levels of psychological needs satisfaction were identified as obsessively passionate, and displayed higher levels of burnout.

The Dualistic model has mainly been applied in occupational and social settings to examine the consequences of obsessive passion in compulsive and life conflicting behaviours such as gambling (Przybylski *et. al.*, 2009). Within, such studies a harmonious passion has been related to healthier and more self-determined motivation in comparison to an obsessive passion, which was associated with burnout components of exhaustion, depersonalization and reduced performance

(Tassell & Flett, 2007). Therefore, it is reasonable to assume that the low levels of need satisfaction and controlled internalisation of values congruent with an obsessive passion may be similar for athletes'. However, despite these findings within occupational psychology (Tassell & Flett, 2007), and studies conducted in other disciplines (e.g. Przybylski *et. al.*, 2009), little research has been conducted within athletic populations. Of the limited literature that has examined the passion-burnout relationship in sport, Gustaffsson *et. al.*, (2011) only identified higher perceived stress and negative affect; and results did not directly identify a relationship with athlete burnout symptoms. However, Gustaffsson *et. al.*, (2011) discussed that the generalizability of these findings are limited; with no measurement of how needs satisfaction may have mediated the burnout relationship. The second study to investigate the passion-burnout relationship was Curran *et. al.*(2011). Curran *et. al.*, (2011) noted the importance of self-determined motivation, and how such adaptive forms of motivation may mediate the effect of obsessive passion on symptoms of burnout, specifically to sport. Although, no significant linear relationship between and obsessive passion and symptoms of burnout were identified, Curran *et. al.*, (2011) stressed that psychological needs (which precludes self-determination), should be focussed upon to identify if any mediating effect occurred. Therefore, whether passion may be a direct antecedent of athletic burnout is unclear, and whether psychological needs may mediate this process is unknown.

#### **2.4 Purpose of study.**

The Dualistic model of Passion (Vallerand *et. al.*, 2003) has been applied successfully within other psychological contexts (e.g. occupational), however limited attention has been provided within a sporting context (e.g. Lafrenière *et. al.*, 2008, Vallerand *et. al.*, 2008) The Dualistic Model of Passion proposes that a harmonious passion is characterized by a full, autonomous internalization for an activity, while an incomplete, controlled internalization of values is characteristic of an obsessive passion. In line with SDT, and the suggested relationship between amotivation and burnout (Cresswell & Eklund, 2005), it would be reasonable to predict that when needs are satisfied, harmonious passion may contribute to sustained psychological well-being preventing burnout. Conversely, through low psychological need satisfaction, an obsessive passion may be an antecedent of burnout.

Moreover, the objective of the current study is to explore whether passion is an antecedent of athlete burnout. Additionally, does basic psychological needs mediate any relationship between passion and burnout, using a sample of generalizable competitive athletes. Competitive athletes will be defined as athletes participating at a level higher than a recreational-based sport environment (e.g. inter-mural) and have been through some sort of a team selection process (e.g. try-outs) (Paradis *et. al.*, 2012).

The implications of this study will be the contribution to the growing knowledge of athlete burnout, through exploring whether passion may be a direct antecedent of burnout, and if psychological needs may mediate this relationship.

# **CHAPTER THREE**

## **METHOD**

## 3.0 Method

### 3.1 Introduction

As the aim of this study was to test whether passion may predict athlete burnout, a quantitative research approach was used in the current study. A quantitative approach has enabled the researcher to construct, measure and analyse a hypothesis more credibly than a qualitative approach, but also enable the researcher to create a regression model to predict outcome behaviours (Smith, 2010; Johnston *et. al.*, 2004). This chapter will forward the methodology of this study, justifying the sample, data collection and data analysis used. This chapter will culminate with a discussion of the studies validity and reliability.

### 3.2 Participants

One hundred and twenty individual (n= 51) and team sport players (n= 69) participated in this psychological study. Comprising of female (n= 45)) and male (n=75) competitive athletes. Female athletes were a mean age of 21.73 years (SD= 5.90) and the male athletes mean age was 22.34 years (SD= 5.76). Athletes represented twenty one different sports (e.g. athletics and football), at club (n=6), county (n=34), regional (n=27), national (n=30) and international (n=23) level participating competitively in their sport for a mean of 11. 71 years (SD=9.76) (See Appendix C for a full breakdown of demographic variables). Competitive athletes were defined as athletes participating at a level higher than a recreational-based sport environment (e.g. inter-mural) and had been through some sort of a team selection process (e.g. try-outs) (Paradis *et. al.*, 2012). Players informational responses of age, levels of performance, and years of participation will not be split and analysed separately as such variables have been screened and inferred no difference between groups (Mageau *et. al.*, 2009) Thus, t-test comparisons for these variables were not calculated. However, these variables will be included within the demographic information section for the researchers benefit to aid the collection of equal responses. In the instance of finding empty responses, the researcher will input a value (99) in order to retain data for that participant(s).

The participants for this study were selected through a purposive and convenient sampling method (Smith, 2010). This enabled the researcher to acquire a study sample with ease whilst having the specific characteristics related to Paradis

*et. al.*,’s (2012) criteria of a competitive athlete (Smith, 2010). Upon agreement, the participants provided written informed consent (See Table 1: Appendix B) to take part in the study (Gratton and Jones, 2010). Each participant was asked to complete demographic information identifying age, gender, primary sport played, return to sport, level of competition and leadership status to ensure a representative population and matching Paradis *et. al.*,(2012) criteria of a competitive athlete (Smith, 2010).

### **3.3 Procedure**

Following ethical approval by the UWIC Ethical Committee (UEC) at the Cardiff Metropolitan University. Firstly, the purpose and instructions for the study were explained on the participant information sheet (See Appendix C) of the questionnaire booklet. Written informed consent was acquired via the front forms on the questionnaire, which also explained that there was no specific time allocation, the right to not participate, withdrawal of data at any time and that personal information will be kept confidential and not shown to anyone else except the listed researchers. Only competitive athletes over 18 years were contacted to participate (See Appendix D). Athletes that were eligible to participate and gave consent filled in the questionnaire booklets which contained a demographic section, Passion scale, Athlete Burnout question and Basic Psychological Needs in Sport Scale (See Appendix D). Booklets were handed out at either training or in a quiet area outside of their normal training environment.

### **3.4 Instrumentation**

#### **3.4.1 Passion Scale (Vallerand *et. al.*, 2003)**

Athletes’ passion towards sport was assessed using the Passion Scale (Vallerand *et. al.*, 2003) However, within the present study; the term ‘this activity’ was substituted for the term ‘this sport’. The Passion scale is composed of two 7-item subscales: harmonious passion (e.g., ‘this sport is in harmony with other activities in my life’) and obsessive passion (e.g., ‘I cannot imagine my life without this sport’). Participants indicated their responses on a 1 (Do not agree at all) to 7 (Very strongly agree) likert scale. To test the reliability of the passion scale, Cronbach’s alpha

(1951) was calculated. Chronbach's alpha (1951) confirmed a satisfactory internal consistency for the harmonious passion subscale ( $\alpha$  0.78) and for the obsessive passion subscale ( $\alpha$  0.9). Scores ( $P > 0.7$ ) indicate a high level of internal consistency (Parastatidou *et al.*, 2012). Several studies have also shown high scores of reliability for the Vallerand *et al.* (2003) passion scale (Parastatidou *et al.*, 2012; Vallerand *et al.*, 2005; 2006; 2008).

### **3.4.2 Basic Psychological Needs in Sport Scale (Ng *et al.*, 2011)**

Measurement of psychological needs satisfaction will be made using the Basic Psychological Needs Satisfaction in Sport Scale (BPNSS) (Ng *et al.*, 2011). The BPNSS was used to employ a domain-specific measurement which will improve the confidence that the data collected is of relevance to a competitive sporting context (Ng *et al.*, 2011). The BPNSS is a 20-item measurement scale which aims to measure the degree of need satisfaction by using 5 subscale which include competence, autonomy (separated into choice, internal perceived locus of causality (IPLOC), volition) and relatedness (Ng *et al.*, 2011). Examples of questions include 'I show concern for others in my sport' and 'I overcome challenges in my sport) The BPNSS has supportive evidence of reliability and construct validity in sport psychology (e.g. Ng *et al.*, 2011). Within this investigation the BPNSS demonstrated high levels of reliability ( $p > 0.7$ ) with alpha coefficients scores; autonomy ( $\alpha$  0.90), competence ( $\alpha$  0.92) and relatedness ( $\alpha$  0.87). Additionally, past research into Basic Psychological Need Satisfaction has predominantly used adapted need scales which originate from the social sectors (Ng *et al.* 2011). Therefore, the use of the BPNSS scale use is strengthened as it is the only basic psychological needs inventory specific to sport (Ng *et al.* 2011).

### **3.4.3 Athlete Burnout Questionnaire (Raedeke & Smith, 2001)**

Burnout will be assessed using The Athlete Burnout Questionnaire (ABQ) developed by Raedeke and Smith (2001) .The ABQ is an overall 15-item scale which includes three sub-divisions which contain 5-items each. Scales comprise of Emotional and Physical Exhaustion which includes questions such as 'I feel I don't have energy',

Reduced Sense of Accomplishment which is explored by 'I'm not achieving much,' and Devaluation of sport participation, which refers to questions such as 'I feel less concerned about being successful' (Raedeke and Smith, 2009). The ABQ has been designed as a burnout measure specific to competitive athletes and has been used extensively and effectively to measure the athletic burnout within literature (e.g. Cresswell and Eklund, 2005; 2006). Each scale is marked on a 5-point likert scale with a low score descriptor of 1='Not at all' to a high score descriptor of 5='Very Much'. The use of the Athlete Burnout Questionnaire is supported with the internal consistency of the three subscales within the ABQ reporting significant Cronbach alpha values ( $p > 0.7$ ) for physical and emotional exhaustion ( $\alpha$  0.86), reduced sense of accomplishment ( $\alpha$  0.91) and devaluation ( $\alpha$  0.79).

### **3.5 Data Analysis**

Statistical analysis was calculated using the Statistical Package for the Social Sciences software (for Windows, Version 19.0, SPSS, IBM, New York, United States). Means and standard deviations of the Passion Scale, ABQ and BNSS were calculated and are presented in Table 1.

The principal statistical analysis performed in this study was a multiple regression analysis. A multiple regression analysis was used to evaluate the effects of two independent variables (passion and needs satisfaction) on one dependant variable (burnout) (Field, 2009). However, a multiple regression analysis can only accurately estimate the relationships between a dependent and independent variables if they meet the assumptions of a regression test. Firstly, relationships between each variable must be linear in nature (assumption of linearity) (Field, 2009). Therefore, preliminary analysis will consist of a Pearson's bivariate correlation test to check for multicollinearity and linearity between the Passion, ABQ and BPNSS subscales. Variables that do not meet the assumptions of multicollinearity and no linear relationship will be systematically removed (Howitt & Cramer, 1997). A P-P plot was calculated to test for homoscedasticity (Appendix G), A Durbin-Watson test was calculated to test for autocorrelation and finally, a Mahalanobis distance was calculated to detect any outliers within the pearsons correlation testing, as any outliers can affect the development of the regression model ( $p > 0.03$ ) (Field, 2009). A Multiple regression analysis for determining the strength of relationships between

variables will be analysed using  $R^2$  Values,  $\beta$  weights and F-values. Finally, a Sobel test, will be calculated to determine the strength of any basic needs satisfaction mediation with the relationship between passion and burnout. Mediation will exist when the relationship between passion and burnout is explained and altered by the satisfaction of basic psychological needs Figure 2 (Field, 2009).

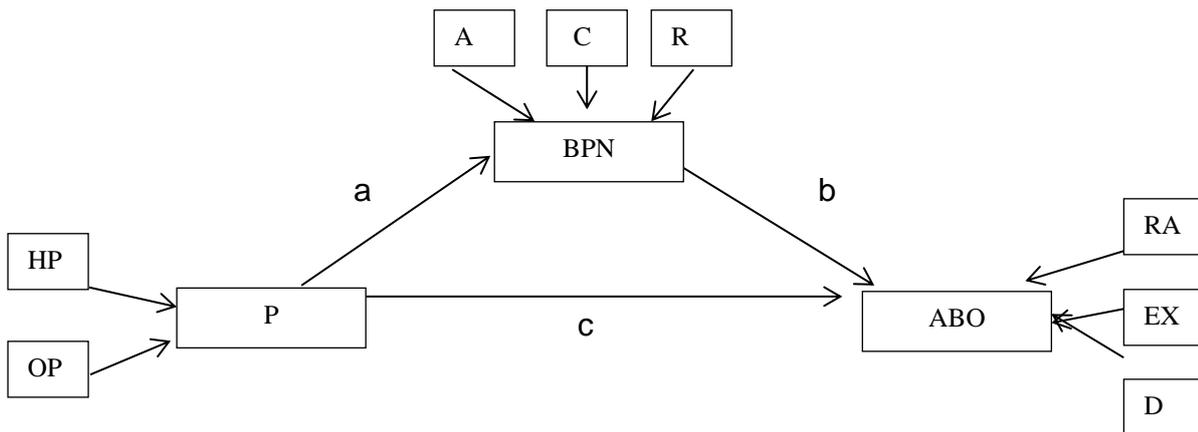


Figure 2. The proposed mediating role of basic psychological needs on the relationship between harmonious/ obsessive passion and athlete burnout. Note; HP = harmonious passion, OP = obsessive passion, BPNS = Basic psychological needs, ABO = athlete burnout, RA = reduced accomplishment, EX = exhaustion, D = devaluation. Path 'a' represents the effect on BPN (mediator).

$R^2$  values were calculated to quantify how successful the proposed statistical model of fit is for explaining the strength of relationship between psychological needs and the passion-burnout relationship (Field, 2009). In order to clarify how significant the mediating role of psychological needs may be with the prediction of burnout, Beta weights ( $\beta$ ) were calculated (Field, 2009). Additionally, the beta weight is important to identify if the mediating relationship predicts a positive or negative effect on burnout. To support, F-ratios were calculated to test the equality of variances. F-ratios are important to determine whether the variances of harmonious passion and obsessive passion are equal. Finally, multivariate data cleaning is important in multiple regression analysis (Tabachnick & Fidell, 2007 p 139). Extreme anomalous data can

have considerable impact on the regression equation, consequently, Z- scores were calculated (greater than +3 and less than -3) to detect multivariate outliers the within multiple regression analysis and Mahalanobis distance was calculated to detect any outliers within the pearsons correlation testing.

# **CHAPTER FOUR**

## **RESULTS**

## 4.0 Results

The purpose of this section is to address the hypothesis, that basic psychological needs may mediate the relationship between passion and burnout. Using the results from the statistical analysis on the data gathered from the Passion Scale (Vallerand *et. al.*, 2003), Basic Psychological Needs in Sport Scale (Ng *et. al.*, 2011) and Athlete Burnout Questionnaire (Raedeke & Smith, 2001). Additionally, this section will aim to provide a precise description on all the data analysed.

### 4.1 Assumption testing

The primary analysis undertaken was a multiple regression analysis, the main purpose of a multiple regression analysis was to quantify the strength in the relationship between passion-burnout and needs (R value), and then quantify if the variation of burnout symptoms (dependant variable) can be explained by the satisfaction of psychological needs (independent variable) (R<sup>2</sup> value) (Hinton *et. al.*, 2004). Most importantly, a multiple regression analysis will enable the researcher to create a model to demonstrate if athlete burnout may due to the effects of passion and needs satisfaction. However, when conducting a multiple regression it important to consider the statistical features of the analysis that may affect the validity of the regression values (Field, 2009). In order, to ensure validity of a multiple regression analysis there is a number of key assumptions that should be met (Coakes & Steed, 1999). Firstly, variable types should be quantitative to match the quantitative data gathered from the Passion Scale, BNSSS, ABQ subscales. Of the data collected from sub-scales, when conducting the regression analysis, the variance of values must differ, which they did (See Appendix F). Secondly, it is important to insure linear relationships between the predictor variables (passion and psychological needs). The assumption of linearity was addressed by calculating Pearson's correlation prior to regression testing and identifying significant linear relationships ( $p > 0.05$ ) (See Table 2) Meeting the assumption of linearity will ensure that any relationship with burnout, is due to the changes in Passion and/or Psychological Needs satisfaction. The variables that were not linear were removed and not included within the regression analysis (See Table 2 for significant variables). However, when conducting linearity, the

assumption of multicollinearity must be considered. Multicollinearity exists when independent variables are so highly correlated with each other that they do not demonstrate the true effect of the independent variables (passion and psychological needs satisfaction) on the dependent variable (burnout). Pearson's correlation results (See Table 2) identify that there is no multicollinearity, as the P value for each variable is not as much as 0.8 (Hinton *et. al.*, 2004). In order to assume that the Pearson's correlations are valid, and that population variables have normal distributions testing for Homoscedasticity is important (Hinton *et. al.*, 2004). Homoscedasticity refers to the variance of errors being the same across all levels of the independent variables (passion and psychological needs) and representative of the population. The current study met this assumption through the visual representation of P-P scatter plots (Appendix G) In addition, to test for the correlation between errors (Auto-Correlation) testing was calculated through a Durbin-Watson test (Field, 2009). This is important to test whether the data is independent of errors and meet the assumption of autocorrelation. An autocorrelation of +1 represents that the assumption of autocorrelation is met (Harmonious Passion= 1.51) (Obsessive Passion = 1.54) (Field, 2009).

#### **4.2. Data screening and preliminary analysis**

Prior to the multiple regression analysis, the internal consistency of the passion scale, athlete burnout questionnaire and basic psychological scale was calculated using Cronbach's (1951) alpha ( $\alpha$ ) coefficient. All subscales demonstrated  $\alpha$  coefficient's greater than 0.70, indicating an acceptable level of internal consistency (Flury, 1993). To improve the validity and reliability of the regression model; all assumptions (whole data set testing and individual variable testing) mentioned in the latter section (4.1 Assumption Testing) were met. This means that the regression model proposed by the researcher is highly valid and reliable. Descriptive statistics were computed (see Table I: Appendix F), however, age, levels of performance, gender, years of participation, leadership status and starting position were not analysed as have been identified to infer no relationship with passion, thus the descriptive statistics of these variables (See Appendix F) were not included in the results (Mageau *et. al.*, 2009).

Table 1. Means, standard deviations and cronbach's alphas for competitive athletes.

Variable	M	SD( $\pm$ )	$\alpha$
OP	5.68	1.38	0.91
HP	4.76	0.79	0.79
ABQ-RSA	4.61	0.65	0.91
ABQ- EPE	3.76	1.57	0.86
ABQ-D	3.18	1.60	0.79
BPN-A	6.87	1.13	0.90
BPN-C	6.04	1.80	0.92
BPN-R	7.05	1.32	0.87

Note: obsessive passion (OP) harmonious passion (HP), Burnout components of Reduced sense of accomplishment (ABQ-RSA), Emotional and Physical exhaustion (EPE), Devaluation (D), Basic psychological needs of Autonomy (BPN-A), Competence (BPN-C), Relatedness (BPN-R). Criteria alpha level  $p > 0.7$ .

### 4.3 Correlation

A Pearson's correlation analysis (see Table 2.) was administered to test the assumption of multicollinearity and linearity between burnout (dependant variable) psychological needs and passion (independent variables). The components of the variables that were statistically non-significant ( $p > 0.01$ ) were removed from further analysis. Bivariate correlation analysis revealed only autonomy to have a linear correlation with obsessive passion. In contrast, autonomy, competence and relatedness were positively correlated with harmonious passion. Autonomy was identified to be negatively correlated to the burnout component of devaluation. Finally, both types of passion; harmonious and obsessive were significantly negatively correlated with devaluation. Field (2009) argued that if you model a non-linear relationship the generalizability of the regression model will be limited, as will not meet the regression assumptions of linearity (Field, 2009). As a result, only the psychological need of autonomy was only entered into the regression analysis. This enabled confirmation of the presence of linearity, thus a straight relationship can be predicted between burnout (dependant variable), passion (independent variable) and psychological needs (mediator variable).

Table 2. Identifies Pearson correlations for passion, needs and burnout subscales that were significant, all components that were non-significant were not included in this table.

Variable	HP	OP	Autonomy	Competence	Relatedness	Devaluation
HP	-	-	-	-	-	-
OP	.608**	-	-	.-	-	-
Autonomy	.516**	.451**	-	.-	-	-
Competence	.323**	.143	.354**	-	-	-
Relatedness	.319**	.155	.367**	.367**	-	-
Devaluation	-.459**	-.534**	-.331**	-.260**	-.071	-

Note:  $n = 120, p > 0.01^{**}$

#### 4.4 Multiple Regression Analysis

A multiple regression analysis was conducted to identify if the satisfaction of basic needs had a mediating influence on the passion- burnout relationship.  $R^2$  results obtained from the multiple regression analysis reported that psychological needs accounted for 24.7 % of the harmonious passion-burnout relationship. Conversely, psychological needs accounted for 32.7% variance with the obsessive passion-burnout relationship. Additionally, the examination of beta coefficients identified that psychological needs mediated relationships between passion and burnout (see Table. 3). The larger the absolute value of the beta weight, the more influence this factor has on predicting the criterion, reciprocally the lower the beta weight the lower the prediction. The beta coefficients identify that both: harmonious (-0.795) and obsessive passion (-0.486) do not predict athlete burnout. Thus, when psychological needs is entered within the passion- burnout relationship, the  $R^2$  value of the passion-burnout has decreased. Which demonstrates that psychological needs are a mechanism of the passion-burnout relationship. However, because when psychological needs is controlled for and passion still decreases the relationship with burnout (devaluation component) the mediation is only partial.

Additionally, F-ratio scores sustain the overall fit of a regression model (Field, 2009). With observed values of harmonious passion ( $F = 9.411$ ) and obsessive passion ( $F = 13.961$ ) above the critical value ( $p > 0.05$ ) the researcher can be confident that psychological needs partially mediates the passion-burnout effect.

In order to determine the statistical significance of the mediating effect Field (2009) suggested calculating a Sobel test. The Sobel score will quantify how much of a mediating effect psychological needs has by the indirect path from passion to burnout. Statistically, the larger the value from 0, the larger the mediating effect psychological needs has on the passion-burnout relationship. Specifically, with sample size of over 100 a Sobel test is sufficient and valid (Field, 2009). Sobel scores support the significance of the mediating mechanism psychological needs has with the passion-burnout relationship.

**Table 3.** Regression squared, Beta weights F-ratios of the mediating role of psychological needs on the passion (harmonious and obsessive) burnout relationship.

Variable	R <sup>2</sup>	$\beta$	F
Harmonious Passion	.247	-.795	9.411
Obsessive Passion	.327	-.486	13.961

*Note: Dependent variable: Devaluation ( $p > 0.01$ )*

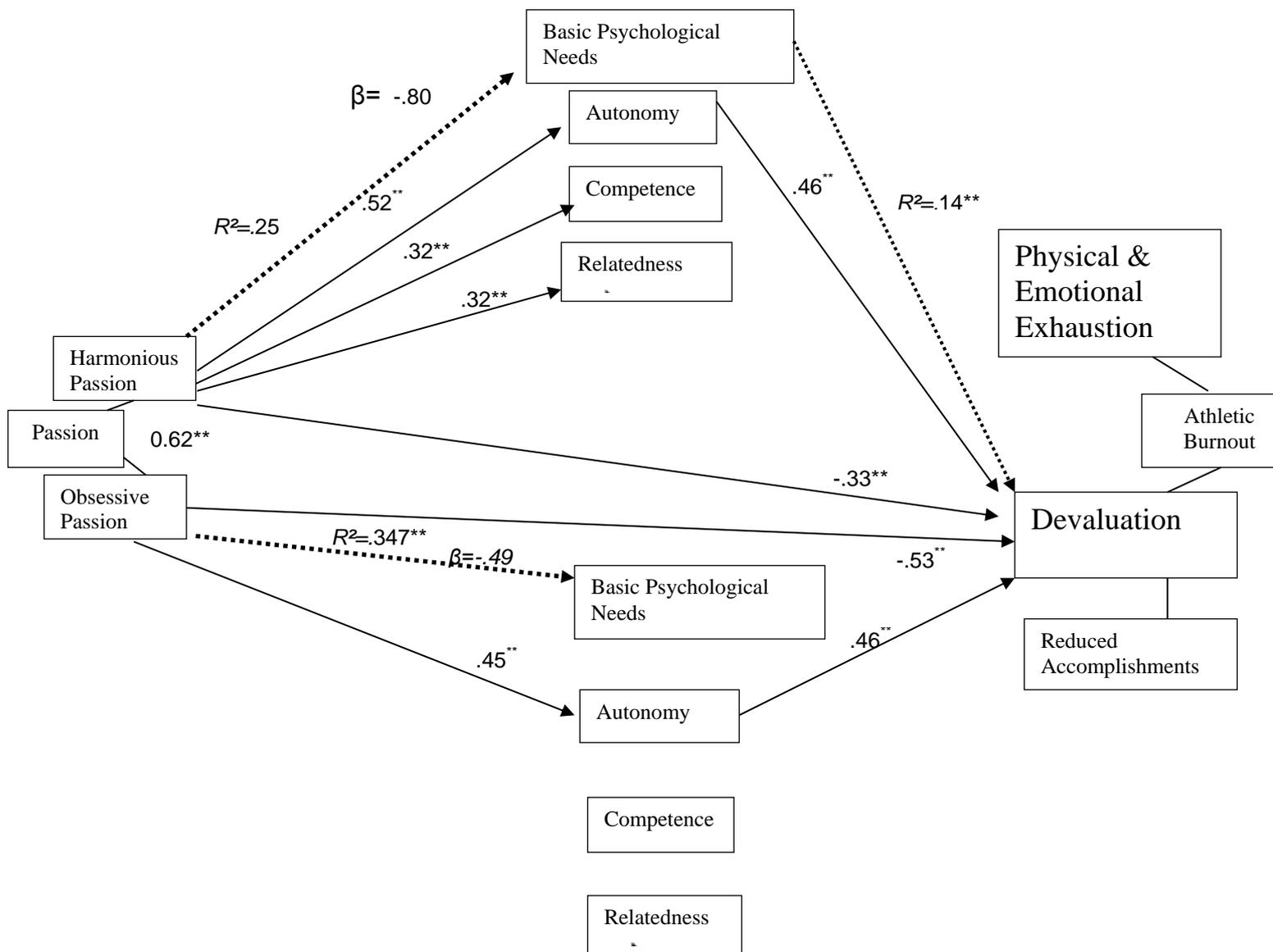


Figure 3. Depicts the correlation and regression of passion (harmonious and obsessive) basic psychological needs and burnout.

The proposed model in Figure 3 depicts  $R^2$  values to quantify how well passion predicts burnout with the mediation of psychological needs.  $\beta$  weights are depicted to identify how much burnout will increase when passion and needs satisfaction increases, by one Standard Deviation. Finally, Pearson's correlation coefficients are depicted to identify the linear relationships between all variables (passion, needs and burnout) are identified.

# **CHAPTER FIVE**

## **DISCUSSION**

### 5.0 Discussion

This final chapter will discuss the findings of the study in relation to previous research, whilst exploring the passion- burnout relationship and the mediating role

of psychological needs. The primary purpose of the current study was to explore if passion (harmonious and obsessive) may predict athlete burnout and whether psychological needs may mediate the passion-burnout relationship within a sample of competitive athletes. Results identified that passion did not directly predict burnout, however psychological needs was identified to partially mediate the effects of passion on the symptoms of burnout. The practical implications derived from such findings will be proposed, concluding with the strengths, weaknesses and considerations of future research. The study aimed to contribute to the vast growing phenomenon of passion, whilst advancing knowledge the antecedents of burnout within sport.

### **5.1 Harmonious passion- burnout relationship**

Harmonious passion has been associated with a plethora of positive emotional outcomes such as; high-quality coach athlete relationships (Lafrenière *et. al.*, 2009), flexible engagement (Hodgins & Knee, 2002), and the reduction of maladaptive outcomes that reduced symptoms of burnout (Vallerand *et. al.*, 2008). Relative to expectations, the current study inferred no relationship with harmonious passion, exhaustion components and reduced accomplishments. In addition, the findings that a harmonious passion will decrease the burnout component of sport devaluation are consistent with Vallerand *et. al.*'s (2003) conceptualized of a passion, as one having a high sport valuation. Similarly, the component of reduced accomplishments was unlikely to be threatened due to the autonomy satisfaction associated with a harmonious passion (Vallerand *et. al.*, 2008). Specifically, during the achievement process (e.g. mastering achievement-related activities), harmonious passion has been identified to provide higher adaptive behavioural involvement and adaptive persistence with sport participation. Such attributes are encouraged by Erickson (2006) whom argued that successful deliberate practice facilitated through concentration and focus, will improve performance accomplishments. Additionally, Meeusen *et. al.* (2006) identified that successful performance must avoid the combination of excessive overload plus inadequate recovery. Consequently, harmonious passion has been associated to enable flexible persistence, and reduction in participation that will enable a performer to cease participation with no negative contingency attached

to doing so (e.g. guilt) (Rip *et. al.*, 2006). Thus, justifying why no relationship with harmonious passion and reduced accomplishments was identified. The latter explanation may also identify why no relationship was found with the exhaustion component of burnout. Tassell & Flett (2007) support that the flexible persistence characteristic of a harmonious passion will reduce the emotional overextension and fatigue that is linked to exhaustion (Rip *et. al.*, 2006).

## **5.2 Obsessive passion - burnout relationship**

Obsessive passion has been associated with a variety of adverse cognitive and affective outcomes such as; negative affect, stress and pressure, of which all have been noted to constitute to the components of emotional and physical exhaustion and reduced accomplishment (Tassell & Flett, 2007). Although an obsessive passion is characterized by a high level of sports valuation (Vallerand *et. al.*, 2003), the controlled internalization of values and beliefs would be argued by Deci & Ryan (2000b) to contribute to sport devaluation. However, a negative linear correlation with obsessive passion and an athlete's devaluation of sport identified that obsessive passion is not a direct antecedent of the devaluation component of burnout. Intriguingly it has been identified as a mechanism that will decrease the perception of sports devaluation. Interestingly, occupational literature has identified contrasting results in which obsessive passion increases the perception of developing burnout (e.g. Tassell & Flett, 2007). However Curran *et. al.* (2010) argued that the findings of the current study should not be compared to occupational burnout, due to the measuring of burnout within an occupational setting and a sporting environment differ due to contextual differences. For instance, the devaluation symptom within occupational burnout is measured by depersonalisation, which refers to a detachment from an individual's identity e.g. a lack of interpersonal engagement, dehumanizing clientele/labelling (Tassell & Flett, 2007). Conversely, within sport this is replaced by devaluation, which refers to a decrease in the value of sport participation (Raedeke & Smith, 2001). As a result, the current study findings of a negative correlation between an obsessive passion and sport devaluation, may be useful to illuminate that an obsessive passion is less cause for concern than within an occupational context, and it is unlikely for an obsessive passionate athlete to devalue their sport, as a core assumption of a passion is activity valuation (Vallerand *et. al.*, 2003, study 1).

However, what leads an individual to ignore signs of exhaustion is associated with the rigid persistence characteristic of an obsessive passion (Gustafsson *et. al.*, 2008). Similarly, contrary to expectation, no linear relationship was identified with an obsessive passion and the exhaustion component of burnout within this study. The exhaustion component of burnout may be linked to the number of deliberate practice hours an athlete may take part in (Erickson, 2006), which suggested by Raedeke *et. al.* (2002) is directly influenced by the athletes coach. It may be suggested that no relationship between an obsessive passion and the exhaustion component of burnout was identified as the athletes coaching programme incorporates enough recovery between training. Specifically, Raedeke *et. al.* (2002) noted that when coaches were well-informed on athletic burnout, they could identify athletes who displayed characteristics of an obsessive passion (e.g. 'centred their lives on swimming 'p.19) and that they were prone to burnout. Coaches also cited the importance of promoting the need to be flexible and give athletes time off from training (Raedeke *et. al.*, 2002). Therefore, although an obsessive passion is developed through a controlled internalization of values, and athletes not truly understanding the meaning or rationale behind the regulation (Deci & Ryan, 2000b), coaches' that reinforce the values of recovery may suggest why an obsessive passionate athlete may not perceive the burnout component of exhaustion, within this study. Similarly, a continuous involvement with little recovery is linked to a reduction in athletic performance (Rip *et. al.*, 2006). However, once again, contrary to expectations no relationship with an obsessive passion and reduced accomplishments was identified. An explanation may be based upon Rip *et. al.*'s (2006) dancing culture study. Rip *et. al.* (2006) identified that the type of values that are controlled into ones' identity (e.g. normalize the acceptance of the 'culture of pain', 'suffering in silence') maybe what induces an individual's level of persistence and recovery, which will affect one's sporting performance (Rip *et. al.*, 2006). Consequently, it could be argued that the athletes' within this study have coaches' which delegate appropriate values for recovery. However, it must be stressed at present, the area of burnout is void of any experimental research that directly measures such an assumption, moreover it may not be full understood why no relationship with the exhaustion component and obsessive passion has occurred. Thus, researchers seeking to advance this

study would be advised to examine the types of values that athletes may promote within the climates obsessive passionate athletes participate in.

Furthermore, current results demonstrate that within the realm of sport, obsessive passion is not a direct antecedent with athletic burnout.

### **5.3 Passion- Needs relationship**

The current study identified that the affective and cognitive consequences associated with psychological needs satisfaction partially mediates the effect of passion on burnout.

#### **5.3.1 Harmonious passion and psychological needs relationship**

Harmonious passion has been argued to enhance an athlete's perception of feeling autonomous, competent and related (Gustafsson *et. al.*, 2011). Similarly, the current study has identified that harmonious passion did have a significant positive relationship with all three psychological needs of autonomy, competence and relatedness. Such results are consistent with SDT (Deci & Ryan, 2000) and Vallerand *et. al.*'s (2003) conceptualization of harmonious passion. An important finding from this study was identification of the partial mediating role of psychological needs. Partial mediation occurred as when psychological needs is entered within the regression model (See Figure 3) the perception of burnout components decreases further, than when psychological needs is controlled for in the regression model. Partial mediation occurs as there has already been a linear relationship identified between harmonious passion and the devaluation component of burnout. The importance of this partial mediating relationship is useful to identify that increasing an athletes' psychological needs satisfaction will further reduce the risk of developing sport devaluation. The partial mediation that has occurred may be explained by SDT (Deci & Ryan, 2000b) and Vallerand *et. al.* (2003), who state that the nature of engagement and emotions derived from being harmoniously passionate (e.g., personal endorsement, well-being, positive affect) are likely to satisfy an athletes' autonomy, competence and relatedness. Firstly, autonomy satisfaction has occurred as a harmonious passion is a reflection of an autonomous internalization of values, derived from the perception of satisfaction

with ones' psychological needs. The high perception of the psychological need of autonomy in this study may be explained by the flexible manner and personal endorsement of values that derive from autonomous internalization (Gustafsson *et al.*, 2011). Specifically, Vallerand *et al.* (2003) argued that for a passion to be deemed harmonious, the individual must engage willingly and autonomously. Competence satisfaction may also be explained through the flexible nature of engagement associated with a harmonious passion (Vallerand *et al.*, 2003, Study 1). For example, Mageau *et al.*, (2005) explained that flexible engagement is a high correlate of competence, as it enables athletes to achieve a high level of focus and the ability to ignore any threat directed at one's identity if unsuccessful. Finally, harmonious passion predicts situational positive affect, a key correlate of relatedness which develops high-quality coach-athlete relationships (Lafrenière *et al.*, 2008) whilst facilitating positive interpersonal behaviours with others (Fredrickson, 2001) (e.g., smiling). Overall, the current study is well justified to argue that a harmonious passion will predict a positive association with all three of an athletes' psychological needs. More specifically, psychological need satisfaction has a partial mediating role with the harmonious passion-burnout relationship which is an important finding for coaches' and athletes.

### **5.3.2 Obsessive passion and psychological needs relationship**

The degree to which basic psychological needs are supported will determine the way values are internalized into an athlete's identity (Deci & Ryan, 2000b). Therefore, in coherence with Vallerand *et al.*, (2003) Dualistic Model, an obsessive passion is determined by a controlled internalization of values, argued to stem from the dissatisfaction of needs in one's social climate. Intriguingly, no relationship of obsessive passion thwarting of autonomy, competence and relatedness was identified. Specifically, psychological needs satisfaction (autonomy in particular) was identified to partially mediate the perception of the devaluation component of burnout and. This is an interesting finding as typically, an obsessive passion has been associated with a pressured and rigid and life conflicting engagement that undermines psychological needs (Vallerand *et al.*, 2003, study 2). Vallerand *et al.* (2003) conceptualization of obsessive passion strongly predicts that an obsessive passion would undermine autonomy. However, the current study identified a significant positive correlation with obsessive passion

and the perception of autonomy. This is in contrast to the assumptions made within SDT (Deci & Ryan, 2000b) and specifically, Vallerand (2003) who stated that an obsessive passionate individual should not experience feelings of autonomy due to the controlled internalization of values and contingencies associated with their motives of an obsessive passion. Therefore, in line with SDT it is hypothesized that the perception of autonomy experienced by obsessive passionate athletes is due to the social context (Deci & Ryan, 2000b). In contrast to occupational literature, Zaichkowsky (2006) argued that it is important to consider contextual differences within sporting environment as is a unique discipline. Therefore, although an obsessive passion is specifically linked to undermine autonomy (e.g. humanitarian workers (Tassell & Flett, 2007), within an occupational context, the perception of autonomy may be appraised differently within a sporting context. In support of this assumption, Amoit *et. al.* (2005) noted how obsessively passionate athletes may neglect other life pursuits and social interactions at the expense of increased training hours to improve and fulfil their sporting objectives. Thus, although the development of an obsessive passion may have been a result of a controlled internalization (Vallerand *et. al.*, 2003), athletes who perceive environments as autonomy supportive will feel more autonomous than controlled, which is associated with buffering the negative effects associated with an obsessive passion (Deci & Ryan, 2000a). As a result, of autonomy satisfaction the regression model has identified that psychological need satisfaction can mediate the obsessive passion-burnout relationship and decrease an athletes' devaluation component of burnout further than when needs was controlled for.

However, no relationship was identified with competence satisfaction. Contrasting findings by Tanaka & Sekiya (2010) suggest that an obsessively passionate athletes competence should be undermined, due to the pressure and rigid involvement, which may cause an athlete from full focusing on the task. However, this may also explain why the perception of competence with obsessive passionate athletes within this study was not as high as the perception of competence with harmonious passionate athletes. Underpinned by conscious processing hypothesis, it is well known that many athletes experience deterioration in motor performance when under the pressure and stress exhibited by an obsessive passion (Hardy & Mullen, 2000). A controlled internalization,

characteristic of an obsessive passion will induce pressure and stress (Vallerand *et. al.*, 2008) Thus, such a reduction in desired outcomes and effectiveness with the environment is associated to impact upon an individual's perception of competency (Vallerand *et. al.*, 2009; Connell & Wellbourn, 1991) Thus, obsessive passionate athletes perceived little satisfaction of feeling competent within this study, however they were not under so much stress and pressure that it was thwarted. Similarly, obsessive passionate athletes had no relationship with their perception of relatedness. Deci & Ryan (2000a) stated that to feel related one must feel connected with important others and feel one's social environment is significant. Such determinants are contradictory of those stated by Vallerand *et. al.* (2003), whereby an obsessive passion reduces the perception of feeling related with others with others and have little relationship with sporting environment (i.e. only participate due to the contingencies attached (e.g. self-esteem). Within, this investigation a key finding is the importance of autonomy in the mediating role with obsessive passion and decreasing the perception of sport devaluation However, the caveat to the explanation of why these results have occurred are based on prior research, therefore it is important to advocate that future research must be conducted within a sporting context.

#### **5.4 Mediating role of psychological needs.**

Specifically, the assessment of regression identified that psychological needs satisfaction accounted for 24.7% of the variation with the relationship with harmonious passion and burnout, and obsessive passion accounted for 32.7%, indicating partial mediation. Partial mediation implies that psychological needs accounted for some, but not all, of the relationship with burnout (Field, 2009).

Autonomy was noted as the key mediating variable within this study (as only psychological needs directly related to obsessive passion). Interpretations of results demonstrate that the satisfaction of particularly autonomy will mediate the direct effect of passion on burnout and explain the inverse relationship between passion and burnout noted within this study. Supported by SDT (Deci & Ryan, 2000b), the findings suggest that the greater the satisfaction of all three psychological needs, the greater the reduction of athlete burnout symptoms, specifically, athletes' devaluation

## **5.5 Practical Implications.**

Firstly, the current study is the only study to investigate the passion-burnout relationship whilst investigating the effects of psychological needs as mediating variable, using a sample of competitive athletes. Although burnout has been identified as a corrosive syndrome for sports participants, the mechanisms that explain the development of burnout are still not understood (Curran *et. al.*, 2011). Moreover, the study provides a greater exploration of the burnout phenomenon by introducing new motivational concepts that have yet to be explore (Goodger *et. al.*, 2007). Whilst investigating, the study also verified the importance of considering burnout as multi-dimensional phenomenon, which enabled the researcher to detect differential relationships and gain a greater understanding of the burnout process and avoid multicollinearity (Demerouti *et. al.*, 2005). The current study provides support for the application of investigating and diagnosing burnout from a multidimensional perspective, and not simply reducing burnout into a simple stress reaction.

Secondly, the study supports Deci & Ryan (2002), who argue that lower levels of psychological need satisfaction will result in higher levels of burnout. The study illuminates the importance of psychological need satisfaction, specifically, autonomy satisfaction. The identified partial mediating effect on burnout evidences the importance of athletes' feeling autonomous, competent and related within their social-climate. Consequently, coaches would be advised to facilitate an autonomy-supportive environment, enhance control and promote athletes to be more self-efficient with their engagement (Raedeke *et. al.*, 2002). More importantly, identifying that over all need satisfaction within obsessive passionate was lower than harmonious passion. With coaches' being identified to influence an athletes perception of their motivational climate, they may be advised to promote task-involved goals (Smith *et. al.*, 2007) Task-involved goals are self-referenced, skill-based and focussed on not out-performing other, thus demonstrated to improve perceptions of competence, however these goals should try and be set with the athlete to improve self-concordance (Smith *et. al.*, 2007). This will ensure that the motives underlying goal striving, are perceived by the athlete to reflect their individual's ability and are personally relevant. Similarly, relatedness may be

improved by a task-involved climate, Duda *et. al.*,(2006) identified that a task-involved climate will promote enjoyment and satisfaction with performance. A coach may promote a task climate by focussing on improvement aspects and effort aspects of performance, associated with enhancing the quality of peer relationships and relatedness (Duda *et. al.*, 2006).

A third important implication is the identification that passion matters, consultants and coaches should not discourage those with a passion for sports participation, as has been linked to provide a strong motivational force associated with athletic excellence (Vallerand *et. al.*, 2003 study 2). Although an obsessive passion does not directly predict burnout, an obsessive passion was identified to not promote the perception of need satisfaction in comparison to a harmonious passion.. Therefore, coaches would still be advised to monitor those with an extreme obsessive passion (using Vallerand *et. al.*'s (2003) conceptualization) because of the previous findings of an obsessive passion that is linked to the risk of ill-health, including overuse injuries (Rip *et. al.* 2006) and the negative emotional and cognitive responses, although not specifically linked to burnout.

Finally, apart from the practical implications for athletes and coaches, this study has provided further information on the antecedents of athletic burnout, whilst adding strength to the sparse psychological literature of using the Dualistic Model of Passion, within a sporting context.

## **5.6 Strengths, limitations & future research**

The current study is the only study to examine the relationship between passion and burnout, whilst examining the mediating effect of basic psychological needs. This is a major strength as enables an increase in knowledge of the athletic burnout concept, which will improve the well-being and performance of athletes. The quantitative method adopted by the study has enabled the researcher to collect a large amount of data through reliable and validated questionnaires (ABQ, Passion Scale and BPNSS) to ensure a representative collection of data of competitive athletes from a variety of sports, ages, leadership status, starting position and level of participation (Smith, 2010). The numerical nature of the data collected enabled the researcher to create a regression model (Figure 3) which can be used to predict the relationship between passion and burnout, and the mediating effect of psychological need satisfaction. The overall findings of the

research are strength as can provide coaches' with a plethora of practical information (e.g. passion should not be perceived as a detrimental attribute for burnout). Importantly, research has contributed to the growing theory SDT, supporting the importance of psychological need satisfaction through identifying that psychological needs satisfaction can reduce burnout symptoms.

While this study produced some interesting findings, it was nevertheless limited in several ways. Firstly, the design of this study may limit the findings of passion acting as an antecedent of burnout due to the snapshot cross-sectional nature of the study. A common assumption of burnout is that it is a process in which develops over time. Specifically, caused through the long-term chronic frustration of basic needs and non-self-determined forms of motivation (Cresswell & Eklund, 2006). Future research should consider longitudinal studies that will monitor the passion-burnout relationship and how psychological needs may mediate the burnout process over time. Longitudinal studies will enable greater monitoring of burnout, and are seen as crucial to the development and assessment of existing theoretical explanations (Cresswell & Eklund, 2006).

Despite identifying contrasting findings to the current literature, it must be emphasized that some research expectations were based upon literature within non-sporting contexts (e.g. occupation work; Tassell & Flett, 2007; gambling behaviours, Przybylski, 2009). Therefore, future research is warranted to investigate any contextual differences and assumptions that have been proposed. Additionally, Hagger & Chatzisarantis (2009) emphasized that sport and exercise psychology researchers should not always confirm that statistically significant tests always represent the true nature of that effect in the population. Specifically, in light of studies such as Vallerand *et. al.* (2003, study 2) and Rip *et. al.* (2003) who have identified obsessive passion as a burnout predictor, future researchers seeking to advance this study would be advised to take a qualitative approach to vicariously enter into the life of the athletes and gain greater understanding of the passion-burnout relationship (Corbin and Strauss, 2008). A deductive approach should also be taken to ensure the collected research is open-minded, allowing new patterns to emerge and analysing the importance of all the themes (Patton, 2002). Most importantly most athletes within this study were 'healthy', expressing low levels of burnout. Specifically, research expresses that the 'healthy athlete' effect must be considered (Curran *et. al.*, 2011). The 'healthy athlete' effect may

bias results as those who may have experienced burnout from an obsessive passion may have already dropped out of sport. (Schaufeli & Enzmann, 1998). Future research should aim to investigate athletes with more severe signs of burnout to continue the development of interventions to prevent future players from experiencing the negative effects of burnout. A sample may be achieved from qualitatively monitoring athletes over a period of time (Cresswell & Eklund, 2006), monitoring athletes experiences and interpret these against Raedeke's (1997) burnout definition and SDT (Deci & Ryan, 2000) explanation for burnout.

**CHAPTER SIX**  
**CONCLUSION**

## 6.0 Conclusion

The primary purpose of this study was to investigate the relationship between passion (harmonious and obsessive; Vallerand *et al.*, 2003) and athlete burnout, and whether these relationships are mediated by psychological needs. Firstly, the study supported Deci & Ryan (2002) who stated that athletes with lower levels of psychological need satisfaction will display higher levels of burnout. However, the findings did not find support for the predicted association between passion and athlete burnout (e.g. Vallerand *et al.*, 2003, study 1; Vallerand *et al.*, 2008). Contrary to expectations (e.g. Rip *et al.*, 2006), the current study identified that passion may even provide a resilience to the development of athlete burnout, through the reduction in an athletes' perception of sports devaluation. Specifically, although an obsessive passion may energise high levels of behavioural investment (Vallerand & Miquelon, 2007), the current study identified how an obsessive passion will not encompass a predisposition for an athlete to burnout. In addition, Sobel scores indicated that psychological needs satisfaction mediated a relationship with passion and burnout. Consequently, the current results identify that passion does not predict athlete burnout, but psychological needs satisfaction will further reduce the symptoms of athlete burnout by reducing perceptions of sport devaluation.

Passion has been identified to represent an important determinant of a robust engagement for deliberate practise, an important predictor of performance excellence in sports (Vallerand *et al.*, 2008). With no relationship identified with burnout, current results identify that there is no need for coaches' to reduce or intervene with an athlete's passion. Similarly, the encouraging message from the present research is that it is possible for an athlete to be obsessively passionate, continue to reach high levels of sport performance (Vallerand *et al.*, 2008) and not be pre-disposed to symptoms of athletic burnout.

## **REFERENCE LIST**

- Agassi, A (2009). *Open*. London: AKA. pp. 5-180.
- Amiot, C. E., Blanchard, C. M., Perreault, S., Vallerand, R. J., & Provencher, P. (2009). Cohesiveness, coach's interpersonal style and psychological needs: Their effects on self-determination and athletes' subjective well-being. *Psychology of Sport and Exercise*, **10(5)**, pp. 545-551.
- Alarcon, G, Eschleman, K & Bowling, N. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work & Stress*. **23. (3)**. pp . 244-263.
- Bartholomew, K, Ntoumanis, N, Ryan, R & Thøgersen-Ntoumani, C. (2011). Psychological Need Thwarting in the Sport Context: Assessing the Darker Side of Athletic Experience. *Journal of Sport & Exercise Psychology*. **33 (1)**, pp. 75-102.
- Coakes, S. J., & Steed, L. G. (1999). *SPSSJ: Analysis Without Anguish*. John Wiley & Sons.
- Corbin, J., & Strauss, A. (2008). Basics of qualitative research: Techniques and procedures for developing grounded theory. p.379
- Cresswell, S. and Eklund, R. (2006a). The Convergent and Discriminant Validity of Burnout Measures in Sport: A Multi—trait/Multi-method Analysis. *Journal of Sport Sciences*, **24**, pp. 209-220.
- Cresswell, S. and Eklund, R. (2006b). The Nature of Player Burnout in Rugby: Key Characteristics and Attributions. *Journal of Applied Sport Psychology*, **18**, pp. 219-239.
- Cronbach, L.(1951).Coefficient Alpha and the Internal Structure Tests. *Psychometrika*, **16 (3)**, pp. 297-334.
- Curran, T., Appleton, P. R., Hill, A. P., & Hall, H. K. (2011). Passion and burnout in elite junior soccer players: The mediating role of self-determined motivation. *Psychology of Sport and Exercise*, **12(6)**, pp. 655-661.
- Deci, E, Ryan, R (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. :New York: Plenum Press. pp. 5-90.
- Deci, E, and Ryan, R. (2000a). The “what” and “why” of goal pursuits: Human Needs and the self-determination of behaviour. *Psychological Inquiry*. **11**. pp. 227–268.

- Deci, E & Ryan, R. (2000b). The Darker and Brighter Sides of Human Existence: Basic Psychological Needs as a Unifying Concept. *Psychological Inquiry*. **11 (4)**, pp. 219-338.
- Deci, E & Ryan, R. (2002). The self-concordance model of healthy goal striving: When personal goals correctly represent the person. *Handbook of self-determination research*, pp. 65-86.
- Duda, J. L., Vazou, S. & Ntoumanis, N.(2006). Predicting young athletes' motivational indices as a function of their perceptions of the coach-and peer-created climate. *Psychology of Sport and Exercise*, **7(2)**, pp. 215-233.
- Demerouti, E. Bakker, A. & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology; Journal of Occupational Health Psychology*, **10(2)**, p.170.
- Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. *The Cambridge handbook of expertise and expert performance*, pp. 683-703.
- Field, A. (2009). *Discovering Statistics Using SPSS*. (3<sup>rd</sup> ed.). London: SAGE
- Fletcher, D, Tabei, Y, Goodger, K. (2012). The Relationship Between Organizational Stressors and Athlete Burnout in Soccer Players. *Journal of Clinical Sport Psychology*. **6. (2)** p.147.
- Flury, B. D. (1993). Estimation of principal points. *Applied Statistics*, pp.139-151.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist*, **56, (3)**, p. 218.
- Freudenberger, H.J. (1980). Burnout. New York: Doubleday.
- Goodger, K, Gorely, T, Lavallee, D. (2007). Burnout in Sport: A Systematic Review. *The Sport Psychologist*. **21, (1)**, pp. 127-15.
- Goose, M. & Smith, S (2012). The Coach's Impact on Long Distance Runners' Training and Competition Motivation. *International Journal of Sports Science & Coaching*. **7, (2)**, pp. 383-397.
- Gould, D. (1996). Personal Motivation Gone Awry: Burnout in Competitive Athletes. *American Academy of Kinesiology and Physical Education*. **48 (1)** pp. 275-280.

- Gould, D., Udry, E., Tuffey, S. and Loehr, J. (1996b). Burnout in Competitive Tennis Players: II, A Qualitative Analysis. *The Sport Psychologist*, **10**, 341-366.
- Gratton, C., & Jones, I. (2010). *Research methods for sports studies*. Routledge. pp.68-130.
- Gustafsson, H., Hassmen, P., Kentta, G. and Johansson, M. (2008). A Qualitative Analysis of Burnout in Elite Swedish Athletes. *Psychology of Sport and Exercise*, **9** (6). pp. 800-816.
- Gustafsson, H, Hassmen, P, Hassmen, N. (2011). Are athletes burning out with passion? *European Journal of Sport Science*. **11** (6), pp. 387- 390.
- Hagger, M and Chatzisarantis, N (2007). *Intrinsic Motivation and Self- Determination in Exercise and Sport*. USA: Human Kinetics. pp.1-261.
- Hanton, S., Fletcher, D., Mellalieu, S., & Neil, R. (2012). A conceptual framework of Organizational stressors in sport performers. *Scandinavian Journal of Medicine & Science in Sports*, **22**, pp. 545-557.
- Hardy, L & Mullen, R (2000). State anxiety and motor performance: Testing the conscious processing hypothesis. *Journal of Sports Sciences*, **18**(10), pp. 785-799.
- Hinton, P. R., Brownlow, C., McMurray, I., & Cozens, B. (2004). *SPSS explained*.Routledge. pp. 322-323.
- Hill, A. P., Hall, H. K., Appleton, P. R., & Kozub, S. A. (2008). Perfectionism and burnout in junior elite soccer players: The mediating influence of unconditional self-acceptance. *Psychology of sport and exercise*, **9**(5), pp. 630-644.
- Hodgins, H. S., & Knee, C. R. (2002). The integrating self and conscious experience. *Handbook of self-determination research*, pp. 87-100.
- Jeffries, S. (2009). *Why did Andre Agassi hate tennis?* Available: <http://www.guardian.co.uk/sport/2009/oct/29/andre-agassi-hate-tennis>.Last accessed 20th March 2013.
- Jones, J.W. (Ed.) (1981). *The burnout syndrome*. Park Ridge, IL: London House Mangement Press, pp. 2-19

- Lafrenière, M. A. K., Jowett, S., Vallerand, R. J., Donahue, E. G., & Lorimer, R. (2008). Passion in sport: On the quality of the coach-athlete relationship. *Journal of Sport & Exercise Psychology*, *30* (5), pp. 541-560.
- Lemyre, P, Roberts, G and Gunderson, J. (2007). Motivation, overtraining, and burnout: Can self-determined motivation predict overtraining and burnout in elite athletes?. *European Journal of Sport Science*, *7* (2), pp.115-126.
- Lemyre, P. (2010). The Psycho-Physiology of Overtraining and Athlete Burnout in Swimming. *Biomechanics and Medicine in Swimming*, *6*. (1), pp. 22-24.
- Lonsdale, C., Hodge, K. and Rose, E. (2009). Athlete Burnout in Elite Sport: A Self-Determination Perspective. *Journal of Sport Sciences*, *27*(8), pp. 785-795.
- Mallett, C.J. (2005). Self-Determination Theory: A Case Study of Evidence-Based Coaching. *The Sport Psychologist*, *19* (1), pp.417-425.
- Mageau, G & Vallerand, R. (2003). The coach–athlete relationship: a motivational model. *Journal of Sports Sciences*, *21* (1), pp. 883–904
- Mageau, G, Ratelle, C, Vallerand, R., Rousseau, F, & Provencher, P. (2004). When passion leads to problematic outcomes: A look at gambling. *Journal of Gambling Studies*, *20*(2), pp. 105-119.
- Mageau, G, Vallerand, R., Rousseau, F., Ratelle, C., & Provencher, P. J. (2005). Passion and Gambling: Investigating the Divergent Affective and Cognitive Consequences of Gambling<sup>1</sup>. *Journal of Applied Social Psychology*, *35*(1), pp.100-118.
- Meeusen, R, Duclos, M., Gleeson, M, Rietjens, G., Steinacker, J, & Urhausen, A. (2006). Prevention, diagnosis and treatment of the overtraining syndrome. *European Journal of Sport Science*, *6*(1), pp.1-14.
- Ng, Y, Lonsdale, C, Hodge, K. (2011). The Basic Needs Satisfaction in Sport Scale (BNSSS): Instrument development and initial validity evidence. *Psychology of Sport and Exercise*, *12*, (3), p.257.
- Ntoumanis, N. (2001). A Self-determination Approach to the Understanding of Motivation in Physical Education. *British Journal of Educational Psychology*, *71*, pp. 225-242.

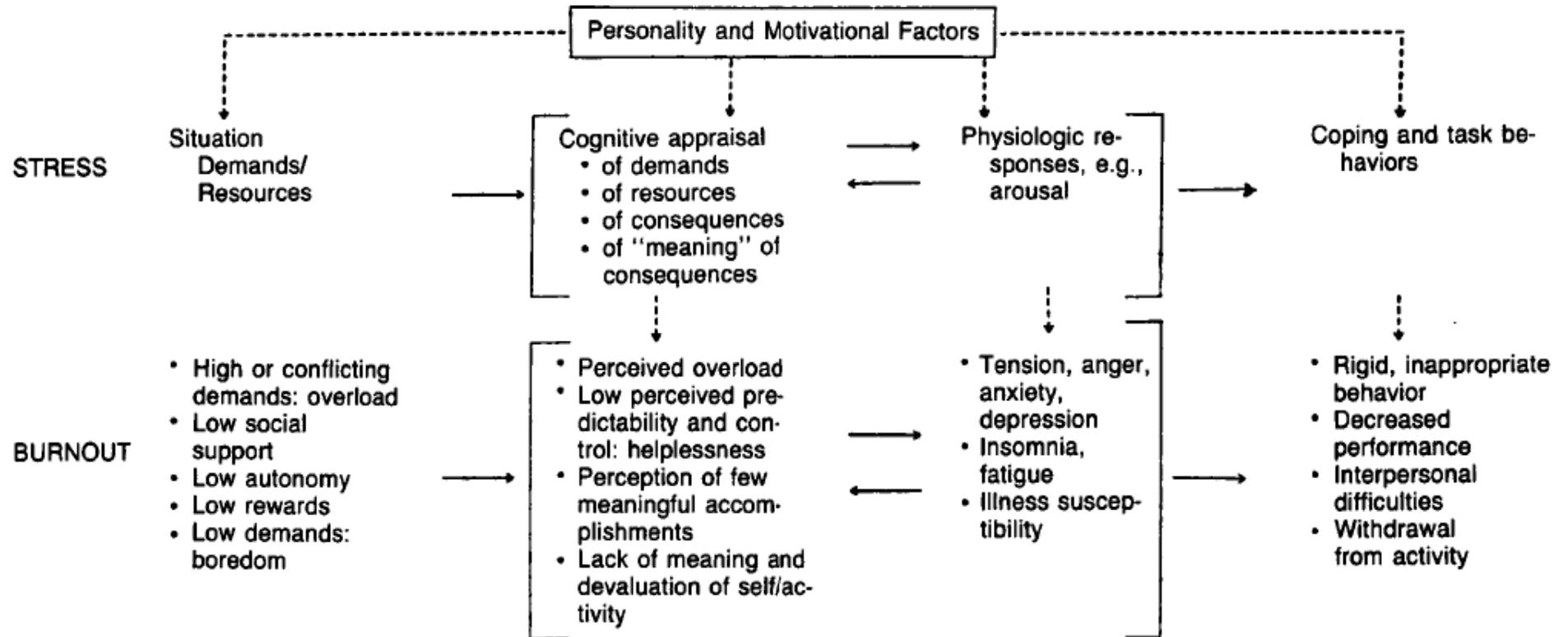
- Paine, S. (Ed.) (1982). Job stress and burnout: Research, theory, and intervention Perspectives. Beverly Hills, CA: Sage. pp. 2-180.
- Patton, M. Q. (2002). Qualitative research and evaluative methods 3<sup>rd</sup> Ed. London: Sage Publications Ltd.
- Paradis, F., & Loughhead, T. M. (2012). Examining the mediating role of cohesion between athlete leadership and athlete satisfaction in youth sport. *International Journal of Sport Psychology*, **43(2)**, pp. 117-136.
- Parastatidou, I. S., Doganis, G., Theodorakis, Y., & Vlachopoulos, S. P. (2012). Exercising with Passion: Initial Validation of the Passion Scale in Exercise. *Measurement in Physical Education and Exercise Science*, **16, (2)**, 119-134.
- Pines, A.M. & Keinan, G. (2005). Stress and burnout: The significant difference. *Personality and Individual Differences*, **39**, pp. 625-635.
- Przybylski, A. K., Weinstein, N., Ryan, R. M., & Rigby, C. S. (2009). Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. *Cyber Psychology & Behaviour*, **12, (5)**, pp. 485-492.
- Raedeke, T. (1997). Is athlete burnout more than stress? A commitment perspective. *Journal of Sport and Exercise Psychology*, **19**, pp.396-417.
- Raedeke, T., Graczyk, L., Warren, A. (2000). Why coaches experience burnout: a commitment perspective. *Journal of Sport & Exercise Psychology*. **22**. (1.), pp. 85-102.
- Raedeke, T. D., Lunney, K., & Venables, K. (2002). Understanding athlete burnout: Coach perspectives. *Journal of Sport Behaviour*. **25**, pp. 181-206
- Raedeke, T.D., & Smith, A.L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport & Exercise Psychology*, **23**, pp. 281-306.
- Smith, A. L., Gustafsson, H., & Hassmén, P. (2010). Peer motivational climate and burnout perceptions of adolescent athletes. *Psychology of Sport and Exercise*, **11(6)**, pp. 453-460.
- Raedeke, T. and Smith, A. (2001). Development and Preliminary Validation of an Athlete Burnout Measure. *Journal of Sports & Exercise Psychology*, **23**, pp. 281-306.

- Reinborth, M., Duda, J. and Ntoumanis, N. (2004) Dimensions of Coaching Behaviour, Need Satisfaction and the Psychological and Physical Welfare of Young Athletes. *Motivation & Emotion*, **28** (3), pp. 297-313
- Rip, B, Fortin, S. and Vallerand, R. (2006). The relationship between passion and injury in dance students. *Journal of Dance, Medicine and Science*, **10**, pp.14-20.
- Schaufeli, W., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. CRC. p.220
- Sheldon, K & Watson, A. (2011). Coach's Autonomy Support is Especially Important For Varsity Compared to Club and Recreational Athletes. *International Journal of Sports Science & Coaching*. **6** (1), pp. 109-123.
- Shinn, M, Rosario, M, Morch, H, & Chestnut, D.E. (1984). Coping with job stress and burnout in the human services. *Journal of Personality and Social Psychology*, **46**, pp. 864-876.
- Shrout, P., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, **7**, pp. 422-445.
- Sobel, M. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological methodology 1982* . San Francisco: Jossey-Bass. pp. 290-312
- Skinner, N., & Brewer, N. (2004). Adaptive approaches to competition: Challenge appraisals and positive emotion. *Journal of Sport & Exercise Psychology*, **26**, pp. 283–305.
- Smith, R. (1986). Towards a Cognitive-Affective Model of Athletic Burnout. *Journal of Sport Psychology*, **8**, pp. 36-50.
- Smith, A., Ntoumanis, N., & Duda, J. L. (2007). Goal striving, goal attainment, and well-being: Adapting and testing the self-concordance model in sport. *Journal of Sport & Exercise Psychology*, **29**(6), pp. 763-782.
- Smith, M (2010). *Research Methods in Sport*. Devon: Learning Matters. pp. 66-175.
- Starkes, J. L., & Ericsson, K. A. (2003). *Expert performance in sports: Advances in research on sport expertise*. Champaign, IL: Human Kinetics.

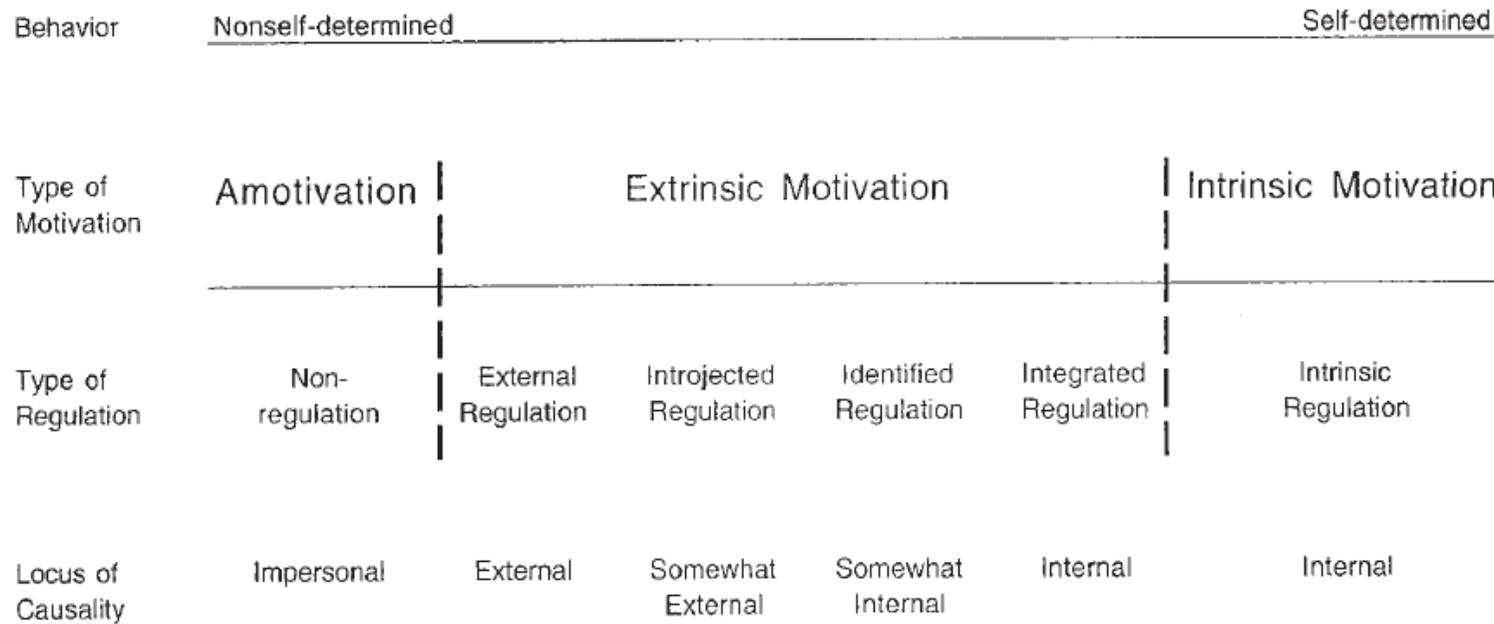
- Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Thomson/Brooks/Cole.
- Tanaka, Y & Sekiya, H (2010) Psychological/Physiological Changes and Behavioral /Performance Changes of a Golf Putting Task under Pressure. *International Journal of Sport and Health Science*, **8**, pp. 83-94.
- Tassell, N & Flett, R. (2007). Obsessive passion as an explanation for burnout: An Alternative theoretical perspective applied to humanitarian work. *Australian Journal of Rehabilitation Counselling*. **13**. pp. 101-114.
- Thibaut, J., & Kelley, H. (1959). *The social psychology of groups*. New York: Wiley pp. 2-180.
- Vallerand, R, Blanchard, M, Mageau, G, Koestner, R, Ratelle, C, Le´onard, M (2003). Les passions de l'aˆme: on the obsessive and harmonious passion. *Journal of Personality and Social Psychology*. **85 (1)**. pp. 756-767.
- Vallerand, R. J., & Miquelon, P. (2007). Passion for Sport in Athletes.
- Vallerand, R., Pelltier, L. and Koestner, R. (2008). Reflections on Self-Determination Theory. *Canadian Psychology*, **49 (3)**, pp. 257-262
- Vallerand, R., Rousseau, F., Grouzet, F., Dumais, A., Grenier, S., & Blanchard, C. M. (2006). Passion in sport: A look at determinants and affective experiences. *Journal of Sport and Exercise Psychology*, **28(4)**, pp. 454-460.
- Vallerand, R. J., Salvy, S. J., Mageau, G. A., Elliot, A. J., Denis, P. L., Grouzet, F. M., & Blanchard, C. (2007). On the role of passion in performance. *Journal of Personality*, **75(3)**, pp. 505-534..
- Vealey, R, Udry, E, Zimmerman, V & Soliday, J. (1992). Intrapersonal and Situational Predictors of Coaching Burnout. *Journal of Sport and Exercise Psychology*. **14. (1)**, pp. 40-58.
- Zaichkowsky, L. D. (2006). Industry challenges facing sport psychology. *Athletic Insight*, **8(3)**, pp.39-45

# **APPENDICES**

Appendix A. Smith's (1986) Cognitive-Affective Stress Model



**Appendix B. Depicts Deci & Ryan's (2000a) Self-Determination continuum; showing the motivational bases of behaviours that vary in the degree of self-determination.**



**Appendix C. Participant Information Sheet.**

**PARTICIPANT INFORMATION SHEET (*FOR STUDENTS*)**

**Title of Project: 'The Relationship between Passion, Psychological Needs Satisfaction and Burnout in Competitive Athletes.'**

The purpose of this study is to determine if the quality of the individual's need satisfaction influences the relationship between passion and sport burnout.

Your participation in this study is completely voluntary and you should not answer any question you do not wish to. You also have the right to withdraw from the study without reason or consequence. Information given will be used for research purposes only and will be kept confidential. Data will be only available to the investigator and the dissertation supervisor.

I appreciate your willingness to be involved in this study. Thank you for your time and help.  
Sincerely,

Sofie

**Appendix D. Example of Participant Consent Form.**  
**CARDIFF METROPOLITAN INFORMED  
CONSENT FORM**

CSS Reference No: st10001421

Title of Project: Examining the relationship between passion and burnout in competitive athletes.

Name of Researcher: Sofie Kent

Participant to complete this section: Please initial each box.

1. I confirm that I have read and understand the information sheet dated ..... for this evaluation study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that it is possible to stop taking part at any time, without giving a reason.

3. I also understand that if this happens, our relationships with the Cardiff Metropolitan University, or our legal rights will not be affected

4. I understand that information from the study may be used for reporting purposes, but I will not be identified.

5. I agree to take part in this study on examining the relationship between passion and burnout in competitive athletes.

Name of Participant

---

Signature of Participant  
Date

---

Name of person taking consent  
Date

---

Signature of person taking consent

---

Appendix E. Example of Questionnaire

Examining the relationship between passion and burnout in competitive athletes.

Demographic Information

Age: \_\_\_\_\_ yrs.

Gender: Male: \_\_\_\_ Female: \_\_\_\_

What sport are you currently participating in? (e.g., hockey, soccer) \_\_\_\_\_

How many years have you been involved in your sport? \_\_\_\_\_ yrs.

At what level do you compete at? (e.g., county, regional, national, international)  
\_\_\_\_\_

Do you consider yourself to be a starter or a non-starter on your team? \_\_\_\_\_

Are you an athlete leader (e.g., captain, assistant captain, co-captain, veteran) on your team?  
\_\_\_\_\_

How likely are you to return to playing your sport next season/year?

1 (0%)	2 (25%)	3 (50%)	4
(75%)	5 (100%)		
Not at all likely	not likely	somewhat likely	more than likely
very likely			









Continued on back

**10. In my sport, I get opportunities to make decisions.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

**11. In my sport, I feel close to other people.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

**12. I show concern for others in my sport.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

**13. There are people in my sport who care about me.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

**14. In my sport there are people who I can trust.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

**15. I have close relationships with people in my sport.**

1 2 3 4 5 6 7 8 9  
Strongly Disagree Strongly Agree

## Appendix F

	N	Male N	Female N	Male SD±	Female SD±
Gender	120	75	45	5.76	5.90
Sport					
• Athletics	27	7	19		
• Football	24	19	5		
• Rugby	17	17	-		
• Hockey	4	1	3		
• Cheerleading	1	-	1		
• Cricket	10	10	-		
• Boxing	1	1	-		
• Lacrosse	1	1	-		
• Netball	6	-	6		
• Pistol Shooting	1	-	1		
• Trampolining	2	-	-		
• Mixed Martial Arts	1	1	2		
• Basketball	1	-	-		
• Squash	2	1	-		
• Taekwondo	1	1	1		

• Tennis	3	-	1		
• Equestrian	2	3	-		
• Golf	6	2	2		
• Triathlon	3	6	-		
• Archery	1	2	1		
Sport Type					
• Individual	52	25	27		
• Team	68	51	17		
Years of Involvement	11.72	12.32	10.93	5.59	4.65
Active Player					
• Starter	113	70	43		
• Non-Starter	7	4	3		
Leadership					
• Captain	28	20	8		
• Non-Captain	92	55	37		

### **Demographic Information of Participants**

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Level			
• Club	6	5	1
• County	34	22	12
• Regional	27	17	10
• National			
• International	22	18	12
	23	13	10

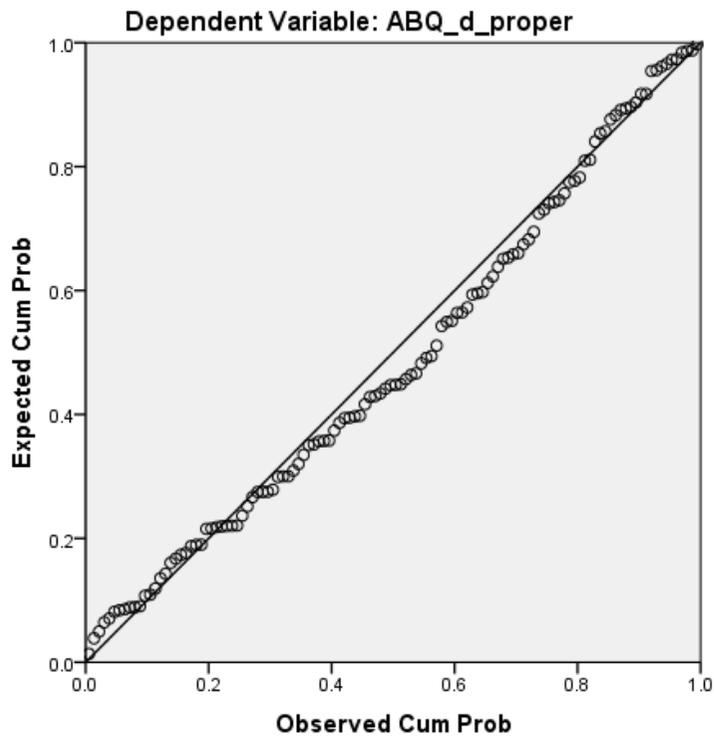
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Return to sport			
• Not at all likely	1	1	-
• Not likely	4	2	2
• Some what likely	3	2	1
• More than likely	15	7	11
• Very likely	92	61	31

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**Appendix G** Identifies homoscedasticity and normality of residuals with Obsessive Passion, Psychological Needs and Burnout (Devaluation component). The plot indicates here is no tendency in the errors.

Normal P-P Plot of Regression Standardized Residual



**Appendix G.** Identifies homoscedasticity and normality of residuals with Harmonious Passion, Psychological Needs and Burnout (Devaluation component). The plot indicates here is no tendency in the errors.

